

**Muhimbili University of Health and Allied Sciences, Dar es salaam, Tanzania**



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**2013 Journal articles, Conference Proceedings, Books/Report, Thesis and  
Dissertations**

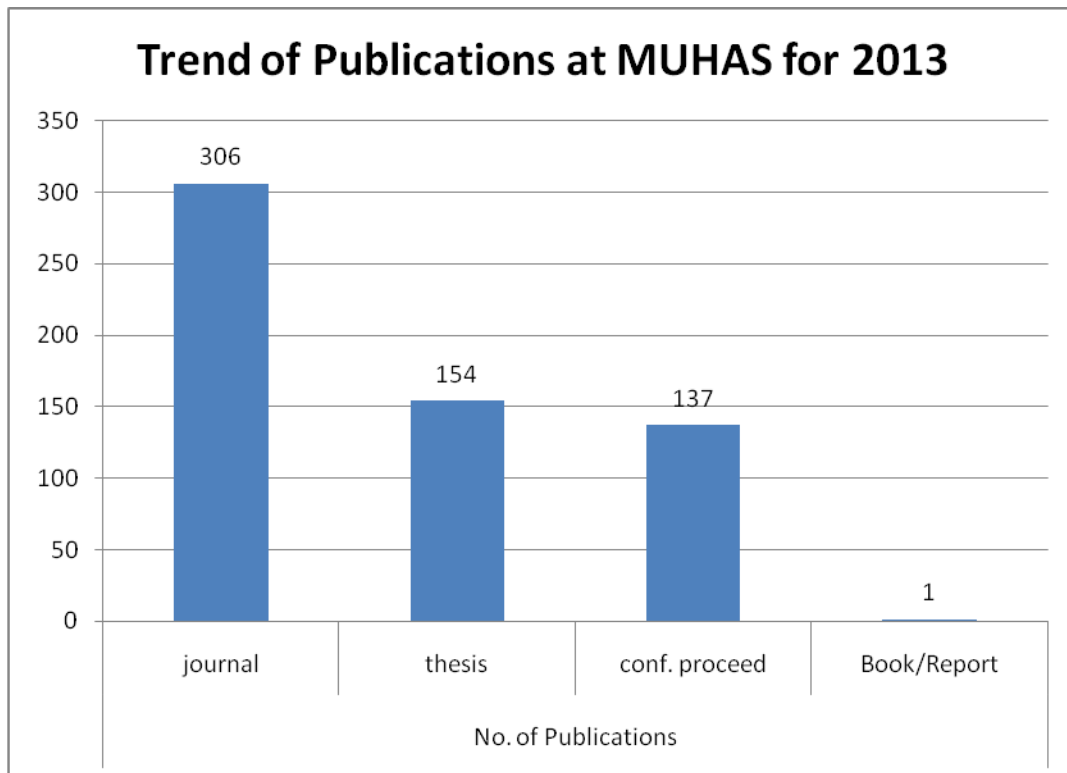
## **Information to readers**

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 12 No.1) contains total of 576 abstracts (284 journal articles, 154 Dissertations, 137 Conference proceeding and 1 book/research report published in 2013.



Dr Edda Tandi Lwoga  
Editor  
PO, Box 65001  
Dar es Salaam, Tanzania  
Tel; Tel: +255-22 2151462  
Fax: +255-22 2151462  
E-mail: tlwoga@muhas.ac.tz

Website: <http://www.muhas.ac.tz/library>

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## Chapter One: Author names (A – M)

1. Aaberg-Jessen, C., Fogh, L., Halle, B., Jensen, V., Brüner, N., Kristensen, B. W., Swagemakers, S. Experimental therapeutics and pharmacology. *Neuro-Oncology*, 2013; 15(3), 37-61.

The multifunctional protein - tissue inhibitor of metalloproteinases-1 (TIMP-1) - has been associated with poor prognosis in several types of cancers including glioblastomas. Glioblastomas are the most common and malignant primary brain tumor known for being highly invasive and resistant to therapy. New treatment strategies are continuously being explored and currently vascular endothelial growth factor (VEGF) inhibitors administered in combination with Irinotecan is the most promising second line treatment. TIMP-1 has been associated with decreased response to chemotherapy in breast and colorectal cancer and especially the family of topoisomerase (TOP) inhibitors, such as Irinotecan, has been suggested to be affected by TIMP-1. In the present study, we investigated whether a high TIMP-1 expression in glioblastoma cells played a role in TOP inhibitor resistance. We established two TIMP-1 over-expressing cell lines and evaluated the sensitivity towards the TOP1 inhibitor SN-38 and the TOP2 inhibitor Epirubicin using viability and a cytotoxicity assay. In addition, we investigated the invasive features of the cells in a brain slice culture model as well as in an orthotopic xenograft model. The results showed that TIMP-1 over-expressing U87MG cell line sub-clones were significantly more resistant than the controls when exposed to SN-38 and Epirubicin. The same tendency was seen for the TIMP-1 over-expressing A172 sub-clones. No significant differences in invasion patterns were observed for TIMP-1 over-expressing sub-clones when compared to controls. In conclusion, the present study suggests that TIMP-1 over-expression reduces the effect of TOP inhibitors in the glioblastoma cell line U87MG. There was no significant effect of TIMP-1 over-expression on tumor cell invasion. The association found between TIMP-1 cellular levels and the effect of TOP inhibitors needs to be validated in clinical patient material.

2. Abdala, R. M. The experiences of informal care givers in caring for patients with cancer at ocean road cancer institute, Dar es salaam, Tanzania. Master of Science in Nursing (Critical Care and Trauma) Dissertation 2013. *Muhimbili University of Health and Allied Sciences, Dar es Salaam.*

**Background:** Cancer is a major chronic problem which affects many people directly or indirectly. It causes much suffering among patients and families. Cancer patients require long-term treatment and a continuing need for care. Consequently, informal caregivers in various settings are now taking on the responsibility of caring for patients with cancer. Such informal caring may involve physical, psychological and economic stresses. In Tanzania, informal caregivers have become so essential that they provide large part of the care needed in hospitals and at home. **Aim:** The aim of this dissertation is to understand the experiences of informal care givers in caring for cancer patients at Ocean Road Cancer Institute in Dar es Salaam, Tanzania. **Method: Study** design was

explorative qualitative study. The sampling technique was purposeful sampling. Data was collected through face to face interview and Focus group discussions. A sample of seven (7) and ten (10) informal care givers participated in face to face interview and two focus group discussions respectively. Content analysis approach was used to analyze the perspectives of the informal caregivers. The study took place between May and June 2013. **Findings: Caregivers** of patients with cancer experienced many problems including psychological such as stress, and worries. They were disappointed with long waiting time for radiotherapy services at the hospital. They also experienced social problems such as inadequate social support during hospitalization such as food and lodging for caregiver from up country. The time spent in the hospital resulted into less time devoted for child care back home. Most participants stated that the task of taking care of the patients interfered with their daily activities which increased the economic problem they already had. In order to cope with the caring responsibilities, the participants desired to have professional, social, and financial support from the government and Non-Governmental Organizations. **Conclusions:** Caregivers of patients with cancer experience many problems such as psychological, emotional, economical and social problems. These problems are influenced interpersonally, interpersonally and communally. Professional assistance, public awareness social and financial support by the government and NGO's are important to enhance coping strategies. **Recommendations:** The government should put more effort on buying another radiotherapy device to reduce the length of hospitalization waiting for therapy and hospital management should support caregivers by providing food and lodging those caregivers who are coming from far regions and they lack relatives to support them in the city.

**3. Abdallah, M. Prevalence of left ventricular hypertrophy and its associated risk factors in newly diagnosed hypertensive patients in Dar es Salaam. Master of Medicine (Internal Medicine) Dissertation 2013, Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Introduction;** LVH has been identified as an independent and significant risk factor for sudden death, acute myocardial infarction, and congestive heart failure. The risk increase is independent of other cardiovascular risk factors, including arterial hypertension. However high blood pressure remains to be the leading cause of LVH. **Objective;** To describe prevalence and associated risk factors of left ventricular hypertrophy among newly diagnosed hypertensive patients in Dar es Salaam considering different geometric alterations of the left ventricle in relation to several variables such as age, sex, body mass index (BMI), family history of hypertension, cigarette smoking and alcohol status. **Materials and Methods;** The study was conducted in all three municipal hospitals of Dar es Salaam region for 4 months, from July to October 2011. It was a descriptive cross-sectional study and involved 160 participants. Screening for hypertension was done by consecutive blood pressure measurements at medical outpatient department of the municipal hospitals. Dar es Salaam has three municipal hospitals which receive approximately about 800-1500 patients in a day (data from registry of these hospitals). Three quarter of patients attending are medical cases from dispensaries and health centers within the district. These municipal hospitals run several

clinics including medical out patient, obstetrics and gynecology clinic, diabetes clinic and pediatric clinic. Newly diagnosed hypertensive patients were then referred to Muhimbili National Hospital, where physical examination, assessment to identify risk factors by using questionnaire was done and diagnosis of LVH was established by using electrocardiography and echocardiography. Newly diagnosed hypertension was defined as patients with systolic >140 mmHg and/or diastolic > 90 mmHg on the visit day or a known patient with hypertension on treatment not more than four weeks since diagnosis. Sokolow Lyon served as the criteria for the LVH. LVH was defined as a left ventricular mass index (LVMI) >112g/m<sup>2</sup> and >107g/m<sup>2</sup> in men and women, respectively. Data were entered using epidata version 3.1 and analyzed using SPSS version 16 and then summarized into frequency distributions tables, charts and correlation coefficient test. **Results;** a total of 463 subjects were screened for hypertension 180 patients were recruited for the study, 20 subjects did not turn up for echocardiographic and electrocardiographic studies. Among 160 hypertensive subjects 68 (42.5%) were males and 92(57.5%) females. Prevalence of LVH was 115 (71.88%) of which 48 (41.7%) were concentric type and 67(58.3%) eccentric and 45 (28%) had normal echocardiographic findings. Majority of the study subjects were of primary school education (57.5%). Gender and age had an influence on the left ventricular geometric variation in contrast other factors like BMI, family history of hypertension, smoking habit and alcohol intake did not influence LV geometry in this study. The ECG sensitivity was 40% [CI 31.1-49.5%] and specificity was 82.22% [CI 67.4-91.4%]. Risk factors distribution between the young (<60years) and elderly (>60years) demonstrated insignificant difference in this study. **Conclusions;** LVH is highly prevalent (71%) among newly diagnosed hypertensive patients. The left ventricular geometric alterations in these untreated patients are found to be influenced by age and sex with eccentric hypertrophy accounting for the majority (58%). ECG has low sensitivity but high specificity in detecting LV.

**4. Adams, L.V., Craig, S.R., Mmbaga, E.J., Naburi, H., Lahey, T., Nutt, C.T., Kisenge, R., Noel, G.J., Spielberg, S.P. Children's Medicines in Tanzania: A National Survey of Administration Practices and Preferences. *PLoS ONE*, 2013; 8 (3), e58303.**

**Objective:** The dearth of age-appropriate formulations of many medicines for children poses a major challenge to pediatric therapeutic practice, adherence, and health care delivery worldwide. We provide information on current administration practices of pediatric medicines and describe key stakeholder preferences for new formulation characteristics. **Patients and Methods:** We surveyed children aged 6-12 years, parents/caregivers over age 18 with children under age 12, and healthcare workers in 10 regions of Tanzania to determine current pediatric medicine prescription and administration practices as well as preferences for new formulations. Analyses were stratified by setting, pediatric age group, parent/caregiver education, and healthcare worker cadre. **Results:** Complete data were available for 206 children, 202 parents/caregivers, and 202 healthcare workers. Swallowing oral solid dosage forms whole or crushing/dissolving them and mixing with water were the two most frequently reported methods of administration. Children frequently reported disliking medication taste, and many had vomited doses. Healthcare workers reported medicine availability

most significantly influences prescribing practices. Most parents/caregivers and children prefer sweet-tasting medicine. Parents/caregivers and healthcare workers prefer oral liquid dosage forms for young children, and had similar thresholds for the maximum number of oral solid dosage forms children at different ages can take. **Conclusions:** There are many impediments to acceptable and accurate administration of medicines to children. Current practices are associated with poor tolerability and the potential for under- or over-dosing. Children, parents/caregivers, and healthcare workers in Tanzania have clear preferences for tastes and formulations, which should inform the development, manufacturing, and marketing of pediatric medications for resource-limited settings.

**5. Ahmada, M.A. Psychosocial functioning among children with sickle cell disease aged 6 - 13 years at Muhimbili National Hospital Dar es Salaam, Tanzania. Dissertation 2013. Health and Allied Sciences. Dar es Salaam.**

**Background:** There has been significant improvement in the care and treatment of children with sickle cell disease (SCD) that has increased survival and ultimately decreasing morbidity and mortality. The quality of life of those that survive into adulthood is often determined by the complications of SCD, and the psychosocial problems that these children develop. Several studies conducted in North America and United Kingdom showed that children with SCD have significant problems in these domains. However, information regarding psychosocial functioning among children in sub-Saharan Africa is limited. **Broad Objective:** To assess psychosocial functioning among children with SCD compared to children in comparison group aged 6-13 years at Muhimbili National Hospital. **Methodology:** This was a hospital based, cross sectional, analytical study that involved a comparison of conveniently selected children aged 6 to 13 years with SCD and group of children who have no SCD at the Sickle cell clinic at MNH, Dar es Salaam. Data analysis was done using SPSS version 19. Descriptive frequency statistics was used to characterize participants in the sample as a whole. Patients' characteristics were compared using chi square test for categorical variables. Logistic regression model was used to assess the association of risk factors and the overall psychosocial abnormality in children with SCD. Level of statistical significant was taken as 0.05. **Expected value of findings:** the findings of this study will have the potential of providing data that can be used to plan evidence based interventions to improve the overall management of children with SCD in Tanzania. **Results:** A total of 430 children aged 6-13 years were recruited, 215 being patients with SCD and 215 children with no SCD. A median age was 10 years. Females were 53.5% compared to males 46.5%. Overall prevalence of abnormal Psychosocial functioning was high among children with SCD (57.7%) compared to those children with no SCD (42.3%) with p-value of <0.01. Similarly a highly statistical significant difference was observed in abnormal emotional prevalence 56.2% in children with SCD compared to 43.8% in children with no SCD. Abnormal school functioning in children with SCD (59%) compared to children without SCD (41%) with p-value of < 0.01. Abnormal social functioning was also higher (60.7%) in children with SCD compared to 39.3% in those children with no SCD and the difference was highly statistically significant (p-value < 0.01) Having three or more episodes of painful crises per year is more likely to affect the



abnormal overall Psychosocial prevalence in children with SCD with p-value of  $< 0.01$  and 95%CI :( 0.10-0.75) in bivariate analysis and p-value of  $< 0.01$  and 95%CI (0.08-0.64) in multivariate analysis . **Conclusion:** Children with SCD have shown slightly high psychosocial impairment as compared to children without SCD. And having three or more episodes of painful crises per year is associated risk factor to psychosocial impairment in children with SCD. **Recommendations:** Children with three or more painful episodes per year should have psychosocial assessment and those who will be found to have impaired psychosocial functioning should be given appropriate care.

**6. Akillu, E., Odenthal-Hesse, L., Bowdrey, J., Habtewold, A., Ngaimisi, E., Yimer, G., Hollox, E. J. CCL3L1 copy number, HIV load, and immune reconstitution in sub-Saharan Africans. *BMC infectious diseases*, 2013; 13(1), 536.**

**Background:** The role of copy number variation of the CCL3L1 gene, encoding MIP1 $\alpha$ , in contributing to the host variation in susceptibility and response to HIV infection is controversial. Here we analyse a sub-Saharan African cohort from Tanzania and Ethiopia, two countries with a high prevalence of HIV-1 and a high co-morbidity of HIV with tuberculosis.**Methods:** We use a form of quantitative PCR called the paralogue ratio test to determine CCL3L1 gene copy number in 1134 individuals and validate our copy number typing using array comparative genomic hybridisation and fiber-FISH.**Results:** We find no significant association of CCL3L1 gene copy number with HIV load in antiretroviral-naïve patients prior to initiation of combination highly active anti-retroviral therapy. However, we find a significant association of low CCL3L1 gene copy number with improved immune reconstitution following initiation of highly active anti-retroviral therapy ( $p = 0.012$ ), replicating a previous study.**Conclusions:** Our work supports a role for CCL3L1 copy number in immune reconstitution following antiretroviral therapy in HIV, and suggests that the MIP1 $\alpha$  -CCR5 axis might be targeted to aid immune reconstitution.

**7. August, F., Pembe, A.B., Kayombo, E., Axemo, P., Darj, E. Socio-cultural issues related to pregnancy, birth preparedness and emergency readiness in Rural Tanzania. A qualitative study. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Globally in 2010, 287 000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings. Interventions such as skilled care and access to emergency obstetric care have been shown to be effective. Birth preparedness and emergency readiness has been advocated as one of the components of the interventions. **Objectives:** The aim of this study was to explore customs, taboos and practices during pregnancy and labour that influence birth preparedness, childbirth and utilization of emergency obstetric care services in Rural Tanzania. **Methods:** Twelve focus group discussions were conducted in the community with group of elderly men and women as well as young men and women who had experienced childbirth. Audio recordings were transcribed verbatim. translated into English and analyzed using qualitative content analysis. **Results:** Generally when

women become pregnant they go the clinic for antenatal care. Women prefer to hospital for childbirth, but poverty is mentioned as cause of not giving birth in hospital facilities for those who do not go. They lack money to buy the necessary items that were required during childbirth, high transportation cost and distance. During emergencies they go to the hospital, but they discussed a lack of preparedness, because transport and persons for blood donation are not be prepared in advance. Husbands are reluctant to escort their partners to attend antenatal clinic, for fear of being tested for HIV was a barrier for utilization of maternal health care services. **Conclusion:** This study has showed that there is motivation to seek care in health facilities during emergencies and antenatal care. However poverty contributes to poor birth preparedness and emergency readiness. Male involvement is not practiced. There is a need to educate the community on the importance of birth preparedness, emergency readiness, and the need for male involvement in maternal health.

**8. Akoko, L. O .Mwanga, A. H., Fredrick, F., Mbembati, N. M. Risk Factors of Surgical Site Infection at Muhimbili National Hospital, Dar es Salaam, Tanzania. East and Central African Journal of Surgery, 2013; 17(3), 12-17.**

**Background:** Surgical site infection (SSI) is a common source of morbidity among operated patients. At Muhimbili National Hospital (MNH), studies indicate that the rate of SSI has been increasing over the past thirty years. The aim of this study was to determine the prevalence and factors associated with SSI among patients undergoing surgery at MNH. **Methods:** This was a hospital-based cross-sectional study. One hundred and eighteen patients who underwent surgical procedures in the surgical wards were recruited. Demographic information was obtained using standardised questionnaire, surgical sites were examined to determine infections, and case notes were reviewed for clinical information including surgical notes. Blood sample was collected for HIV serology. **Results:** SSI occurred in 42 patients (35.6%). Wound class, abdominal surgeries, emergency procedures and HIV infection increased the risk of SSI. Superficial SSI was the most commonly observed type, 54.8%. Overall HIV prevalence in this study was 16.9% with a 5 times risk of developing SSI. **Conclusions:** Surgical site infection has remained a major Nosocomial infection in developing countries. Factors shown to be associated with increased risk are wound class, site and nature of surgery, and HIV infection. This study found higher prevalence of HIV infection among surgical patients

**9. Ally, S. Sexual risk behaviours among HIV positive people attending care and treatment clinics in Mtwara urban district, June 2013. Master of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Introduction:** Sexual risk behaviours among HIV positive persons have been studied in different parts of the world (Chile, South Africa, America, Ghana, India, and China). It was found that when persons are aware of their HIV positive status they engage into

sexual risk behaviours but become less risky and they take measures to protect their sexual partners if they believe that they are negative. The findings are not consistent; other studies found that HIV positive persons still engage into sexual risk behaviours even after being aware of their HIV status. Secondary sources of HIV transmission stem from HIV positive persons who are aware as well as their colleagues who are not aware of their HIV status. Therefore, if we want to reduce HIV/AIDS incidence and prevalence it is important to study sexual behaviours among HIV positive people. **Main objective:** The main objective of this study was to determine sexual risk behaviour among HIV positive people attending CT clinics in Mtwara Urban district, June 2013. **Methodology:** This was across-sectional study involving 240 adults living with HIV infection in Mtwara urban district. Systematic sampling method was used and participants from three CTCs were enrolled on a voluntary basis. Data was collected using a structured interview schedule and consent procedures were followed. Ethical clearance was requested from MUHAS through the MUHAS Ethical Clearance Committee. **Results:** Fifty three percent (53%) of HIV positive people used condom during their most recent sexual encounter and 37% had used condom before HIV diagnosis. Only 3.8% used condom every time they had sex before HIV diagnosis. After HIV diagnosis, 78% had used condom and 12.9% used condom every time they had sexual encounter. Partner not wanting to use condom was the main reason mentioned by most of those who did not use condom and 12.2% of females and 23.7% of males reported to have had sexual encounters with three or more partners since HIV diagnosis. Those living together as married or cohabiting were less likely to use condom than those not living together (P-value=0.002, OR=0.385) and those with no formal or having primary education were also less likely to use condom than those with secondary or high education (P-value=0.024, OR=0.310). During the most recent sexual encounter, those who were aware of their HIV positive status were thirteen times more likely to use condom than those who were not aware (P-value<0.001, OR=12.99). **Conclusion:** In this study, living together as marriage or cohabiting and having no formal education or having only primary education, was associated low condom use. On the other hand, people who were aware of their HIV status were more likely to use condom than those who were not aware. **Recommendation:** The importance of condom use among HIV positive people and voluntary counselling and testing should be emphasized in Mtwara urban district. More research should be done on sexual risk behaviours among HIV positive people.

**10. Alex, M., Lorna, C., Severine, A. Exploring dentine hypersensitivity among adult patients attending dental treatment in Dar Es Salaam, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Dentine hypersensitivity (DH) has been defined as short or transient sharp pain of a rapid onset that arises from exposed dentine due to enamel loss and or denudation of cementum. This unpleasant condition is multifactorial in nature with a worldwide prevalence ranging from 3% to 57%. Data on prevalence of DH in Tanzania is lacking **Objectives:** To determine the prevalence of dentine hypersensitivity among adult patients attending dental treatment in Dar Es Salaam and to provide baseline data for Tanzania **Methods:** This hospital based cross-sectional study was conducted between July and September 2012. It involved 323 adults aged 18 years and above

attending dental treatment in public dental clinic in Dar es Salaam. Self administered structured questionnaire was used to gather subject's socio-demographic particulars and information related to dentine hypersensitivity. Clinical examinations of subjects determined prevalence of DH **Results:** The male and female ratio of the 323 participants was approximately one (1:1.1) with age range of 18-72 years. Level of awareness on DH was 88.2%. About two thirds (63.2%) of subjects perceived that they had DH. Of the predisposing practices related to reported DH cigarette smoking was found to be statistically significant ( $p= 0.007$ ). From the clinical examination, the prevalence of DH was 46.4% with predominance of males [79 (52.7%)] and age group of 30-49 years [68 (46%)] Among other oral conditions diagnosed during clinical examination, attrition, abrasion, erosion, gingival recession, periodontal pocket and plaque accumulation were commonly found together with DH and significantly related with it ( $p\leq 0.05$ ). Of the participants with dentinal sensitivity, most [122 (59.5%)] have not taken any action and those who visited the dentist were [54 (43.5%)] **Conclusion:** The reported prevalence of DH is extremely high in comparison to other studies worldwide. Also males had slightly higher prevalence than females and age group most affected was 30-49 years

11. 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*, 2013; 4(1), 14 – 18.

**Introduction;**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.

12. Ambady, P., Holdhoff, M., Ferrigno, C., Grossman, S., Anderson, M. D., Liu, D., Acquaye, A. Neuro/medical oncology. *Neuro-Oncology*, 2013; 15( 3),i98-135.

**Background:** The treatment of patients with primary CNS lymphomas (PCNSL) has dramatically changed since the 1970's when whole brain radiation generated median survivals of about 12 months, significant neurotoxicity, and few long term survivors. High dose methotrexate (HD-MTX) monotherapy without radiation provides excellent response rates and 30% long term survivors without neurotoxicity. In general, relapses occur in the first two to four years after diagnosis and reports of very late relapses are rare. Methods: Charts of all patients treated with HD-MTX monotherapy for newly diagnosed PCNSL between 1995 and 2012 at The Johns Hopkins Hospital were reviewed retrospectively. Patients with less than 5 years of follow-up data were excluded. First relapses over 10 years from diagnosis were identified and reviewed. **Results:** Long-term follow-up data was available for 37 patients treated with HD-MTX monotherapy during this period. Four of 37 (11%) survived disease free for >10 years from initial diagnosis and maintain their excellent clinical status. All received methotrexate (8 gm/m<sup>2</sup>) every two weeks until complete response and then monthly to complete one year of therapy. Two of these long survivors (50%) presented with new seizures 10.8 and 11.2 years after initial diagnosis. Imaging revealed recurrent intraparenchymal disease, re-biopsy confirmed PCNSL in one, and both responded very well to retreatment with high dose methotrexate and Rituximab. The other two patients remain relapse free 12 and 13.7 years after initial diagnosis. **Conclusion:** Very late relapses have occurred in 2 of 4 long term survivors. These observations suggest that PCNSL patients treated with HD-MTX who were considered "cured" may be at substantial risk for late recurrences. A concerted effort to follow patients with this rare disease is needed to determine the frequency of late recurrences. More information is needed to determine if the addition of rituximab or other therapies reduce late recurrence rates.

13. Aminkeng, F., Ross, C. J. D., Rassekh, S. R., Brunham, L. R., Sistonen, J., Dube, M. P., Hayden, M. R. 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*.2013; 14(2):160-70.

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.

14. Aminkeng, F., Ross, C. J. D., Rassekh, S. R., Brunham, L. R., Sistonen, J., Dube, M. P. Ibrahim, M., T B Nyambo, T.B., S A Oma, S.A., A Froment, A., Bodo, J.M., Tishkoff, S., Carleton, B.C and Hayden, M.R., 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*. 2013.14, 160-170.

The Canadian Pharmacogenomics Network for Drug Safety Consortium. 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.

15. Anaeli, A., Enemark, U., , Hansen, K. & Mujinja, P. **Deciding to join CHF: The Role of Clients and Managers Perceptions. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Background For more than a decade, CHF promotion has been high on the agenda of the Tanzania government to improve access to health care for population living in rural areas and employed in the informal sector. While a lot of efforts have been invested in initiating the scheme in many districts across the country, membership has persistently remained low. Today, less than 10% of the targeted population are enrolled to CHF in Tanzania. This paper identifies and compares household and managers perceptions to CHF operations and benefits. Furthermore, it investigates the influence of perceptions to household decision to join or not to join the scheme. **Objectives:** To investigate household and managers perceptions and their influence in decision to join Community Health Fund **Methods:** Methods: A case study evaluation was carried on two selected districts namely Mpwapwa and Kongwa. Perceptions were explored through the means of 42 in-depth interviews with household heads and health facility managers. We used content analysis and data triangulation throughout the study to analyse information from respondents. **Results:** Our study highlight that perceptions to CHF operations and benefits play an important role in shaping decision to enrol. In particular, people justified their decision to join or not to join CHF in relation to their perceptions to effectiveness of CHF operations, satisfaction to the benefits, capacity of health facility to provide services and quality of care. The study suggests that premium paid for CHF is perceived to be fair. **Conclusion:** Conclusion Our study provides evidence that, decision to enroll in CHF is shaped by multiple perceptions resulted from operations and benefits of the scheme itself. The feasibility of CHF will largely be determined by the degree of understanding of perceptions in designing and implementing of the scheme. This might effectively offset the potential barriers to enrollment and subsequently expand enrollment.

16. **Anaeli, A., Enemark, U., Kiwara, A., Hansen, K. & Mujinja, P. Household and Health Facility Factors Influencing Enrolment in Community Health Fund. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Background: As part of healthcare financing reform, Community Health Fund (CHF) was established in Tanzania in 1996 to increase access to healthcare services. The scheme was expected to cover 75% of the total national population. Despite being promoted for more than 15 years, the scheme coverage is still less than 10% of the total population. Various scholars have raised concern over the low enrollment rates. This paper explored household and health facility dynamics which influence enrollment in CHF. **Objectives:** To explore household and health facility dynamics influencing enrollment to Community Health Fund scheme. **Methods:** Grounded theory was used to develop a theoretical model unfolding the relationship between household together with health facilities dynamics and the process of joining or not joining to the CHF. Key informant interviews were carried out to explore experiences of joining and not joining. **Results:** Both household and health facilities factors influence decisions to join or not to join CHF scheme. Household factors for joining include desire for financial security in times of illness, frequency of disease episodes, large families and marriage status. The factors affecting the decision not to join include poor understanding of CHF and male domination in household decision making. The health facility level factors that stimulate the decision to join include giving priority to CHF members in service provision, expectations of seeking care, compulsory membership for sick and pregnant. **Conclusion:** Conclusion: Household and health facility dynamics play an important role for people to join or not to join CHF scheme. In order to expand enrollment in prepayment schemes, there is a need of addressing household and health facility factors through specific policy which is capable of solving cross cutting issues. The policy should seek to recognise these factors and thereafter fostering voluntary enrollment to the same schemes.

17. **Anne, O., Edward, M. Youth unemployment, community mob violence, and Ruka Juu in Dar es Salaam, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** In Africa the highest crime rates were reported from Swaziland, Tanzania and Zimbabwe; 63% of respondents reported victimization in the previous year. More than other nationalities, Tanzanians perceived such crimes as very serious. Theft and burglary were considered very serious events for 75% and 84% of Tanzanian respondents respectively. Mob violence as a reaction to petty theft has been recorded in many countries. The victims of mob violence are almost always male youth without regular employment killed publicly by citizens. About 50% of all homicides in DSM are caused by mob violence. **Objectives:** The aim of this study is to decrease incidence of mob violence through increased well being. **Methods:** Data were collected quantitatively through a surveillance questionnaire and qualitatively through in-depth interviews and a focus group discussion. **Results:** The mean age of those who died from mob violence was 27.5 years. No non-Tanzanians were killed by mob violence. 73% died in the ward in which they lived. The occupations of 74% were unemployed (32), thief (62), or unknown (58). Another 16% were classified as street vendors. Many such youth are moving back and forth between rural and urban areas searching for a way to earn money. The reason behind mob action was theft in 87% cases. The youth were often thieving to meet familial obligations. The perpetrators were good citizens – raia

mwema. Some community members were against murder in principle, but the overwhelming desire was to live peacefully. At the family level, the deaths caused confusion, loss, and sometimes relief. **Conclusion:** A major challenge facing youth is finding sustainable livelihoods. Many at-risk youth could be part of Tanzania's Kilimo Kwanza initiative. Ruka Juu -Young Farmers in Business is a promising entrepreneurs' program developed by Fema. This approach will be extended to high risk youth who are connected to rural areas.

**18. Anguria, P. Carmichael,T. Ntuli,S. Kitinya,J. Chronic inflammatory cells and damaged limbal cells in pterygium. *African health sciences*, 13(3), 725-730.**

**Background:** Chronic inflammation in pterygium occurrence has not been explained. Whether damaged limbal basal epithelial cells are associated with pterygium occurrence in black Africans is not clear. **Objective:** To explain chronic inflammation in pterygium, and to clarify whether damaged limbal basal epithelial cells were associated with pterygium occurrence in black Africans. **Methods:** Chronic inflammatory changes and damaged limbal basal epithelial cells were assessed in 59 samples. **Results:** Chronic inflammatory cells were present in 59 pterygia. Inflammatory cell count in 5 (27.8%) of 18 small pterygia was >200 (high) while in 22 (53.7%) of 41 large growths was <200 (low);  $p = 0.25$ . The proportion of pterygia with high counts tended to increase with pterygium extent. Twenty (33.9%) of 59 pterygia recurred after surgery. Ten (50%) of 20 samples had high cell counts and 10 (50%), low counts;  $p = 0.40$ . P53 expression was detected in 11 (18.6%) of 59 pterygium samples and 5 (71.4%) of 7 controls;  $p = 0.007$ . MMP 1 staining was present in 14 (23.7%) of 59 sections and 5 (71.4%) of 7 controls;  $p = 0.02$ . MMP2 in 16 (27.1%) cases and 5 (71.4%) controls;  $p = 0.03$ . MMP3 was overexpressed in 16 (27.1%) of 59 cases and 5 (71.4%) controls;  $p = 0.03$ . **Conclusions:** Mild chronic inflammation has a tendency to be more frequent than severe inflammation in pterygia. It is clear that damaged limbal basal epithelial cells are unlikely to be related to pterygium occurrence.

**19. Angwara,. D. K., Obadia.N., Nathanael S., The millennium development goals post 2015: Challenges in human resource development for the pharmacy sector in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The pharmacy sector in Tanzania is compounded by many challenges for its thriving. There has been an increase in consumption of over the counter drugs and many reported cases of counterfeit and expired drugs. According to MoHSW (2007) the country was having 5241 pharmacies and retail drugs shops. WHO (2011) states that many low-income countries' face a scarcity of Medicines in the Public sector and hence forcing them to the private sector in which the price of medicine is averaged to be five to fourteen times higher varying from countries. Post 2015 MDGs will feature health goals 4, 5, 6 and target 8E. Achievements will depend on accessibility to pharmaceuticals, and skilled human resources. Currently the Pharmacy sector is private driven. **Objective:** Carrying out an analysis of training and distribution of Pharmacists to determine undergraduate output, postgraduate level capacity building, availability in pharmacy



industry and their impact on MDGs performance. **Methods:** A desk review of Pharmacy graduate and postgraduate training records for the period 1992-2010 was done. Survey of the available Pharmacists in 117 districts, fourteen (14) major NGOs and the available Training institutions in mainland Tanzania was done. **Results:** Training graduate level Pharmacists is done locally and abroad. Locally the School of Pharmacy MUHAS trained. For the period 1992-2010, 454 Bachelor Pharmacists graduated: 163 female and 331 males. Only 9 Masters graduated- 1.98% of the first degrees: 3 males 6 females; 3 PhDs completed: 2 females and 1 male. 67 trained abroad - 45 Bachelor level, 21 Masters, one PhD. A total of 208 Pharmacists were found in this survey with only 95 in 117 districts. Majority are servicing public and private hospital pharmacies, managing retails and NGOs as sales persons or dispensers. Functional link with the pharmaceutical industry is minimal. A postgraduate trained group but fully engaged as faculty includes 19 PhDs and 7 Masters in the School of Pharmacy and 9 PhDs and 3 Masters in the Institute of Traditional Medicine at MUHAS. **Conclusion:** Very few Pharmacists have undergone postgraduate training –only 1.98% of pharmacy graduates and very few are available in districts. The chances of Tanzania performing better in MDG post 2015 in the pharmaceutical sector are very low unless a well thought out strategy is put in place to train postgraduate pharmacists.

**20. Angwara, D. K., Nathanael.S., Gasto .F., Human Resources for Health training in Tanzania: Addressing the Epidemiological transition and Vision 2025. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Appropriately trained Human Resources for Health (HRH) are key inputs in the realization of high quality livelihood, the first attribute of Tanzania's Development Vision 2025. Training should build capacity to manage the emerging epidemiological transition (non-communicable diseases) to attain vision 2025. Understanding of social determinants of health as the primary driver of the transition is critical. Non-communicable diseases: cardiovascular disorders, cancers, diabetes; the persistent infectious and parasitic diseases constitute this transition. **Objectives:** To determine what proportion of time is provided for courses related to social determinants of health by analyzing medical schools' curricula in Tanzania **Methods:** A desk review of five medical schools curricula in Tanzania was done to determine proportion of time allocated for courses related to social determinants of health. A literature review to find out the magnitude of non communicable diseases was done. **Results:** Current curricula of graduate HRH is germ theory dominated focusing on bacteria, viruses, and parasites as the primary causes of ill health. 70% of the curricula address the biomedical model and how to manage respective diseases. Currently, 80% of global deaths related to NCDs occur in the developing countries driven by social determinants. Social determinants, however, are given 10% of the curricula time for Physicians. This paper suggests Social Determinants of health and the Vicious Circle model as an input in the improvement of training. The circle shows in a dynamic manner that biomedical model training is not able to build capacity to manage problems of the epidemiological transition. **Conclusion:** The current medical school curricula provide minimum time for the social determinants. Its graduates will not be able to manage the epidemiological transition and so vision 2025 can't be attained.

21. Appollo, M. Impacts of HIV serostatus disclosure among HIV infected children aged 7-18 years attending HIV clinic at Pasada in Dar es Salaam, Tanzania. Master of Medicine (Paediatrics and Child Health). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.

**Background:** Highly active antiretroviral therapy (HAART) has essentially transformed HIV from a fatal disease to a chronic condition; therefore HIV positive children are progressively becoming more sizeable and prominent as a sub-group in the HIV/AIDS epidemic. This makes disclosure a common clinical issue. Disclosure of HIV serostatus to children has many impacts some of them include change in their feelings and relationships and problems knowing they are living with HIV. Other impacts include long medication regimens which made adherence questionable. These impacts need to be known and so addressed timely. In Tanzania, however less has been done to look on what happens to HIV infected children after disclosure in terms of drug adherence, feelings and problems. This study was conducted to cover for that existing knowledge gap. **Objective:** This aimed at determining the impacts of HIV serostatus disclosure among HIV infected children aged 7-18 years attending HIV clinic at PASADA in Dar es Salaam, Tanzania. **Materials and methods:** This was a descriptive cross-sectional study health facility based. Eligible children aged 7-18 years, attending PASADA HIV Care and Treatment Clinics were enrolled. The study was conducted from June to November 2012. A semi structured questionnaire was used to gather information on the children's socio-demographic characteristics, ARV status, feelings and problems upon serostatus disclosure. Self reported adherence assessment tool developed by the Paediatrics AIDS Clinical Trial Group (PACTG)<sup>76</sup> was translated in Swahili and used to assess the drug adherence before and after disclosure. Chi square test where applicable was used to establish differences among the groups. **Results:** Hundred and sixty five children fulfilled the study eligibility criteria and took part in the study. Their mean age was 15.0 ( $\pm 2.2$ ) years. The overall proportion of good drug adherence rose from 73.3% before disclosure to 83.6% after disclosure and more children 67.9% were able to take drugs themselves compared to 3.6% before disclosure. Negative feelings were more prevalent in children disclosed by health care workers 53 (75.7%) than those disclosed by their caretakers and the difference was highly statistically significant p value **0.001**. The commonest problem seen in HIV infected children after disclosure was denial 122 (74%). **Conclusion:** Generally this study has established that, disclosure correlates well with good drug adherence. There is an increased level of drug adherence and self reliance in drug taking after disclosure compared to before disclosure. The negative feelings were common among children who were younger and who were disclosed by health care workers. The commonest problem was denial. **Recommendations:** The findings from this study point to the need of close follow up and support of children after disclosure. Caretakers should be the ones to disclose HIV serostatus to their children as it has shown to be associated with less negative feelings. However, a prospective study to know what the independent predictors of the changes are and how they dissipate will help to improve overall wellbeing of children living with HIV.

22. Aquiline, K.W. The profile of colorectal malignancies and early treatment outcomes in Dar es salaam, Tanzania. Master of Medicine (General Surgery)

**Background;** Colorectal cancer (CRC) basically can be defined as cancer of the large bowel. It includes all malignant conditions originating from the cecum down to the anus. In the year 2000, colorectal cancer was ranked the third most common form of cancer in adults world-wide in terms of incidence. **Objectives;** to profile the socio-demographic, characteristics of patients with colon, rectal and anal canal malignancies and early treatment outcomes among patients attended in major hospitals in Dar Es Salaam, Tanzania. **Method;** Prospective cross sectional study conducted from March 2012 to February 2013 involving 102 patients with colorectal tumours aged 20 years and above was conducted. Informed consent was obtained from the enrolled patients. Demographic data including HIV status, endoscopic findings, histopathology type, treatment and treatment outcomes were recorded in a data collection tool. The data was processed and analyzed. **Results;** The overall mean age was 51.23 (SD  $\pm$  15.5) years with a range of 22 to 80 years. The age group mostly affected was 60 to 79 years constituting 40.2% of the cases. Both sexes were affected equally. Nine patients constituting 8.8% of the study population were HIV positive. Most tumours were located in the rectum and anal canal constituting 49.3% in males and 50.7% in females. Regarding the stage of the disease, DUKES C accounted for 79.4% of the cases and histology revealed Adenocarcinoma as the commonest type of tumour encountered accounting for 82.4% of the cases. In 57.1% of surgery performed were hemicolectomies, with one death that occurred in patient who underwent a low anterior resection. **Conclusion;** This study represents CRC in patients treated in five hospitals in Dar Es Salaam. Furthermore it showed CRC not to be a rare disease as previously believed and the disease of middle aged people. Both sexes were equally affected. This study established that majority of CRC occur in the rectum and anal canal with Adenocarcinoma as the most common histological type. Majority of patients presented with advanced disease and 30 days mortality is comparable with other countries. **Recommendation;** A need for a high index of suspicion among clinicians, early diagnosis and prompt treatment is likely to improve survival of CRC patients

23. Aris, E., Dotchin, C. L., Gray, W. K., Walker, R. W. Autonomic function in a prevalent Tanzanian population with Parkinson's disease and its relationship to disease duration and 5-year mortality. *BMC research notes*, 2013; 6(1), 535.

**Background:** Autonomic dysfunction is common in patients with Parkinson's disease (PD). We report autonomic function test results in a prevalent, largely untreated, Tanzanian population of PD patients, at different disease stages and investigate the relationship between autonomic dysfunction and mortality. **Methods.** Ewing's battery of autonomic tests was carried out on a prevalent population of PD patients living in the rural Hai district of Tanzania. Where possible, all four tests were performed in the patient's home. The main outcome of interest was the presence of abnormalities of sympathetic or parasympathetic function. Information on medications used and other co-morbidities was recorded. **Results:** Autonomic function tests were recorded for 29 subjects, of whom 3 were on medication at the time of assessment. Of the 26

unmedicated patients, 14 (53.8%) had at least one abnormal test result for autonomic function, of whom only 3 (21.4%) were in late stage disease (Hoehn and Yahr stage IV or V), compared to 7 (58.3%) of 12 with normal autonomic function tests in late stage disease. Ten subjects had died at 5-year follow-up, but there was no association between mortality and autonomic function test abnormalities. **Conclusions:** In unmedicated subjects, many patients in late stage disease had relatively preserved autonomic function, compared to those in early stage disease. In people with PD who are taking medication, it may be that when autonomic dysfunction presents in late stage disease it is often due to side effects of medication rather than the disease itself.

**24. Asiwelo, K. E. Prevalence and factors associated with use of over the counter medicines among pregnant women admitted at Muhimbili National Hospital, Tanzania. Master of Medicine (Obstetrics and Gynaecology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Introduction:** Over the counter (OTC) drugs are medications sold directly to consumer through pharmacies, grocery or convenience stores without a prescription. These medications are available for number of symptoms a pregnant woman may be experiencing. **Objective;** This study aimed at determining the proportion of women who used OTC medicine during pregnancy and associated factors among women admitted at MNH **Methodology;** Study design was a cross sectional study. Three hundred women admitted at Muhimbili National Hospital were studied during the study period. Data were collected using questionnaire with open and closed ended questions. Data were analyzed using SPSS 16 computer program. Univariate analysis for frequency computation and multivariate analysis in computing association between variables was done. The Chi square test was used to measure the strength of association between variables. A p-value of <0.05 was considered to be statistically significant. **Results:** Ninety percent of women used medicines during pregnancy, and 39% of them used OTC medicine. About 38% of women think that OTC medicines are unsafe to use during pregnancy. Twenty percent of women who used OTC medication are likely to use them in next pregnancy. About 24% of women sought advice and obtained medication from pharmacy/ medical retail stores. Fever was the main complain comprising about 13%. The most used medication (15%) was anti pains (paracetamol and diclofenac), followed by antibiotics (Metronidazole and Amoxicillin (13%). The mentioned dangers of medicine use in pregnancy were congenital malformation, still birth followed by abortion. Age more than 20 years is significantly(p=0.016) associated with the use of OTC medicines during pregnancy and is about 3 times more as compared to those below 20 years.(OR 3, 95% CI 1.3-7.9). Parity of more than one has a statistically significant association with the use of over the counter medicine and is two times more as compared to those of parity of one.(p=0.026, OR 2, CI 1.1-3.8). There was no association between uses of OTC medicines between women with no formal education and those with formal education. **Conclusion:** The results of this study shows that nearly all women used medicine at certain point in time of their pregnancy and some used OTC medicines. Most of them used OTC medicines during the first trimester The medical store sellers and pharmacy acts like prescribers and providers of medicines in pregnant women.

**25. Athuman, H.J. Malaria prevalence and rapid assessment of insecticide-treated nets coverage using primary school children in Lindi municipal, Tanzania. Master of Science ( Tropical disease control) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Governments in sub-Saharan Africa are investing substantially in scaling up treated mosquito net coverage for impact. Under the Insecticide Treated Nets (ITNs/LLINs) programme, a total of 27 million LLINs have been distributed by from 2009 to 2011 in Tanzania. During the same period, roughly 5.4 million nets will have been distributed through the Tanzania National Voucher Scheme to pregnant women and infants. Currently monitoring and evaluation of such malaria interventions in Tanzania is mainly based on periodic household surveys in which under-five children and pregnant women form the sample population. But, these surveys are expensive, time consuming and labour intensive, and generally only undertaken every 3-5 years and therefore not ideal for routine monitoring at local levels. A cheaper and rapid complementary approach would be to use the existing school system for school-based malaria metrics surveys. **Study objectives:** This study aimed at determining the malaria prevalence and rapidly assessing the population on ITN use using the primary school children in Lindi municipal. **Methodology:** A cross sectional study was conducted from March to June 2013 in Lindi municipal. Structured questionnaires were used to get information on ITN use, knowledge on malaria and its control. Blood samples were taken to determine parasite prevalence. Furthermore households were visited to assess the real situation of ITN use. The data obtained was entered into and analysed by SPSS computer software. **Results:** The overall prevalence of ITN use by school children was 90.6%, this prevalence was significantly higher in the urban part of the municipal 97.9% (188/192) than in peri-urban 87.0% (335/385). Malaria prevalence was 9.9% (57/577) (by mRDT). This prevalence was significantly higher in peri-urban 14.0% (54/385) compared to the urban 1.6% (3/192) {P value 0.00}. There was no difference in information obtained from the school and that from the households' survey regarding ITN. **Conclusion:** Primary school children may be used to rapidly assess ITN use by them and under-fives in the community while at their schools. Malaria prevalence was relatively lower compared to those given by the previous studies.

**26. Athumani, N. S. Profile of patients and outcome of minimally invasive treatment of urinary tract stones at Apollo Medical Centre Dar es Salaam, From Jan 2008 - Dec 2012. Master of Medicine (General Surgery) Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Stone disease has afflicted humans since antiquity and it remains an important public health concern with substantial economic and quality-of-life impacts. Data on stone disease are sparse in developing countries like Tanzania. Surgical management of urinary calculus disease has changed dramatically in the past two decades. Minimally invasive options have made open stone surgery nearly obsolete. The development of shock wave lithotripsy, percutaneous nephrolithotomy techniques and intracorporeal lithotripsy devices has conferred unprecedented management tools for upper tract stones. With experience, successful stone retrieval has occurred in upwards of 90% of cases, again with minimal complications. Moreover, transfusion rates,

hospital costs, and convalescence periods have been markedly reduced when compared to open surgery. The purpose of this study was to document the profile and outcome of patients treated for urinary tract stones by minimally invasive approach at Apollo Medical Centre – Dar-es-salaam, a five years experience in a typical third world environment. **Methodology:** A descriptive, retrospective and prospective, audit using structured data collecting tool was conducted. A total of 281 patients treated for urinary tract stones by minimally invasive approach in a period of five years were enrolled, of which 204 were retrospective, and 77 patients were prospective making an average of 56.2 patients per year. The data were analyzed using SPSS software. **Results:** Males were 188 and females were 93 with the male to female ratio of 2:1 thus blunting male dominance in urolithiasis. More than 274 patients (80%) were aged more than 30 years and only 7 patients (2.5%) were aged less than 20 years. The study showed a progressive increase of stone disease prevalence with age. Only 2.5% of patients were less than 20 years, 64% were between 20 and 50 years and the remaining 34% were more than 50 years. Most patients (94%) were Tanzanian, 2.8% were Kenyan, 2.5% Comorians and <0.7% were from Congo DRC. Pain was the main complaint reported by 259 (92.2%) patients, 5% presented with LUTS and about 3% had haematuria. Only 1 patient had recurrent fever suggesting ascending infection. Renal stones were the commonest, seen in 45.5% followed by ureteric in 39.5%, UV junction (7.8%), bladder (4.3%) and multiple sites (2.1%). Hydronephrosis was the commonest complication found in 135 (48%) patients. ESWL was first option for 134 (47.7%) patients given to 82 renal pelvic stones, all calyceal stones (39) and 2 patients who had stones from multiple sites within the urinary tract. As additional procedure to prevent complications, stenting was done in 68% of patients while 13.5% had ureteric catheterization. ESWL had success rate of 45.5% while URS showed success rate of more than 90% in the first attempt. The general complication rate was 4.62%. Also few post operative complications were recorded in this study of which most were not life threatening and no mortality attributed to stone treatment was recorded. **Conclusions:** There is increasing incidence of urinary tract stones not only to the population, but also among female patients in our community. It remains uncommon in children younger than 10 years. Colicky pain is the most frequent complaint reminding us of the importance of urolithiasis as a differential in patients with acute and chronic abdominal colic. ESWL appeared as a first choice for treatment of all renal stones and some ureteric stones and had a satisfactory success rate. URS showed the highest success rate but because of its anatomical limitations was less frequently chosen as first choice to most patients. We therefore conclude that urolithiasis in our community is similar to urolithiasis elsewhere, and thus our patients deserve benefits of the changing technology of managing their problem from old molded open surgeries to minimally invasive approach. **Recommendations:** Minimally invasive approach for urolithiasis treatment is currently recommended before considering open surgery. These procedures can be easily performed in our setting with similar efficiency and minimal complication rate hence government and hospitals should invest in this vast and fast evolving revolution of treatments.

27. **Avemaria. S., Obadia. N., Angwara. K. Human resource for health crisis a major challenge to health sector reforms: Shortages or maldistribution? 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** In the 1990s Tanzania embarked on Health Sector Reforms aiming at improving health services in the country. In these reforms the District became the focal point for planning and implementation. Trained HRH are the drivers of effective and efficient planning and leadership. In this context this paper seeks to examine the distribution of graduate HRH by July 2011 in the country to assess the HRH capacity at the district level. **Objectives:** Determine the pattern of graduate HRH distribution in the country by July 2011. **Methods:** An analysis of key HRH distribution reports from all the regions, districts, training institutions, NGOs and the MOHSW was done to establish who was where by July 2011. **Results:** From 2001 to 2010 a total of 2248 MDs, 198 DDS and 399 B.Pharms were trained locally and abroad both in public and private institutions. The distribution of this HRH was as follows: The focus of this study i.e. the district level has the following numbers of graduates: 309 (13.75%) MDs, 32 (16.16%) DDS and 95 (23.8%) B.Pharms. At the regional and specialized hospitals the numbers were: 508 (22.6%) MDs, 45 (22.73%) DDS and 64 (16.04%) B.Pharms. At the training schools (not Universities): 51 (2.27%) MDs and 14 (3.5%) B.Pharms. At the level of major health related NGOS the numbers were: 67 (2.98%) MDs, 5 (1.25%) B.Pharms and 4 (2.02%) DDS. **Conclusion:** This survey covered all possible locations of three key graduates - MDs, DDS, and B.Pharms -in the health sector. There is skewed distribution away from the districts towards urban areas. The district is therefore impaired in planning. Those lost in transition are approximately 45% of the total trained.

28. Aydin-Schmidt, B., Mubi, M., Morris, U., Petzold, M., Ngasala, B. E., Premji, Z., Mårtensson, A. Usefulness of Plasmodium falciparum-specific rapid diagnostic tests for assessment of parasite clearance and detection of recurrent infections after artemisinin-based combination therapy. *Malaria journal*, .2013. 12(1),349.

**Background:** Rapid diagnostic test (RDT) is an important tool for parasite-based malaria diagnosis. High specificity of RDTs to distinguish an active Plasmodium falciparum infection from residual antigens from a previous infection is crucial in endemic areas where residents are repeatedly exposed to malaria. The efficiency of two RDTs based on histidine-rich protein 2 (HRP2) and lactate dehydrogenase (LDH) antigens were studied and compared with two microscopy techniques (Giemsa and acridine orange-stained blood smears) and real-time polymerase chain reaction artemisinin-based combination therapy (ACT) in a moderately high endemic area of rural Tanzania. **Methods:** In this exploratory study 53 children < five years with uncomplicated P. falciparum malaria infection were followed up on nine occasions, i.e., day 1, 2, 3, 7, 14, 21, 28, 35 and 42, after initiation of artemether-lumefantrine treatment. At each visit capillary blood samples was collected for the HRP2 and LDH-based RDTs, Giemsa and acridine orange-stained blood smears for microscopy and real-time PCR. Assessment of clearance times and detection of recurrent P. falciparum infections were done for all diagnostic methods. **Results:** The median clearance times were 28 (range seven to >42) and seven (two to 14) days for HRP2 and LDHbased RDTs, two (one to seven) and two (one to 14) days for Giemsa and acridine orange-stained blood smear and two (one to 28) days for real-time PCR. RDT specificity against Giemsa-stained blood smear microscopy was 21% for HRP2 on day 14, reaching 87% on day 42, and  $\geq 96\%$  from day 14 to 42 for LDH. There was no significant correlation

between parasite density at enrolment and duration of HRP2 positivity ( $r = 0.13$ ,  $p = 0.34$ ). Recurrent malaria infections occurred in ten (19%) children. The HRP2 and LDH-based RDTs did not detect eight and two of the recurrent infections, respectively. **Conclusion:** The LDH-based RDT was superior to HRP2-based for monitoring of treatment outcome and detection of recurrent infections after ACT in this moderately high transmission setting. The results may have implications for the choice of RDT devices in similar transmission settings for improved malaria case management.

**29. Aydin-Schmidt, B., Mubi, M., Morris, U., Petzold, M., Ngasala, B., Premji Z., Björkman, A., & Mårtensson, A. Initial Clearance and detection of recurrent Plasmodium falciparum infections as assessed by malaria RDT, microscopy and PCR in Tanzanian children following artemether-lumefantrine treatment.**

**Background:** The diagnosis of malaria has been a challenge to the health care system in many endemic countries, which forced countries to depend on clinical diagnosis. However, clinical diagnosis is not specific for malaria and often led to over-diagnosis and overuse of antimalarial drugs, contributing to the development and spread of drug resistant parasites. The availability of malaria Rapid Diagnostic Tests (RDT) has provided an opportunity to extend malaria diagnosis to areas beyond the reach of quality microscopy. The most commonly used tests detect the histidine-rich protein 2 (HRP2) and parasite lactate dehydrogenase (LDH) antigen. **Objectives:** To assess initial clearance and detection of recurrent *P. falciparum* infection in children treated with ACT using two RDTs compared with microscopy and PCR. **Methods:** Children with fever and positive for *P. falciparum* mono infection were followed up on 9 occasions up to 42 days after treatment. At each visit, capillary blood sample was used to perform the following tests: microscopy, two RDTs (HRP2 and LDH based tests) and PCR analysis. Clearance time for antigens, and parasites and DNA were calculated. **Results:** Fifty three children completed the follow up. The majority of children cleared their parasitemia within two days of treatment as assessed by microscopy and PCR. Mean clearance times for HRP2 and LDH based tests was 21(3-42) and 3(1-7) days respectively. Ten children got re-infections, and the HRP2 and LDH based tests did not detect 8 and 2 of these respectively. **Conclusion:** Due to persistence of the HRP2 antigen, HRP2 based RDTs are less suitable for patient follow up compared to LDH based tests

**30. Bakari, E., Frumence, G. Challenges to the implementation of International Health Regulations (2005) on Preventing Infectious Diseases: experience from Julius Nyerere International Airport, Tanzania. *Global health action*, 2013; 6.**

**Background:** The International Health Regulations (IHR) (2005) is a legal instrument binding all World Health Organization (WHO) member States. It aims to prevent and control public health emergencies of international concern. Country points of entry (POEs) have been identified as potential areas for effective interventions to prevent the transmission of infectious diseases across borders. The agreement postulates that



member states will strengthen core capacities detailed in the IHR (2005), including those specified for the POE. This study intended to assess the challenges faced in implementing the IHR (2005) requirements at Julius Nyerere International Airport (JNIA), Dar es Salaam. Design: A cross-sectional, descriptive study, employing qualitative methods, was conducted at the Ministry of Health and Social Welfare (MoHSW), WHO, and JNIA. In-depth interviews, focus group discussions (FGDs) and documentary reviews were used to obtain relevant information. Respondents were purposively enrolled into the study. Thematic analysis was used to generate study findings. Results: Several challenges that hamper implementation of the IHR (2005) were identified: (1) none of the 42 Tanzanian POEs have been specifically designated to implement IHR (2005). (2) Implementation of the IHR (2005) at the POE was complicated as it falls under various uncoordinated government departments. Although there were clear communication channels at JNIA that enhanced reliable risk communication, the airport lacked isolated rooms specific for emergence preparedness and response to public health events. **Conclusions:** JNIA is yet to develop adequate core capacities required for implementation of the IHR (2005). There is a need for policy managers to designate JNIA to implement IHR (2005) and ensure that public health policies, legislations, guidelines, and practice at POE are harmonized to improve international travel and trade. Policy makers and implementers should also ensure that implementation of the IHR (2005) follow the policy implementation framework, particularly the contextual interaction theory which calls for the availability of adequate resources (inputs) and well-organized process for the successful implementation of the policy.

- 31. Bakari, M., Chillo, P., Lwakatare, J. Factors associated with, and echocardiographic findings of heart failure among HIV infected patients at a tertiary health care facility in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research*, 2013; 15(2).**

Cardiovascular diseases, including heart failure are a known complication of Human Immunodeficiency Virus (HIV) infection globally. The objective of this study was to describe factors associated with, and echocardiographic findings of heart failure among HIV infected patients at a tertiary health care facility in Dar es Salaam, Tanzania. Clinical, laboratory and echocardiographic assessment was performed in all HIV-infected patients presenting with cardiac complaints at the medical department, Muhimbili National Hospital between September 2009 and April 2010. HF was diagnosed clinically and confirmed by echocardiography. Of the 102 HIV-infected patients with cardiac complaints 50 (49%) were in HF. Commonest causes of HF were hypertensive heart disease, pulmonary hypertension and dilated cardiomyopathy. In multivariate analysis male gender (OR 4.03), low education (OR 4.91), previous history of tuberculosis (OR 3.01), and low haemoglobin (OR 0.83), were independently associated with the diagnosis of HF ( $p < 0.05$  for all). In conclusion, heart failure is common in HIV-infected patients with cardiac complaints, and is associated with both modifiable and non-modifiable factors.

32. Bakari, M., Wamsele, J., MacKenzie, T., Maro, I., Kimario, J., Ali, S., von Reyn, C. F. Nutritional status of HIV-infected women with tuberculosis in Dar es Salaam, Tanzania. *Public Health Action*, 2013;3(3): 224-229.

**Objective:** To quantify anthropometrics and intake of energy and protein among human immunodeficiency virus (HIV) positive women with TB. DESIGN: HIV-positive women with newly diagnosed TB were assessed on their anthropometric characteristics and dietary intake. Energy and protein intake were determined using Tanzania food composition tables and compared with standard recommendations. Patients were re-evaluated after 4–6 months of anti-tuberculosis treatment. Results: Among 43 women, the baseline median CD4 count was 209 cells/l (range 8–721); 19 (44%) had a CD4 count of <200; 20 (47%) were on antiretroviral therapy. Body mass index was <18.5 kg/m<sup>2</sup> in 25 (58%); the median food insecurity score was 6. The median level of kcal/day was 1693 (range 1290–2633) compared to an estimated need of 2658; the median deficit was 875 kcal (range 65–1278). The median level of protein/day was 42 g (range 27–67) compared to 77 g estimated need; the median protein deficit was 35 g (range 10–50). The median weight gain among 29 patients after 4–6 months was 6 kg. **Conclusion:** HIV-positive women with TB have substantial 24-h deficits in energy and protein intake, report significant food insecurity and gain minimal weight on anti-tuberculosis treatment. Enhanced dietary education together with daily supplementation of 1000 kcal with 40 g protein may be required.

33. Bakari.M. Munseri. P., Francis.J. Aris, E., Moshiro.C, Siyame.D., Janabi.M., Ngatoluwa.M., Aboud.M., Lyamuya.E., Sandström.E., Mhalu.F., Experiences on recruitment and retention of volunteers in the first HIV vaccine trial in Dar es Salam, Tanzania . *Global Health Action* 2013;13:pp 1149.

**Background:** Eventual control of HIV/AIDS is believed to be ultimately dependent on a safe, effective and affordable vaccine. Participation of sub-Saharan Africa in the conduct of HIV trials is crucial as this region still experiences high HIV incidences. We describe the experience of recruiting and retaining volunteers in the first HIV vaccine trial (HIVIS03) in Tanzania. **Methods:** In this trial enrolled volunteers from amongst Police Officers (POs) in Dar es Salaam were primed with HIV-1 DNA vaccine at months 0, 1 and 3; and boosted with HIV-1 MVA vaccine at months 9 and 21. A stepwise education provision/sensitization approach was employed to eventual recruitment. Having identified a “core” group of POs keen on HIV prevention activities, those interested to participate in the vaccine trial were invited for a first screening session that comprised of provision of detailed study information and medical evaluation. In the second screening session results of the initial assessment were provided and those eligible were assessed for willingness to participate (WTP). Those willing were consented and eventually randomized into the trial having met the eligibility criteria. Voluntary participation was emphasized throughout. **Results:** Out of 408 POs who formed the core group, 364 (89.0%) attended the educational sessions. 263 out of 364 (72.2%) indicated willingness to participate in the HIV vaccine trial. 98% of those indicating WTP attended the pre-screening workshops. 220 (85.0%) indicated willingness to undergo first screening and 177 POs attended for initial screenings, of whom 162 (91.5%) underwent both clinical

and laboratory screenings. 119 volunteers (73.5%) were eligible for the study. 79 were randomized into the trial, while 19 did not turn up, the major reason being partner/family advice. 60 volunteers including 15 females were recruited during a one-year period. All participated in the planned progress updates workshops. Retention into the schedule was: 98% for the 3 DNA/placebo vaccinations, while it was 83% and 73% for the first and second MVA/placebo vaccinations respectively. **Conclusion:** In this first HIV vaccine trial in Tanzania, we successfully recruited the volunteers and there was no significant loss to follow up. Close contact and updates on study progress facilitated the observed retention rates.

- 34. Baker, T., Lugazia, E., Eriksen, J., Mwafongo, V., Irestedt, L., Konrad, D. Emergency and critical care services in Tanzania: a survey of ten hospitals. *BMC health services research*, 2013; 13(1), 140.**

**Background:** While there is a need for good quality care for patients with serious reversible disease in all countries in the world, Emergency and Critical Care tends to be one of the weakest parts of health systems in low-income countries. We assessed the structure and availability of resources for Emergency and Critical Care in Tanzania in order to identify the priorities for improving care in this neglected specialty. **Methods:** Ten hospitals in four regions of Tanzania were assessed using a structured data collection tool. Quality was evaluated with standards developed from the literature and expert opinion. **Results:** Important deficits were identified in infrastructure, routines and training. Only 30% of the hospitals had an emergency room for adult and paediatric patients. None of the seven district and regional hospitals had a triage area or intensive care unit for adults. Only 40% of the hospitals had formal systems for adult triage and in less than one third were critically ill patients seen by clinicians more than once daily. In 80% of the hospitals there were no staff trained in adult triage or critical care. In contrast, a majority of equipment and drugs necessary for emergency and critical care were available in the hospitals (median 90% and 100% respectively). The referral/private hospitals tended to have a greater overall availability of resources (median 89.7%) than district/regional hospitals (median 70.6). **Conclusions:** Many of the structures necessary for Emergency and Critical Care are lacking in hospitals in Tanzania. Particular weaknesses are infrastructure, routines and training, whereas the availability of drugs and equipment is generally good. Policies to improve hospital systems for the care of emergency and critically ill patients should be prioritised.

- 35. Balowa M.B. Chest radiographic patterns among HIV+ and HIV- adults with PTB at Mwananyamala hospital TB clinic. 2013. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Tuberculosis is important global health problem caused by *Mycobacterium tuberculosis*. **Objectives:** This study aimed to determine differences in chest radiographic patterns among PTB patients with and without HIV co-infection. **Methods:** Newly diagnosed consented AFB+ PTB patients were randomly selected, undergone CXRs, which were read by double blinded researcher and radiologist and

radiographic patterns were documented upon reader agreement. HIV testing was done and CD4 counts determined among HIV/PTB co-infected. **Results:** A total of 170 patients were included among them 100 were males and 70 were females. Prevalence of PTB/HIV co-infection was 31.8%, occurring significantly among females (51.4% vs. 18.0%, p-value=0.000). HIV/PTB co-infected patients had lesser cavities (44.4% vs 61.2%, p=0.040) and lesser alveolar consolidation (64.9% vs 81.7%, p=0.04). HIV/PTB co-infected patients had more left and bilateral lung nodules 85.2% vs 60.9% (p=0.023) and 70.4% vs 37.5% (p=0.004) respectively, more miliary nodules (44.4% vs 15.6%, p=0.003), more left upper, mid and lower zone nodules 59.3% vs 34.4% ( p=0.028), 77.8% vs 54.7% (p-value=0.039) and 66.7% vs. 34.4% (p=0.005) respectively. HIV/PTB co-infected patients with CD4 > 200 $\mu$ mol/l had more right mid zone consolidation (40.0% vs 4.5%, p=0.007). **Conclusion:** Prevalence of HIV among PTB patients is still high (31.8%). Pulmonary cavities and alveolar consolidation are highly associated with negative HIV status. HIV positive patient with smear positive PTB were more likely to have left or bilateral pulmonary nodules, milliary nodules and left upper, mid and lower zone nodules. Right mid zone consolidation in HIV patients was associated with CD4 counts > 200 $\mu$ mol/l. No radiographic pattern was highly associated with severe immunosuppression.

**36. Baltazary, G., Nshimo, C. M. In vitro antimicrobial activity of Albizia amaraleaves from Lindi region, Tanzania. *TaJONAS: Tanzania Journal of Natural and Applied Sciences*, 2013; 1(1), 35-42.**

Ethnopharmacological relevance: Aqueous *Albizia amara* leaf extract is used by traditional healers for treatment of diarrheal diseases. Aim of study: To evaluate the antimicrobial activity of chromatographic fractions obtained from *Albizia amara* leaf extract on microorganisms. Materials and methods: Chloroform and chloroform-methanol fractions were eluted from silica gel column chromatography, monitored by TLC and evaluated for antimicrobial activity using the disk diffusion method on the following microorganisms; *Escherichia coli*, *Salmonella typhi*, *Klebsiella pneumoniae*, *Bacillus cereus*, *Staphylococcus aureus*, *Candida albicans* and *Cryptococcus neoformans*. Diameters of zones of inhibition were used to indicate antimicrobial activity. Results: Antimicrobial activity was observed to increase with polarity of eluting solvent system. Fractions eluted by less polar solvent systems did not show antimicrobial activity against any of the tested microorganisms. Fractions eluted with the mobile phase with higher methanol concentration showed the broadest antimicrobial spectrum by inhibiting all the tested microorganisms. The most susceptible bacteria were *E. coli* and *S. typhi*, and the least susceptible was *K. pneumoniae* while the most susceptible of the fungi was *C. neoformans*. Conclusion: Polar fractions displayed broadest antimicrobial activity; hence, aqueous leaf extracts of the plant reported to be used in traditional medicine is supported by the findings of this study. Importance of

fractionating crude extracts to obtain full picture of biological activity is emphasized and cytotoxic studies to determine toxicity of the fractions and isolation of the active compound(s) are recommended.

37. **Bandi, V.J. Evaluation of the lymphatic filariasis elimination program in Mkuranga district, Coast region .Master of Science (Parasitology and Medical Entomology) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Lymphatic filariasis is the leading mosquito transmitted parasitic disease responsible for morbidity in most developing tropical countries. The interruption of transmission through annual mass drug administration (MDA) and alleviation of suffering and morbidity through prevention and management of disease manifestations are two control strategies. The objective of MDA is to administer ant-filarial drugs once per year to all eligible individuals in the endemic area in order to reduce disease burden and interrupt transmission. The success of MDA depends on understanding of operational factors which contribute to transmission interruption outcome. **Objective:** The main objective was to evaluate the impact of the Lymphatic filariasis elimination Programme in Mkuranga District. **Material and Methods:** This descriptive cross sectional study was carried out in Mkuranga District during the period of April -May 2013. A total of 382 participants aged 5 years and above were involved in the study, of these 59 household leaders had an in depth interview. All 382 were diagnosed using ICT filariasis to ascertain *W.bancrofti* infection. Drug coverage and willingness to take the drugs in the coming round was also discerned. Parasitological diagnosis was done among CFA positive using the counting chamber. Additionally presence of Lymph edema was physically assessed in all 382 participants. **Results:** A total of 19 (5 %) out of 382 tested CFA positive, fifteen of these gave informed consent for night blood microfilaria testing whereby all tested negative. Prevalence of lymph edema was found to be 0.8 % (3/382) and this finding was confirmed to the age group above 36 years whereby all tested CFA negative. Staging was done and all were staged 3 and 4. In the study population the MDA coverage for the year 2012 was 72.3 % (276/382). The acceptance to participate in the coming MDA was 96.9 % (370/382). Regarding household leader knowledge on the cause and transmission of LF it was found to be 33.9% low and 40.7% medium and 25.4% high. **Conclusion :** There has been a marked reduction in circulating filarial antigen from pre MDA data, presence of microfilaria and lymphoedema after eight rounds of MDA is low. The knowledge regarding the intervention is relatively high however knowledge about the disease or causation remains low.

38. **Baumgartner, J. N., Green, M., Weaver, M. A., Mpangile, G., Kohi, T. W., Mujaya, S. N., Lasway, C. Integrating family planning services into HIV care and treatment clinics in Tanzania: evaluation of a facilitated referral model. *Health policy and planning*, 2013; czt043.**

**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.

39. Beard, J. H., Akoko, L. O., Mwangi, A., Mkony, C., O’Sullivan, P. **Manual Laparoscopic Skills Development Using a Low-Cost Trainer Box in Tanzania. *Journal of surgical education.* 2013.**

**Objectives.**To explore the feasibility and effectiveness of guided practice using a low-cost laparoscopic trainer on the development of laparoscopic skills by surgeons in a resource-poor setting.**Design.**This was a prospective trial involving a pretest/posttest single-sample design. Study participants completed a background survey and pretest on the 5 McGill Inanimate System for Training and Evaluation of Laparoscopic Skills (MISTELS) tasks using a simulator developed and validated by researchers from the University of California, San Francisco. On completion of a 3-month guided practice course, participants were again tested on the MISTELS tasks and completed an exit survey.**Results.**Most of the subjects were surgical residents (64.3%). Only 2 participants (14.2%) had previous laparoscopic training, and baseline laparoscopic surgical experience was limited to intraoperative observation only. Study subjects practiced the MISTELS tasks for an average of 8.67 hours (range: 4.75-15.25) over the 3-month course. On the posttest, participants improved significantly in performance of each of the MISTELS tasks ( $p < 0.001$ ). Total scores on the tasks increased from  $24 \pm 44$  on the pretest to  $384 \pm 49$  on the posttest ( $p < 0.001$ ). All study participants were satisfied with the course, found the training personally valuable, and felt that their laparoscopic skills

had improved on completion of the training. **Conclusions.** We have demonstrated the feasibility and effectiveness of training with a low-cost laparoscopic trainer box in Tanzania. Study participants achieved impressive posttest scores on the 5 MISTELS tasks with minimal baseline laparoscopic exposure. We feel that guided training by an expert was key in ensuring correct technique during practice sessions.

40. **Beard, J. H., Oresanya, L. B., Akoko, L. O., Mwanga, A., Dicker, R. A., Harris, H. W. An estimation of inguinal hernia epidemiology adjusted for population age structure in Tanzania. *Hernia*, 2013:1-7.**

**Purpose.** Surgical conditions represent a significant source of global disease burden. Little is known about the epidemiology of inguinal hernia in resource-poor settings. We present a method to estimate inguinal hernia disease burden in Tanzania. **Methods.** Using data from the United States National Health and Nutrition Examination Survey (NHANES) prospective cohort study and Tanzanian demographic figures, we calculated inguinal hernia incidence and prevalence in Tanzanian adults under three surgical rate scenarios. Gender-specific incidence figures from NHANES data were adjusted according to Tanzanian population age structure. Hernia duration was adjusted for Tanzanian life expectancy within each age group. **Results.** The prevalence of inguinal hernia in Tanzanian adults is 5.36 % while an estimated 12.09 % of men had hernias. Today, 683,904 adults suffer from symptomatic inguinal hernia in Tanzania. The annual incidence of symptomatic hernias in Tanzanian adults is 163 per 100,000 population. At Tanzania's current hernia repair rate, a backlog of 995,874 hernias in need of repair will develop over 10 years. 4.4 million disability-adjusted life-years would be averted with repair of prevalent symptomatic hernias in Tanzania. **Conclusions.** Our data indicate the extent of inguinal hernia disease burden in Tanzania. By adjusting our figures for the age structure of Tanzania, we have demonstrated that while the incidence of symptomatic cases may be lower than previously thought, prevalence of inguinal hernia in Tanzania remains high. This approach provides an update to our previously described methodology for calculation of inguinal hernia epidemiology in resource-poor settings that may be used in multiple country contexts.

41. **Benedict, F. Depression among secondary school students in Ludewa district, Tanzania. Master of Science (Psychiatry and Mental Health) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Background Information;** Depression among secondary school children is common, but it has never been rigorously addressed in Tanzania. There are many adverse effects of depression such as increased risk for the suicide, frequent absences from school, poor performance in school, and running away from home, all of which lead to low quality of the life of the affected children. So far no study has been done to assess depression among secondary school children hence this study aimed to determine the prevalence and sociodemographic factors associated with depression among school children in Ludewa District, Njombe Region. **Objectives:** To determine the prevalence of depression and its sociodemographic factors among secondary school

students in Ludewa District Tanzania. **Methods:** The target population was secondary school students in Ludewa District Njombe Region, Tanzania; aged between 13 to 19 years, and both males and females. It was a cross-sectional community based study design using multistage sampling and quantitative data collection methods. The Child Depression Inventory (CDI) questionnaire was used to assess prevalence of depression among secondary school students. A cut-off point of 12 and above was used to distinguish between those with high depressive symptoms, while lower scores identified those without. Predictors of interest associated with depressive symptoms included sociodemographic characteristics and parental factors. Logistic regression models using backward removal methods were used to determine the association of predictors of interest and the outcomes after adjusting for sociodemographic confounders. **Results:** A total of 432 participants from form one to form four students in five selected schools were included in the study of whom 47.7 % (n =206) were males and 52.3% (n=220) females. The age of the participants ranged from 13 to 19 years with mean of 17.08 years and standard deviation of 1.33 years. The overall prevalence of high depressive symptoms was 36.8% and was evenly distributed in both sexes. In bivariate analysis, depression was associated with regular alcohol use ( $\chi^2 = 4.77$ ,  $p = 0.03$ ), life-time history of a suicidal attempt ( $\chi^2 = 19.27$ ,  $p = 0.01$ ), feeling understood by parents ( $\chi^2 = 23.70$ ,  $p < 0.00$ ), loved ( $\chi^2 = 22.3$ ,  $p = 0.05$ ), and perceiving parents had a good relationship between them ( $\chi^2 = 3.93$ ,  $p = 0.05$ ), monitoring of friends by mothers ( $\chi^2 = 4.85$ ,  $p < 0.05$ ), ability to confide in parents ( $\chi^2 = 4.33$ ,  $p < 0.05$ ) as well as youths that spent a larger proportion of their time with parents ( $\chi^2 = 24.46$ ,  $p < 0.01$ ). In logistic regression analysis, depression was associated with religious affiliation in which children reporting to be Christians had a six fold higher likelihood to be depressed than Muslims (OR =6.79, CI =1.29 - 35.72  $p < 0.05$ ); having psychosocial stressors showed a three times higher likelihood of depression (OR=3.16, CI 1.96 - 5.10,  $p < 0.01$ ) as ever having attempted suicide (OR =3.03, CI= 1.31-7.00,  $p < 0.05$ ); feeling loved by parents/guardians was protective against depression (OR =0.25, CI 0.10 - 0.66,  $p < 0.05$ ). **Conclusion and recommendations:** The prevalence of depression among secondary school children is high and is independently associated with psychosocial stressors, prior suicidal attempts and perhaps adverse parenting by parents or guardians. Multi-level interventions may be essential to prevent or reduce the rates of depression in the study area. This can be achieved by raising awareness among parents, health care providers, staff in the education sector such as teaching staffs and the community at large. Interventions that target secondary school adolescents, with depression need to be considered. Furthermore, larger scale studies are needed that expand risk factors to include suicidal ideas, poverty, as well as to calibrate the CDI for the Tanzanian context needs in addition to the development of effective interventions.

42. Bintabara, D., Suleiman, Z., Mghamba, J. & Mmbuji, P. Evaluation of Acute Flaccid Paralysis Surveillance System in Border Regions, 2009-2011, Tanzania Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.

**Background:** In 1995, Tanzania began polio eradication activities such as routine immunization with oral polio vaccine, national immunization days, and active surveillance for acute flaccid paralysis (AFP). The last case of polio in Tanzania was identified in 1996. Tanzania still has not



been certified polio free since a number of regions have not attained the required detection rate. **Objectives:** To determine the performance of AFP surveillance system in the border regions of Kagera, Mara, Kigoma, Rukwa and Dar-es-Salaam between 2009 and 2011. **Methods:** CDC guidelines for surveillance system evaluation were used. Review of protocols, reports and data collection tools and records was conducted. EpiInfo and Microsoft excel were used for analysis. **Results:** Between 2009 and 2011, the system was able to detect 408 AFP cases in the five regions; of which 220(54%) were male, 404(99%) were less than 15 years of age. The non-polio AFP detection rates for Dar es Salaam, Kagera, Kigoma, Mara and Rukwa from 2009 to 2011 were 2.0, 4.2, 3.0, 2.6 and 2.5 per 100,000 children under 15 years respectively. The proportion of districts that met the operation target of reporting at least two cases of non-polio AFP per 100,000 children under 15 years were 66.7% for Dar es Salaam, 66.7% for Kagera, 50% for Kigoma, 80% for Mara and 75% for Rukwa. No polio case was found. Notification of AFP cases was timely with 80.6% of AFP cases notified within 14 days of onset of paralysis. **Conclusion:** The system was able to detect AFP cases however a number of districts were unable to achieve the operational target. In order to be certain that Tanzania is polio free, more districts need to achieve the operational target of reporting AFP cases. The MoHSW should sensitize health care workers in poorly performing districts on AFP surveillance.

43. Cox,S.E., Makani, J., Ellins, E., Walter,G., Mtunguja, S., Kirkham, F.J., Newton,C.R.J., Prentice, A.M., and Halcox,J.P., .Endothelial Function In Tanzanian Children With Sickle Cell Disease: Baseline Results From The Vascular Function Intervention Trial (VFIT) . *Blood*, 2013; 122(21), 984-984.

**Introduction:** Endothelial function is impaired in adults with sickle cell anaemia (SCA), but limited data exists in children. Endothelial damage occurs from chronic inflammation, oxidant damage, immune cell activation and ischemia-reperfusion injury. In addition, availability of nitric oxide (NO) as the major vasodilator may be reduced as a result of scavenging by plasma haemoglobin and reduced arginine substrate for endothelial nitric oxide synthase.**Methods:** Tanzanian children (N=119) with SCA (HbSS) aged 8-11.9 years enrolled in the Vascular Function Intervention Trial (ISRCTN74331412/NCT01718054) underwent baseline assessment of endothelium-dependent and -independent vasodilatation. All children were determined clinically well at assessment, hydroxyurea naive, on no long-term medication and not receiving chronic blood transfusions. Blood pressure and vasomotion were assessed after 10 minutes recumbent rest in a temperature controlled room between 08-13:00 hrs. An identical protocol as published in children (Donald & Charakida *et al.* Eur Heart J; 2010: 31; 1502-10) was used. In brief, brachial arterial endothelium dependent dilatation was assessed by 1 of 3 trained technicians using ultrasound imaging (Ultrasonix SonixTouch with a 12Mz probe & stereotactic holder) to assess flow-mediated dilatation (FMD) in response to reactive hyperaemia induced after release of transient blood pressure cuff occlusion (5 min, 200 mmHg, Hokanson, USA) using an automated air regulator (Logan Research, UK). Automated B-mode image edge detection was used to measure maximum change in arterial diameter (Brachial Tools) expressed as a percentage of resting baseline diameter (FMD<sub>max</sub>). Endothelium-independent responses to 2.5µg sublingual glyceryl-trinitrate (GTN) were also assessed. All recordings were over-read by an experienced researcher in the UK. Venepuncture for full blood count, clinical chemistry and amino acids was conducted after FMD assessment. **Results:** Patient

characteristics are described in Table 1. Mean brachial artery diameter at baseline was 2.61mm (95% CI 2.55 – 2.67mm). Mean FMD<sub>max</sub> was 7.70% (95% CI 7.09 – 8.32%). Endothelium-independent vasodilation (GTN<sub>max</sub>) was 4.15% (95% CI 3.83 – 4.47%). The FMD<sub>max</sub> response was on greater than the GTN<sub>max</sub> response. No effect of room or skin temperature on FMD<sub>max</sub> or GTN<sub>max</sub> was observed. There was a strong inverse association between baseline artery diameter and FMD<sub>max</sub> (-3.46, P<0.001). The time to peak brachial artery diameter in response to hyperaemia was positively skewed (median 55s (IQR: 43-79s)) and was not associated with FMD<sub>max</sub>. The only patient characteristic associated with FMD<sub>max</sub> was age with a non-significant inverse correlation (-0.52, P=0.06) but was reduced when adjusting for baseline diameter. Baseline heart rate was positively associated with FMD<sub>max</sub> and GTN<sub>max</sub> (P=0.01 & 0.025).

**44. Bernard, W. Clinical presentation and magnitude of hepatitis b infection among patients with liver cirrhosis attending Muhimbili National Hospital. Masters of Medicine (Internal Medicine) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Background:** Chronic liver disease is responsible for over 1.4 million deaths annually. In the western world this disease is among the top ten of disease-related causes of death. The World Health Organization (WHO) estimates that in 2002 liver cirrhosis and primary liver cancer caused 783,000 and 619,000 deaths, respectively. Taken together, these conditions represented approximately one of every forty deaths (2.5%) worldwide. In Tanzania liver cirrhosis is one of the leading diseases among the liver disorders. Although major causes of liver cirrhosis varies in different regions of the world, but overall hepatitis B virus remain the commonest cause of liver cirrhosis worldwide. In Tanzania very little has been published on liver cirrhosis and no studies done regarding clinical presentation and the magnitude of HBV infection among patients with liver cirrhosis. Scarcity of information on the extent of this problem in our set up may halt the effort to prevent, timely diagnose and give better care to our patients with liver cirrhosis.

**Objective :** The main objective of this study was to describe the clinical presentations and determine the magnitude of Hepatitis B viral infection among patients with liver cirrhosis attended Muhimbili National Hospital Tanzania (MNH).

**Methods:** The study design was hospital based descriptive study, which was conducted in the surgical and medical Gastroenterology units, starting from July 2012 to February 2013.

**Results:** Out of the 81 liver cirrhotic patients 60(74%) were males. As cites (92%) was the commonest clinical presentation, followed by lower limb edema (56%). Other stigmata's of chronic liver disease such as dupuytren's contracture, spider naevi and caput medusa were seen in minority of patients. Prevalence of HBsAg was found to be 48% among patients with liver cirrhosis. Large proportion of patients had MELD score of 19 and below.

**Conclusion:** Liver cirrhosis is more common in males. Mean age of patients with liver cirrhosis in this study is 39±14.582 years. Prevalence of HBsAg among patients with liver cirrhosis in this study is high (48%). Majority of patients with liver cirrhosis in this study present to the hospital with very advanced decompensate

liver cirrhosis. Large proportion (84%) of patients with liver cirrhosis in this study had low MELD score.

**45. Bhalloo, H. Prevalence of microalbuminuria and associated factors among hypertensive patients at Muhimbili national hospital Dar es Salaam. Master of Medicine (Internal Medicine) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Introduction:** Persistent microalbuminuria is the earliest indicator of chronic kidney disease (CKD) in patients with diabetes and hypertension. Patients with microalbuminuria have high risk for target organ damage resulting in stroke, retinopathy and adverse CV events. **Objective:** To determine the prevalence of Microalbuminuria among hypertensive patients at Muhimbili Hospital – Dar es Salaam. **Methodology:** This was a cross-sectional descriptive epidemiological study which comprised of a sample size of 341 hypertensive's (mean age of 53.1 years with  $SD \pm 1.58$ ) from August 2012 to January 2013. Data was collected using a structured questionnaire. Variables that were entered in the equation were duration of diabetes mellitus (DM), type of DM, history of smoking, history of alcohol drinking and duration of drinking and BMI. In all participants urine albuminuria was measured in spot urine sample using initially urine dipstick, and if normoalbuminuria on dipstick, urine samples were further tested for microalbuminuria using micro albumin 2-1 combo strips to assess the albumin creatinine ratio. Other laboratory blood tests included lipid profile and random blood glucose measurements **Results:** The prevalence of microalbuminuria in hypertensive's attending the Cardiac clinic at Muhimbili National Hospital was found to be 24% within the study group. The prevalence of microalbuminuria in males and females were found to be 27.4% and 21.6% respectively. The prevalence of microalbuminuria was noted to be higher among males but was not statistically different ( $p=0.421$ ). Age group of greater than 61 years comprised of 24.5% of the microalbuminurics among the different age groups with the mean age of 53.1years with  $SD \pm 1.586$ , but statistically, no significant difference was seen.  $p=0.518$ . Cigarette smoking, alcohol consumption, BMI or lipid levels were statistically not associated with the occurrence of microalbuminuria among hypertensive patients. **Conclusion:** This study showed that the prevalence of microalbuminuria was 24% among hypertensive patients seen at the cardiac clinic at the MNH. When any form of albuminuria was considered the prevalence was almost 100%. Almost all patients seen in this study had a form of proteinuria, either macro or micro which showed that majority of patients has already progressed to some form of albuminuria. This suggests that microalbuminuria screening should be aggressively used as a screening tool to pick up early evidences of microalbuminuria in hypertensive patients. There were no statistically significantly factors associated with the occurrence of microalbuminuria among the hypertensive patients **Recommendations:** Microalbuminuria is regarded as the earliest marker of capillary endothelial damage and therefore an important predictor of capillary injury in hypertensive patients; hence vigorous screening of this relatively inexpensive tool is essential which is underperformed at our centre. It is hence important that in every hypertensive patient, this inexpensive test for urine albumin be measures routinely at every outpatient clinic at Muhimbili Hosp so as to detected early those at an increased risk of vascular and

cardiac morbidity and mortality and appropriate measures for its prevention or delay taken early.

46. Blank, A., Prytherch, H., Kaltschmidt, J., Krings, A., Sukums, F., Mensah, N., Zakane, A., Loukanova, S., Gustafsson, L.L., Sauerborn, R., Haefeli, W.E. "quality of prenatal and maternal care: Bridging the know-do gap" (QUALMAT study): An electronic clinical decision support system for rural Sub-Saharan Africa. *BMC Medical Informatics and Decision Making*, 2013; 13 (1), 44.

**Background:** Despite strong efforts to improve maternal care, its quality remains deficient in many countries of Sub-Saharan Africa as persistently high maternal mortality rates testify. The QUALMAT study seeks to improve the performance and motivation of rural health workers and ultimately quality of primary maternal health care services in three African countries Burkina Faso, Ghana, and Tanzania. One major intervention is the introduction of a computerized Clinical Decision Support System (CDSS) for rural primary health care centers to be used by health care workers of different educational levels. **Methods.** A stand-alone, java-based software, able to run on any standard hardware, was developed based on assessment of the health care situation in the involved countries. The software scope was defined and the final software was programmed under consideration of test experiences. Knowledge for the decision support derived from the World Health Organization (WHO) guideline "Pregnancy, Childbirth, Postpartum and Newborn Care; A Guide for Essential Practice". **Results:** The QUALMAT CDSS provides computerized guidance and clinical decision support for antenatal care, and care during delivery and up to 24 hours post delivery. The decision support is based on WHO guidelines and designed using three principles: (1) Guidance through routine actions in maternal and perinatal care, (2) integration of clinical data to detect situations of concern by algorithms, and (3) electronic tracking of peri- and postnatal activities. In addition, the tool facilitates patient management and is a source of training material. The implementation of the software, which is embedded in a set of interventions comprising the QUALMAT study, is subject to various research projects assessing and quantifying the impact of the CDSS on quality of care, the motivation of health care staff (users) and its health economic aspects. The software will also be assessed for its usability and acceptance, as well as for its influence on workflows in the rural setting of primary health care in the three countries involved. **Conclusion:** The development and implementation of a CDSS in rural primary health care centres presents challenges, which may be overcome with careful planning and involvement of future users at an early stage. A tailored software with stable functionality should offer perspectives to improve maternal care in resource-poor settings.

47. Bohni, N., Cordero-Maldonado, M.L., Maes, J., Siverio-Mota, D., Marcourt, L., Munck, S., Kamuhabwa, A.R., Moshi, M.J., Esguerra, C.V., de Witte, P.A.M., Crawford, A.D., Wolfender, J.-L. Integration of Microfractionation, qNMR and Zebrafish Screening for the in Vivo Bioassay-Guided Isolation and Quantitative Bioactivity Analysis of Natural Products. *PLoS ONE*, 2013; 8 (5), e64006.

Natural products (NPs) are an attractive source of chemical diversity for small-molecule drug discovery. Several challenges nevertheless persist with respect to NP discovery, including the time and effort required for bioassay-guided isolation of bioactive NPs, and the limited biomedical relevance to date of *in vitro* bioassays used in this context. With regard to bioassays, zebrafish have recently emerged as an effective model system for chemical biology, allowing *in vivo* high-content screens that are compatible with microgram amounts of compound. For the deconvolution of the complex extracts into their individual constituents, recent progress has been achieved on several fronts as analytical techniques now enable the rapid microfractionation of extracts, and microflow NMR methods have developed to the point of allowing the identification of microgram amounts of NPs. Here we combine advanced analytical methods with high-content screening in zebrafish to create an integrated platform for microgram-scale, *in vivo* NP discovery. We use this platform for the bioassay-guided fractionation of an East African medicinal plant, *Rhynchosia viscosa*, resulting in the identification of both known and novel isoflavone derivatives with anti-angiogenic and anti-inflammatory activity. Quantitative microflow NMR is used both to determine the structure of bioactive compounds and to quantify them for direct dose-response experiments at the microgram scale. The key advantages of this approach are (1) the microgram scale at which both biological and analytical experiments can be performed, (2) the speed and the rationality of the bioassay-guided fractionation - generic for NP extracts of diverse origin - that requires only limited sample-specific optimization and (3) the use of microflow NMR for quantification, enabling the identification and dose-response experiments with only tens of micrograms of each compound. This study demonstrates that a complete *in vivo* bioassay-guided fractionation can be performed with only 20 mg of NP extract within a few days.

**48. Boniface, P., Matee, M., Mghamba, J. & Mohamed, A. Seroprevalence of Hepatitis B among pregnant women and associated risk factors, Moshi Municipality, Tanzania, 2012. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Mother-to-child transmission of hepatitis B virus (HBV) is a major concern because of the associated long-term morbidity and mortality. The presence of hepatitis B e antigen (HBeAg) in a positive HBV pregnant woman is a marker for high viral load and has shown to be associated with a 70-90% risk for perinatal transmission. **Objectives:** This study investigated the seroprevalance of Hepatitis B surface antigen (HBsAg) among pregnant women and of HBeAg among positive HBsAg pregnant women to provide opportunities for prevention and control. **Methods:** A cross-sectional study was conducted among pregnant women attending antenatal clinics at Moshi Municipality between January-March 2012. Blood collected from consenting pregnant women was screened for HBsAg by rapid test strip. Positive samples were subjected to Enzyme linked Fluorescent Assay (BIOMUREX-SA) for HBeAg detection. Data was analyzed using EpiInfo. **Results:** A total of 346 pregnant women were recruited, mean age was 24.7 (SD 5.4) years. Out of these 10 (2.9%) had serological evidence of infection with at least one pathogen and 3 (0.8%) had multiple infections. Seven of the 346 pregnant women were positive for HBsAg giving a sero-prevalence of 2.0%. Out of the seven HBsAg seropositive women, one (14.3%) had co-infection with Syphilis and one (14.3%) was positive for HBeAg. Risk factors for HBsAg were age 30-34 yrs (OR 4.9, 95%CI 1.01-24.13), history of mutiple sexual partners in the past year (OR 3.09, 95%CI 1.01-9.42) and ritual scarification (OR 10.1, 95%CI 1.89-54.20 ). **Conclusion:** The seroprevalence of HBsAg among this population of

pregnant women lies within the intermediate endemic area of 2-7% as per World Health Organization criteria. The HBV infectivity prevalence found highlights the likelihood of perinatal transmission of Hepatitis B. This might necessitate revision of the existing infant hepatitis vaccination schedule. Integrated package for HIV and Hepatitis B health education is advocated.

- 49. Borrmann.S., Straimer.J., Mwai.J., Abdi.A., Rippert.A., Okombo.J., Muriithi.S., Sasi.P., Kortok.M., Lowe.B., Campino.S., Assefa.S., Auburn.S., Manske.M., Maslen.G., Peshu.N., Kwiatkowski.D.P., Marsh.K., Nzila.A., Clark.T.G. Genome-wide screen identifies new candidate genes associated with artemisinin susceptibility in *Plasmodium falciparum* in Kenya. *Scientific reports* , 2013:3.**

Early identification of causal genetic variants underlying antimalarial drug resistance could provide robust epidemiological tools for timely public health interventions. Using a novel natural genetics strategy for mapping novel candidate genes we analyzed >75,000 high quality single nucleotide polymorphisms selected from high-resolution whole-genome sequencing data in 27 isolates of *Plasmodium falciparum*. We identified genetic variants associated with susceptibility to dihydroartemisinin that implicate one region on chromosome 13, a candidate gene on chromosome 1 (*PFA0220w*, a *UBP1* ortholog) and others (*PFB0560w*, *PFB0630c*, *PFF0445w*) with putative roles in protein homeostasis and stress response. There was a strong signal for positive selection on *PFA0220w*, but not the other candidate loci. Our results demonstrate the power of full-genome sequencing-based association studies for uncovering candidate genes that determine parasite sensitivity to artemisinins. Our study provides a unique reference for the interpretation of results from resistant infections.

- 50. Bratland, E., Magitta, N. W. F., Bøe Wolff, A. S., Ekern, T., Knappskog, P. M., Kämpe, O., Husebye, E. S. Autoantibodies against aromatic amino acid hydroxylases in patients with autoimmune polyendocrine syndrome type 1 target multiple antigenic determinants and reveal regulatory regions crucial for enzymatic activity. *Immunobiology*, 2013; 218(6), 899-909.**

Patients with autoimmune polyendocrine syndrome type 1 (APS-1) frequently have autoantibodies directed against the aromatic amino acid hydroxylases tryptophan hydroxylase (TPH) and tyrosine hydroxylase (TH). We aimed to characterize these autoantibodies with regard to their antigenic determinants, their influence on enzymatic activity and their clinical associations. In particular, we wanted to compare autoantibodies against the two different isoforms of TPH, which display different tissue distribution. Using sera from 48 Scandinavian APS-1 patients we identified 36 patients (75%) with antibodies against one or more of these three enzymes. Antibodies against TPH1, but not TPH2, were associated with malabsorption in the whole Scandinavian

cohort, while TH antibodies were associated with dental enamel hypoplasia in Norwegian patients. Subsequent experiments with selected patient sera indicated that while the C-terminal domain was the immunodominant part of TPH1, the epitopes of TPH2 and TH were mainly located in the N-terminal regulatory domains. We also identified a TPH1 specific epitope involved in antibody mediated inhibition of enzyme activity, a finding that provides new insight into the enzymatic mechanisms of the aromatic amino acid hydroxylases and knowledge about structural determinants of enzyme autoantigens. In conclusion, TPH1, TPH2 and TH all have unique antigenic properties in spite of their structural similarity.

- 51. Brooks, M., Bryant, M., Shann, M., Bukuluki, P., Muhangi, D., Lugalla, J., Kwesigabo, 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*, (ahead-of-print),2013; 1-14.**

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.

- 52. Buberwa, G. Prevalence of depression among tuberculosis patients attending clinics in Temeke Municipal, Dar es salaam, Tanzania. Master of Medicine (Psychiatry and Mental Health) Dissertation 2013. *Muhimbili University of Health and Allied Sciences. Dar es salaam.***

Tuberculosis is a chronic, contagious and airborne disease caused by Mycobacterium tuberculosis. Most of people affected are young adults in their most productive years. In 2007, Tanzania ranked 15<sup>th</sup> out of 22 high burden TB countries in the world. In that year there were 120,191 new TB cases forty seven percent of whom were HIV

positive. Studies have shown that the association between TB and depression is influenced by the interaction of social demographic characteristics, psychological factors, physical illness and the nature of the disease itself. The co morbidity of depression and TB has been shown to affect quality of life and treatment outcome. No retrievable studies were found to determine the prevalence and associated factors for depression among patient with TB in Tanzania. Neither is there any reference to the CMD associated with TB in the Tanzanian TB and Leprosy program. There is a need for better understanding of the magnitude and associated factors for depression among patients with TB in order to integrate mental health care in TB management and thus provide more comprehensive care for patient with TB. **Aim:** To determine the prevalence and associated factors for depression among patient with TB attending the TB clinics in Temeke Municipal, Dar es Salaam ,Tanzania. **Methods:** A descriptive cross sectional study in which 390 eligible study participants were selected using consecutive sampling, quantitative method of data collection was applied using structured questionnaire. The dependable variable (Depression) was measured using PHQ-9 while the independent variables of interest were social demographic characteristics, TB disease characteristics, family and personal history of mental illness, presence of physical illness and substance use history. Data was analyzed using SPSS version 17 software. Chi square test and multivariate logistic regression were used to measure level of associations. **Results:** More than half 246 (63.1%) of the participants were men and 144 (36.9%) were women, with a mean age of 32.96 years (SD = 12.5) and the age range was 18 years to 88 years. The prevalence of depression was found to be 46.9 % ( n=183) with majority of patients found to have mild depression 33.6 % ( n=152) and the magnitude of moderate depression was 13.3 % ( n=52). None of the TB patients was found to have moderately severe depression or severe depression. In bivariate analysis the independent variables which showed a statistical significant association with the dependent variable (p <0.05) include age, religion, past or current personal history of mental illness, duration of TB treatment and history of physical illness or chronic pain. In adjusted multivariate analysis for depression and predictors of interest; Christians showed statistical significant association with mild depression (OR 1.69; 95% CI 1.06,2.86; P< 0.05) and moderate depression (OR 3.41; 95% CI 1.63,7.15;P<0.01). Presence of current or past history of mental illness was also associated with moderate depression and having at least one of physical illness showed statistical significance in mild depression (OR 5.91; 95% CI 2.08,16.79;P<0.01) and moderate depression (OR 4.22; 95% CI 1.82,21.21;P< 0.05). Being in the intensive phase of treatment was also associated with mild depression (OR 1.97, 95% CI 1.19, 3.25; P< 0.01) and moderate depression (OR 8.03; 95% CI 3.328, 19.401; P<0.01). **Conclusion and Recommendation:** The prevalence of depression among TB patients in this study population is higher when compared to the general population. Recognition and management of depression among patients with physical illness including TB is likely to result in more positive treatment outcomes. It is recommended that strategies to address the mental health needs of TB patients be integrated into their care.

**Buckey, J. C., Fellows, A. M., Jastrzemski, B. G., Maro, I. I., Moshi, N., Turk, M., Kline-Schoder, R. J. Pure-tone audiometric threshold assessment with in-ear monitoring of noise levels. *International journal of audiology*, 2013; 52(11), 783-788.**



**Objective:** Our objective was to obtain reliable threshold measurements without a sound booth by using a passive noise-attenuating hearing protector combined with in-ear 1/3-octave band noise measurements to verify the ear canal was suitably quiet. **Design:** We deployed laptop-based hearing testing systems to Tanzania as part of a study of HIV infection and hearing. An in-ear probe containing a microphone was used under the hearing protector for both the in-ear noise measurements and threshold audiometry. The 1/3-octave band noise spectrum from the microphone was displayed on the operator's screen with acceptable levels in grey and unacceptable levels in red. Operators attempted to make all bars grey, but focused on achieving grey bars at 2000 Hz and above. **Study sample:** 624 adults and 197 children provided 3381 in-ear octave band measurements. Repeated measurements from 144 individuals who returned for testing on three separate occasions were also analysed. **Results:** In-ear noise levels exceeded the maximum permissible ambient noise levels (MPANL) for ears not covered, but not the dB SPL levels corresponding to 0 dB HL between 2000-4000 Hz. In-ear noise measurements were repeatable over time. **Conclusions:** Reliable audiometry can be performed using a passive noise-attenuating hearing protector and in-ear noise measurements.

53. **Buhalata, S., Kwesigabo, G., Sembuche, S., Aboud, S., Temu, M., Changalucha, J. Genital tract infections in women attending sexually transmitted infection clinics in Mwanza, north-west Tanzania. *Southern African Journal of Epidemiology & Infection*, 2013; 228(1).**

Lack of diagnostic methods to determine a specific aetiology can contribute to an increase in genital tract infections (GTIs) in women. We determined the aetiology of, and risk factors associated with, GTIs in women with genital symptoms. After obtaining informed consent, genital swabs to detect *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, vaginal candidiasis, bacterial vaginosis and *Chlamydia trachomatis*, were collected from women who attended sexually transmitted infection (STI) clinics in Mwanza in 2010. Demographic data were also gathered. A total of 320 women, with a mean age  $26.5 \pm 6.9$  years, were recruited for the study. The percentages of GTIs in women with genital discharge syndromes were 25.9% for bacterial vaginosis, 25.6% for vaginal candidiasis, 14% for *C. trachomatis*, 8.7% for *T. vaginalis* and 8.4% for *N. gonorrhoeae*. Gonococcal infections were detected more by *N. gonorrhoeae* PCR than by culture methods ( $p$ -value  $< 0.000$ ). From a sample of 66 women, (24.2%), 14 were infected by  $\geq 2$  infections of bacterial vaginosis, *C. trachomatis* and *N. gonorrhoeae*. Women who were reported to have engaged in sexual intercourse before the age of 18 years and those who had  $\geq 2$  sexual partners were more likely to be infected by *C. trachomatis* vs. *N. gonorrhoeae* and *T. vaginalis*. Following a sensitivity test, 21 out of 27 (77.7%) of gonococcal isolates were quinolone-resistant *N. gonorrhoeae*. One isolate was resistant to ciprofloxacin, azithromycin and cefixime, but not ceftriaxone. A high prevalence of bacterial vaginosis, gonorrhoea, trichomoniasis, chlamydia and vaginal candidiasis in women who attended the STI clinics in Mwanza was observed. Drug resistance of *N. gonorrhoeae* to ciprofloxacin is very high. This calls for an immediate review of the guidelines on its use as a first-line treatment for STIs in Tanzania.

54. **Buhalata, S., Kwesigabo, G., Sembuche, S., Aboud, S., Temu, M., Changalucha, J. Genital tract infections in women attending sexually transmitted infection clinics in Mwanza, north-west Tanzania. *Southern African Journal of Epidemiology & Infection*, 2013; 28(1), 48-54.**

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55. **Bukanu, F. M.C. Prevalence of middle ear effusion among children with adenoid hypertrophy at Muhimbili National Hospital. Master of Medicine (Otorhinolaryngology). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** Middle Ear Effusion is a common disorder in children which may either resolve spontaneously or cause undesirable complications especially if associated with persistent hearing loss. Middle Ear Effusion contributes to hearing loss, poor speech acquisition and learning difficulties. There has been no study done to show the magnitude of middle ear effusion in children with adenoid hypertrophy and its complications in our country. **Aim:** This study aimed at determining the prevalence of middle ear effusion among children with adenoid hypertrophy at Muhimbili National Hospital. **Materials and Methods:** This study was conducted at MNH, Dar-es-salaam in Tanzania among 420 children aged 9 years or less. All children with adenoid hypertrophy attending MNH were included in the study. Diagnosis of middle ear effusion was reached by findings of the ear drum with exclusion of features of acute otitis media. Tympanometry was conducted by research assistant and type B curve was regarded as diagnostic for middle ear effusion. SPSS computer program 16.0 was used to

analyze the data and relationships were tested at 5% tolerable error. **Results;** Adenoid hypertrophy is a significant risk factor for MEE. About 61.7% of children with adenoid hypertrophy presented with MEE. On the other hand males were more affected with MEE as compared to females and the age of over 2years to 6 years had more cases of MEE of about 67.9%. **Conclusion;** Adenoid hypertrophy is a significant risk factor for MEE and the most affected age is over 2 years to 6 years with male preponderance.

56. **Buonaguro, F. M., Gueye, S. N., Wabinga, H. R., Ngoma, T. A., Vermorken, J. B., Mbulaiteye, S. M. Clinical oncology in resource-limited settings. *Infectious agents and cancer*, 2013; 8(1), 39.**

Infectious Agents and Cancer is introducing a new section of Clinical Oncology with the main objective of stimulating debate through articles published in the section. Infectious diseases have been the major causes of morbidity and mortality in human populations, and have dominated the medical approach to clinical and public health. Successful efforts to control mortality from acute infections have paved the way for chronic, mostly indolent, infections to become major causes of morbidity. Cancer, hitherto thought to be rare in resource-limited settings, is becoming a major contributor. The changes in mortality patterns are due, in part, to diseases linked to rapid changes in lifestyle, urbanization, and pollution. These diseases include many of the non-infection associated cancers. However, there is a dearth of information about the burden, pathogenesis, and therapeutic approaches about cancer in resource-limited countries. There are also substantial other challenges, including economic, infrastructure, technology, and personnel. The Journal advocates for interactive local–global (lo-bal) efforts to generate relevant knowledge about cancer burden, pathogenesis, and therapeutic approaches using a bottom-up approach to sharpen the focus on local and global relevance of research and clinical and public practice, particularly in resource-limited countries. The section on Clinical Oncology in Infectious Agents and Cancer will harness these “lo-bal” strategies to reduce substantially the time from concept, discovery, and development and implementation of locally and globally applicable diagnostic and therapeutic technologies.

57. **Byabato, K.P. Utilization of early infant diagnosis of HIV services and feeding practices among HIV positive mothers in Dar es Salaam, Tanzania. Master of Medicine (Paediatrics and child health). Dissertation. 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.***

**Background:** The human immunodeficiency virus (HIV) infection in children is associated with high morbidity and mortality; studies have demonstrated that about 50% of these children die before their second birthday if not treated early. Following the introduction of early infant diagnosis (EID) using DNA PCR with dried blood spots (DBS) samples, many children who show up to the clinic early have opportunity to be tested according to the national guidelines. Early infant diagnosis of HIV infection not only helps to start antiretroviral therapy for HIV infected children, but it is also an opportunity to assess the infant feeding decisions and breastfeeding problems.

Breastfeeding is still a recommended safe infant feeding option in resource limited settings to HIV exposed infants. However effective measures to prevent mother to child transmission (MTCT) of HIV through breast milk such as effective anti retroviral (ARV) prophylaxis or ART for eligible mothers are mandatory. Objectives: To determine the utilisation of early infant diagnosis of HIV services and feeding practices among HIV-exposed infants attending the care and treatment centres (CTC) in Dar es salaam, Tanzania. Methodology: A cross sectional hospital based descriptive study was conducted among HIV exposed infants attending postnatal clinic and CTC. Data collection included interviewing mother/ guardian using a standard structured questionnaire, review of antenatal (ANC) and reproductive and child health (RCH) cards. Median, range and means were used to summarize continuous data, proportions and rates for categorical data. Data analysis was done using statistical package for social science version 16. Chi square and Fisher's exact tests were used to determine association between categorical variables, p value of < 0.05 was considered statistically significant. Results: A total of 432 parents/ guardians- infant pairs were involved in the study, 53.7% were females with mean age of 19 weeks  $\pm$  11.8. More than half (68.3%) of the parents/ guardians brought their HIV exposed infants for HIV early infant diagnosis on the given appointment dates. More than half (62.7%) of the infants had results at the end of the study and of these 9 (3.3%) were HIV positive. Median turnaround time (TAT) was 7weeks (1-41wks), reason was no results at the clinic (79%). Few HIV mothers (31.9%) expected to continue breast feeding after HIV results of their infants,43.2% stopped breast feeding at median age at 12 weeks because of fearing of HIV transmission to their infants (p = 0.039). Conclusion: More than half of the HIV exposed infants were brought for EID of HIV and had their results. Turnaround time (TAT) was 7 weeks with a reason that HIV results were not yet back at clinic; it is longer than the WHO recommended time of 4 weeks. Fear of HIV transmission to the infants was associated with low breast feeding rates. **Recommendations:** There is a need for a study to establish the reasons for long TAT as well as strengthen the information, education and counseling on infant feeding practices.

58. **Capone, F., Rongo, L., D'Amore, M., Budzelaar, P. H., Busico, V. Periodic Hybrid DFT Approach (Including Dispersion) to MgCl<sub>2</sub>-Supported Ziegler–Natta Catalysts. 2. Model Electron Donor Adsorption on MgCl<sub>2</sub> Crystal Surfaces. *The Journal of Physical Chemistry C*, 2013; 117(46), 24345-24353.**

The adsorption of small probe molecules (H<sub>2</sub>O, NH<sub>3</sub> and EtOH) and the small model silane Me<sub>2</sub>Si(OMe)<sub>2</sub> on (104) and (110) surfaces of  $\alpha$ -MgCl<sub>2</sub> have been studied using periodic DFT calculations including a classical correction (of the type  $f(R)/R^6$ ) for dispersion. The results reveal that donors strongly stabilize both crystal surfaces relative to the bulk solid. Moreover, coordination of two donor molecules to the fourcoordinate exposed Mg atom of MgCl<sub>2</sub> (110) causes this surface to become preferred over MgCl<sub>2</sub> (104) surface with only a single donor per exposed Mg. However, coverage also plays an important role. The model silane preferentially adsorbs in bidentate mode on MgCl<sub>2</sub> (110), provided that coverage is 0.5 or lower; at full coverage, there is not enough space for such an arrangement, and only a monodentate binding mode is obtained. Such coverage effects should be even more pronounced for the bulkier silanes used as external

donors in real MgCl<sub>2</sub>-supported Ziegler–Natta systems, as tailored experiments seem to confirm.

59. **Chakou, H. Survival of patients with kaposi sarcoma at ocean road cancer institute; a retrospective study.** Master of Medicine (Clinical Oncology) Dissertation, 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Background:** Kaposi sarcoma (KS) is a vascular endothelia tumor caused by HH8 facilitated by immune suppression either by organ transplant treatment or AIDS. KS is the most common type of all cancers in HIV-AIDS patients and second most prevalent of all cancer at ORCI. ORCI receives patients with endemic and epidemic KS; however most patients with KS are HIV positive, but the difference in characteristics between these diseases in terms of disease profile, patients' characteristics, their prognosis and response to treatment modalities is not known leading to hindrance in provision of quality care and improving survival of the KS patients attending ORCI. **Objective and Methodology:** The purpose of this study was to determine the overall survival and interaction of its determinants for patients with KS attending ORCI. Retrospective descriptive study, using structured questionnaire, data extracted from KS patients treated at ORCI in 2006. Descriptive, Bi-variate Analysis, Ordinal Regression, Life Tables and Kaplan Meier survival analysis as well as SPSS 16.0 and Log rants validity test were used during data analysis. **Results:** Mean age at KS diagnosis was found to be  $40 \pm 12.012$  years, male diagnosed with KS older than female with mean age at diagnosis being  $42.60 \pm 12.6$  and  $35.1 \pm 9.7$  years respectively. Average duration patients wait after diagnosis before the start of treatment was found to be  $30 \pm 120$  days. Dar es Salaam, 49.7% contributed the largest proportion of patients seen at ORCI. Male are more affected by KS with a ratio of 1.6:1 than female while radiotherapy found to be most preferred modality of treatment, 82% of all patients compared with 38.6% treated by chemotherapy. Skin was the most common mode of presentation seen on 87.3% of all patients. Median and average survival of KS patients were found to be  $8 \pm 0.613$  months and  $15.863 \pm 1.407$  months respectively. Primary organ of presentation and patient residence has shown significantly to influence survival while age, sex, treatment modality, hemoglobin level, time taken waiting for treatments found to be survival predictors, serum white cell counts, and modality of treatment or treatment compliance has not proved to influence survival. HIV still found to be major cofactor with about 90% of tested KS patients had infected with HIV. **Conclusion:** Overall and median survival of patients with KS treated at ORCI was significantly low compared to other parts of the world; this has been contributed by factors stipulated in this study and possible differences in disease profile of patients seen at ORCI compared with other settings. Prospective studies are advised to sharpen our knowledge on this interaction as well as exerting more effort in treating KS patient early after diagnosis and joining CTC and cancer care for better outcome.

60. **Chalya, P.L. Dass, R. M., Mchembe, M. D., Mbelenge, N., Ngayomela, I. H., Chandika, A. B., Mabula, J. B. Citywide trauma experience in Mwanza, Tanzania:**

**a need for urgent intervention. *Journal of Trauma Management & Outcomes*, 2013; 7(1), 9.**

**Background:** Trauma remains a leading cause of morbidity and mortality in resource limited countries. There is paucity of published reports on trauma care in Tanzania, particularly the study area. This study was carried out to describe our experiences in trauma management outlining the etiological spectrum, injury characteristics and treatment outcome of trauma patients at our local setting and compare our results with those from other centers in the world. **Methods:** A descriptive prospective study of trauma patients was conducted at Bugando Medical Centre from April 2010 to March 2012. Statistical data analysis was done using SPSS software version 17.0. **Results:** A total of 5672 trauma patients were enrolled in the study. The male to female ratio was 2.3: 1. The majority of patients were in the 2nd decade of life. Road traffic accident was the most common cause of trauma accounting for 60.7% of cases. The majority of patients (76.6%) sustained blunt injuries. Musculoskeletal (68.5%) and head/neck (52.6%) were the most frequent body region injured. Soft tissue injuries (open wounds) and fractures were the most common injuries accounting for 82.8% and 76.8% respectively. Majority of patients (74.4%) were treated surgically with wound debridement (94.0%) being the most frequently performed procedure. Postoperative complications were recorded in 31.5% of cases. The overall median duration of hospitalization was 26 days (range 1 day to 144 days). Mortality rate was 16.7%. Patients who had polytrauma, burn injuries and those who had tetanus and long bone fractures stayed longer in the hospital and this was statistically significant ( $P < 0.001$ ), whereas the age  $> 65$  years, severe trauma, admission Systolic Blood Pressure  $< 90$  mmHg, presence of tetanus, severe head injury, the duration of loss of consciousness, the need for intensive care unit admission and finding of space occupying lesion on CT scan of the brain significantly influenced mortality ( $P < 0.001$ ). **Conclusion:** Trauma resulting from road traffic accidents remains a major public health problem in this part of Tanzania. Urgent preventive measures targeting at reducing the occurrence of road traffic accidents is necessary to reduce the incidence of trauma in this region.

61. Chalya, P.L. Mchembe, M. D., Mabula, J. B., Rambau, P. F., Jaka, H., Koy, M., Masalu, N. **Clinicopathological patterns and challenges of management of colorectal cancer in a resource-limited setting: a Tanzanian experience. *World J Surg Oncol*, 2013; 11(1), 88-97.**

**Background:** Colorectal cancer is one of the most common cancers worldwide and its incidence is reported to be increasing in resource-limited countries, probably due to the acquisition of a western lifestyle. However, information regarding colorectal cancer in Tanzania and the study area in particular is limited. This study was conducted in our local setting to describe the clinicopathological pattern of colorectal cancer and highlight the challenging problem in the management of this disease. **Methods:** This was a retrospective study of histologically confirmed cases of colorectal cancer seen at Bugando Medical Center between July 2006 and June 2011. Data were retrieved from patients' files and analyzed using SPSS computer software version 17.0. **Results:** A total of 332 colorectal cancer patients were enrolled in the study, representing 4.7% of all

malignancies. Males outnumbered females by a ratio of 1.6:1. The median age of patients at presentation was 46 years. The majority of patients (96.7%) presented late with advanced stages. Lymph node and distant metastasis at the time of diagnosis was recorded in 30.4% and 24.7% of cases, respectively. The rectosigmoid region was the most frequent anatomical site (54.8%) involved and adenocarcinoma (98.8%) was the most common histopathological type. The majority of adenocarcinomas (56.4%) were moderately differentiated. Mucinous and signet ring carcinomas accounted for 38 (11.6%) and 15 (4.6%) patients, respectively. Three hundred and twenty-six (98.2%) patients underwent surgical procedures for colorectal cancer. Only 54 out of 321 (16.8%) patients received adjuvant treatment. Postoperative complication and mortality rates were 26.2% and 10.5%, respectively. The overall median duration of hospital stay was 12 days. Only nine out of 297 survivors (3.0%) were available for follow-up at the end of 5 years. Cancer recurrence was reported in 56 of 297 survivors (18.9%). Data on long-term survival were not available as the majority of patients were lost to follow-up. **Conclusions:** Colorectal cancer is not uncommon in our environment and shows a trend towards a relative young age at diagnosis and the majority of patients present late with advanced stage. There is a need for screening of high-risk populations, early diagnosis and effective cost-effective treatment and follow-up to improve outcome of these patients.

62. Chalya, P.L. Mchembe, M. D., Mshana, S. E., Rambau, P., Jaka, H., & Mabula, J. B. Tuberculous bowel obstruction at a university teaching hospital in Northwestern Tanzania: a surgical experience with 118 cases. *World Journal of Emergency Surgery*, 2013; 8(1), 12.

**Background:** Bowel obstruction resulting from intestinal tuberculosis has been reported to be more prevalent in developing countries including Tanzania. This study was undertaken to describe the clinicopathological profile, surgical management and outcome of tuberculous intestinal obstruction in our local setting and to identify factors responsible for poor outcome among these patients. **Methods:** This was a prospective descriptive study of patients operated for tuberculous intestinal obstruction at Bugando Medical Centre (BMC) in northwestern Tanzania from April 2008 to March 2012. Ethical approval to conduct the study was obtained from relevant authorities. Statistical data analysis was performed using SPSS version 17.0. **Results:** A total of 118 patients with tuberculous intestinal obstruction were studied. The male to female ratio was 1.8: 1. The median age was 26 years (range 11-67 years). The modal age group was 21-30 years. Thirty-one (26.3%) patients had associated pulmonary tuberculosis and 25 (21.2%) patients were HIV positive with a median CD4+ count of 225 cells / $\mu$ l. Small bowel strictures were the most common operative findings accounting for 72.9% of cases. The ileo-caecal region was the commonest area of involvement in 68 (57.6%) patients. The right hemicolectomy with ileo-transverse anastomosis was the most frequent surgical procedure performed in 66 (55.9%) patients. Postoperatively all the patients received antituberculous drugs for a period of one year. Postoperative complication rate was 37.3% and surgical site infection (SSI) was the most frequent complication in 42.8% of cases. HIV positivity and low CD4+ count were the main predictors of SSI ( $p < 0.001$ ). The overall median length of hospital stay was 24 days.

Patients who had postoperative complications stayed longer in the hospital and this was statistically significant ( $p = 0.011$ ). Mortality rate was 28.8% and it was significantly associated with co-existing medical illness, delayed presentation, HIV positivity, low CD 4 count ( $<200$  cells/ $\mu$ l), ASA class and presence of complications ( $p < 0.001$ ). The follow up of patients was generally poor as more than fifty percent of patients were lost to follow up. **Conclusion:** Tuberculous bowel obstruction remains rampant in our environment and contributes significantly to high morbidity and mortality. The majority of patients present late when the disease becomes complicated. A high index of suspicion, proper evaluation and therapeutic trial in suspected patients is essential for an early diagnosis and timely definitive treatment, in order to decrease the morbidity and mortality associated with this disease.

63. Chalya, P.L., Mchembe, M. D., Mshana, S. E., Rambau, P. F., Jaka, H., & Mabula, J. B. **Clinicopathological profile and surgical treatment of abdominal tuberculosis: a single centre experience in northwestern Tanzania.** *BMC infectious diseases*, 2013; 13(1), 270.

**Background:** Abdominal tuberculosis continues to be a major public health problem worldwide and poses diagnostic and therapeutic challenges to general surgeons practicing in resource-limited countries. This study was conducted to describe the clinicopathological profile and outcome of surgical treatment of abdominal tuberculosis in our setting and compare with what is described in literature. **Methods:** A prospective descriptive study of patients who presented with abdominal tuberculosis was conducted at Bugando Medical Centre (BMC) in northwestern Tanzania from January 2006 to February 2012. Ethical approval to conduct the study was obtained from relevant authorities. Statistical data analysis was performed using SPSS version 17.0. **Results:** Out of 256 patients enrolled in the study, males outnumbered females. The median age was 28 years (range = 16-68 years). The majority of patients (77.3%) had primary abdominal tuberculosis. A total of 127 (49.6%) patients presented with intestinal obstruction, 106 (41.4%) with peritonitis, 17 (6.6%) with abdominal masses and 6 (2.3%) patients with multiple fistulae in ano. Forty-eight (18.8%) patients were HIV positive. A total of 212 (82.8%) patients underwent surgical treatment for abdominal tuberculosis. Bands/adhesions (58.5%) were the most common operative findings. Ileo-caecal region was the most common bowel involved in 122 (57.5%) patients. Release of adhesions and bands was the most frequent surgical procedure performed in 58.5% of cases. Complication and mortality rates were 29.7% and 18.8% respectively. The overall median length of hospital stay was 32 days and was significantly longer in patients with complications ( $p < 0.001$ ). Advanced age (age  $\geq 65$  years), co-morbid illness, late presentation, HIV positivity and CD4+ count  $< 200$  cells/ $\mu$ l were statistically significantly associated with mortality ( $p < 0.0001$ ). The follow up of patients were generally poor as only 37.5% of patients were available for follow up at twelve months after discharge. **Conclusion:** Abdominal tuberculosis constitutes a major public health problem in our environment and presents a diagnostic challenge requiring a high index of clinical suspicion. Early diagnosis, early anti-tuberculous therapy and surgical treatment of the associated complications are essential for survival.



64. Chalya, P.L.Mabula, J. B., Rambau, P. F., Mchembe, M. D. Sister Mary Joseph's nodule at a University teaching hospital in northwestern Tanzania: a retrospective review of 34 cases. *World journal of surgical oncology*, 2013; 11(1), 151.

**Background:** Sister Mary Joseph's nodule is a metastatic tumor deposit in the umbilicus and often represents advanced intra-abdominal malignancy with dismal prognosis. There is a paucity of published data on this subject in our setting. This study was conducted to describe the clinicopathological presentation and treatment outcome of this condition in our environment and highlight challenges associated with the care of these patients, and to proffer solutions for improved outcome.**Methods:** This was a retrospective study of histologically confirmed cases of Sister Mary Joseph's nodule seen at Bugando Medical Centre between March 2003 and February 2013. Data collected were analyzed using descriptive statistics.**Results:** A total of 34 patients were enrolled in the study. Males outnumbered females by a ratio of 1.4:1. The vast majority of patients (70.6%) presented with large umbilical nodule > 2 cm in size. The stomach (41.1%) was the most common location of the primary tumor. Adenocarcinoma (88.2%) was the most frequent histopathological type. Most of the primary tumors (52.9%) were poorly differentiated. As the disease was advanced and metastatic in all patients, only palliative therapy was offered. Out of 34 patients, 11 patients died in the hospital giving a mortality rate of 32.4%. Patients were followed up for 24 months. At the end of the follow-up period, 14(60.9%) patients were lost to follow-up and the remaining 9 (39.1%) patients died. Patients survived for a median period of 28 weeks (range, 2 to 64 weeks). The nodule recurred in 6 (26.1%) patients after complete excision.**Conclusion:** Sister Mary Joseph's nodule of the umbilicus is not rare in our environment and often represents manifestation of a variety of advanced intra-abdominal malignancies. The majority of the patients present at a late stage and many with distant metastases. The patient's survival is very short leading to a poor outcome. Early detection of primary cancer at an early stage may improve the prognosis

65. Chalya, P.L., Mchembe,M.D., Mabula,J.B., Gilyoma, .J.M., Diathermy versus Scalpel incision in elective midline laparotomy: A prospective randomized controlled clinical study. *East and Central African Journal of Surgery*, 2013; 18(1), 71-77.

**Background:** Skin incisions have traditionally been made using a scalpel. Diathermy, a more recent alternative, is thought to increase the risk of infection, impair healing and decrease cosmesis. Recent studies suggest that diathermy may offer potential advantages with respect to blood loss, incision time and postoperative pain. The aim of this study was to compare the efficacy and safety of surgical diathermy incisions versus conventional scalpel incisions for midline laparotomy in our local setting with an aim to evaluate diathermy as an effective alternative to scalpel incision.**Methods:** This was a prospective randomized clinical study which was conducted in the surgical wards of Bugando Medical Centre between January 2010 and December 2011. Patients were randomly assigned to two groups i.e. Group A (Scalpel group) and Group B (Diathermy group).**Results:** A total of 214 patients were enrolled in the study. Of these, 108 patients

were randomized to Group A (Scalpel group) and 106 patients to Group B (Diathermy group). The two groups did not differ significantly in relation to age and sex ( $p > 0.001$ ). Laparotomy skin incisions using diathermy were significantly quicker than scalpel incisions ( $p = 0.001$ ). There was significantly less blood loss in the diathermy group compared with the scalpel group ( $P = 0.012$ ). The mean visual analogue scale was significantly reduced more in the diathermy group than in Group Scalpel group patients on postoperative day 1 ( $p = 0.001$ ), day 2 ( $p = 0.011$ ) and 3 ( $p = 0.021$ ) respectively. The mean amount of intramuscular analgesic requirement was significantly less in the Diathermy group than in the Scalpel group ( $p = 0.021$ ). Postoperative complication rates did not differ significantly between the Scalpel and Diathermy groups ( $p = 0.243$ ). There was no significant difference between two groups with respect to the mean length of hospital stay ( $p = 0.834$ ). **Conclusion:** We conclude that diathermy incision in elective midline laparotomy has significant advantages compared with the scalpel because of reduced incision time, less blood loss, reduced early postoperative pain and analgesic requirements.

66. Chande-Mallya, R. & Sife, A.S. Citation Analysis of Theses and Dissertations as a Measure of Web Resources Usage at Muhimbili University of Health and Allied Sciences. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.

**Background:** The World Wide Web is an important platform for publishing, exchanging, and retrieving scientific publications such as journals, books, theses, dissertations, research reports and patents, among others. Currently, web-based resources form an important source of information for research as well as scholarly writing and publishing. Postgraduate students are one group of users who are often bound to use web-based resources in their academic works such as theses and dissertations writing. **Objectives:** This article presents a citation analysis of theses and dissertations to understand the extent to which web resources are used in postgraduate research at Muhimbili University of Health and Allied Sciences (MUHAS). **Methods:** Citation analysis is a research method employed in analysis of relationships and patterns between citing and cited documents. Citation analysis was applied in this study because many citations conventions require authors to cite Uniform Resource Locators (URLs) when referencing in their publications. Doctoral theses and masters dissertations submitted at MUHAS Library between 2002 and 2012 were examined and extracted data were analysed using Microsoft Excel **Results:** Important findings are presented and several recommendations are provided based on these findings **Conclusion:** Important findings are presented and several recommendations are provided based on these findings.

67. Changarawe, E. Prevalence of depression and risk factors among patients with epilepsy attending The Mirembe Hospital Outpatient Clinic in Dodoma, Tanzania. Master of Medicine (Psychiatry and Mental Health) Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.

**Introduction:** Depression is a psychiatric condition that is prevalent in people with epilepsy, and often unrecognized and untreated. It should be considered a serious problem because of its negative impact on the patient's quality of life and increasing potential for self-injury or suicide. Several risk factors associated with depression in patients with epilepsy have been identified including socio-demographic (e.g. age,

gender, living with partner, level of education, religion, occupation) and clinical factors (e.g. frequency of seizures, duration of illness, type of epilepsy, type of antiepileptic used). Studies exploring factors associated with depression treatment gaps in patients with epilepsy, identified both systemic factors within primary care, physician and individual patient factors; these factors include: Lack of services for screening for depression; lack of reporting by patients; minimization of symptoms by patients and practitioners; qualitative difference in presentation of depression in patients with epilepsy further compromises recognition and misconceptions in providers that treatment of depression will aggravate epilepsy. Little is known about depressive symptoms in patients with epilepsy in Tanzania. So the aim of this study was to determine the prevalence of depression in patients with epilepsy and associated risk factors so as to review and develop interventions that can reduce identified risk factors.

**Objective:** To determine the prevalence of depression and associated risk factors among patients with epilepsy attending Mirembe outpatient clinic in Dodoma, Tanzania. **Study design:** Hospital based analytical cross sectional study. **Methods:** Data collection began with a pilot of measures in October 2012, prior to starting data collection for the main study from November 2012 to February 2013. Clinically diagnosed persons with epilepsy were invited to participate and those who agreed after an informed consent process were enrolled to the study. Assessments included: socio-demographic characteristics, clinical features (using investigator developed semi-structured questionnaires) and depressive symptoms using the Patient Health Questionnaire (PHQ-9). Descriptive analysis was done to determine the magnitude of depression. Bivariate analysis and logistic regression models were applied to determine significant associations and factors independently associated with depression. **Results:** A total of 264 participants were included in the study, 165 (62.5%) males and 99 (37.5%) females. Participant's ages ranged from 18 to 66 years and all were on anti-epileptics. Many participants were aged between 26-35 years (97{36.7% }). Males were more likely to be living with a partner (p-value<0.05). From the study, 18.9% of the study participants had depression. For those who had depression, 16.4% were males and 23.2% females. In adjusted multivariate models, frequency of three or more fits in the previous four weeks increased significantly the likelihood of depression (OR=4.75; 95% confidence interval (2.09-10.79, p-value=<0.00) while use of phenobarbitone alone was protective (OR=0.41; 95% confidence interval 0.19-0.92 p-value=0.03). No significant association was shown between depression and other risk factors (age, sex, living with partner, level of education, occupation, duration of illness, type of epilepsy, and family history of mental illness). None of those diagnosed to have depression was receiving treatment for depression. **Discussion and Conclusion:** The study indicates that depression is common in patients living with epilepsy (18.9%) who are attending Mirembe outpatient clinic; with higher rates shown for females (23.2%). Depression was significantly and independently more likely in patients on medication other than phenobarbitone or on medication additional to phenobarbitone and patients with three or more fits in the four weeks prior to assessment. **Recommendations: Practice:** All patients with epilepsy should be screened for depression and depression treated. **Research:** Future research on depression in epilepsy: Firstly should be longitudinal study design, to determine the directionality of causal relationship between, using one or more therapy for control of epilepsy and occurrence of depression. Secondly future research should also determine

rates of depression in those with severe epilepsy versus less severe. And lastly future research should consider addressing a wider range of risk factors, not addressed in this study including individual coping responses to epilepsy and stigma associated with epilepsy as a condition & its diagnosis.

68. Charles, C. **Factors influencing sustained transmission of lymphatic filariasis in school children after eight rounds of mass drug administration: a case of mafuriko village in north-eastern Tanzania.** Masters of Science (Tropical Diseases Control) Dissertation, 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Background:** The program to eliminate lymphatic filariasis in Tanzania is based on Mass Drug Administration (MDA) with ivermectin and albendazole once per year for 4-6 years in order to interrupt transmission. One of the indicators used to measure the impact of MDA is the prevalence of circulating filarial antigen in children born within the intervention period. It is thought that at a good coverage of  $\geq 80\%$  and more than 4 rounds of MDA these children are not expected to have infection (WHO, 2005). High prevalence of circulating filarial antigen of 6.4% has been reported in Tanga despite 8 rounds of MDA in the region (Simonsen et al 2011). This suggests that there is an ongoing transmission of lymphatic filariasis in Tanga. **Objective:** This study was designed to determine factors influencing sustained transmission of lymphatic filariasis in Tanga based on the findings of high prevalence of circulating filarial antigen in children born within the elimination program. **Methodology:** A descriptive cross-sectional study involving individuals aged 6 years and above was conducted at Mafuriko village along the coast of Tanga. The study had three parts, an entomological component that included collection and determination of infection and infectivity rates in vectors, parasitological component that involved night blood examination for microfilaria detection and quantitative studies to assess community knowledge and awareness of the LF elimination program, to determine the proportion of individuals who took drugs during the last round of MDA and to assess the rate of insecticide treated bed net utilization. The study recruited 317 study participants. **Results:** The microfilaria prevalence among the study participants was 6%. The prevalence was high among males (4.7%) than females (1.3%). The most affected age group was the youth below 26 years of age with the prevalence of 19.2%  $p=0.09$ . History of ever participated in MDA was found to be protective [AOR=4.6, 95% CI (1.6-13.9)]. Only two mosquitoes out of 555 were found to harbour L1 and L2 and all collected vectors were *Culex quinquefasciatus*. Ninety one percent (91%) of study participants were aware of lymphatic filariasis (LF) and 79% were aware of the LF elimination program, 99.3% had good knowledge about LF elimination program and 54% swallowed the drugs in the last cycle of treatment. 76.7% participants reported to possess an ITN, among these 93.4% used the ITN the night before the interview. **Conclusion:** Presence of infected individuals, infected mosquitoes, poor compliance to treatment, low levels of knowledge on LF elimination program, transmission and prevention are the main factors that may influence high prevalence of CFA in school children at Mafuriko village.

69. Chaula, S. A. **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 in Parasitology and Medical Entomology. Dissertation. 2013. 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 there fore 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.

70. Chebet, J., **Adverse Side Effects of Hormonal Contraception, a Critical Barrier to Uptake and Use in Rural Tanzania: A Qualitative Study. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Although FP has been shown to be an effective intervention for managing population growth, and promoting MNCH, fear of or experience of adverse side effects remains an important barrier to the sustained use of contraceptives-even more so than geographical access. Though side effects are often mentioned as a barrier to using modern methods of contraception, studies detailing the experience of response to these side effects in East Africa are limited. **Objectives:** none given. **Methods:** During July and August 2011, trained research assistants conducted semi-structured in-depth community-based interviews with recently delivered women, their husbands and opinion leaders across 16 villages in the catchment area of 8 government health centers in four districts of the Morogoro Region of Tanzania. In November and December 2011, twelve facility-based semi-structured interviews with RCH service providers from 3 of the same health centers were conducted. Following data collection, interview transcripts were

analyzed using thematic analysis. **Results:** Overall, respondent groups viewed FP in a positive light, due to the health and economic benefits associated with limiting births. Across respondent groups side effects associated with family planning were cited most frequently as a deterrent to continuation/uptake of FP methods causing women to never use hormonal methods, discontinue use, switch methods, or use methods incorrectly. Most frequently, prolonged and excessive menstrual bleeding, missed menses, weight gain and concern for a breastfeeding infant's health were cited as side effects by women, husbands and community members. For all respondent groups, use of FP during the postpartum period was viewed as taboo, stemming from concern for a breastfeeding infant health. Use of FP was reinitiated about 40 days post-delivery. **Conclusion:** not provided

**71. Chillo, P., Rieck, Å. E., Lwakatare, J., Lutale, J., Gerdtts, E. Left atrial volume index as a marker of left ventricular diastolic dysfunction in asymptomatic Tanzanian diabetic patients. *Blood pressure*, 2013; 22(2), 86-93.**

**Aim:** To determine the prevalence of left atrial (LA) enlargement and its relation to left ventricular (LV) diastolic dysfunction among asymptomatic diabetic outpatients attending Muhimbili National Hospital in Dar es Salaam, Tanzania. **Methods:** Echocardiography was performed in 122 type 2 and 58 type 1 diabetic patients. Diastolic dysfunction was defined as peak transmitral blood velocity to medial mitral annulus velocity (E/E') ratio  $\geq 15$ . LA volume indexed to body surface area (LAVI) was considered enlarged if  $\geq 29$  ml/m<sup>2</sup>. **Results:** Enlarged LAVI and LV diastolic dysfunction were more common in type 2 than in type 1 diabetic patients (44.3 vs 25.9% and 20.5 vs 3.5%, respectively, both  $p < 0.05$ ). In multivariate linear regression analysis, larger LAVI was associated with LV diastolic dysfunction independent of significant associations with LV mass index and presence of mitral regurgitation in type 2 diabetic patients, while LV mass index, lower ejection fraction and longer duration of diabetes were the main covariates of larger LAVI in type 1 diabetic patients (all  $p < 0.05$ ). **Conclusion:** Enlarged LA is common among asymptomatic Tanzanian diabetic patients, and particularly associated with LV diastolic dysfunction in type 2, and with cardiomyopathy and lower systolic function in type 1 diabetic patients.

**72. Chitama, D., Frumence, G. Mwangu, M. & Kisanga, O. Public-Private Partnership (PPP) Financing: An overview of the service agreement financing in the health sector in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Countries in developing countries face difficulties in providing quality health services that take into account individual and community diversity. This has resulted to the need of involving the private sector, through Public Private Partnership. In Tanzania, the Ministry of health and Social Welfare (MoHSW) has been implementing PPP since 2008. The local government authorities have signed the Service Agreement (SA) under the PPP arrangement with faith-based hospitals; to deliver selected reproductive and child health (RCH) services and receive government's reimbursement for the services delivered. **Objectives:** This paper aims to

provide an overview of the status of SA financing in Tanzania. **Methods:** The study was conducted in selected districts from Tanga, Lindi and Mbeya regions in Tanzania. Secondary data was used for the SA financing arrangement analysis. A descriptive framework for analysis of health care financing arrangement was adopted. The framework provides the structure for the analysis and identifies the key functions or components of a health care financing arrangement, which are revenue collection, pooling of funds and purchasing. **Results:** The study found that donors are the largest financiers of the SA accounting for the bigger share of the financial support through the Health Basket Funding (HBF). However, the allocation from HBF is grossly inadequate given the increased number of patients due to SA. Financial support from council own sources remains very minimal. Bureaucratic claiming procedure, delays and inadequate reimbursement to contracted facilities are common. **Conclusion:** The SA financing experiences raise critical questions on feasibility, reliability and sustainability of PPP arrangements financing in the health sector in Tanzania. There is need to supplement the current SA financing with other financing sources that are predictable in both shorter and longer terms. Also, purposeful planning for gradual increase of domestic funding of the SA at council level is recommended.

as: none

73. **Chipeta, P. Prevalence of cardiovascular autonomic neuropathy in diabetic patients attending Muhimbili National Hospital Diabetic Clinic. Master of Medicine (Internal Medicine) Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** Cardiovascular Autonomic Neuropathy (CAN) is a common chronic complication of Type 1 and Type 2 diabetes mellitus. It is however, one of the most overlooked of all serious complications of diabetes that is characterized by deterioration of autonomic fibers innervating the heart; blood vessels and different organs. The consequence of this denervation is postural hypotension, left ventricular dysfunction, painless myocardial infarction, ischemia and sudden death. For this reason CAN results in significant morbidity and mortality in diabetic patients with its prevalence varies between 1% to 90%. The early detection of CAN is essentially important in-order to appropriately manage symptoms and prevent disease progression. Its diagnosis can be quickly and noninvasively made by measuring the standard autonomic function tests as described by Ewing's criteria. **Objective:** This study was conducted to determine the prevalence of CAN in diabetic patients attending the Muhimbili National Hospital (MNH) diabetic out-patient clinic. **Methodology:** It was a descriptive cross sectional hospital based study among diabetic patients attending the MNH diabetic out-patient clinic. CAN was assessed by using five autonomic function tests by Ewing's criteria. These were, resting heart rate, beat-to-beat heart rate variation, heart rate response to standing, systolic blood pressure response to standing and diastolic blood pressure in response to isometric exercise. These autonomic function tests were then scored and assigned to three categories; early CAN if there was only one autonomic dysfunction, definite CAN if there were two abnormal tests and severe CAN if three or more tests were abnormal. CAN was described to be present when there was at least one abnormal result detected. Information was recorded using a structured questionnaire and data analyzed using SPSS version 20. **Results:** The prevalence of CAN was found to be

100% (N= 270) within the study group (based on at least one abnormal autonomic function test) using Ewing's criteria in a population comprising of 20.4% Type 1 diabetic patients and 79.6% Type 2 diabetic patients. The most predominant type of CAN was Definite CAN seen in 44 (80.0%) Type 1 diabetic patients and 164 (76.3%) in Type 2 diabetic patients. The severe type of CAN was detected in 2 (3.6%) of Type 1 diabetic patients and 11 (5.1%) of Type 2 diabetic patients. The patients included in the study had an age range between 18-85yrs with the mean (SD) of 53 (12.73) years. There was a positive association between increasing age and CAN ( $p = 0.045$ ) with the majority of patients affected 156 (57.8%) being in the 36-60 years age group. Poor glycaemic control assessed by high fasting blood glucose showed a positive association ( $p = 0.013$ ,  $N = 105$ ) with CAN. There was no significant association of CAN with other risk factors such as duration of diabetes, hypertension, smoking and a high Body Mass Index. **Conclusion and Recommendation:** All diabetic patients studied at the Muhimbili National Hospital were found to have at least one form of CAN. This can be attributed to the study population being much older (mean age  $52.5 \pm 12.7$  years) and the high proportion of poor glycaemic control which was evident from the high fasting blood glucose levels. Because of this high prevalence and the known high morbidity and mortality associated with CAN, it is recommended that screening for autonomic dysfunction be tested in all Type 2 patients at regular intervals say 6 monthly in-order to detect, risk stratify and treat the dysfunction early, therefore preventing disease progression.

74. **Choi, Y. Y., Kwon, I. G., Lee, S. K., Kim, H. K., Kim, H. I., Noh, S. H. Can we apply the same indication of endoscopic submucosal dissection for primary gastric cancer to remnant gastric cancer? *Gastric Cancer*, 2013: 1-6.**

**Background:** Currently, remnant gastric cancer (RGC) is uncommon compared with gastric stump cancer, but early detection of gastric cancer and improved postsurgical survival will lead to increased incidence of RGC. Therefore, the indication of endoscopic submucosal dissection (ESD) for RGC is now required, but there have been no reports about this because of the lack of information for RGC. **Methods:** A retrospective review was conducted on 105 patients who underwent completion total gastrectomy (CTG) and 5 patients who underwent ESD for RGC between January 1998 and December 2010 at Yonsei University Hospital. **Results:** Forty-one (39 %) of 105 patients were diagnosed with early RGC. Among these patients, 6 had an absolute indication for ESD, whereas 11 met expanded criteria for ESD. In these patients, there was no association between the severity of the former gastric cancer and the current RGC. Also, none of these 17 patients had LN metastasis after CTG, and only 1 (2.4 %) of 41 early RGC patients had LN metastasis. Median operative time was 216 min for CTG and median hospital stay was 8 days. There were two major and five minor complications. One splenectomy was performed because of injury that occurred during CTG. **Conclusions:** Applying the indication of ESD for primary gastric cancer to RGC would be possible, and it could be an alternative treatment option for selected patients with RGC. common injuries (45%) followed by traumatic brain injuries (19%) and burns (14.5%). Only 10% of patients were discharged home from the EMD. Top mechanisms and patterns varied when sub stratified by age quartiles. **Conclusion:** Childhood injury



accounts for a substantial burden of disease at the MNH ED, with MTA being the most common mechanism overall, and with mechanisms and patterns varying by age.

75. **Chomi, E., Mujinja, P., Enemark, U., Hansen, K. & Kiwara, A. Health care seeking behaviour and utilisation in a multiple health insurance system: does insurance affiliation matter? 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**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. **Objectives:** This paper examines how the existence of multiple health insurance funds affects health care seeking behaviour and utilisation among members of the Community Health Fund (CHF), the National Health Insurance Fund (NHIF) and non-members in two districts in Tanzania. **Methods:** Data was collected using household survey in 2010 with a sample of 3290 individuals. The study uses Andersen's model of health care utilisation behaviour and 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, 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. In addition poor quality of care limits the extent to which health insurance can be used to achieve improved access and financial protection. **Conclusion:** 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.

76. **Chomi, E., Mujinja, P., Enemark, U., Hansen, K. & Kiwara, A. Risk Distribution across Multiple Health Insurance Funds in Rural Tanzania. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013.**

**Background:** Having 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. **Objectives:** This paper analyses whether the risk distribution varies across the CHF and 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 for health care utilisation 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. Equally important is the expansion of CHF coverage, by

addressing non-financial barriers to CHF enrolment to encourage wealthy non-members to join, as well as subsidised membership for the poorest.

77. **Chopra, S., Manyanga, V., Hoogmartens, J., Adams, E.** LC with electrochemical and UV detection for analysis of a formulation containing gentamicin and parabens. *Analytical Methods*, 2013; 5 (10), pp. 2491-2496.

This work describes two separate liquid chromatographic (LC) methods which were developed to control gentamicin sulphate and its preservatives methylparaben and propylparaben in an injectable formulation for veterinary purposes. Owing to the absence of a UV absorbing chromophore in the gentamicin molecule, LC combined with pulsed electrochemical detection (LC-PED) was found to be suitable for the determination of this drug in the formulation. The LC-PED methods from edition 7.0 (valid till 06/2012) and 7.5 (supplement valid from 07/2012) of the European Pharmacopoeia (Ph. Eur.) were compared. The currently recommended LC-PED method allowed good separation between the main gentamicin components and their impurities without interference from additives. Because of its better performance the actual method was used to investigate the degradation profile of the gentamicin sulphate injection. Results obtained from the forced stability study showed that the formulation was stable to oxidative and thermal stress. For the control of the preservatives, a LC-UV method was applied. Both methods were found to be specific, linear and precise. Hence, these two LC methods can be used for routine analysis of the gentamicin sulphate injection.

78. **Chuva, M. L.** Untreated dental caries - magnitude, treatment need and restorative care demand among patients aged 12 years and above attending Public Dental Clinics in Dar es Salaam, Tanzania. Master of Dentistry (Restorative Dentistry). Dissertation. 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Background:** Literature shows that patients attending dental clinics in Tanzania have long-standing untreated carious lesions. Dental caries has been a major reason for attendance in dental clinics. The accumulation and persistence of dental caries suggest that the disease has either not received proper attention or has been going on un-addressed for long time. Various factors have been implicated to the accumulation and persistence of dental caries, hence the load of the untreated disease. Dental caries experience levels in Tanzania is low with mean DMFT of 1.8 and 3.8 for age groups 20-29 years and 50-59 years, respectively; and below 1 for permanent dentition among 12 year olds. Despite the low experience levels, the reported high accumulation of untreated caries is a cause for concern. **Aim:** The study aims to determine the magnitude of untreated dental caries, caries treatment needs and demand for restorative dental care among patients aged 12 years and above attending public dental clinics in Dar es Salaam, Tanzania. **Methodology:** A cross-section study was conducted among patients aged 12 years and above who attended public dental clinics in Dar es Salaam between

August and September 2012. A sample of 310 participants randomly selected was interviewed using a structured questionnaire. Clinical examination was performed by a calibrated examiner in which caries experience; severity, distribution and treatment needs were assessed and recorded using the WHO Basic Oral health Survey Methods criteria (WHO 1997). Informations obtained were recorded in a specially designed form. Data cleaning and analysis was done using Statistical Package for Social Sciences (SPSS) version 16 and statistical significance difference was assumed when p-value was less than 0.05. **Results:** A total of 310 dental patients aged 13-76 years (mean age of 31.9 years) participated in the study with females being more than half (64.2%) of all participants. Almost all participants (99.7%) reported to have experienced tooth decay with mean DMFT score of 6.6. The proportion of D component of DMFT (untreated dental caries) was found to be 62%. Dental caries were more in posterior teeth (88.8%) than other teeth. Dentinal caries were common in 62.7% of the carious teeth with majority of them (85.3%) being in posterior teeth. About 75% of the carious teeth needed restorative care (filling or endodontic care). Only 23.9% of participants demanded restorative dental care and demand varied significantly with education level ( $p < 0.05$ ). The most cited reasons for not demanding restorative care were high cost for the service (28.6%), fear that pain will persist (26.5%) and not being aware of the service (23.1%) **Conclusion:** In this study the amount of untreated dental caries was high. Posterior teeth were the most affected teeth and majority of the lesions in all teeth were located in dentine which means they needed simple filling. Demand for restorative care was low. **Recommendations:** Community education on presence, importance, benefits and outcome of dental restorative care is required. Atraumatic Restorative Treatment technique should be adopted in caries management and the focus should be to the strategic dentition. Another large study that will include representative sample for Tanzania population is required for better estimate of the amount of untreated dental caries and treatment need in Tanzania at large.

79. **Chuva, M. L. Untreated dental caries - magnitude, treatment need and restorative care demand among patients aged 12 years and above attending Public Dental Clinics in Dar es Salaam, Tanzania. Master of Dentistry (Restorative Dentistry). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

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**80. Clement, M. Treatment modalities and outcomes of patients with pituitary adenoma at inkhosi albert Luthuli central hospital at kwazulu natal province South Africa. Master of Science (Neurosurgery) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Introduction:** Pituitary tumours are common, estimated to constitute about 10 to 15 % of brain tumours. They have been studied extensively in developed world than developing and underdeveloped countries. Little is known in KwaZulu Natal province on what are outcomes of different treatment modalities of pituitary adenomas. **Objective:** The study objective was to assess the treatment modalities and their outcome in patients presented with pituitary adenoma. **Materials and Methods:** A descriptive cross-sectional retrospective study on patients who presented with pituitary adenomas at IALCH at Durban, KZN province in South Africa from January 2007 to December 2012. Patients were treated, medically, surgically and adjuvant medical and radiotherapy done. Treatment outcomes were assessed versus treatment modalities. Outcomes were considered as improved or not improved in patient preoperative

symptoms, residual or no residual tumour. Complications of each treatment modality were assessed. Outcomes were computed and association were determined using Chi-square test and p-values. **Results:** Out of 42 patients reviewed, 67.5% were female and 33% were males with a male to female ratio of 1:2. Fifty percent of patient had age above 40 years, mean age was 43 years, with a range of 19 to 76years, median of 40 years ( p-value <0.15). The main clinical presentations were, 48.4% of patient presented with symptoms related to visual disturbances, and 30.6% had headache. Laboratory results were reviewed, Out of 42 patients 6 had prolactinoma, 8 had GH secreting tumours, 2 had ACTH secreting tumours. In those prolactinoma patients 66.6% had serum prolactin levels 5000 to 1000001ng/ml, when bromocriptine or cabergoline instituted and patients were followed up for 3 to 6months. It was found that they had both clinical, visual, biochemical and radiological improvement and this was statistical significance ( p-value <0.04). Eight patients had GH secreting tumours, GH and IGF-1 levels compared preoperative and post operatives, it was found a significant decrease in serum levels in 48hrs and at 3 to six weeks, ( p-value <0.0067) this shows a possibility of good outcomes after surgery. A follow up of six month was not adequate for objective conclusion. Among 42 patients who were reviewed, 59.5% had Hardys Classification grade II, 35 patients were treated surgically and 6 patients with prolactinomas were treated medically, and one patient died while waiting operation with pituitary apoplexy. Sixty four percent of patients who had transphenoidal surgery had improvement, 4(80%) who had transcranial route, had improvement and there was statistical significant (p-value < 0.060). Considering all surgical modality used in all 35 patients who only 25.7% had no residual tumours and 74.3% had residual tumours. As far as surgical approach is concern, there was no statistical significance among surgical treatment approach used (p-values <0.27). Every surgical treatment had complications post operatively, however the patient who were operated transphenoidally had more complication than other group and this could be due the fact that 67% of patient who were operated had transphenoidal surgery, overall complications were CSF leak s(14.3%), DI (14.3%), Meningitis (8%) and permanent hypopituitarism (29.6%). Other patients who had residual tumours were either reoperated, treated medically with adjuvant therapy or stereotactic radiotherapy. **Conclusion:** Medical treatment for prolactin secreting tumours, and Surgical treatment for GH, ACTH, and TSH secreting tumours remain the known modalities of treatment of choice for pituitary adenomas. However sample size was small and findings of this size merit further research. **Recommendations:** Education is needed to avoid late hospital presentation to prevent avoidable irreversible visual disturbances. There is a need of the IALCH to improve its record keeping. Standardized criteria are of importance in managing patients with residual tumours.

81. Conig, R., Nassri, A., Meindl, M., Matuja, W., Kidunda, A. R., Siegmund, V., Bretzel, G., Loscher, T., Jiled – aall, L., Schmutzhard, E., Winkler, A. S. **The role of Onchocerca volvulus in the development of epilepsy in a rural area of Tanzania.** 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Several reports indicate high prevalence of both onchocerciasis and epilepsy in some regions of Africa. This raises the question of whether these diseases are associated. **Objectives:** We therefore investigated people with epilepsy and /or

onchocerciasis living in an area in Tanzania endemic for *Onchocerca volvulus* (*O. onchocerca*). **Methods:** We collected clinical information, skin snips, and blood from 300 individuals, and cerebrospinal fluid (CSF) from 197. Participants were allocated to 4 groups consisting of people with epilepsy and onchocerciasis (n=135), those with either epilepsy (n=61) or onchocerciasis only (n=35), and health individuals (n=69). Samples were evaluated for microfilaria, IgG4 antibodies against *O. volvulus*, *O. volvulus* antibody index (CSF/serum), and CSF routine parameters. Polymerase chain reaction (PCR) was performed on skin snips and CSF. **Results:** No difference was found in microfilaria density between participants with and without epilepsy (P=0.498). The antibody index was raised in 2 participants. CSF PCR was negative in all samples tested. **Conclusion:** Our results do not give evidence of a relationship between *O. volvulus* and epilepsy. Despite the fact that 2 participants had raised antibody index, the existence of cerebral onchocerciasis caused by migration of microfilaria into the CSF appears unlikely. However, to date unexplored reactions to the infestation with *O. volvulus* causing epilepsy cannot be excluded.

82. **Conserve, D., Sevilla, L., Mbwambo, J., King, G. Determinants of Previous HIV Testing and Knowledge of Partner's HIV Status Among Men Attending a Voluntary Counseling and Testing Clinic in Dar es Salaam, Tanzania. *American Journal of Men's Health*, 2013;7 (6), pp. 450-460.**

Voluntary Counseling and Testing (VCT) remains low among men in sub-Saharan Africa. The factors associated with previous HIV testing and knowledge of partner's HIV status are described for 9,107 men who visited the Muhimbili University College of Health Sciences' VCT site in Dar es Salaam, Tanzania, between 1997 and 2008. Data are from intake forms administered to clients seeking VCT services. Most of the men (64.5%) had not previously been tested and 75% were unaware of their partner's HIV status. Multivariate logistic regression revealed that age, education, condom use, and knowledge of partner's HIV status were significant predictors of previous HIV testing. Education, number of sexual partners, and condom use were also associated with knowledge of partner's HIV status. The low rate of VCT use among men underscores the need for more intensive initiatives to target men and remove the barriers that prevent HIV disclosure.

83. **Coline, M., Billy, N., Martha, L., Zul, P. An etiology of fever in children attending Korogwe District Hospital, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** There is scarcity of data and knowledge of causes of febrile illnesses other than malaria in the country. Malaria has been declining across Sub Saharan Africa; but number of febrile cases at health facilities remain high hence the need to establish evidence-based common causes of fever. **Objectives:** To determine systematically the common etiology of fevers in children aged between 2 months and 59 months attending

outpatient clinic at Korogwe District Hospital. **Methods:** This is a hospital based case-control study recruiting children aged 2 and 59 months with complaints of fever (cases, n=861); and control subjects (no fever, n=861) of matched age and sex. For all case subjects, blood testing is done for identification of Plasmodium species, human immunodeficiency virus (HIV), aerobic culture, infection markers, and kidney and liver function tests. Urine and stool cultures are performed for selected cases. Throat and nasal swabs and faecal samples are collected from all case and control subjects for molecular analysis of respiratory pathogens and enteric viruses respectively. A chest X-ray is done if pneumonia is suspected. **Results:** For the period of Jan 2013 to 14 Mar 2013, 173 cases and 95 controls have been recruited. The common causes of fever have been: 65% acute respiratory infection [24% URTI, 42% pneumonia], 12% gastroenteritis, 8.1% urinary tract infection [28% E.coli], 2% bacteraemia [S. typhi (3) and S. pneumonia (1)], 1% malaria, 1% HIV infection and 7% other infections. At this stage, X% causes of fever is still unknown. (More preliminary data will be available during presentation in May 2013) **Conclusion:** Proportion of each infection (parasitic, bacterial and/or viral), non-infectious fevers and fevers of unknown origin will be determined. Findings from this study will contribute towards better management of febrile illnesses including Malaria.

84. Cox, S.E., Nweneka, C. V., Doherty, C. P., Fulford, A. J., Moore, S. E., Prentice, A. M. **Randomised controlled trial of weekly chloroquine to re-establish normal erythron iron flux and haemoglobin recovery in postmalarial anaemia. *BMJ open*,2013; 2013; (7).**

**Objective:** To determine if low-dose weekly chloroquine (CQ) therapy improves recovery from malaria-associated anaemia. Design: Proof of concept randomised clinical trial. Setting: West Kiang District, Lower River Region, The Gambia. Participants: Children resident in participating communities, aged 12-72 months, with uncomplicated malaria identified using active case detection over two consecutive malaria transmission seasons. Interventions: In 2007, eligible children were randomised to chloroquine-sulfadoxine/pyrimethamine (CQ-SP) or co-artemether (ACT) antimalarial therapy, and after parasite clearance on day 3 were subsequently re-randomised (double-blind) to weekly low-dose CQ (5 mg/kg) or placebo. In 2008, all eligible children were treated with ACT and subsequently randomised to CQ or placebo. Outcome measures: The primary outcome was a change in haemoglobin from baseline (day 3 of antimalarial treatment) to day 90 in the CQ and placebo treatment arms. Secondary outcomes were changes in urinary neopterin as a marker of macrophage activation, markers of erythropoietic response and prevalence of submicroscopic parasitaemia. Change in haemoglobin in the placebo arm by initial antimalarial treatment was also assessed. **Results:** In 2007, 101 children with uncomplicated malaria were randomised to antimalarial treatment with CQ-SP or ACT and 65 were subsequently randomised to weekly CQ or placebo. In 2008, all children received ACT antimalarial treatment and 31 were subsequently randomised to receive weekly CQ or placebo. Follow-up to day 90 was 96%. There was no effect of weekly CQ vs placebo on change in haemoglobin at

day 90 (CQ+10.04 g/L (95% CI 6.66 to 13.42) vs placebo +7.61 g/L (95% CI 2.88 to 12.35)). There was no effect on the secondary outcomes assessed, or effect of initial antimalarial therapy on haemoglobin recovery. Higher day 90 haemoglobin correlated independently with older age, not being stunted, higher haemoglobin at day 0 and adequate iron status at day 3. **Conclusions:** Weekly low-dose CQ after effective antimalarial treatment is not effective in improving recovery from postmalaria anaemia.

85. **Dalaba, M.A., Akweongo, P., Savadogo, G., Saronga, H., Williams, J., Sauerborn, R., Dong, H., Loukanova, S.** Cost of maternal health services in selected primary care centres in Ghana: A step down allocation approach. *BMC health services research*, 2013; 13(1), 287.

**Background:** There is a paucity of knowledge on the cost of health care services in Ghana. This poses a challenge in the economic evaluation of programmes and inhibits policy makers in making decisions about allocation of resources to improve health care. This study analysed the overall cost of providing health services in selected primary health centres and how much of the cost is attributed to the provision of antenatal and delivery services. **Methods.** The study has a cross-sectional design and quantitative data was collected between July and December 2010. Twelve government run primary health centres in the Kassena-Nankana and Builsa districts of Ghana were randomly selected for the study. All health-care related costs for the year 2010 were collected from a public service provider's perspective. The step-down allocation approach recommended by World Health Organization was used for the analysis. **Results:** The average annual cost of operating a health centre was \$136,014 US. The mean costs attributable to ANC and delivery services were \$23,063 US and \$11,543 US respectively. Personnel accounted for the largest proportion of cost (45%). Overall, ANC (17%) and delivery (8%) were responsible for less than a quarter of the total cost of operating the health centres. By disaggregating the costs, the average recurrent cost was estimated at \$127,475 US, representing 93.7% of the total cost. Even though maternal health services are free, utilization of these services at the health centres were low, particularly for delivery (49%), leading to high unit costs. The mean unit costs were \$18 US for an ANC visit and \$63 US for spontaneous delivery. **Conclusion:** The high unit costs reflect underutilization of the existing capacities of health centres and indicate the need to encourage patients to use health centres. The study provides useful information that could be used for cost effectiveness analyses of maternal and neonatal care interventions, as well as for policy makers to make appropriate decisions regarding the allocation and sustainability of health care resources.

86. **Damian, C.** Knowledge and practice on birth preparedness and complication readiness among pregnant women in Singida Urban District, Tanzania. Master of Medicine (Obstetrics and Gynecology). Dissertation. 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Background:** Avoidable maternal mortality and morbidity remains a formidable challenge in many developing countries. According to TDHS 2010 the maternal



mortality rate is 454 per 100,000 live births. Many of the complications that result to maternal deaths are unpredictable, and their onset can be both sudden and severe. Delays in seeking, reaching and receiving appropriate health care services have been shown to be associated with maternal mortality. The causes of these delays are common and preventable. Birth preparedness and complication readiness in a third world setting where there is prevailing illiteracy, inefficient infrastructure, poor transport system, and unpredictable access to skilled care provider have the potential of reducing the existing high maternal morbidity and mortality rates. **Objectives:** To assess the knowledge and practice on birth preparedness and complication readiness among pregnant Women attending ANC at Singida Urban district. **Methodology:** A cross sectional analytical study which was done among 405 pregnant mothers. A structured exit questionnaire was used to collect data. SPSS version 16.0 was used to analyze data. Frequency distribution tables were created and logistic regression analysis was done to find the factors associated with BPCR. **Results:** Majority of responded were aged between 21 and 25 years old. More than 50% had completed primary school and 65% were married. About 25.6% of the respondents reported to have obstetric problems during previous pregnant. The knowledge of danger sign was found in 20% of respondents, and the most common mentioned danger sign was vaginal bleeding. The knowledge of danger sign was found to be strongly associated with previous obstetric problem. (OR 2, 95%CI: 1.1-4.0) Thirty six percent of respondents were found to be knowledgeable on BPCR and the knowledge was strongly associated with the knowledge of danger signs. (OR 4, 95% CI: 2-7.5). Birth plan was found in 68.1% of pregnant mothers and these were associated with marital union. **Conclusion and recommendation:** The study has revealed the low level of knowledge on danger signs and relatively low level of knowledge on BPCR among pregnant women attending ANC clinics. Despite these findings encouragingly majority of women had birth plan. Education on the knowledge of danger sign and BPCR should be provided from the community level to individual pregnant mother's level. Also, male involvement and improvement of health care services are important in improving the maternal health.

87. Dao, A. T., Luong, V. T., Nguyen, T. T., Huynh, Q. T., Phan, T. T., Lam, M. T., Koriyama, C. Risk Factors for Early Fatal Outcomes Among Children with Hemophagocytic Lymphohistiocytosis (HLH): A Single-Institution Case-Series in Vietnam. *Pediatric Hematology-Oncology*. 2013, 31( 3) ,271-281.

Hemophagocytic lymphohistiocytosis (HLH) is a rare and fatal hematological syndrome that causes a disturbance of the immune system. Overall mortality of HLH is greater than 50% and the majority of patients who die do so within the first 8 weeks of chemotherapy treatment. To find clinical parameters relating to high-risk HLH patients, this study examined associations between an early fatal outcome and potential prognostic clinical factors and laboratory findings on admission. Eighty-nine pediatric HLH patients were prospectively recruited in Children's Hospital No. 1, Ho-Chi-Minh City, Vietnam, during the period from January 2010 to August 2012. Associations between early fatal outcome and clinical and laboratory findings, including a cerebrospinal fluid examination and virological test on admission, were examined. During the 8-week therapy, 25 (28%) HLH patients died. Persistent fever (>2 weeks),

severe thrombocytopenia ( $<75 \times 10^9/L$ ), hyperbilirubinemia, and prolonged activated partial thromboplastin time (APTT) ( $>33$  sec) were significant risk factors of early fatal outcome. Multivariate logistic regression analysis revealed that thrombocytopenia and prolonged APTT ( $P$  for trend was 0.054 and 0.013, respectively) were independently associated with the early fatal outcome. Persistent fever, severe thrombocytopenia, hyperbilirubinemia, and prolonged APTT on admission will be useful and practical predictors to determine high-risk HLH patients.

88. **Darj, E., Nilsson, J., Pembe, A. B., Urasa, M. Safe injections and waste management at a Sub-Saharan regional hospital: a quantitative descriptive study. *Tanzania Journal of Health Research*, 2013; 15(1).**

**Objective:** To assess the knowledge and practice of safe injections and health care waste management among healthcare workers at a regional hospital in Northern Tanzania. **Methods:** A quantitative descriptive study was conducted 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. **Results:** 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. **Conclusion:** Healthcare workers reported good knowledge and practice of injections, and high knowledge of HIV transmission routes. However, it is concluded that 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 transmit through unsafe injections or poor health care waste management.

89. **Daudi, K. B. The role of financial and non-financial incentives on health workers' motivation in the context of primary health care: a case of Mbarali District in Mbeya Region, Tanzania. Master of Public Health. Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Low health workers' motivation is the core problem in health system underperformance in most low-income countries. A well-motivated human resource is critical to the improvement of health system performance, and financial and non-financial incentives have been shown to improve health workers motivation and performance. Although lot of information about the roles of financial and Non-financial incentives exist in Tanzania, but little is known about the extent to which these factors affect individual workers amongst different professions in rural and urban settings in the context of primary health system. **Objectives:** The objective of this study was to explore the extent to which financial and non-financial incentives affect workers' motivation

across different professions in Mbarali District in Mbeya Region, Tanzania **Materials and Methods:** A cross-sectional explorative study was done in Mbarali District. A total of 35 health facilities (1 hospital, 3 Health centers and 31 Dispensaries) and 140 health workers of different cadres were selected basing on a convenient sampling method. A semi-structured questionnaire with both closed and open-ended questions was used for collecting the necessary information for answering the research questions. **Results:** Over 58(41.4%) of respondents were involved from the District Hospital, 52(37.1%) from health centers and 30(21.4%) from Dispensaries. More than half (57.5%) of the prescribers had leadership responsibilities and over three quarters (75%) of the respondents had been in their facilities for less than ten years. Majority of respondents had not attended even one long-term training (77.1%) or short-term training (66.4%) although most (61.2%) of them had an opportunity to attend at least one to five seminars and workshops. The frequently mentioned types of incentives as the most preferred factors for motivation were good working environment (80%), being paid adequate amount of extra-duty or on-call allowances (41.4%), being paid adequate amounts of salaries (30.7%), good living conditions (27.9%) and good management and supervision (20.7%). A notable number of health workers were not satisfied with their job and only 23.6% of them reported to be motivated to perform their duties. **Conclusion and recommendations:** Performance of the majority of health workers in the primary health facilities was influenced by both financial and non-financial incentives and there is no significant difference on the extent to which these incentives influence workers motivation amongst different cadres. The commonly preferred incentives by health workers included good working conditions, adequate amounts of extra-duty or on-call allowances, adequate amount of salaries, good living conditions and good management and supervision. A significant number of workers in the primary health facilities of Mbarali District were dissatisfied with the job and very few of them were motivated to perform their duties. It has been recommended that, both financial and non-financial incentives must be improved and implemented simultaneously with more emphasis in low-resource areas.

90. Dewhurst, M.J , Di Marco, L.Y. , Dewhurst, F. , Adams, P.C. , Murray, A. , Orega, G.P. , Mwita, J.C., Walker, R.W. , Langley, P. **Electrocardiographic Reference Values for a Population of Older Adults in Sub-Saharan Africa. *Annals of Noninvasive Electrocardiology*, 2013; 2013.**

**Background:** Older adults in sub-Saharan Africa (SSA) are at greatest risk of an impending noncommunicable diseases epidemic, of which cardiac disease is the most prevalent contributor. Thus, it is essential to establish electrocardiographic reference values for a population that is likely to differ genetically and environmentally from others where reference values are established. **Methods:** Two thousand two hundred thirty-two apparently healthy community-based participants without known cardiac disease aged 70+ in rural Tanzania underwent 12-lead electrocardiography. Electrocardiograms were digitally analyzed and gender-specific reference values for P duration (PD), P amplitude (PAMP), P area (PAREA), P terminal negative force (V1) (PTNF), PR interval, QRS duration (QRSd), QT/QTc, R amplitude (II, V5) (RAMP) LVH index (LVHI), R axis and R/S ratio (V1) reported, following univariate analysis of

covariance using a multiple linear regression model, adjusting for age, systolic blood pressure (SBP), body mass index (BMI), and RR interval. **Results:** Data from 1824 subjects were suitable for analysis. Adjusted mean values for men/women were: PD 115/110 ms, PAMP (avg) 123/114  $\mu$ V, PAMP (II) 203/190  $\mu$ V, PAREA (avg) 5.3/4.6 mV\*s, PAREA (II) 9.3/8.1mV\*s, PTNF 1.7/1.4 mV\*s, PR 158/152 ms, QRSD 89/84 ms, QT 370/375 ms, QTc 421/427 ms, RAMP (II) 805/854  $\mu$ V, (V5) 2022/1742  $\mu$ V, LVHI 3.0/2.8 mV (Sokolow-Lyon), 1.293/1.146 mV (Cornell), R axis 51/49°, R/S 0.2/0.2. Excluding PTNF, R axis and R/S ratio, all gender differences were significant (P < 0.001 apart from LVHI [Sokolow-Lyon; P < 0.005]) and RAMP (II) [P < 0.05]) following adjustment for age, SBP, BMI, and RR interval. **Conclusions:** Our description of comprehensive electrocardiographic parameters establishes reference values in this genetically and environmentally diverse SSA population thereby allowing identification of "outliers" with potential cardiac disease.

91. **Dharsee, N. D. J. Clinical characteristics and response to treatment in children with hodgkin lymphoma in Tanzania. Master of Medicine (Clinical Oncology). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

Hodgkin lymphoma (HL) is a common childhood neoplasm which has a higher incidence in the 0-14 years age group in developing countries as compared to developed countries. Appropriate treatment is known to achieve a high cure rate, and today HL is one of the most curable malignancies of childhood and adolescence. In Tanzania, new treatment regimens were introduced for children with cancer at the Ocean Road Cancer Institute (ORCI) four years ago, significantly improving survival rates for children with all cancers combined. To assess the outcome of treatment in children specifically with HL, a retrospective study was carried out in children and adolescents with a diagnosis of Hodgkin Lymphoma treated at the paediatric unit of ORCI between January 2008 and December 2011. The association between treatment response and clinical pathological factors, treatment regimens and duration of therapy was examined. A total of 54 cases were retrieved, 45 of whom were males. The mean age was 11 years, and the majority came with stage III disease, with around a half of them presenting with fever. Standard chemotherapy with alternating cycles of ChIVPP/ABVD was the most commonly prescribed regimen, and 65% achieved complete remission, while 9 patients were still on treatment. Factors found to be significantly associated with a higher complete remission rate included early stage (stage I and II) disease, absence of weight loss as an associated symptom, ChI/VPP/ABVD chemotherapy regimen and completion of the prescribed number of chemotherapy cycles.

92. **Dowell, S.F., Sejvar, J.J. , Riek, L. , Vandemaele, K.A.H. , Lamunu, M. , Kuesel, A.C., Schmutzhard, E. , Matuja, W. , Bunga, S. , Foltz, J. , Nutman, T.B. , Winkler, A.S., Mbonye, A.K.Nodding syndrome. *Emerging Infectious Diseases*, 2013; 19 (9), pp. 1374-1384.**

An epidemic illness characterized by head nodding associated with onchocerciasis has been described in eastern Africa since the early 1960s; we summarize published reports and recent studies. Onset of nodding occurs in previously healthy 5-15-year-old children and is often triggered by eating or cold temperatures and accompanied by cognitive impairment. Its incidence has increased in Uganda and South Sudan over the past 10 years. Four case-control studies identified modest and inconsistent associations. There were nonspecific lesions seen by magnetic resonance imaging, no cerebrospinal fluid inflammation, and markedly abnormal electroencephalography results. Nodding episodes are atonic seizures. Testing has failed to demonstrate associations with trypanosomiasis, cysticercosis, loiasis, lymphatic filariasis, cerebral malaria, measles, prion disease, or novel pathogens; or deficiencies of folate, cobalamin, pyridoxine, retinol, or zinc; or toxicity from mercury, copper, or homocysteine. There is a consistent enigmatic association with onchocerciasis detected by skin snip or serologic analysis. Nodding syndrome is unexplained epidemic epilepsy.

93. **Dugange, F. J. Utilization of cost sharing funds and its associated factors in procurement of medicines and supplies in public primary health facilities in Kyela district council. Master of Public Health (MPH) Dissertation,2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background.** Shortage of essential medicines and supplies in most of public primary health facilities is among of the main challenges facing the health system in Tanzania. Shortages are mainly caused by limited budgets for health financing. In order to reduce budget gaps (Govt tax, donors), cost sharing schemes are used. Tanzania introduced cost sharing in 1993, aiming at generating revenues to complement government budget. In 1997, the Ministry of Health developed a cost sharing guideline which guides facilities on how to manage the funds. It requires facilities to spend at least 67% of funds for procuring medicines and supplies. Despite of guideline requirements, most public facilities have persistent shortage of medicines at an average of 40%. This has compromised the quality of health services provided to the community. **Objective.** Broadly, the objective of this study was to determine the extent of utilization of cost sharing fund and its associated factors in procurement of medicines and supplies in Kyela District, Tanzania. **Materials and Methods:** A facility based cross-sectional study using close-ended questionnaire was conducted in Kyela district in June 2013. The study involved 25 primary health facilities (24 dispensaries, one health centre) and seven CHMT members. Main respondent at the facility level was the facility in charge. The study obtained information on extent facilities utilized cost sharing fund for procuring medicines and other non-medical supplies. Challenges that were mainly encountered were explored. Results obtained were analysed by SPSS version 16 software. Cross-tabulations of results were done to obtain P values using Fischer's exact test. **Results:** A total of 32 respondents were included in the study. According to the 25 in charges, it was found that, most of health facilities 23 (92%) utilized the fund for various activities, while 2 facilities (8%) did not utilize the fund for any activity in the past 12 months prior to this study. On the other hand, 17 (68%) of the facilities used cost sharing fund to procure medicines and supplies while 8 (32%) did not procure medicines and supplies regardless of the shortages they experienced. In general, most of facilities

14 (56%) spent less than 40% of cost sharing fund for procuring medicines, none spent cost sharing according to the guideline minimum requirement (67%) for medicines. **Conclusion.** This study found that, in general most of public primary health facilities have cost sharing bank accounts, however utilization of funds poorly adhere to Cost Sharing Guideline. The main challenges reported to affect utilization of funds according to the guideline included: Inadequate financial management capacities at facility level (48%), long distance from health facility to the bank (24%), beaurocratic public procurement procedures (20%) and inadequate technical support from the council (8%).**Recommendations** From findings of this study, it recommends that, with the current persistent shortage of medicines and supplies in most public primary health facilities, the Ministry of Health and Social Welfare should re- examine the impact of cost sharing fund in procurement of medicines and consider more effective alternative options.

94. **Duysburgh, E., Zhang, W.-H., Ye, M., Williams, A., Massawe, S., Sié, A., Williams, J., Mpembeni, R., Loukanova, S., Temmerman, M. Quality of antenatal and childbirth care in selected rural health facilities in Burkina Faso, Ghana and Tanzania: Similar finding. *Tropical Medicine and International Health*, 2013; 18 (5), pp. 534-547.**

**Objectives:** To measure pre-intervention quality of routine antenatal and childbirth care in rural districts of Burkina Faso, Ghana and Tanzania and to identify shortcomings. **Methods:** In each country, we selected two adjoining rural districts. Within each district, we randomly sampled 6 primary healthcare facilities. Quality of care was assessed through health facility surveys, direct observation of antenatal and childbirth care, exit interviews and review of patient records. **Results:** By and large, quality of antenatal and childbirth care in the six districts was satisfactory, but we did identify some critical gaps common to the study sites in all three countries. Counselling and health education practices are poor; laboratory investigations are often not performed; examination and monitoring of mother and newborn during childbirth are inadequate; partographs are not used. Equipment required to provide assisted vaginal deliveries (vacuum extractor or forceps) was absent in all surveyed facilities. **Conclusion:** Quality of care in the three study sites can be improved with the available human resources and without major investments. This improvement could reduce maternal and neonatal mortality and morbidity.

95. **Duysburgh, E., Ye, M., Williams, A., Massawe, S., Sié, A., Williams, J., Temmerman, M. Counselling on and women's awareness of pregnancy danger signs in selected rural health facilities in Burkina Faso, Ghana and Tanzania. *Tropical Medicine & International Health*, 2013; 18(12), 1498-1509.**

**Objective:** The aims of this study were to (i) assess healthcare workers' counselling practices concerning danger signs during antenatal consultations in rural primary healthcare (PHC) facilities in Burkina Faso, Ghana and Tanzania; to (ii) assess pregnant women's awareness of these danger signs; and (iii) to identify factors affecting

counselling practices and women's awareness. **Methods:** Cross-sectional study in rural PHC facilities in Burkina Faso, Ghana and Tanzania. In each country, 12 facilities were randomly selected. WHO guidelines were used as standard for good counselling. We assessed providers' counselling practice on seven danger signs through direct observation study (35 observations/facility). Exit interviews (63 interviews/facility) were used to assess women's awareness of the same seven danger signs. We used negative binomial regression to assess associations with health services' and socio-demographic characteristics and to estimate per study site the average number of danger signs on which counselling was provided and the average number of danger signs mentioned by women. **Results:** About one in three women was not informed of any danger sign. For most danger signs, fewer than half of the women were counselled. Vaginal bleeding and severe abdominal pain were the signs most counselled on (between 52% and 66%). At study facilities in Burkina Faso, 58% of the pregnant women were not able to mention a danger sign, in Ghana this was 22% and in Tanzania 30%. Fever, vaginal bleeding and severe abdominal pain were the danger signs most frequently mentioned. The type of health worker (depending on the training they received) was significantly associated with counselling practices. Depending on the study site, characteristics significantly associated with awareness of signs were women's age, gestational age, gravidity and educational level. **Conclusion:** Counselling practice is poor and not very efficient. A new approach of informing pregnant women on danger signs is needed. However, as effects of antenatal care education remain largely unknown, it is very well possible that improved counselling will not affect maternal and newborn mortality and morbidity.

96. **Duysburgh, E., Ye, M., Williams, A., Massawe, S., Sié, A., Williams, J., Temmerman, M. Counselling on and women's awareness of pregnancy danger signs in selected rural health facilities in Burkina Faso, Ghana and Tanzania. *Tropical Medicine & International Health*, 2013; 18(12), 1498-1509.**

**Objective:** The aims of this study were to (i) assess healthcare workers' counselling practices concerning danger signs during antenatal consultations in rural primary healthcare (PHC) facilities in Burkina Faso, Ghana and Tanzania; to (ii) assess pregnant women's awareness of these danger signs; and (iii) to identify factors affecting counselling practices and women's awareness. **Methods:** Cross-sectional study in rural PHC facilities in Burkina Faso, Ghana and Tanzania. In each country, 12 facilities were randomly selected. WHO guidelines were used as standard for good counselling. We assessed providers' counselling practice on seven danger signs through direct observation study (35 observations/facility). Exit interviews (63 interviews/facility) were used to assess women's awareness of the same seven danger signs. We used negative binomial regression to assess associations with health services' and socio-demographic characteristics and to estimate per Study site the average number of danger signs on which counselling was provided and the average number of danger signs mentioned by women. **Results** About one in three women was not informed of any danger sign. For most danger signs, fewer than half of the women were counselled. Vaginal bleeding and severe abdominal pain were the signs most counselled on (between 52% and 66%). At study facilities in Burkina Faso, 58% of the pregnant

women were not able to mention a danger sign, in Ghana this was 22% and in Tanzania 30%. Fever, vaginal bleeding and severe abdominal pain were the danger signs most frequently mentioned. The type of health worker (depending on the training they received) was significantly associated with counselling practices. Depending on the study site, characteristics significantly associated with awareness of signs were women's age, gestational age, gravidity and educational level. **conclusion** Counselling practice is poor and not very efficient. A new approach of informing pregnant women on danger signs is needed. However, as effects of antenatal care education remain largely unknown, it is very well possible that improved counselling will not affect maternal and newborn mortality and morbidity.

97. **Eliakimu, H. Pharmaceutical logistics system performance of public health facilities in Pemba. Master of Science (Pharmaceutical Management). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Inventory management is the important pillar of the pharmaceutical supply system. Problems in inventory management system generally features with ad hoc decision about order frequency and quantity, inaccurate stock records and lack of system performance monitoring and consequently shortage of pharmaceuticals in the health facilities. **Objective:** The objective of this study was to assess the pharmaceutical logistics system performance in Pemba public health facilities. **Methodology:** The study was a cross-sectional survey that involved twenty eight health facilities and two warehouses. Inventory keeping records over a period of one year, from January to December 2012, were reviewed. Data on storage condition and HWs' knowledge on logistics were collected using storage condition check list and questionnaire respectively. Data on medicine expiry were collected based on recorded data and physical counting. **Results:** The average percent of time out of stock for all health facilities combined was 31%, at ZILS department store was 13.2% and at the Zonal Central Medical Store was 14.4%. Percentage of accurate stock records was 70.6% in health facilities that were using pull supply system, 64.9% in those facilities which were using push supply system, and 47.3% in facilities which were using bulky supply system (DHs). Storage condition in 52.2% of the PHCUs was unacceptable. **Conclusion:** Health facilities in Pemba, within a year, faced stock outs of a number of pharmaceutical products. Stock keeping records were also not perfectly accurate. It is recommended that training should be conducted to all health workers involved in the management of pharmaceuticals, on the basics of pharmaceutical store management with due emphasis on record keeping and specifically the proper use of store ledgers and bin cards.

98. **Eliapenda, A. Perceptions towards the role of exemption scheme in utilization of health services among most vulnerable children in Tanga. Master of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Tanzania is experiencing rapid increase in number of Most Vulnerable Children (MVC). Currently the total number of most vulnerable children is 10% of all



child population. These children are facing serious challenges in utilizing health care due to various reasons including poverty, distance to health facility and ability to pay for health care. Health is an expensive commodity which MVC households fails to foot its costs. Given the existence of health exemption scheme for MVCs, why does utilization remain low was the fundamental question of this study. **Materials and Methods:** The study aimed at exploring peoples' perceptions on the role of exemption scheme in utilization of health services among most vulnerable children. A qualitative study was conducted in Tanga City Council. Using a purposive sampling technique, a total of 36 key informants were recruited for participation in in-depth interviews. Thematic analysis was followed. **Results:** The study revealed that, majority of the people perceived a poor coordination in the operationalization of health exemption scheme. It was further found that, the scheme covered only one MVC per MVC household. The scheme package of services was selective to cover less costly diseases only. Also the issue of running out of stock of drugs, entailed poor quality of health care was perceived as a challenge in utilization of health care. However, majority of the people perceived a scheme as a useful intervention that would mean a lot if it would cover all health services at the point of need. **Conclusions and recommendations:** It is recommended that, key stakeholders for this intervention should be sensitized on exemption scheme implementation protocol. In addition, the health benefit package must be comprehensive to accommodate all health needs of MVCs. Finally, Tanga City Council should take necessary budgetary steps to avail medical supplies in all health facilities, giving special attention to MVCs who have been financially constrained to foot medical costs in health facilities, short of which morbidity and mortality rates among MVCs may increase due to resortment to folk healers, spiritual leaders and self medication.

99. **Emuze, F., Mashili, H., Botha, B. Post-occupancy evaluation of office buildings in a Johannesburg country club estate. *Acta Structilia*, 2013; 20(1), 89-110.**

The purpose of this article is to present the findings of a research project aimed at determining the level of satisfaction of building occupants in terms of Indoor Environmental Quality (IEQ) and the effect of IEQ on both the morale and the productivity of the employees working in the complex. The main findings were derived from the perceptions of the employees working in a Country Club Estate (CCE) in Johannesburg, South Africa. The questions asked addressed how poor air quality, lack of access to daylight, unpleasant acoustic conditions, and control over lighting and thermal comfort caused dissatisfaction with the buildings' IEQ. The data were collected during August and September 2012. Questionnaires were sent to ten office blocks within the CCE complex. A total number of 126 questionnaires were sent out and 102 replies were received. Observations from the data led to the view that the satisfactory level of IEQ awareness is low among the occupants and that the employees have limited control over issues such as air ventilation, artificial lighting and noise in their offices. Organisational structure needs to be formed that will enlighten occupants about factors that contribute to poor indoor air quality (IAQ). Organisational procedures also point to the fact that the level of IEQ is low. The inconsistent ratings that were recorded suggest that there

appears to be a major scope for addressing post-occupancy evaluation (POE)-related matters in the complex.

100. **Ettiègne-Traoré, V., Zanga Tuho, M., Mohamed, F., Azih, C., Mbofana, F., Mulenga, M. Wabwire-Mangen, F., Kwesigabo, G., Essombo, J., Kamiru, H., Nuwagaba-Biribonwoha, H., Torpey, K, Van Praag, E., Diul Mukadi, Y., Koole, O., Menten, J., Colebunders, R., Nelson, L.J. Adjorlolo-Johnson, G., Denison, J., Tsui, S., Hamilton, C.D., Mastro, T., Bangsberg, D., Ekra, K.A. Kouakou, J.S., Ehrenkranz, P., Ao, T., Alfredo, C., Jobarteh, K., Williams, S., Shiraishi, R.W., Baughman, A., Agolory, S., Bicego, G. , Spira, T. , Zee, A. , Kaplan, J. Ellerbrock, T.V., Auld, A.F. Differences between HIV-infected men and women in antiretroviral therapy outcomes - Six African countries, 2004-2012. *Morbidity and Mortality Weekly Report*, 2013; 62 (47), 946..**
101. **Ezeamama, A., Duggan, C., Manji, K., Spiegelman, D., Hertzmark, E., Bosch, R., Kupka, R., Okuma, J., Kisenge, R., Aboud, S., Fawzi, W. Clinical malaria diagnosis in pregnancy in relation to early perinatal mother-to-child transmission of HIV: A prospective cohort study. *HIV Medicine* 2013.**

**Objectives:** We prospectively investigated fever symptoms and maternal diagnosis of malaria in pregnancy (MIP) in relation to child HIV infection among 2368 pregnant HIV-positive women and their infants, followed up from pregnancy until 6 weeks post-delivery in Tanzania. **Methods:** Doctors clinically diagnosed and treated MIP and fever symptoms during prenatal health care. Child HIV status was determined via DNA polymerase chain reaction (PCR). Multivariable logistic regression models were used to estimate relative risks (RRs) and 95% confidence intervals (CIs) for HIV mother-to-child transmission (MTCT) by the 6th week of life. **Results:** Mean gestational age at enrolment was 22.2 weeks. During follow-up, 16.6% of mothers had at least one MIP diagnosis, 15.9% reported fever symptoms and 8.7% had both fever and MIP diagnosis. Eleven per cent of HIV-exposed infants were HIV-positive by 6 weeks. The RR of HIV MTCT was statistically similar for infants whose mothers were ever vs. never clinically diagnosed with MIP (RR 1.24; 95% CI 0.94-1.64), were diagnosed with one vs. no clinical MIP episodes (RR 1.07; 95% CI 0.77-1.48) and had ever vs. never reported fever symptoms (RR 1.04; 95% CI 0.78-1.38) in pregnancy. However, the HIV MTCT risk increased by 29% (95% CI 4-58%) per MIP episode. Infants of women with at least two vs. no MIP diagnoses were 2.1 times more likely to be HIV infected by 6 weeks old (95% CI 1.31-3.45). **Conclusions:** Clinical MIP diagnosis, but not fevers, in HIV-positive pregnant women was associated with an elevated risk of early HIV MTCT, suggesting that malaria prevention and treatment in pregnant HIV-positive women may enhance the effectiveness of HIV prevention in MTCT programmes in this setting. Future studies using a laboratory-confirmed diagnosis of malaria are needed to confirm this association.

102. **Fataki, M. R., Kisenge, R. R., Sudfeld, C. R., Aboud, S., Okuma, J., Mehta, S., Spiegelman, D., Fawzi, W. Effect of Zinc Supplementation on Duration of**

**Hospitalization in Tanzanian Children Presenting with Acute Pneumonia. *Journal of tropical pediatrics* .2013.**

**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.

103. Fehringer, J.A., Babalola, S., Kennedy, C.E., Kajula, L.J., Mbwambo, J.K., Kerrigan, D. **Community perspectives on parental influence on engagement in multiple concurrent sexual partnerships among youth in Tanzania: Implications for HIV prevention programming.** *AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV*, 2013; 25 (2), pp. 207-214.

Although concurrent sexual partnerships (CPs) have been hypothesized to be an important risk factor for HIV in sub-Saharan Africa, the social and cultural factors that encourage CPs are not well understood. This study explored the community's perspectives on the role that parents can play in influencing their children's decision to engage in CPs. We conducted 16 in-depth interviews, 32 focus group discussions, and 16 key informant interviews with 280 adult participants in Tanzania. Data were coded; findings and conclusions were developed based on themes that emerged from coding. Three parental influences on CPs emerged: parent-child communication about sex, both silent and explicit encouragement of CPs, and parental behavior modeling. Parents are typically either too busy or too "embarrassed" to talk with their children about sex and CPs. The information parents do give is often confusing, fear-based, inadequate, and/or only focused on daughters. Parents themselves also encourage CPs through complicity of silence when their daughters come home with extra cash or consumer goods. In some cases, parents overtly encourage their children, particularly daughters, to practice CPs due to the promise of money from wealthy partners. Finally, when parents engage in CPs, the children themselves learn to behave similarly. These results suggest that parents can influence their children's decision to engage in CPs. HIV prevention interventions should address this by promoting parent-child communication about sexuality; associated disease risks and gender-equitable relationships; promoting positive parental role modeling; and educating parents on the implications of encouragement of CPs in their children.

- 104. Felix. S., Christian. B., Eleuteri. K., Edwin. N. Strengthening the Training Institution Information System for improved HRH production in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Managing health workforce is one of the important tasks within the health sector that can be accomplished by the application of information systems. In Tanzania the ministry of health and social welfare (MOHSW) is mandated to oversee the planning, production, distribution, and management of human resource for health. It has been a challenge for MOHSW to collect, analyse, utilize, and share health training institutions (HTIs) information such as courses offered, required and available employees and assets, students enrolment and capacities, production. **Objectives:** To devise an efficient and effective method of managing and utilizing THIs information for informed decision making. **Methods:** In order to achieve this undertaking MOHSW in collaboration and with support from Japan International Cooperation Agency (JICA) and with consultation from Enter Soft Systems Ltd developed and implemented a Training Institution Information System (TIIS). Open and free software technologies were opted while deploying the system in a web based three-tier architecture. Prototyping techniques were utilized to quickly and easily gather requirements and inputs from the users. The national rollout of the system was done in five phases from 2009 to 2012. The activities done were system installation, operational and data utilization trainings and support supervision. **Results:** The system has been rolled out to 134 HTIs and about 321 officials were trained. Four support supervision visits and onsite trainings were conducted. About 90% of the data about the TIs has been collected and is being used at both the central and institution level to inform decision making process. A total 432 officials were trained in order to build capacity to utilize the data for planning, management and development of their institutions. **Conclusion:** The system has been perceived useful and easy to use. It has availed important information required for decision making in various aspects to oversee health workforce production, distribution, and teaching environment. Several challenges were encountered during the course of system introduction including lack of ICT supportive environment such as equipment, internet connectivity, IT support staff, and computer skills among users. Follow-up is being made to ensure smooth running of the system.

- 105. Felix. S., Edwin. N., Mhina C. Challenges and strategies on the Use of ICT in higher learning institutions: A case study of MUHAS. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Introduction of information and communication technologies (ICT) services in education sector has had an impact on educational and training needs, both in terms of the content and the delivery of educational and training services. As a result, Universities from both developed and developing countries are challenged with an enormous need to integrate ICT into their corporate strategies, organization and educational processes. The introduction of ICT at MUHAS was based on ad hoc needs accomplishment. This made unplanned growth of ICT infrastructure and services. There were no strategic plans to introduce ICT services in the core functions of the University.

Nonetheless, clear understanding of the current users' needs and perceptions, the challenges and opportunities provided by ICT is an important step towards effective and strategic use of ICT in enhancing teaching and learning processes. **Objectives:** To explore ICT usage challenges and needs among MUHAS staff and students **Methods:** This study was conducted at MUHAS in 2009/2010 employing both quantitative and qualitative techniques. Questionnaires were administered to the sample size of 340 people randomly and purposefully selected from the population. SPSS version 17 was used to record, clean and analyse the collected data. The descriptive statistics was used to assess the distribution of the variables among the study population. **Results:** Out of 340 samples 216 responded which is 63.7%. Mean age was 29.7years (range 19-68). Staff (both academic and administrative) were 27.3 % (n=59) while 72.7% (n=157) were students (undergraduate and postgraduate). 53% indicated to have attended computer training. Respondents rated their computer skills as low (23.1%), moderate (66.7%) and high (10.2%). With regards to users' satisfaction with ICT services provided only 19% were satisfied whereas 42.6% and 38.4% were unsatisfactory and undecided respectively. Inhibitors to an effective ICT usage in teaching and learning were reported to be inadequate computers (42%), slow and unreliable internet services(40% vs. 27%), lack of ICT training and inadequate ICT staff and support were reported by 18% and 15% respectively. **Conclusion:** Respondents perceived the use of ICT in teaching and learning as an important undertaking. A holistic and participatory approach is required to address challenges encountered by the ICT users.

**106. Flumence. G., Nathanael. S., Angwara. K., Simon. E. N. Dentistry in Tanzania: a rare profession in need of more thrust in improving oral health". 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The National Health Policy; MDG six and Vision 2025 emphasize Oral Health as a prerequisite for Health and well being. Planning and Strengthening Oral Health includes training adequate and highly qualified HRH to manage and provide the required services. This paper sets out to investigate training of Dental Surgeons (DDS) graduates and postgraduates (M.Dent) in the country for the period 1992 to 2010 in an attempt to draw conclusions on the future of Dentistry in the country and asses realization of its roles in well being. **Objectives:** To determine numbers and distribution of graduate and postgraduate Doctors of Dental Surgery trained in the country for the period 1992 to 2010. **Methods:** Analysis of Training and HRH records from the Health University and districts respectively over the period covered 1992-2010. **Results:** Only MUHAS trains DDS in Tanzania. For the past 19 years 247 graduated. From 1992 to 2000 an average of 7 graduated yearly. 2001 to 2010 the number rose to 19 yearly. By July 2011 out of 117 districts surveyed there were 83 districts in mainland Tanzania without a DDS after 22 years of training. In the same period only 14 graduated with an MDent. For the years 2005, 2007 and 2008 only one MDent graduated. 1992 to 2000 and 2009 there was none. Of the total graduates only 1 in 20 did postgraduate at MUHAS. In the same period 275 M.Med graduated from MUHAS. Of these 17.42% or 1 in every 5 did postgraduate. **Conclusion:** Dentistry is an "endangered species". The numbers trained are far too small to enable the profession reproduce itself or play a significant

role in Oral Health and so well being. A “Marshall plan” is needed to revitalize this discipline.

- 107. Fogel, J.M., Mwatha, A., Richardson, P., Brown, E.R., Chipato, T., Alexandre, M., Moodley, D., Elbireer, A., Mirochnick, M., George, K., Mofenson, L.M., Zwierski, S., Coovadia, H.M., Eshleman, S.H. Impact of maternal and infant antiretroviral drug regimens on drug resistance in HIV-infected breastfeeding infants. *Pediatric Infectious Disease Journal*, 2013; 32 (4), pp. e164-e169.**

**Background:** The HIV Prevention Trials Network (HPTN) 046 trial evaluated the efficacy of extended infant nevirapine (NVP) administration for prevention of HIV transmission through breastfeeding. Infants received daily NVP up to 6 weeks of age. HIV-uninfected infants (the intent-to-treat group) received daily NVP or placebo up to 6 months of age. We analyzed emergence of NVP resistance in infants who acquired HIV infection despite prophylaxis. **Methods:** HIV genotyping was performed using the ViroSeq HIV Genotyping System. Medians and proportions were used to summarize data. Two-sided Fisher exact tests were used to evaluate associations between categorical variables. **Results:** NVP resistance was detected in 12 (92.3%) of 13 infants who were HIV-infected by 6 weeks and in 7 (28%) of 25 infants who were HIV-uninfected at 6 weeks and HIV-infected at 6 months of age ( $6/8 = 75\%$  in the NVP arm,  $1/17 = 5.9\%$  in the placebo arm,  $P = 0.001$ ). Among those 25 infants, 4 had mothers who initiated an antiretroviral treatment regimen by 6 months postpartum. In all 4 cases, the treatment regimen included a non-nucleoside reverse transcriptase inhibitor (NVP or efavirenz). NVP resistance was detected in all 4 of those infants by 6 months of age ( $4/4 = 100\%$ ). In contrast, only 3 (14.2%) of the remaining 21 HIV-infected infants whose mothers did not initiate antiretroviral treatment developed NVP resistance ( $P = 0.003$ ). **Conclusions:** Extended NVP prophylaxis significantly increased the risk of NVP resistance in infants who acquired HIV infection after 6 weeks of age. Treatment of maternal HIV infection was also associated with emergence of NVP resistance in HIV-infected, breastfed infants.

- 108. Fredrick, F., Valentine, G. Improvised peritoneal dialysis in an 18-month-old child with severe acute malnutrition (kwashiorkor) and acute kidney injury: A case report. *Journal of Medical Case Reports*, 2013, Vol. 7 (1), pp 1.**

**Introduction.** Severe acute malnutrition is common in developing countries. Children with severe acute malnutrition are prone to complications, including electrolyte imbalance and infections. Our patient was an 18-month-old boy who had severe acute malnutrition (kwashiorkor) and developed acute kidney injury, which was managed with peritoneal dialysis using improvised equipment. This case report illustrates the importance of improvisation in resource-limited settings in providing lifesaving treatment. To the best of our knowledge, this is the first case report on peritoneal dialysis in a child with severe acute malnutrition (kwashiorkor). Case presentation. We report a case of an 18-month-old Bantu-African Tanzanian boy who had severe malnutrition and developed anuric acute kidney injury. He had severe renal dysfunction

and was managed with peritoneal dialysis using an improvised catheter and bedside constituted fluids (from intravenous fluids) and was diuretic after 7 days of peritoneal dialysis, with complete recovery of renal functions after 2 weeks. **Conclusion:** Children with severe acute malnutrition who develop acute kidney injury should be offered peritoneal dialysis, which may be provided using improvised equipment in resource-limited settings, as illustrated in this case report.

109. Fredrick, F., Mwanga, A. H., Akoko, L. O., Moshiro, R., Lema, L. E. K. A missed case of achalasia in an eight year old girl: a case report. *Tanzania Medical Journal*, 2013; 26(2), 1-2.

Achalasia is an uncommon condition which can occur at any age but onset before adolescence is unusual. When a child presents with regurgitation and dysphagia, achalasia should be considered after excluding other common conditions to avoid delay in diagnosis. We report a case of an 8-year old Tanzanian girl who presented to Muhimbili National Hospital with a 4-year history of dysphagia, regurgitation and weight loss. She was previously treated as a case of gastro-oesophageal reflux disease with no improvement. Barium oesophagram and endoscopy were performed and revealed achalasia which was successfully treated surgically. This report highlights the importance for clinicians to consider achalasia as a rare cause of dysphagia in children although it is unusual before adolescence.

110. Frumence, G., Nyamhanga, T., Mwangu, M., Hurtig, A.-K. Challenges to the implementation of health sector decentralization in Tanzania: Experiences from kongwa district council. *Global Health Action*, 2013; 6 (1), 20983.

**Background:** During the 1990s, the government of Tanzania introduced the decentralization by devolution (D by D) approach involving the transfer of functions, power and authority from the centre to the local government authorities (LGAs) to improve the delivery of public goods and services, including health services. **Objective:** This article examines and documents the experiences facing the implementation of decentralization of health services from the perspective of national and district officials. **Design:** The study adopted a qualitative approach, and data were collected using semi-structured interviews and were analysed for themes and patterns. **Results:** The results showed several benefits of decentralization, including increased autonomy in local resource mobilization and utilization, an enhanced bottom-up planning approach, increased health workers' accountability and reduction of bureaucratic procedures in decision making. The findings also revealed several challenges which hinder the effective functioning of decentralization. These include inadequate funding, untimely disbursement of funds from the central government, insufficient and unqualified personnel, lack of community participation in planning and political interference. **Conclusion:** The article concludes that the central government needs to adhere to the principles that established the local authorities and grant more autonomy to them, offer special incentives to staffworking in the rural areas and create the capacity for local key actors to participate effectively in the planning process.

111. Frumence, G., Nyamhanga, T., Mwangu, M. & Hurtig, A. **Challenges to the implementation of health sector decentralization in Tanzania: experiences from Kongwa district council.** 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** During the 1990s the government of Tanzania introduced local government and health sector reforms both of which adopted decentralization by devolution (D by D) approach involving the transfer of functions, power and authority from the centre to the local government authorities. The government vision was to create fiscal and administrative autonomous local authorities with freedom to make policy and operational decisions so as to improve the delivery of goods and services to the public including health services. **Objectives:** The objective of this paper is to examine and document the experiences facing the implementation of decentralization of health services from the perspective of national and district officials. Based on the case study of Kongwa district in Tanzania. **Methods:** This study adopted a qualitative approach using semi-structured interviews where seven policy makers at the national level and ten implementers of decentralized health services at the district level were interviewed. Data generated were analyzed for themes and patterns. **Results:** On one hand, the results showed several benefits of decentralization in the health sector including increased autonomy in local resource mobilization and utilization, enhanced bottom-up planning approach, increased health workers' accountability and reduction of bureaucratic procedures in decision making. On the other hand, the findings revealed several challenges, which hinder effective functioning of health sector decentralization to respond to the local needs and priorities: inadequate funding, untimely disbursement of funds, insufficient and unqualified personnel, lack of community participation in planning and political interference. **Conclusion:** We conclude that central government needs to adhere to principles that established local authorities and grant more autonomy to them, offer special incentives to staff working in the rural areas and create capacity for local key actors to participate in the planning process in the health sector.

112. Frumence, G., Mwangu, M., Chitama, D. & Kisanga, O. **Public-private partnership in health sector: role of Service Agreement in enhancing access to reproductive and child health services in Tanzania.** Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.

**Background:** Tanzania's government developed the national Public-private partnership (PPP) policy in 2009 and enacted a PPP Act no. 18 of 2010 in order to strengthen the collaboration between the public and private sector. In the health sector, the government adopted public-private partnership to meet the demand for health care and increase access to health services. Since 2008, the local government authorities have signed the Service Agreement (SA) under the PPP arrangement with faith-based and private health facilities to deliver some of the reproductive and child health (RCH) services and receive government's reimbursement for the services delivered. **Objectives:** The objective of this study was to assess the role of Service Agreement in enhancing access to reproductive and child health services. **Methods:** This was an evaluation study that applied qualitative methods of data collection as well as review of service delivery records. The study employed in depth interviews with key informants from national, regional, council and health facility levels, supplemented by group discussions with key stakeholders involved in the implementation of SA. Thematic analytical approach was used to analyze data. **Results:** Results indicate that before signing SA, faith-based health facilities were charging fee for RCH services, which did not attract significant numbers of clients mainly due to inability of many poor families including those living in the rural areas to pay the user fees.



RCH clients and patients had to walk long distances looking for public health facilities to get free RCH services. Study findings indicate that after signing SA, access to services in terms of affordability, availability and acceptability for both inpatient and outpatients particularly pregnant mothers and under 5 children has increased significantly. **Conclusion:** SA has increased access to RCH services for under 5 children and pregnant mothers to majority of people including families living in hard to reach areas.

**113. Gandye, Y. Progression of microalbuminuria among diabetic patients attending Muhimbili national hospital Dar es salaam, Tanzania over a nine year period. Masters of Medicine (Internal Medicine) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Microalbuminuria presents with different degrees of progression as it may regress to normoalbuminuria or progress to the irreversible stage of diabetic nephropathy and eventually end stage renal disease. Most available information are reports of studies done among Caucasians and there is paucity of such evidence among diabetic African patients describing the progression of microalbuminuria. This study aimed at determining the progression of microalbuminuria in patients with diabetes over a nine year period at MNH. **Methods:** A retrospective cohort study involved 259 participants a cohort of type 1 and type 2 diabetic patients who participated in the baseline study in 2003/2004. Urine samples were first screened using dipstick strip from the spot morning void urine. Patients who had dipstick negative for albuminuria were further tested using a semi-quantitative assay to determine albuminuria and creatinine concentrations in order to calculate ACR. Further information obtained included age, diabetes duration, sex, body mass index, blood pressure, serum lipid profile, serum creatinine and glycated haemoglobin. **Results:** High proportion of patients with microalbuminuria progression occurred in type 2 diabetes (83.3%) whereas half of the patients with diabetes type 1 presented with microalbuminuria persistence. Risk factor assessment showed that diabetic duration of 10-15yrs, poor glycemic control especially HbA1C >10%, isolated diastolic and both systolic and diastolic hypertension were associated with microalbuminuria progression. **Conclusion:** This study aimed at assessing the progression of microalbuminuria among diabetic patients over nine years at MNH diabetic clinic. The main finding of the study was high rate of microalbuminuria progression which occurred among the diabetic patients. Among the 74 patients with normoalbuminuria at the baseline who could be traced 93.2% of them their albuminuria progressed either to microalbuminuria 37 (50%), or progressed to macroalbuminuria 32 (43.2%). Whereas among those patients who had microalbuminuria at baseline, 75% progressed to macroalbuminuria and 25% persisted as microalbuminuria, none of them regressed towards normoalbuminuria. Additionally we found that progression of albuminuria occurred in both diabetic groups, the majority of progressers (83%) were observed among type 2 diabetic patients. This progression occurred mainly among diabetic patients with diabetic duration 10-15yrs, poor glycemic control (HbA1C >10%) and diastolic or both systolic and diastolic hypertension

**114. Garrison, J. J. Practices and perceptions on sexual activity before and during pregnancy among woman attending Antenatal Clinic in Dar es salaam-Tanzania.**

**Master of Medicine (Obstetrics and Gynaecology).Dissertation. 2013. Muhimbili. University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Pregnancy represents a significant period in the life of any woman and influences practices and experiences towards sexual activities. Changes occur in sexuality during pregnancy which may be physical or emotional. It is the responsibility of health care providers to address sexuality concerns, validate women's feelings, and provide suggestions of modifications in sexual practices to meet women's needs for sexual expression within the range of activities that are safe and acceptable. Inappropriate perceptions such as dilatation of birth canal to ease labour and delivery, dirty patch on the baby, abortion and preterm labour abound pregnancy sexuality in different societies leading to changes in the pattern of sexual behaviour during pregnancy. No study has been found to prove sexual intercourse in pregnancy as the cause of any undesired consequence or such perceived advantages. **Objective:**The broad objective of the study was to determine the practices and perceptions on Sexual activity before and during Pregnancy among Women attending Antenatal Clinic in Dar es salaam Materials and **Methods:** A descriptive cross-sectional study was carried out among 318 women attending antenatal clinic to determine their practices and perceptions on pregnancy sexuality. Respondents were selected by systematic random selection from attendance register. Information on their demographic characteristics, practices and experience and perceptions was collected through interviewer administered structured and semi-structured questionnaires. The data so obtained were then entered and analyzed using SPSS program. **Results:** Generally, pregnancy sexuality practices and experiences were significantly different from pre-pregnancy state as they were all negatively skewed in terms of rate of sexual activity, arousal, satisfaction, desire, orgasm, frequency and initiation of intercourse. More than 45% of respondents were in favour of sexual intercourse during pregnancy while about 34% were against it and the rest did not have an opinion. The perceived benefits of sexual intercourse in pregnancy included dilatation of birth canal (68.8%), initiation of labour (23%) and aiding growth and development (21.5%). Dirty patch on the baby's body (80.6%), abortion (49%) and preterm labour (13.0%) were the most frequently mentioned perceived adverse effects among respondents who were against it. More than 51% of them did not have sexuality discussion and 62.3% thought it was appropriate to discuss sexuality at the clinic and 70.0% preferred healthcare workers to initiate such discussion. **Conclusion and Recommendations:**The findings of this study shows that practices and experiences on sexual activity changed significantly compared to pre-pregnancy state. The belief that the baby will be born with dirty patches on the body was a unique finding of this study which was not mentioned as a reason to avoid sexual intercourse in pregnancy by the respondents in other studies. Inappropriate reasons such as dilatation of birth canal, bleeding, premature labour and growth of the baby were consistent with other studies. There is evidence of lack of knowledge about sexual intercourse during pregnancy among the respondents. It is our opinion that issues of pregnancy sexuality be deliberately included in the routine health education at the antenatal clinic by the healthcare workers.

115. Gebretensaye, T. G. Factors contributing to sleep deprivation and nursing strategies to facilitate sleep in intensive care unit sat Muhimbili National Hospital Dar es salaam, Tanzania. Master of Science Nursing (Critical Care and Trauma) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.

Sleep is defined as a periodic, reversible state of cognitive and sensory disengagement from the external environment. It is a complex physiologic and behavioural process essential for rest, repair, well-being, and survival. Sleep deprivation has been identified as a challenge for patients in the intensive care unit and this may lead to a variety of physiological and psychological dysfunctions that affect the recovery process. Studies conducted over the past 30 years indicate that sleep deprivation alters respiratory function, disrupts hormone levels, lowers immune function, and leads to neuro-cognitive changes. The aim of this study was to determine the modifiable factors that affect sleep in intensive care units, assess the nursing strategies practiced in the ICU and assess the actual nursing practice through observation. **Methods:** Quantitative, descriptive cross sectional study was conducted at the main and open heart surgery ICUs of Muhimbili National Hospital. Thirty three patients admitted to the main MNH ICU were interviewed and 41 nurses working in both the main MNH and Open Heart Surgery ICUs were provided with structured self-administered questionnaire. The main MNH ICU was also assessed for resource availability and actual nursing practice using a checklist. Participants were consented before their participation in the study. Ethical clearance was obtained from MUHAS ethical committee. The study was conducted from April to May, 2013. **Data analysis:** Data collected from the 33 patients (17 women and 16 men) and 41 nurses (30 women and 11 men) was analyzed using Statistical Package for the Social Sciences (SPSS) software version 20. Descriptive statistical methods including chi-square, Fisher's Exact Test, P-value, frequency, and proportions were used. Data collected using an observation check list to assess resource availability and actual practice of ICU nurses was also compiled. Close-ended questions were used to collect information. Each response was numerically coded as "0" for no or not observed practice and "1" for yes or observed practice. The data was then entered and analyzed using SPSS soft ware version 20. Frequencies and percentages were used to analyze data and descriptively summarized. **Results:** Patients reported that pain, noise, thirst and nursing care activities were the major factors impacting sleep in ICU; i.e 64% due to pain, 42% noise, 42% thirst and 39% due to care activities such as restriction of movement from blood pressure cuff and intravenous lines. Pain influenced sleep more in women than men, Fisher's Exact Test,  $p= 0.025$ . Feeling of thirst also showed high statistical significance difference among sex ( $p 0.009$ ). Nurses believed *stress* was the major factor, followed by *pain, noise and light*, as contributors for sleep deprivation in MNH ICUs. According to the nurse respondents, 76% believed sleep is influenced due to stress related to medical jargon, 73% due to pain, 71% due to noise and 61% due to light. The strategies reported used to promote sleep include 93% reduce noise from monitor alarms, and telephone conversation, 63%, described air conditioner and heater adjustment, 63% participants described feeding patient as prescribed, and 51% reported they address fluid needs based on patient assessment; 42% described they adjust light. Observation results also showed, most nurses were observed reducing monitor and

ventilator alarms, administering sedatives, increasing or reduction of clothing and giving warm baths, all nurses feed per ICU schedule, average number address fluid needs as prescribed. However staff telephone conversation in ICU was high. **Conclusion:** Sleep in the intensive care unit is influenced by care and treatment routines, environmental sources, physiological and psycho-social factors. Pain followed by noise, feeling of thirst and nursing care activities are among the major challenges that influenced sleep in the ICU. Women patients are more susceptible for sleep deprivation due to pain and feeling of thirst than men at MNH ICU. Limited resources used for sleep promoting strategies may have impacted quality care delivery in the ICU.

116. **Geldsetzer, P., Andrew, I., Sando, D., Mwanyika-Sando, M., Kilewo, C., Siril, H., Naburi, H., Mujinja, P., Mungure, E., Magesa, L., Li, N., Spiegelman, D., Chalamilla, G., Fawzi, W., Cluster-RCT of a community health worker intervention to improve antenatal care and PMTCT uptake and retention in Dar es Salaam. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Mother-to-child HIV transmission (MTCT) remains a significant public health challenge in Sub-Saharan Africa (SSA). An important factor that contributes to its persistence is a frequent delay in the first Antenatal Care (ANC) visit and a low overall number of ANC visits. **Objectives:** This study aims to determine the effectiveness, cost, feasibility, and acceptability of a Community Health Worker (CHW) intervention to improve ANC uptake and retention. **Methods:** A mixed methods performance evaluation of a cluster-randomized controlled trial is currently being conducted in Dar es Salaam. Through randomization, 36 out of 60 wards were chosen for the CHW intervention while the remaining wards are receiving the standard of care. The key tasks for the cadre of 214 CHWs include 1) conducting home visits to identify pregnant women and refer them to ANC; 2) raising awareness among pregnant women of ANC and prevention of MTCT (PMTCT); 3) providing home visits to keep track of ANC attendance; and 4) following up in those case where women have missed ANC or PMTCT appointments. **Results:** Based on data from the first 6 months, CHWs have newly identified 2,987 and visited 7,902 pregnant women. This suggests that CHW household visits appear to be feasible and acceptable to the community. In addition, preliminary results from the first component of a comprehensive performance evaluation of HBCs suggest that around 50% of all households with a pregnant woman and 20% of all households without a pregnant woman in the intervention areas were visited by a HBC during the first 8 months of the study. **Conclusion:** The results of this study will provide crucial evidence to policy makers in SSA on the cost-effectiveness of CHWs in improving uptake and retention of ANC and PMTCT services.

117. **Genet, S., Lema, Y., Lutale, J. Oxidative stress correlates with complications among diabetic patients attending a diabetic clinic in muhimbili national hospital, Dares Salaam, Tanzania. Indian Journal of Clinical Biochemistry, 2013; 28 (2), pp. 177-180.**

In diabetes, persistent hyperglycemia results in increased production of free radicals especially oxygen free radicals, which can cause cell destruction and tissue injury resulting in cell dysfunction. With the premise that oxidative stress is a major cause of diabetic complications, we conducted a controlled laboratory based investigation on level of lipid peroxide levels in the serum of Type 1 and Type 2 diabetic patients attending Muhimbili National Hospital. From our clinical data it was observed that majority of the patients had higher waist to hip ratio and body mass index, which suggests that the patients were either overweight or obese. The enrolled diabetic patients had higher lipid peroxide levels than controls and also Type 2 patients had higher lipid peroxide levels than Type 1 patients. Moreover, patients with known complications had higher lipid peroxide levels than patients without complications. The lipid peroxide levels in the diabetic patients were significantly different from that of the control subjects enrolled in the study. A majority of the diabetic patients had a poorly controlled blood sugar. Our finding hints that despite the fact that diabetic patients in our clinic are on follow up, they are at a risk of developing coronary heart diseases, neuropathy and other secondary diabetic complications.

**118. Geoffrey, A. Methicillin-resistant staphylococcus aureus (Mrsa) colonization among Intensive Care Unit (ICU) patients and Health Care Workers at Muhimbili National Hospital, Dar es Salaam, Tanzania. Master of Science in Epidemiology and Laboratory Management. Dissertation . 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Methicillin-resistant *Staphylococcus aureus* (MRSA) has been recognized as important nosocomial pathogen worldwide. MRSA may induce clinically manifested diseases, or the host may remain completely asymptomatic. **Objective:** To determine the magnitude of MRSA colonization among ICU patients and health care workers at Muhimbili National Hospital (MNH) in Dar es Salaam, Tanzania. **Methodology:** A cross-sectional hospital-based study was conducted from October 2012 to March 2013 in the two ICUs at MNH. Admitted patients and health care workers were enrolled in the study. Interviewer administered questionnaires, patient history forms, observation charts and case report forms were used to collect data. Swabs (nostrils, axillary or wounds) were collected. MRSA were screened and confirmed using cefoxitin, oxacillin discs and oxacillin screen agar. Antibiotic susceptibility was performed using Kirby-Bauer disk diffusion method. The risk factors for MRSA were determined using the logistic regression analysis and a p - value of <0.05 was considered as statistically significant. **Results:** Of the 169 patients and 47 health workers who were recruited, the mean age was 43.4 years SD  $\pm$  15.3 and 37.7 years SD  $\pm$  11.44 respectively. Among the patients males contributed 108 (63.9%) while in health care worker majority 39(83%) were females. The prevalence of MRSA colonization among patients and health care workers was 11.83% and 2.1% respectively. All (21) MRSA isolates were highly resistant to penicillin and erythromycin, and 18 (85.7%) were highly sensitive to vancomycin. Being male (AOR 6.74, 95% CI 1.31-34.76), history of sickness in past year (AOR 4.89, 95% CI 1.82- 13.12), being sick for more than 3 times in the past year (AOR 8.91, 95% CI 2.32-34.20), being diabetic (AOR 4.87, 95% CI 1.55-15.36) and illegal drug use (AOR 10.18, 95%CI 1.36-76.52) were found to be independently associated with MRSA

colonization. **Conclusions:** A study identified a high prevalence of MRSA colonization among patients admitted in the ICU. MRSA isolates were highly resistant to penicillin and erythromycin. History of illegal drug use was highly associated with MRSA colonization. **Recommendations:** Patients and health care workers should be screened prior to ICU admission and routinely, respectively, to identify individuals carrying MRSA. MRSA screening should prioritize groups at risk for MRSA colonization. Since MRSA show high resistance to commonly used antimicrobials, antibiotic susceptibility testing is recommended for effective treatment.

119. George, N., Fredrick, F. , Mohapatra, A. , Veeraraghavan, B. , Kakde, S.T. , Valson, A.T. , Basu, G. **Non-O1, non-O139 Vibrio cholerae sepsis in a patient with nephrotic syndrome.** *Indian journal of nephrology*, 2013; 23(5), 378.

*Vibrio cholerae* is an encapsulated bacterium, ubiquitous in the marine environment and generally considered to be non-pathogenic. However, it is known to cause diarrheal illness, wound infection, and bacteremia in immunocompromised hosts. Here we have described non-O1, non-O139 *V. cholerae* sepsis in a patient with nephrotic syndrome following exposure to sea-water. Interestingly, the exposure occurred remotely 4 months prior to the onset of nephrotic syndrome. The occurrence of florid sepsis after a prolonged interval from the time of exposure is peculiar and raises the possibility of an association between occult *Vibrio* sepsis and nephrotic syndrome.

120. George, U. **Components of systemic inflammatory response as predictors of mortality in children presenting with fever at The Emergency Medical Department, Muhimbili National Hospital. Masters of Medicine in (Emergency Medicine) Dissertation. 2013. Muhimbili University of Health and Allied Sciences . Dar es Salaam.**

**Introduction:** Sepsis is defined as a known or suspected infection in a patient with elements of the systemic inflammatory response syndrome (SIRS). Septic patients present with a variety of clinical manifestations, but temperature dysregulation, tachycardia, tachypnea, and an abnormal white blood cell (WBC) count are considered cardinal components of SIRS. We investigated the predictive value of SIRS criteria for in-hospital mortality among febrile children under 5 years old presenting to the Emergency Department (ED) at Muhimbili National Hospital in Dar-es-Salam, Tanzania. **Methods:** This was a descriptive cohort study of febrile children under 5 years, presenting to our ED. Providers prospectively completed a standardized data sheet. Outcome data was obtained from hospital records and telephone follow-up. Study data were entered into Excel (Microsoft, Redmond, WA, USA) and analyzed in SAS 9.3 (Cary, North Carolina, USA). **Results:** We enrolled 105 patients between August and November 2012. The median age was 14 months, with 80% over 6 months old, and 63.8% were male. 57 (54.3%) children were referred from outside facilities. The overall mortality rate was 19%, and 90% of children who died had  $\geq 2$  SIRS criteria. Mortality in children with  $\geq 2$  SIRS criteria (in addition to fever) was significantly higher (27.7% versus 5%) than in those with 0-1 SIRS criteria, and children with fever and  $>2$  SIRS

criteria were seven times more likely to die (OR 7.05,  $p=0.01$ ). 85 children were discharged from the hospital, and of the 64 (75.3%) children we were able to reach after discharge, all were alive at 14 day telephone follow-up. 19/85 children who survived to hospital discharge were lost to follow up. **Conclusion:** SIRS criteria may be helpful to predict febrile children at high risk of mortality. Further studies are needed to validate these findings in larger cohorts.

121. Gomez, F., Tomas, G., KO, W.-Y. , Ranciaro, A. , Froment, A. , Ibrahim, M. , Lema, G. ,Nyambo, T.B. , Omar, S.A. , Wambebe, C. , Hirbo, J.B. , Rocha, J. , Tishkoff, S.A. Patterns of nucleotide and haplotype diversity at ICAM-1 across global human populations with varying levels of malaria exposure. *Human Genetics*, 2013; 132 (9), pp. 987-999.

Malaria is one of the strongest selective pressures in recent human evolution. African populations have been and continue to be at risk for malarial infections. However, few studies have re-sequenced malaria susceptibility loci across geographically and genetically diverse groups in Africa. We examined nucleotide diversity at Intercellular adhesion molecule-1 (ICAM-1), a malaria susceptibility candidate locus, in a number of human populations with a specific focus on diverse African ethnic groups. We used tests of neutrality to assess whether natural selection has impacted this locus and tested whether SNP variation at ICAM-1 is correlated with malaria endemicity. We observe differing patterns of nucleotide and haplotype variation in global populations and higher levels of diversity in Africa. Although we do not observe a deviation from neutrality based on the allele frequency distribution, we do observe several alleles at ICAM-1, including the ICAM-1 Kilifi alleles, that are correlated with malaria endemicity. We show that the ICAM-1 Kilifi allele, which is common in Africa and Asia, exists on distinct haplotype backgrounds and is likely to have arisen more recently in Asia. Our results suggest that correlation analyses of allele frequencies and malaria endemicity may be useful for identifying candidate functional variants that play a role in malaria resistance and susceptibility.

122. Gonçalves, B.P., Huang, C., Morrison, R., Holte, S., Kabyemela, E., Prevots, D.R., Fried, M., Duffy, P.E., Resistance to Severe Plasmodium Falciparum Malaria in African Children. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Severe Plasmodium falciparum malaria is a major cause of pediatric mortality. Understanding factors involved in development of severe malaria during childhood may guide the development of anti-disease vaccines. **Objectives:** The competing hypothesis is that immunity to severe malaria results is qualitatively different from mild malaria, and more rapidly acquired for other reasons. There is also a prevailing dogma that immunity to severe malaria is acquired after one or two exposures to mild malaria. **Methods:** We enrolled mother-infant pairs at birth in Muheza-Tanzania, an area with intense malaria transmission. We monitored P. falciparum malaria morbidity in this longitudinal cohort of 882 children from birth up to age 4

years. **Results:** 102/882 children experienced severe malaria, but only 3 suffered more than 2 episodes. More than half of first severe malaria events occurred after a child's second infection. Although on average parasite levels were higher when children had severe disease rather than mild disease, most (67/102) children experienced high density infection with no more than mild symptoms either before or after having severe malaria. Severe malaria incidence rapidly decreased after infancy, while incidence of high density infection (>100,000 parasites/µl blood) remained stable. Infections before and after severe malaria episodes had similar parasite densities. Bed nets, maternal malaria, malaria season, and sickle trait modified severe malaria risk, and also modified parasite density during infections. **Conclusion:** Taken together, the data suggest that severe malaria cannot be explained by parasite burden alone, and that factors involved in immune-pathogenesis such as parasite virulence or host inflammation play key roles. Similarly, the diverging rates of severe malaria and high density infection indicate that acquired immunity to severe malaria is not explained by improved control of parasite density, and therefore might target distinct antigens or processes involved in severe syndromes.

123. Greenspan, J.A., McMahon, S.A., Chebet, J.J., Mpunga, M., Urassa, D.P., Winch, P.J. Sources of community health worker motivation: A qualitative study in Morogoro Region, Tanzania. *Human Resources for Health*, 2013; 11 (1), 52.

**Background:** There is a renewed interest in community health workers (CHWs) in Tanzania, but also a concern that low motivation of CHWs may decrease the benefits of investments in CHW programs. This study aimed to explore sources of CHW motivation to inform programs in Tanzania and similar contexts. **Methods:** We conducted semi-structured interviews with 20 CHWs in Morogoro Region, Tanzania. Interviews were digitally recorded, transcribed, and coded prior to translation and thematic analysis. The authors then conducted a literature review on CHW motivation and a framework that aligned with our findings was modified to guide the presentation of results. **Results:** Sources of CHW motivation were identified at the individual, family, community, and organizational levels. At the individual level, CHWs are predisposed to volunteer work and apply knowledge gained to their own problems and those of their families and communities. Families and communities supplement other sources of motivation by providing moral, financial, and material support, including service fees, supplies, money for transportation, and help with farm work and CHW tasks. Resistance to CHW work exhibited by families and community members is limited. The organizational level (the government and its development partners) provides motivation in the form of stipends, potential employment, materials, training, and supervision, but inadequate remuneration and supplies discourage CHWs. Supervision can also be dis-incentivizing if perceived as a sign of poor performance. **Conclusions:** Tanzanian CHWs who work despite not receiving a salary have an intrinsic desire to volunteer, and their motivation often



derives from support received from their families when other sources of motivation are insufficient. Policy-makers and program managers should consider the burden that a lack of remuneration imposes on the families of CHWs. In addition, CHWs' intrinsic desire to volunteer does not preclude a desire for external rewards. Rather, adequate and formal financial incentives and in-kind alternatives would allow already-motivated CHWs to increase their commitment to their work.

124. **Greenspan, J.A., McMahon, S., Chebet, J., Mpunga, M., Urassa D. & Winch, P.J. Sources of community health worker motivation: A qualitative study in Morogoro Region, Tanzania. 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013.**

**Background:** Evidence points to the success of community health workers (CHWs) in addressing health problems at the community level. There is a renewed interest in CHWs in Tanzania, but also a concern that investments in CHW programs may not lead to anticipated benefits due to low motivation of CHWs. **Objectives:** This paper presents suggestions for programmers to improve CHW motivation while contributing to the scarce published literature on this topic. **Methods:** Data were collected in 2011 in Morogoro Region, Tanzania. Research assistants conducted semi-structured in-depth interviews with 20 CHWs. Interviews were digitally recorded, transcribed, and coded prior to selective translation and thematic analysis. **Results:** Four sources of CHW motivation were identified: the individual, the family/household, the community, and the health system. At the individual level, CHWs are predisposed to volunteer work and apply their knowledge to problems of their own, and those of their families and communities. Families and communities motivate CHWs by providing moral, financial, and material support, including supplies, money, and help with farm work. The health system, including the government and its development partners, provide motivation in the form of stipends, supervision, training, and hope for future employment. **Conclusion:** (1) Tanzanian CHWs have an intrinsic desire to volunteer, and are often motivated to do unsalaried work because of the support received from their families when other sources of motivation are insufficient. Therefore, it is important for policy makers and program managers to consider the burden that a lack of remuneration imposes on the families of CHWs when devising a package of both financial and non-financial incentives to encourage retention. (2) CHWs' intrinsic desire to volunteer does not preclude a desire for external rewards. Rather, adequate and formal financial incentives and in-kind alternatives would allow already-motivated CHWs to increase the amount of time they devote to CHW work.

125. **Guwatudde, D., Bwanga, F., Dudley, L., Chola, L., Leyna, G. H., Mmbaga, E. J., Tumwine, J. K. Training for health services and systems research in Sub-Saharan Africa-a case study at four East and Southern African Universities. *Human resources for health*, 2013; 11(1), 68.**

**Background:** The need to develop capacity for health services and systems research (HSSR) in low and middle income countries has been highlighted in a number of international forums. However, little is known about the level of HSSR training in Sub-Saharan Africa (SSA). We conducted an assessment at four major East and Southern African universities to describe: a) the numbers of HSSR PhD trainees at these

institutions, b) existing HSSR curricula and mode of delivery, and c) motivating and challenging factors for PhD training, from the trainees' experience. **Methods:** PhD training program managers completed a pre-designed form about trainees enrolled since 2006. A desk review of existing health curricula was also conducted to identify HSSR modules being offered; and PhD trainees completed a self-administered questionnaire on motivating and challenging factors they may have experienced during their PhD training. **Results:** Of the 640 PhD trainees enrolled in the health sciences since 2006, only 24 (3.8%) were in an HSSR field. None of the universities had a PhD training program focusing on HSSR. The 24 HSSR PhD trainees had trained in partnership with a university outside Africa. Top motivating factors for PhD training were: commitment of supervisors (67%), availability of scholarships (63%), and training attached to a research grant (25%). Top challenging factors were: procurement delays (44%), family commitments (38%), and poor Internet connection (35%). **Conclusion:** The number of HSSR PhD trainees is at the moment too small to enable a rapid accumulation of the required critical mass of locally trained HSSR professionals to drive the much needed health systems strengthening and innovations in this region. Curricula for advanced HSSR training are absent, exposing a serious training gap for HSSR in this region.

- 126. Hassanali, A., Ochola, J.J., Lwande, W., Mbwambo, H. Z., Innocent, E., Mokuu, G. N. Comparison of the effects of extracts from three vitex plant species on anopheles gambiaes.s. (diptera: Culicidae) larvae, 2013; Acta Trop. 127(3):199-203.**

Acetone and methanol extracts of different parts of three Vitex species (leaves and stem bark of Vitex trifolia, leaves, stem bark and root bark of Vitex schliebenii and stem and root bark of Vitex payos) were evaluated for their potential to control Anopheles gambiae Giles s.s. larvae (Diptera: Culicidae). The extracts gave different levels and rate of mortality of the larvae. Some (methanol extract of V. trifolia leaves, acetone extracts of stem bark and leaves of V. schliebenii, acetone extract of root bark of V. payos) caused 100% mortality at 100ppm in 72hours, with those of V. schliebenii and V. payos showing faster rate of mortality (LT50=8h) than that of V. trifolia (LT50=14h). At lower doses of these extracts ( $\leq 50$ 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 48hours. Extracts of the stem bark of V. payos showed interesting effects on the larvae. Initially, the larvae were relatively hyperactive compared to those in control treatments. Later, the ones that did not transform to larval-pupal intermediates became stretched and inactive and 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.

- 127. Hatib, M. M. Factors associated with early childhood caries in 2-5 year old children attending dental treatment at Muhimbili University dental clinic. Master of Dentistry (Paediatrics Dentistry) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Dental caries is an infectious disease resulting in demineralization of tooth hard tissues by acid produced as a result of fermentation of carbohydrates by specific adherent bacteria, primarily *mutans streptococci* (MS) in a given period of time. Dental caries occurring in children under five years of age is termed early childhood caries (ECC). The 2008/2009 epidemiological reports indicate that close to 50% of children below the age of five years in Dar es Salaam had ECC, and 80% of children who sought care due to oral diseases at the School of Dentistry, Muhimbili University of Health and Allied Sciences (MUHAS) between January–June 2012 had ECC. This information indicates that ECC is a public health problem in Dar es Salaam that needs to be addressed by suitable interventions which require thorough understanding of factors associated with the development and progression of dental caries in children. **Aim of the study:** To investigate factors associated with ECC. **Material and Methods:** This was a descriptive cross sectional hospital based study conducted in children aged 2- 5 years who attended dental treatment at paediatrics dental clinic School of Dentistry, MUHAS from September 2012 to March 2013. A total of 182 children and their parents/caregivers were recruited. Children were examined for dental caries using WHO criteria (1997) and oral hygiene status was recorded using modified Silliness and Löe Oral Hygiene Index (1964). A structured questionnaire inquired about socio-demographic characteristics of the parents/caregiver and the child, oral hygiene practices of the child, use of toothpaste, feeding practices and use of sugary snacks was used to collect data. **Results:** Fifty one percent of the examined children were girls. The mean age and dmft were 3.78 (SD 0.91) and 6.79 (SD 4.68) respectively. At the level of bivariate analysis, *older children (4-5 years); children reared by single mothers and children with poor oral hygiene* had statistically significantly higher dmft than their counterpart ( $\chi^2 = 6.71, p = 0.01$ ;  $\chi^2 = 3.99, p = 0.05$ ;  $\chi^2 = 3.85, p = 0.05$ ) for overall dmft respectively; and ( $\chi^2 = 3.70, p = 0.04$ ;  $\chi^2 = 7.47, p < 0.01$ ;  $\chi^2 = 5.27, p = 0.02$ ) for anterior dmft respectively. In logistic regression model *children aged 4-5 years* had higher Odds of having higher overall dmft than those aged 2-3 years [OR=2.77 (1.18-6.45), p=0.02], while *children with poor oral hygiene* had higher Odds of having higher dmft for anterior teeth than their counterparts with good oral hygiene [OR=2.51 (1.20 5.28), p=0.01]. “*Infants feeding practices*”; “*assistance in tooth brushing*”, “*frequency of tooth brushing*” and “*use of tooth paste*” had no significant association of having high/low caries experience. **Conclusion:** Poor oral hygiene, Child’s old age, and child being raised by a single mother were associated with higher caries experience. Infant feeding practices, assistance in tooth brushing, frequency of tooth brushing and use of toothpaste were not associated with having high/low caries experience.

128. Haule, M. F., Lyamuya, E. F., Matee, M. I., Kilonzo, B. S., Hang'ombe, B. M. **Factors associated with flea infestation among the different rodent species in Mbulu and Karatu districts, northern Tanzania. *Tanzania Journal of Health Research*, 2013; 15(3).**

Flea infection with the bacterium, *Yersinia pestis* is acquired from reservoirs which include several rodents and other small mammals. In areas that are endemic of plague, reservoirs of *Y. pestis* and various flea vectors are responsible for perpetuating existence of the disease. The objective of this cross sectional study was to investigate the

magnitude and factors associated with flea infestation among different rodent species of northern Tanzania, where outbreaks of plague have been recently reported. House rodents were trapped with box traps, while field and forest rodents were trapped with Sherman live traps. Fleas were removed from the rodents by using shoe-shining brush and were identified to genus level. Among the captured rodents, *Rattus rattus* (26.5%), *Lophuromys flavopunctatus* (16.5%), *Praomys delectorum* (16.2%) and *Mastomys natalensis* (32.3%) were most abundant rodent species, accounting for 91% of all species. Altogether, 805 fleas belonging to nine species were collected from 61% of the captured rodents. The most common fleas were *Xenopsylla* spp.; *Dinopsyllus* spp and *Ctenophthalmus* spp. Fleas were found to be highly abundant in *M. natalensis*, *R. rattus*, *P. delectorum* and *L. flavopunctatus*. Most of rodents were heavily infested with various flea species. These flea species probably play an important role in the transmission of plague in these two districts. We conclude that rodent species was the most important risk factor associating with flea infestation among the rodent population. Therefore, measures for control and prevention of plague in this area should particularly target rodents associated with high intensity of flea infestation.

- 129. Hausfater, P., Juillien, G., Madonna-Py, B., Haroche, J., Bernard, M., Riou, B. The systemic inflammatory response syndrome as a predictor of mortality among febrile children in the emergency department. Introduction: African journal of emergency medicine, 2013; 3(4): pp 15.**

Sepsis is defined as a known or suspected infection in a patient with elements of the systemic inflammatory response syndrome (SIRS). Septic patients present with a variety of clinical manifestations, but temperature dysregulation, tachycardia, tachypnoea, and an abnormal white blood cell (WBC) count are considered cardinal components of SIRS. We investigated the predictive value of SIRS criteria for in-hospital mortality among febrile children under 5 years old presenting to the Emergency Department (ED) at Muhimbili National Hospital in Dar es Salam, Tanzania. **Methods:** This was a descriptive cohort study of febrile children under 5 years, presenting to our ED. Providers prospectively completed a standardized data sheet. Outcome data was obtained from hospital records and telephone follow-up. Study data were entered into Excel (Microsoft, Redmond, WA, USA) and analysed in SAS 9.3 (Cary, North Carolina, USA). **Results:** We enrolled 105 patients between August and November 2012. The median age was 14 months, with 80% over 6 months old, and 63.8% were male. 57 (54.3%) children were referred from outside facilities. The overall mortality rate was 19%, and 90% of children who died had P2 SIRS criteria. Mortality in children with P2 SIRS criteria (in addition to fever) was significantly higher (27.7% versus 5%) than in those with 0–1 SIRS criteria, and children with fever and >2 SIRS criteria were seven times more likely to die (OR 7.05, p= 0.01). 85 children were discharged from the hospital, and of the 64 (75.3%) children we were able to reach after discharge, all were alive at 14 day telephone follow-up. 19/85 children who survived to hospital discharge were lost to follow up.

130. Hawkins, C., Christian, B., Ye, J., Nagu, T., Aris, E., Chalamilla, G., Spiegelman, D., Mugusi, F., Mehta, S., Fawzi, W. Prevalence of hepatitis B co-infection and response to antiretroviral therapy among HIV-infected patients in Tanzania. *AIDS*, 2013; 27 (6), pp. 919-927.

**Objectives:** To evaluate the prevalence of HIV/hepatitis B virus (HBV) co-infection and relationship between HIV/HBV and health outcomes in a cohort of HIV-infected adults receiving antiretroviral treatment (ART) in urban Tanzania. Design/methods: Clinical and immunologic responses to ART were compared longitudinally between HIV mono (HIV) and HIV/HBV co-infected (HIV/HBV) adults enrolled between November 2004 and September 2011 at the Management and Development for Health (MDH)-PEPFAR HIV Care and Treatment program in Dar es Salaam, Tanzania. Results: The prevalence of HIV/HBV co-infection was 6.2% (1079/17 539). Compared to HIV patients, HIV/HBV patients were more likely to be male, younger, and more immunosuppressed at ART initiation. Median ART duration was 18.6 [interquartile range (IQR) 4.9-29.5] and 18.2 (IQR 4.2-27.2) months in HIV and HIV/HBV patients, respectively. In multivariate analyses, a trend towards a higher risk of mortality was observed in HIV/HBV patients {hazard ratio 1.18 [95% confidence interval (CI) 0.98- 1.42], P1/40.07} as well as lower CD4 cell counts throughout recovery (P<0.01) and higher risk of moderate-to-severe hepatotoxicity (P values <0.01 for alanine transaminase >120 and >200 IU/l). There was a higher risk of mortality in HIV/HBV patients vs. HIV patients on non-tenofovir (TDF)-containing ART [hazard ratio 1.28 (95% CI 1.02-1.61), P<0.03], whereas there was no difference in the risk of mortality observed in HIV/HBV patients vs. HIV patients on TDF-containing ART [hazard ratio 0.70 (95% CI 0.34-1.44), P<0.33]; interaction P1/40.30. **Conclusions:** HBV co-infection significantly impacted ART outcomes in this Tanzanian HIV-infected population. Further research is needed to confirm the potential beneficial effects of TDF on mortality in HIV/HBV co-infected individuals in these settings.

131. Hollox, E.J. Copy number variation of Fc gamma receptor genes in HIV-infected and HIV-tuberculosis co-infected individuals in sub-saharan Africa. *PLoS ONE*, 2013; 8 (11):e78165.

AIDS, caused by the retrovirus HIV, remains the largest cause of morbidity in sub-Saharan Africa yet almost all genetic studies have focused on cohorts from Western countries. HIV shows high co-morbidity with tuberculosis (TB), as HIV stimulates the reactivation of latent tuberculosis (TB). Recent clinical trials suggest that an effective anti-HIV response correlates with non-neutralising antibodies. Given that Fc $\gamma$  receptors are critical in mediating the non-neutralising effects of antibodies, analysis of the extensive variation at Fc $\gamma$  receptor genes is important. Single nucleotide variation and copy number variation (CNV) of Fc $\gamma$  receptor genes affects the expression profile, activatory/inhibitory balance, and IgG affinity of the Fc $\gamma$  receptor repertoire of each individual. In this study we investigated whether CNV of FCGR2C, FCGR3A and FCGR3B as well as the HNA1 allotype of FCGR3B is associated with HIV load, response to highly-active antiretroviral therapy (HAART) and co-infection with TB. We confirmed an effect of TB-co-infection status on HIV load and response to HAART, but

no conclusive effect of the genetic variants we tested. We observed a small effect, in Ethiopians, of FCGR3B copy number, where deletion was more frequent in HIV-TB co-infected patients than those infected with HIV alone.

132. **Holmarsdottir, H.B., Desai, Z., Botha, L.R., Breidlid, A., Bastien, S., Mukoma, W., Ezekiel, M.J., Helleve, A., Holmarsdottir, H.B., Farag, A.I., Nomlomo, V. COMPARE Forum: The idea of North-South and South-South collaboration. *Compare*, 2013; 43 (2), pp. 265-286.**

**Introduction** Endothelial function is impaired in adults with sickle cell anaemia (SCA), but limited data exists in children. Endothelial damage occurs from chronic inflammation, oxidant damage, immune cell activation and ischemia-reperfusion injury. In addition, availability of nitric oxide (NO) as the major vasodilator may be reduced as a result of scavenging by plasma haemoglobin and reduced arginine substrate for endothelial nitric oxide synthase. **Methods** Tanzanian children (N=119) with SCA (HbSS) aged 8-11.9 years enrolled in the Vascular Function Intervention Trial (ISRCTN74331412/NCT01718054) underwent baseline assessment of endothelium-dependent and -independent vasodilatation. All children were determined clinically well at assessment, hydroxyurea naive, on no long-term medication and not receiving chronic blood transfusions. Blood pressure and vasomotion were assessed after 10 minutes recumbent rest in a temperature controlled room between 08-13:00 hrs. An identical protocol as published in children (Donald & Charakida *et al.* *Eur Heart J*; 2010; 31; 1502-10) was used. In brief, brachial arterial endothelium dependent dilatation was assessed by 1 of 3 trained technicians using ultrasound imaging (Ultrasonix SonixTouch with a 12Mz probe & stereotactic holder) to assess flow-mediated dilatation (FMD) in response to reactive hyperaemia induced after release of transient blood pressure cuff occlusion (5 min, 200 mmHg, Hokanson, USA) using an automated air regulator (Logan Research, UK). Automated B-mode image edge detection was used to measure maximum change in arterial diameter (Brachial Tools) expressed as a percentage of resting baseline diameter (FMD<sub>max</sub>). Endothelium-independent responses to 2.5µg sublingual glyceryl-trinitrate (GTN) were also assessed. All recordings were over-read by an experienced researcher in the UK. Venepuncture for full blood count, clinical chemistry and amino acids was conducted after FMD assessment. **Results** Patient characteristics are described in Table 1. Mean brachial artery diameter at baseline was 2.61mm (95% CI 2.55 – 2.67mm). Mean FMD<sub>max</sub> was 7.70% (95% CI 7.09 – 8.32%). Endothelium-independent vasodilation (GTN<sub>max</sub>) was 4.15% (95% CI 3.83 – 4.47%). The FMD<sub>max</sub> response was on greater than the GTN<sub>max</sub> response (Figure 1). No effect of room or skin temperature on FMD<sub>max</sub> or GTN<sub>max</sub> was observed. There was a strong inverse association between baseline artery diameter and FMD<sub>max</sub> (-3.46, P<0.001) (Figure 2). The time to peak brachial artery diameter in response to hyperaemia was positively skewed (median 55s (IQR: 43-79s)) and was not associated with FMD<sub>max</sub>. The only patient characteristic associated with FMD<sub>max</sub> was age with a non-significant inverse correlation (-0.52, P=0.06) but was reduced when adjusting for baseline diameter. Baseline heart rate was positively associated with FMD<sub>max</sub> and GTN<sub>max</sub> (P=0.01 & 0.025).

133. Hussein, M., Manji, KP. Prevalence, risk factors and awareness of high blood pressure and hyperglycemia in Mafia island, October 2011. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Hypertension and Diabetes Mellitus are rapidly emerging throughout the world. These are chronic illnesses with high morbidity and mortality. Risk factors are contributed by nature and nurture. Primary prevention, adequate treatment and prevention of complications is of utmost importance. The prevalence of Hypertension in Africa ranges from 11-47%. In Tanzania, there was a prevalence of 30% in males and 28.6% in females, 20% of hypertensive subjects were aware, 10% were receiving treatment and 1% had controlled blood pressure. The prevalence of Diabetes Mellitus ranges from 0-16% in Africa. The prevalence of Diabetes Mellitus in rural Tanzania among males and females was 1.7% and 1.1% respectively. **Objectives:** To determine the prevalence and assess risk factors, awareness, treatment and control of high blood pressure and hyperglycemia. **Methods:** A total of 570 adults were interviewed and assessed in terms of anthropometric measurements, blood pressure and random blood glucose. Data was analyzed using SPSS (Version 17). **Results:** A greater proportion (27%) of study subjects were aged 41-50 years, the male to female ratio being 1.05:1. Elevated blood pressure was seen in 49.5% of the participants while elevated RBG was seen in 9.2% of study subjects. Of the 118 participants who were aware of being hypertensive, 57.6% were on medication and 28.8% had controlled blood pressure. Out of the 9.2% with elevated RBG, 46.2% were known diabetics. Of the known diabetics, 80% were on medication but only 20% had their blood glucose controlled. **Conclusion:** Alarming rates of High blood pressure and Hyperglycemia combined with lack of awareness makes the situation more dangerous. For many, this was the first time they measured their blood pressure and glucose and thus, initial diagnoses. There is a need to create awareness and intervene appropriately.

134. Iddi, Z. Prophylactic antibiotics practices at MNH Tanzania 2013. Master of Medicine (General Surgery) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.

**Background:** Antibiotic prophylaxis is used to reduce the incidence of postoperative infection. For antibiotics to be used as prophylaxis duration should not exceed 24 hours in many of the procedures. Single preoperative dose of antibiotics is as effective as full day course therapy assuming uncomplicated procedure. It should target anticipated organism and is unnecessary if the patient is already receiving antibiotics that cover the likely pathogens. It should be given within one hour before incision commonly at the time of induction of anaesthesia and during prolonged procedures antibiotics should be readministered every 3 hours with the exception of vancomycin, aminoglycosides and fluoroquinolones. However, many studies show that these guidelines are not followed. Many studies show use of prophylactic antibiotics when there is no clear indication for antibiotic prophylaxis, inappropriate drug use or duration of prophylaxis may be prolonged leading to increasing length of hospital stay, hospital cost, morbidity and mortality. This study was conducted to evaluate prophylactic antibiotics practices in

elective surgical operation at MNH. **Methods:** Hospital based descriptive study of prophylactic antibiotics use among elective surgical patients. A total of 1146 elective operation done from July 2012 to January 2013 were included in the study. Prospective surgical audit of these elective surgeries were done using a structured questionnaire which was used to collect information on social demographic profile, operative information of timing of prophylactic antibiotics administration, postoperative antibiotic time, type of operation and choice of antibiotic given was done. **Study population:** All elective surgeries done during July 2012 to January 2013. **Data analysis:** was done using an SPSS computer program. **Results:** The majority of the respondents had primary education 68.8% with higher education being the least (3.7%). Among elective operation done there were 743(64.8%) male and 403(35.2%) female. Proportionally more patients were sixty years and above at 27.7%. Among elective surgery done at MNH 84.5% received prophylactic antibiotics. Eighty eight point four percent (88.4%) of clean contaminated wound which was eligible for prophylactic antibiotics received prophylactic antibiotics. However 72.1% of clean wound, 25% of contaminated and 83.3% of dirty wound received prophylactic antibiotics. Prophylactic antibiotic was administered to 89.4% of elective surgery patients in which there were external incision and 64% in which there were no external incision. The majority (57.3%) received prophylactic antibiotics one hour before surgery, and few (8.3%) received prophylactic antibiotics intraoperatively. The majority 836(86.4%) stopped prophylactic antibiotics more than five days post operatively while a few 0.9% stopped prophylactic antibiotics within twenty four hours post surgery. No additional prophylactic antibiotics was given Intraoperatively. The majority of patients who underwent thyroidectomy(58.2%) received both metronidazole and ceftriaxone. Patients who underwent cystectomy almost half (47.8%) received ceftriaxone alone and half (47.8%) received both ceftriaxone and metronidazole. Overall combination of ceftriaxone and metronidazole were the most used prophylactic antibiotics (47.2%) followed by ceftriaxone alone (42.2%). **Conclusion:** Elective clean surgeries received unnecessary prophylactic antibiotics. Some clean contaminated surgeries did not receive prophylactic antibiotics. Contaminated and dirty elective surgeries received prophylactic antibiotics. Prophylactic antibiotic has been given post surgery in some of the surgeries. No additional prophylactic antibiotics was given intraoperatively for the elective surgeries lasting more than 3hours. Prophylactic antibiotics has been prolonged post surgeries given in more than five days in the majority of elective surgeries. Combination of ceftriaxone and metronidazole was the most used prophylactic antibiotics followed by ceftriaxone alone. **Recommendations:** MNH should establish prophylactic antibiotics guideline which should be open and accessible by every member of the surgical team. Medical checklist should be practiced effectively. Frequent audit of prophylactic antibiotics use is needed to improve proper practices (prophylactic antibiotics uses). Surgeons should adhere to prophylactic antibiotics guidelines.

135. Innocent, E., Nkunya, M.H.H., Hassanali, A. Larvicidal activity of kotschya uguensis plant powders and methanol extracts against anopheles gambiae s.s. larvae in the laboratory and in simulated ponds. *Journal of Applied Pharmaceutical Science*, 2013; 3 (2), pp. 122-126.



Polar constituents of *Kotschya uguenensis* Verdc. (Fabaceae) do not exhibit acute toxicity but cause growth disruption of *Anopheles gambiae* s.s. Gile (Diptera: Culicidae) larvae with eventual death. Time-course larvicidal effects of powders of root and stem barks and their crude methanol extracts in form of emulsions were compared in the laboratory and in artificial semi-field ponds. *Kotschya uguenensis* powders of root and stem barks and emulsions of their crude methanol extracts were assayed against *An. gambiae* s.s according to protocols of WHO 1996 & 2005. All formulations were equally effective under laboratory conditions giving 100% larval mortality within three days at a dose of 50 µg/ml of the extracts or concentrations of powders corresponding to the same level of extractable material. Under semi-field conditions, suspensions of the powder materials appeared to perform better than emulsions of methanol extracts. Time taken to give 80% mortality (LT<sub>80</sub>) of larvae and pupa at 0.1% w/v was 6.06 days for powders of root bark and 5.60 days for powders of stem bark. The LT<sub>80</sub> for the root bark extract at 200 µg/ml was 8.28 days while that for the stem bark methanol extract was 12.47 days. No residual effects of the test materials on the larvae or pupae were evident in semi-field ponds 14 days after the reintroduction of the test materials. Our results suggest that, for the control of anophelines in the field, a weekly application of appropriate amounts of powders of *K. uguenensis* may be effective

136. Innocent, E., Daniel, B., Samwel, B., Kisanga, C.A., Hassanali, A., Kisinza, N.W. & Magesa, S.M. Establishing capacity of mosquito-borne disease control at MUHAS to bridge academia and community needs. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Communicating bioscience to the community has always been a difficult task if proper mechanisms are not put in place. In most cases, research findings are not translated into application to be used by community members especially in rural settings. In order to bridge what is being communicated in scientific world to the community, a simple methodology of formulating *Annona* biopesticide to be used by the community has been developed at the Institute of Traditional Medicine. **Objectives:** To adopt bioscience formulation principles and translate them into simple useful formulation for mosquito control of immature mosquitoes. **Methods:** Interview was done from the community to identify some useful plant species used for mosquito control. Plant materials were collected and tested in laboratory and semi-field conditions. Standardization was done, followed by formulation using non-economical materials available to the peoples' vicinity. Show case to demonstrate their efficacy was done through training workshops and community feedback meetings. **Results:** Awareness and training workshop to exchange ideas with stakeholders on issues pertaining to pest control especially control of malaria vectors using botanicals as a complementary tool in the Integrated Vector Management (IVM) received attention of the policy makers and implementers as well as community members through group sensitization workshop, meetings/discussion and show cases as will be discussed. **Conclusion:** Involvement of stakeholders in every developmental stage of the bioprospecting research is of important as they may act as research outcome catalyst and delivery tools to inform others such as policy makers. Furthermore, proper translation of formulations principles by using locally available materials would result in accessible value added botanical pesticides

137. Ippolito. G., Levy J.A., Sonnerborg .A. Mugusi. F., Dianzani .F. **AIDS and HIV Infection after Thirty Years.** *AIDS Research and Treatment*, 2013; 2013, pp3.

Acquired Immunodeficiency Syndrome (AIDS), caused by the Human Immunodeficiency virus (HIV), first appeared in Western countries in 1981 as a disease leading to a high death rate. It initially approached 100% after 5–10 years of the diagnosis. As evidenced from articles in this special issue, much progress has been made in the global fight against HIV/AIDS. Valuable information has been gathered on the virus and the host immune response to this new human pathogen. Successful therapies have been developed and approaches to control HIV spread have been instituted. The epidemic, however, continues to affect the Western countries and, importantly, the international community in resource-limited countries. According the United Nations Programme on HIV/AIDS (UNAIDS) estimates, published for the World AIDS Day 2012, 34 million (31.4–35.9) people are living with HIV, 2.5 (2.1–2.8) million people became new infected with HIV, and 1.7 (1.5–1.9) million died from AIDS-related illnesses.

138. Isanaka, S., Mugusi, .F., Hawkins, .C, Spiegelman, .D, Okuma, .J, Aboud, .S, Guerino, .C, Fawzi,.W.W. **Effect of high-dose vs standard-dose multivitamin supplementation at the initiation of HAART on HIV disease progression and mortality in Tanzania: a randomized controlled trial.** 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Large randomized trials have previously shown that high-dose micronutrient supplementation can increase CD4 counts and reduce human immunodeficiency virus (HIV) disease progression and mortality among individuals not receiving highly active antiretroviral therapy (HAART).**Objectives:** To test the hypothesis that high-dose multivitamin supplementation vs standard-dose multivitamin supplementation decreases the risk of HIV disease progression or death and improves immunological, virological, and nutritional parameters in patients with HIV initiating HAART.**Methods:** A randomized, double-blind, controlled trial of high-dose vs standard-dose multivitamin supplementation for 24 months in 3418 patients with HIV initiating HAART patients were given of daily oral supplements of vitamin B complex, vitamin C, and vitamin E at high levels or standard levels of the recommended dietary allowance.**Results:** The study was stopped early in March 2009 because of evidence of increased levels of alanine transaminase (ALT) in patients receiving the high-dose multivitamin supplement. At the time of stopping, 3418 patients were enrolled (median follow-up, 15 months), and there were 2374 HIV disease progression events and 453 observed deaths (2460 total combined events). Compared with standard-dose multivitamin supplementation, high-dose supplementation did not reduce the risk of HIV disease progression or death. The absolute risk of HIV progression or death was 72% in the high-dose group vs 72% in the standard-dose group (risk ratio [RR], 1.00; 95% CI, 0.96-1.04). High-dose supplementation had no effect on CD4 count, plasma

viral load, body mass index, or hemoglobin level concentration, but increased the risk of ALT elevations (1239 events per 1215 person-years vs 879 events per 1236 person-years; RR, 1.44; 95% CI, 1.11-1.87) vs standard-dose supplementation. **Conclusion:** In adults receiving HAART, use of high-dose multivitamin supplements compared with standard-dose multivitamin supplements did not result in a decrease in HIV disease progression or death but may have resulted in an increase in ALT levels.

**139. Ishengoma, J.S. Magnitude and risk factors of urinary schistosomiasis and its reproductive sequela in women of reproductive age in Manyoni district. Masters of Science Tropical Disease Control (TDC) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Urinary schistosomiasis is a neglected tropical disease that has received a lot of attention in school-aged children. A number of studies have revealed that the disease is common in women of reproductive age (15 - 49 years), although this population has not been studied widely in Tanzania. The aim of this study was to determine the magnitude of urinary schistosomiasis, its associated factors and its reproductive health outcomes in women of reproductive age in rural Tanzania. **Methods:** A population-based cross-sectional study was carried out in Manyoni district in two villages practicing irrigation farming among women of reproductive age. An interviewer-administered questionnaire was used to gather information on socio-demographic characteristics and risk factors known to be associated with urinary schistosomiasis, and female genital schistosomiasis infection. Urine samples were collected and evaluated for *Schistosoma haematobium* ova. Univariate and bivariate analysis were run using SPSS to identify important risk factors. **Results:** The prevalence of urinary schistosomiasis was 4% based on microscopic examination of eggs in urine. There was no significant difference in prevalence between the two studied villages. The median egg intensity of urinary schistosomiasis among infected individuals was 12 (interquartile range 20) eggs per 10 milliliters of urine. Low level of education was significantly associated with urinary schistosomiasis infection (% vs. %;  $p= 0.025$ ) in univariate analysis. This association remained significant after adjusting for potential confounders (AOR = 6.5, 95% CI: 1.2, 32), indicating that having primary education increases the risk for urinary schistosomiasis. Female genital schistosomiasis was found to be probable in 1.3 % of the study participants. **Conclusion:** The magnitude of urinary schistosomiasis in women of reproductive age in the two villages that practice irrigation farming is low. Low education is a predictor of urinary infection. The schistosomiasis control program in the district should develop strategies to address this group as they make act as reservoir for the infection. More studies should look into female genital schistosomiasis in this population.

140. **Jaffar, R. J. Knowledge and skills on managing eclampsia among nurse-midwives working at Mnazi Mmoja Hospital, Unguja Zanzibar. Master of Science in Nursing (Critical Care and Trauma). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Eclampsia accounts for over 50,000 maternal deaths a year worldwide and it is associated with very high fatality rate. It is for this reason knowledge of managing eclampsia among health workers is essential in reducing maternal morbidity and mortality. Nurse-midwives can play a major role in prevention of maternal death related to eclampsia. It is therefore important to assess Nurse-midwives knowledge in managing eclampsia. **Aim of the study:** The aim of the study was to assess the knowledge and Skills regarding management of Eclampsia among nurses and midwives working at Mnazi Mmoja Hospital, Zanzibar. **Materials and Methods:** A quantitative research methodology using descriptive cross section and observation study was used. Nurses-midwives knowledge and skills in management of eclampsia were tested by using self-administered questionnaires and observation checklist adopted from Jhpiego, 2011. The study recruited 129 Nurse-midwives who work at Mnazi Mmoja Hospital, Zanzibar. Data collection period was two weeks, commencing from 15<sup>th</sup> June to 30<sup>th</sup> June, 2013. Data was collected from the field through data coded and entered into SPSS version 20 for descriptive and inferential statistics. **Result:** All result presented in percentages in this study were rounded off. The findings of this study revealed that, less than half of study participants (43%) had good knowledge and about 60% had poor skills in managing eclampsia. Few participants (27%) had knowledge on guidelines used in managing eclampsia. The statistical evidence shows that there is relationship between knowledge and total year of experiences ( $p= 0.040 < 0.05$ ) but no significant difference was found between knowledge level of staff nurse-midwives and selected variables like age ( $p= 0.3 > 0.05$ ) and professional qualifications ( $p=0.51 > 0.05$ ). Drugs shortage (58%) and equipment shortage (50%) were among barriers faced by Nurse-midwives in managing eclampsia. Enough drugs and supplies (58%) and training/seminars (40%) were suggested as the way of enhancing management of women with eclampsia **Conclusion:** A study revealed that nurse-midwives had knowledge and practice gaps in areas of managing eclampsia. Provider's practices were not at appropriate level or in line with guidelines. Few Nurse-midwives reported to have attended in-service training on managing eclampsia. Resuscitation equipment and essential drugs for managing eclampsia are not enough and not regularly available. **Recommendation:**The Hospital administration should ensure there is regular availability of essential drugs and other supplies used in managing eclampsia. Hospital management should formulate operational team of assessment and should ensure the adherence to the use of checklist and guidelines in managing women with eclampsia. On job training, seminars, continuing education and mentorship programmes were recommended for enhancing the knowledge of nurse-midwives in managing eclampsia.

141. **Jaka, H., Koy, M., Egan, J.P., Meda, J.R., Mirambo, M., Mazigo, H.D., Kabangila, R., Wang, Y.L., Mueller, A., Peck, R.N., Mchembe, M.D., Chalya, P.L.Strongyloides stercoralis infection presenting as an unusual cause of massive**

**upper gastrointestinal bleeding in an immunosuppressed patient: A case report. *Tropical Doctor*, 2013; 43 (1), pp. 46-48.**

Strongyloidiasis caused by *Strongyloides stercoralis* is a rare but well documented cause of massive upper gastrointestinal (GI) bleeding especially in endemic areas. However, oesophagogastroduodenoscopic findings and extractions of *S. stercoralis*, in the adult worm form, from the duodenum is even rarer. We report a case of a 27-year-old Tanzanian woman with HIV who presented with massive upper GI bleeding. She had *S. stercoralis*, in the adult worm form, traversing the stomach and duodenum and extracted by oesophagogastroduodenoscopy (OGD). She was treated successfully with Ivermectine and antiretroviral therapy for HIV was initiated. Strongyloidiasis should be included in the differential diagnosis of mass upper GI bleeding in immunosuppressive patients living in, or originating from, endemic areas. We believe this to be the first case to be reported from our environment.

**142. Jaka, H., Mchembe, M.D. , Rambau, P.F., Chalya, P.L. Gastric outlet obstruction at Bugando Medical Centre in Northwestern Tanzania: A prospective review of 184 cases. *BMC Surgery*, 2013; 13 (1): pp 41.**

**Background:** Gastric outlet obstruction poses diagnostic and therapeutic challenges to general surgeons practicing in resource-limited countries. There is a paucity of published data on this subject in our setting. This study was undertaken to highlight the etiological spectrum and treatment outcome of gastric outlet obstruction in our setting and to identify prognostic factors for morbidity and mortality. **Methods.** This was a descriptive prospective study which was conducted at Bugando Medical Centre between March 2009 and February 2013. All patients with a clinical diagnosis of gastric outlet obstruction were, after informed consent for the study, consecutively enrolled into the study. Statistical data analysis was done using SPSS computer software version 17.0. **Results:** A total of 184 patients were studied. More than two-third of patients were males. Patients with malignant gastric outlet obstruction were older than those of benign type. This difference was statistically significant ( $p < 0.001$ ). Gastric cancer was the commonest malignant cause of gastric outlet obstruction where as peptic ulcer disease was the commonest benign cause. In children, the commonest cause of gastric outlet obstruction was congenital pyloric stenosis (13.0%). Non-bilious vomiting (100%) and weight loss (93.5%) were the most frequent symptoms. Eighteen (9.8%) patients were HIV positive with the median CD 4+ count of 282 cells/ $\mu$ l. A total of 168 (91.3%) patients underwent surgery. Of these, gastro-jejunostomy (61.9%) was the most common surgical procedure performed. The complication rate was 32.1 % mainly surgical site infections (38.2%). The median hospital stay and mortality rate were 14 days and 18.5% respectively. The presence of postoperative complication was the main predictor of hospital stay ( $p = 0.002$ ), whereas the age  $> 60$  years, co-existing medical illness, malignant cause, HIV positivity, low CD 4 count ( $< 200$  cells/ $\mu$ l), high ASA class and presence of surgical site infection significantly predicted mortality ( $p < 0.001$ ). The follow up of patients was generally poor as more than 60% of patients were lost to follow up. **Conclusion:** Gastric outlet obstruction in our setting is more prevalent in males and the cause is mostly malignant. The majority of patients present late with poor

general condition. Early recognition of the diagnosis, aggressive resuscitation and early institution of surgical management is of paramount importance if morbidity and mortality associated with gastric outlet obstruction are to be avoided.

- 143. Jeremiah, M. & Zahra H. Knowledge, awareness and attitude of Medical Doctors towards periodontal disease. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Periodontal disease and systemic diseases are inter-related, each influencing one another. Adequate knowledge on periodontal disease among medical doctors will enable them to refer their patients to dentists for timely management. **Objectives:** This study aimed to assess knowledge, awareness and attitudes of medical doctors towards periodontal disease in Dar-es-Salaam, Tanzania. **Methods:** Cross sectional study on medical doctors working at Muhimbili National Hospital in Dar-es-Salaam, Tanzania. The sample size was computed to be 151 and the doctors were handed a structured questionnaire which assessed their knowledge, awareness and attitude towards periodontal disease as and when they were encountered at the hospital. Numbers and percentages were used to present this. **Results:** Of the 151 questionnaires administered, 124 were returned (response rate of 82.12%). One hundred and eleven (89.5%) medical doctors believed poor oral hygiene was the main cause of periodontal disease, only 49(39.5%) told their patients to brush properly, 47(37.9%) medical doctors believed that there was a bidirectional relationship between periodontal disease and systemic disease and only 35(28.2%) referred all patients with systemic diseases to dentists, 34(27.4%) believed that medical doctors have adequate knowledge regarding periodontal disease and 18(14.5%) believed that the medical curriculum provides enough knowledge regarding periodontal disease. **Conclusion:** Medical doctors were found to have inadequate information on periodontal disease. The medical curriculum should be revised to address this.

- 144. Jessica, B., Larry, A., Ally, M., Charles, M., Patricia, O. Manual Laparoscopic Skills Development Using a Low Cost Trainer Box in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Although laparoscopy has become the standard treatment for many surgical conditions in wealthy countries, it is rarely utilized in resource-poor settings. Despite access to laparoscopic equipment and interest in skills acquisition among surgeons, opportunities for training in laparoscopy are minimal at the Muhimbili. **Objectives:** To explore the feasibility and effectiveness of guided practice using a low cost laparoscopic trainer on the development of laparoscopic skills by surgeons in a resource-poor setting, **Methods:** This was a prospective trial involving a pretest/posttest single sample design. Study participants completed a background survey and pretest on the 5 McGill Inanimate System for Training and Evaluation of Laparoscopic Skills (MISTELS) tasks using a low cost simulator developed and validated previously at the University of California-San Francisco. Upon completion of a 3 month guided practice course, participants were again tested on the MISTELS tasks and completed an exit survey. **Results:** Fourteen participants completed the course. Most of the subjects were surgical residents (64.3%). Only 2 participants (14.2%) had previous laparoscopic training and baseline laparoscopic surgical experience was limited to intra-operative observation only. Study subjects practiced the MISTELS tasks for an average of 8.67

hours (range: 4.75-15.25) over the three-month course. On the posttest, participants improved significantly in performance of each of the MISTELS tasks (p **Conclusion:** We have demonstrated the feasibility and effectiveness of training with a low cost laparoscopic trainer box in Tanzania. Study participants achieved impressive posttest scores on the 5 MISTELS tasks with minimal baseline laparoscopic exposure. We feel that guided training by an expert was key in ensuring correct technique during practice sessions.

145. **Jonas, D. D. Assessment of medicines price, availability and distribution in the centralised and decentralised procurement systems in Dar es Salaam Region. Master of Science (Pharmaceutical Management). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Medicines procurement processes in the public health facilities (PHFs) in Tanzania are characterized by two main procurement systems, the centralized and decentralized procurement systems. Policy for medicines procurement is in favour of the centralized procurement system, managed by the Medical Stores Department (MSD). Despite much effort of improving the access of medicines in the public health facilities, prices of medicines have remained substantially high for individuals to afford. **Objective:** The main objective of the survey was to assess medicines procurement price, availability and distribution of medicines in the centralized and decentralized procurement systems in the public health facilities in Dar es Salaam region. **Methods:** The study was an explorative cross-sectional survey that applies both quantitative and qualitative approaches to determine medicine procurement price of the centralized and decentralized systems, investigate the medicines availability in the selected public hospitals and assess the efficiency of distribution systems. **Results:** The result shows that median percentage availability of medicines in the hospital was 72.5 %. Overall median percentage availability of each individual medicine in the surveyed hospitals was 71.4%. The average median stock-out days per year was 97.2. The median decentralized, centralized and international reference prices were, Tshs 122.5, 77.7 and 63.35 respectively. MPR of the decentralized to international reference prices, centralized to international reference prices, and the decentralized to centralized procurement prices, the ratios were, 1.92, 1.1, and 1.85 respectively. **Conclusion:** Findings of the study revealed that, availability of medicines is fairly high in public hospitals during day of data collection but high stock out for the past six months of review. There is no statistical significant difference in median prices across all procurement systems. However, there was statistical significance difference in MPRs of medicines procurement prices across the categories. The centralized procurement prices were reasonably cheaper compared to decentralized and international reference prices. Low order fulfilment rate in the centralized procurement and high supplier procurement lead time in the decentralized procurement systems are the factor contributing to the fairly high availability and stock out of medicines in the public hospitals.

146. Joseph, D., Kabanywany, A.M., Hulser, R., Premji, Z., Minzi, O.M.S., Mugittu, K. Exploration of in vivo efficacy of artemether-lumefantrine against uncomplicated Plasmodium falciparum malaria in under fives in Tabora region, Tanzania. *Malaria Journal*, 2013; 12:60.

**Background:** Tanzania adopted artemether-lumefantrine (AL) as first-line drug for uncomplicated malaria in 2006. Recently, there was an anecdotal report on high malaria recurrence rate following AL treatment in the (urban and peri-urban), western part of Tanzania. The current report is an exploratory study to carefully and systematically assess AL efficacy in the area. **Methods.** Between June and August 2011, a total of 1,126 patients were screened for malaria, 33 had malaria, of which 20 patients met inclusion criteria and were enrolled and treated with standard dose of AL as recommended in the WHO protocol. Treated patients were followed up for 28 days to assess treatment responses. Before treatment (Day 0) and post-treatment (Day 7) plasma lumefantrine levels were determined to assess prior AL use and ascertain parasites exposure to adequate plasma levels of lumefantrine, respectively. **Results:** The cure rate was 100%. All Day 0 plasma lumefantrine were below HPLC detectable level. The median Day 7 lumefantrine concentration was 404, (range, 189-894 ng/ml). Six out of 20 patients (30%) were gametocytaemic and all cleared gametocytes by Day 14. One patient showed an increase in gametocytes from four on Day 0 to 68, per 500 WBC on Day 2. **Conclusion:** Artemether lumefantrine is highly efficacious against uncomplicated Plasmodium falciparum malaria. The elevation of gametocytaemia despite AL treatment needs to be evaluated in a larger study.

147. Joshi, O. H. Assessment of availability, price, expiry, stock-outs and storage conditions for key medicines in the Public, NGO and Private Pharmacies in Moshi. Master of Science (Pharmaceutical Management). Dissertation. 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Background:** Despite significant progress in increasing access to essential medicines in low- and middle income countries during the past decades, many of the health services used by the poor still lack adequate supplies of basic medicines. Drug shortages and medicine prices continue to undermine the performance of health systems throughout the developing world. It was important to carry out this study in Moshi as previous studies had not covered this town, and hence results of this study would assist in comparing and complimenting the previous studies. **Objective:** Assessment of availability, price, expiry, stock-outs and storage conditions for key medicines in the public, NGO and private pharmacies in Moshi **Methodology:** The survey was conducted in public, NGO and private pharmacies in Moshi town using the WHO Operational Package for Monitoring and Assessing the Pharmaceutical Situation in Countries (2007 version). The package contained tools necessary for the survey (modified to suit our local pharmaceutical system). The indicators to measure the degree to which public, NGO and private retail facilities are achieving the strategic pharmaceutical objectives of improved availability, reasonable price and appropriate storage conditions of medicines were used. These included: availability of key medicines in public, NGO and private pharmacies, price of key medicines in public, NGO and private pharmacies, presence of



expired medicines in public, NGO and private pharmacies, adequacy of storage conditions and handling of medicines in public, NGO and private pharmacies. **Results:** The survey revealed that only one (1) of the public health facilities had less than 30% of the 33 selected key medicines available at the pharmacy while ten (10) public health facilities had availability of medicines ranging from 30% to 80%. In the private retail pharmacies, four (4) had availability of medicines ranging from 50% to 80% while eleven (11) pharmacies had availability of medicines of more than 80%. In the NGO facilities, seven (7) facilities had more than 80% of availability of key medicines while three (3) facilities had availabilities between 50% and 80%. Excluding four (4) public health facilities and one (1) private pharmacy which happened to have one expired medicine each on their shelves, all other thirty two (32) facilities did not have expired medicines on their dispensing shelves. Prices in the NGO's were approximately 1.87 times higher than those in the public health facilities. Prices in the NGO's were approximately 1.36 times higher than in the private retail pharmacies. Prices in the private retail pharmacies were approximately 1.48 times higher than those in the public health facilities. The median stock-out days per year was 117 days (ranging from 0 to 135 days) for medicines in the public health facilities. Five facilities out of the eleven surveyed did not have proper records to enable calculation of stock-out days of medicines for at least six months. The average percentage storage condition scores in the main drug stores of Public health facilities, NGO health facilities and private retail pharmacies were 44.5%, 45.8% and 69% respectively while that in the Dispensing rooms was 52.6%, 70.8% and 89% respectively. **Conclusion:** The low overall availability of medicines in the public health facilities forces the population to purchase prescribed medicines from the private sectors where they are available, but are expensive. Frequent and lengthy stock-out periods of essential medicines in the public health facilities also raises concerns about the functionality of the current Integrated Logistics System (ILS) adopted by the MOHSW, forecasting of the medicine requirements and appropriate delivery of medicines to the end users by the Medical Stores Department (MSD) Tanzania. Adequate storage conditions and handling of medicines in the Main drug stores of public and NGO health facilities were dissatisfactory while that in the Dispensing rooms were satisfactory in both kinds of health facilities. As for the private retail pharmacies, the average storage condition in the Main drug stores was satisfactory while that in the Dispensing rooms was very satisfactory. Price of medicines in the public sector were cheapest amongst all other sectors while price fluctuations were observed in all sectors. Expired medicines happened to be more of a problem in the public health facilities and this raises concerns over appropriate regulation and inspection by the MOHSW. **Recommendations** Key medicines should be given priority during selection and procurement. Pharmacy and Therapeutic committees should prepare and update the list regularly based on the primary, secondary and tertiary health facility levels. Facilities should strengthen Drug Revolving Fund program through NHIF at the hospitals in order to sustain constant availability of essential medicines. While lowering price in the private and NGO sector is a long term goal, a new financing approach at the hospitals by using Drug Revolving Funds through the NHIF might be a solution. There is need for improvement in policies on medicine pricing and individual medicine prices where there is evidence of excessive prices. A system of MRP (Maximum retail price), as that used in other countries like

India, can be beneficial whereby all the private medicine outlets cannot sell a particular medicine above that price. In that way, price fluctuations, vast differences in price and affordability to end users will improve. Prices on medicines and availability should be regularly and widely disseminated. Surveillance on availability, cost and price components should regularly be conducted by the relevant authorities so as to develop reliable information on medicine prices and availability to be used by the government, insurance funds and health facilities.

148. **Joachim, A., Nilsson, C., Aboud, S., Bakari, M., , Lyamuya, E.F., Robb, M., Marovich, M, Ochsenbauer, C., Wahren, B., Mhalu, F., Sandström,E., Biberfeld, G., Ferrari,G., Polonis,V.R. Functional Antibody responses elicited by HIV-I-DNA priming and boosting with recombinant HIV-MVA in healthy Tanzanian adults. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** We evaluated HIV antibody (Ab) responses elicited by immunization, in a phase I/II placebo-controlled double blind trial using multiclade, multigene HIV-1-DNA prime boosted with HIV-MVA conducted among healthy volunteers in Tanzania (HIVS03).**Objectives:** To determine whether priming with HIV-DNA vaccine and boosting with HIV-MVA elicits functional antibody responses in HIVS03.**Methods:** Sixty HIV-uninfected volunteers, randomized into groups of 20 received placebo or 1 mg HIV-DNA intradermally (id) or 3.8 mg intramuscularly (im). DNA plasmids containing HIV-1 gp160 subtypes A, B, C; rev B; p17/p24 gag A, B and Rtmut B were given at months 0, 1 and 3 using a needle-free Biojector device. HIV-MVA expressing CRF01\_AE HIV-1 env, gag, pol was administered im by needle at months 9 and 21. Sera were tested at baseline, two months post-first and four weeks post-second HIV-MVA boosting. HIV Ab responses were tested using pseudoviruses and TZM-bl cells and infectious molecular clones (IMC) in PBMC-based assays. ADCC responses were tested using the flow cytometry GranToxiLux-based assay and IMC infected luciferase based assay.**Results:** Neutralizing Ab activity was demonstrated only in the PBMC assay after the second MVA boost in 24 (83%) of 29 vaccinees against the clade CRF01\_AE CM235 IMC and in 21 (72%) of 29 vaccinees against clade B SF162-IMC. NK cell depletion from PBMC targets resulted in a significant loss of HIV inhibition by vaccinee sera, indicating a role of Ab-mediated Fc $\gamma$ -receptor function. Vaccine-induced ADCC responses were detected in 21/28(75%) and 27/29 (93%) of the vaccinees using coated and infected target cells respectively after the second HIV-MVA boost. ADCC Ab titers did not differ significantly between id- (median 840, range 300-5400) and im-primed (median 880, range 400-3600) vaccinees (p=0.45).**Conclusion:** HIV-DNA priming followed by two HIV-MVA boosts elicited HIV-specific neutralizing and/or ADCC-mediating antibody responses in a high proportion of Tanzanian adults.

149. Juma, G., Thiongo, M., Dutaur, L., Rharrabe, K., Marion-Poll, F., Le Ru, B., Calatayud, P. A. Two sugar isomers influence host plant acceptance by a cereal caterpillar pest. *Bulletin of entomological research*, 2013; 103(01), 20-28.

Plant sugars are often considered as primary feeding stimuli, conditioning host plant acceptance by herbivorous insects. Of the nine sugars identified from methanolic extracts of seven grass species, only turanose, a sucrose isomer, was negatively correlated with the survival and growth of the noctuid larva of cereal stemborer, *Busseolafusca*. Sucrose was the most abundant sugar, although it did not vary significantly in concentration among the plant species studied. Using Styrofoam™ cylinders impregnated with increasing concentrations of turanose or sucrose, the two sugars had opposing effects: turanose appeared phagodeterrent while sucrose was phagostimulatory. Electrophysiological studies indicated that *B. fusca* larvae were able to detect both sugars via their styloconicsensilla located on the mouthparts. The findings indicate that, whereas sucrose is a feeding stimulant and positively influences food choice by *B. fusca* larvae, turanose negatively contributes to larval food choice. The balance in concentrations of both sugars, however, somehow influences the overall host plant choice made by the larvae. This can partly explain host plant suitability and choice by this caterpillar pest in the field.

150. Kaale, E., Mori, A., Risha, P., Hasham, S., Mwambete, K. A Retrospective Study of Poisoning at Muhimbili National Hospital in Dar-Es Salaam, Tanzania. *Journal of Public Health*, 2013; 2(1), 21-26.

**Introduction:** Poisoning is a public health challenge in low and middle income countries. Advances in technology and social development have led to an extensive use of medicines and chemical substances in these countries, hence increasing the prevalence of poisoning. Success in the management of a poisoning case depends on a number of factors including the availability of trained personnel, availability of support information and the understanding of local context. There is paucity of evidence from Tanzania showing the causes and management of reported cases of poisoning in healthcare facilities. **Methodology:** A retrospective cross-sectional study which was conducted at Muhimbili National Hospital, in Dar es Salaam. Data were collected by review of files of patient who were admitted due to poisoning for the past three years (2005-2008) and in-depth interviews with key informants using pre-tested semi-structured interview guides. **Results:** A total of 215 patients were admitted due to poisoning during the study period, 123 were males and 92 were females. Prevalence of poisoning was 3.28 cases per 1,000 hospitalizations. Majority of poisoning cases were observed in the age group between 16-40 years (>80%). Intentional poisoning by others was the most common pattern of poisoning (>36%). In more than 50% of the cases the poisoning substances had not been identified. Antibiotics and antiparasitics were the common medicines implicated in poisonings (17%). More than 90% of the poisoning victims recovered. Major fatalities occurred in the age group between 26-40 years at 58%. The mortality rate in men was higher giving a male to female ratio of 10:1. None of the healthcare personnel interviewed had received any specialized training on poisoning. Main sources of information mentioned included Drug Information reference

formulary and senior colleagues. Increasing public awareness, availability of resources and organizational restructuring, and provision of specialized training are likely to have positive impact on poisoning management. **Conclusion:** Poisoning is one of the causes of hospital admission and mortalities at Muhimbili National Hospital. Effective management of poisoning cases is a multidisciplinary team approach which can be improved by several interventions such as establishment of poison information center, training of healthcare providers and ensuring easy access to anti-dotes.

151. **Kaale, E., Risha, P., Reich, E. & Layloff, T.P. TLC for pharmaceutical analysis in resource limited countries: setting up an interlaboratory cross validation study". Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background.** Planar chromatography due to its robustness, ease of use, and limited the training requirements is a potential alternative laboratory and field method for in assessing the quality of pharmaceutical products especially in resource limited areas . We present the evaluation results of this method. **Methods:** A Peer Verified Method Validation approach was conducted using High Performance Thin Layer Chromatography (HPTLC) methods developed in our lab. Two laboratories collaborated on this study—the very experienced CAMAG laboratory in Muttensz, Switzerland and the newly formed Laboratory for Pharmaceutical Analysis at the Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania. The LPA developed the study in conjunction with CAMAG, prepared the composite samples used in the study, and furnished all of the reference materials. The laboratories used HPTLC plates from the same supplier and used solvents and development chambers from their usual laboratory stocks. This was followed by a more extensive interlaboratory cross validation involving 10 laboratories including 8 from Africa, 1 from Europe and 1 from America. **Results .** The within-laboratory rsd for the four separate composite weighings for each development plate calculated from the polynomial correlation obtained from the five standard levels ranged from 0.98%–5.08% with 73% of the rsd less than 2.00% and 97% of the rsds at 2.60% or less. The overall average rsd was 1.90% and the overall average interlaboratory RSD was 2.74%, with a range of 2.09–3.21%. For the 7 labs interlab study the accuracy during qualifying experiment was 99.88%, RSD 1.33 %n=8 (range from 98.8-102%). The mean potency reported among 7 labs was 98.34%, RSD 3.8%. A test for outlier was performed and showed no outliers with critical value of Z: 2.02 on Grubbs' test at Significance level: 0.05 (two-sided) for seven labs. **Conclusion:** The successful interlab cross validation has provided further evidence of the technologies' robustness and also demonstrates that it can be successfully used to enforce regulatory compliance to control commerce.

152. **Kaale, E., Rinaldi, E., Thoithi, G., Adome, R.O., Marisa .D. Online/offline ICT pilot platform to support coordination in health data management in East Africa.2013. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013..**

**Background:** As Clinical Research becomes global and Clinical Trials increasingly move from wealthy countries to developing countries, there is a growing need to strengthen capacity for health research in the less wealthy countries. **Objectives:** The objective of MEDISHARE was to create a pilot ICT platform to collect demographic, clinical, and therapeutic and laboratory data on patients with HIV infection, TB and malaria in order to determine and monitor the long-term clinical outcome of patients across east Africa. **Methods:** MEDISHARE, by providing adequate IT tools, aims at creating high standard local competences to enable epidemiological and pharmaco-epidemiological data analysis and to elaborate fundamental information for health policy makers at national level. **Results:** A central and shared IT knowledge platform to provide high-quality data for local and global health research systems has been created. Medishare has collected epidemiological for more than 15,000 patients' data on HIV/AIDS, Malaria and TB in Kenya, Uganda and Tanzania. The platform was designed to fit the needs of Africa, where Internet is not always available. The peculiarity of Medishare is that all data are in one central database across countries and across diseases thus allowing integrated analysis and reports. Despite the Internet discontinuity in Africa, data can be collected by virtue of a synchronization system that sends data to the central database only when Internet is available. **Conclusion:** The platform has successfully been used to support health data management but it also offers e-learning and communication tools to support Clinical Research in Africa.

**153. Kaale,E., Tibalinda,P., Bhalani,A., Chambuso,M.,Development of a generic formulation of paediatric 20mg zinc tablets. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** In 2002, WHO defined zinc deficiency as one of the major risk to a child's health. In this report Zinc deficiency was linked to 10% of diarrhoea and accounts for 0.8 million deaths yearly. A joint statement by WHO and UNICEF published in 2004 at Geneva encouraged the wide spread use of zinc supplementation and low osmolarity oral rehydration salts for the management of diarrhoea in under-five's. **Objectives:** The purpose of this study was to develop and optimize tablet formulation of Zinc Sulphate Monohydrate which shall be used for treating diarrhoea in children under five. **Methods:** The study began with pre-formulation experiment to determine the chemical compatibility between the active and the excipients. Titration method for assay was also verified to ensure it gives reliable results. Three different super disintegrants, Sodium Starch Glycolate, CMC-CL and PVP-CL, were used for study at three concentrations 6%, 9% and 12%. The tablets were produced using single punch press by mixing with appropriate adjuvant for producing tablets with desired characteristics. Tablets so prepared were put to various quality checks as prescribed by the IP. **Results:** The results of mini-validation and pre-formulation were within the acceptance criteria. This helped in ensuring that the assay method would give us reliable results and excipient are compatible with active ingredient. PVP-CL gave the most optimum results with maximum hardness of the tablet and least disintegration time. The weight variation improved when proportion of strawberry powder was increased to 20%. **Conclusion:** PVP-CL was chosen to be the optimum super-disintegrant with 20% of strawberry powder

154. **Kaaya, S., Eustache, E., Lapidos-Salaiz, I., Musisi, S., Psaros, C., Wissow, L. Grand Challenges: Improving HIV Treatment Outcomes by Integrating Interventions for Co-Morbid Mental Illness. *PLoS Medicine*, 2013; 10 (5).**

Mental, neurological, and substance use (MNS) disorders occur frequently in patients with HIV and are associated with negative outcomes, including reduced adherence to antiretroviral medications (cART), and diminished quality of life. A review of PubMed and PsychInfo from 2001 to 2012 revealed a dearth of evaluated mental health services in HIV primary care, particularly in low- and middle income countries. Available findings suggest, however, that opportunities do exist in HIV primary care to integrate interventions for recognition and treatment of depression and alcohol use disorders and prevention of HIV neurocognitive disorders (HAND).

155. **Kaaya, S.F., Blander, J., Antelman, G., Cyprian, F., Emmons, K.M., Matsumoto, K., Chopyak, E., Levine, M., Smith Fawzi, M.C. Randomized controlled trial evaluating the effect of an interactive group counseling intervention for HIV-positive women on prenatal depression and disclosure of HIV status. *AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV*, 2013 25 (7), pp. 854-862.**

**The objective** of the study was to assess the effectiveness of group counseling, using a problem-solving therapy approach, on reducing depressive symptoms and increasing prenatal disclosure rates of HIV status among HIV-positive pregnant women living in Dar es Salaam, Tanzania. A randomized controlled trial was performed comparing a six-week structured nurse-midwife facilitated psychosocial support group with the standard of care. Sixty percent of women in the intervention group were depressed post-intervention, versus 73% in the control group [Relative Risk (RR) = 0.82, 95% confidence interval (CI): 0.67-1.01, p=0.066]. HIV disclosure rates did not differ across the two study arms. However, among those women who disclosed, there was a significantly higher level of overall personal satisfaction with the response to disclosure from family and friends among women in the treatment (88%) compared to the control group (62%; p=0.004). The results indicate reductions in the level of depressive symptoms comparable with major depressive disorder (MDD) for HIV-positive pregnant women participating in a group counseling intervention. Although the psychosocial group counseling did not significantly increase disclosure rates, an improvement in the level of personal satisfaction resulting from disclosure was associated with the intervention. This suggests that the counseling sessions have likely reduced the burden of depression and helped clients better manage partner reactions to disclosure. Public agencies and non-governmental organizations working in Tanzania and similar settings should consider offering structured psychosocial support groups to HIV-positive pregnant women to prevent poor mental health outcomes, promote early childhood development, and potentially impact HIV-related disease outcomes in the long term.

156. Kaaya, S.F., Arthur,G., Siril,H., McAdam,K., Ainebyona,D., Somba,M., McAdam,E., Oljemark,K., Todd,J., Andrew,I., Simwinga,A., Mleli,N., Makongwa,S., Liu,Y.,Jeffrey Lienert,J., Haberlen,S., Fawzi,M.C.S. Agents of Change: Comparing HIV-related risk behavior of people attending ART clinics in Dar es Salaam with members of their social networks.2013. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** People living with HIV (PLWH) receiving treatment have potential to promote HIV awareness, prevention, and demand for care in their communities. However, little is known about their risk behaviors and HIV knowledge compared to those who are not living with HIV. **Objective:** To compare PLWH and members of their social network with respect to socio-demographic characteristics, risk behaviors, and other psychosocial factors. **Methods:** The Agents of Change (AOC) intervention to empower PLWH to become “change agents” (CAs) (n=567) in their community through raising their own self esteem, confidence, and assertiveness, is being rolled-out through a stepped wedge randomized trial in a clinical care setting in Dar es Salaam. AOC participants recruited members of their social network (NMs) (n=395) to participate in baseline and follow-up interviews. Descriptive analysis was performed on this preliminary data at baseline comparing socio-demographic factors, self-esteem, sexual risk factors, and social support for CAs versus NMs (SAS v.9.2). **Results:** CAs were more likely to not complete primary school (9% vs. 4%, p=0.0008) and be unemployed (29% vs. 13%, p<0.0001) than their NMs. Also, CAs reported limited social support with finances (83%) and transport (82%). More than 45% of CAs demonstrated depressed mood and 57% reported depressive symptoms affected their daily activities. However, NMs were more likely than CAs to have unprotected sex (59% vs. 37%, p<0.0001) and to have perpetrated physical abuse in the past six months (10% vs. 5%, p=0.03). **Conclusion:** Findings suggest that PLWH receiving ART have lower rates of risk behaviors than their NMs, despite reporting unemployment, depression, and unmet need for social support. From a role model perspective, PLWH hold potential as behavior change agents for preventing HIV transmission in their communities. Providing group sessions to improve social support and reduce depressive symptoms may enhance their capacity to assume this leadership role.

157. Kabali, C., Mtei, L., Brooks, D.R., Waddell, R., Bakari, M., Matee, M., Arbeit, R.D., Pallangyo, K., Von Reyn, C.F., Horsburgh, C.R. Increased mortality associated with treated active tuberculosis in HIV-infected adults in Tanzania. *Tuberculosis*, 2013; 93 (4), pp. 461-466.

Active tuberculosis (TB) among HIV-infected patients, even when successfully treated, may be associated with excess mortality. We conducted a prospective cohort study nested in a randomized TB vaccine trial to compare mortality between HIV-infected patients diagnosed and treated for TB (TB, n = 77) and HIV-infected patients within the same CD4 range, who were not diagnosed with or treated for active TB (non-TB, n =

308) in the period 2001-2008. Only twenty four subjects (6%) were on antiretroviral therapy at the beginning of this study. After accounting for covariate effects including use of antiretroviral therapy, isoniazid preventive therapy, and receipt of vaccine, we found a four-fold increase in mortality in TB patients compared with non-TB patients (adjusted Hazard Ratio 4.61; 95% Confidence Interval (CI): 1.63, 13.05). These findings suggest that treatment for TB alone is not sufficient to avert the excess mortality associated with HIV-related TB and that prevention of TB may provide a mortality benefit.

**158. Kabululu, H. Diagnostic performance of screening methods for urinary schistosomiasis among school children in a school- based antihelminthic programme in Mbozi District. Master of Science in Tropical Diseases Control. Dissertation . 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Accurate diagnosis for schistosomiasis is crucial for patient management, drug efficacy evaluations, and monitoring of large-scale control programs. However diagnostic performance of screening (indirect) methods vary in different endemic zones, age groups and sexes especially when there is low prevalence after large scale Praziquantel Mass Drug Administration (MDA) in a school based antihelminthic control programme. **Main Objective:** To evaluate the diagnostic performance of screening (indirect diagnostic) methods for urinary schistosomiasis after wide scale use of praziquantel in a school based antihelminthic control programme in Mbozi District. **Materials and methods:** A cross-sectional study was conducted in Mbozi District from March to June, 2013. Multistage cluster random sampling was applied to obtain the schools and participants of the study. Twelve schools out of 156 schools (7.7% of all schools) were randomly selected. A total of 429 participants from standard I – VII were chosen proportionally from each selected school. Interviewed questionnaire was used to collect information on demographic characteristics; self reported haematuria, and status of praziquantel administration. Each study participant was provided with 50mls clean, dry wide mouthed and well capped labeled plastic containers for collecting about 20ml of clean-catch, midstream urine sample between 10:00hr and 14:00hr. The diagnostic performance of screening tests were compared with microscopic examination of urine for *S. haematobium* egg (filtration method, which was regarded as the gold standard) **Results:** The prevalence of urinary schistosomiasis in Mbozi district was 7.9%, whereby Chemical reagent strip was the most sensitive of all screening methods assessed with sensitivity of (78.8%) also with high NPV (97.8%), followed by self reported haematuria (51.9%), and visual examination of urine was least sensitive of all (42.4%). In terms of specificity, self reported haematuria was the most specific (91.7%) with positive predictive value (34.9%). **Conclusion:** Despite low prevalence of schistosomiasis, chemical reagent strips and self reported haematuria are still useful diagnostic tools for targeting the effect of Praziquantel-MDA to school children in schistosomiasis endemic areas.



159. Kabyemela, E., Gonçalves, B. P., Prevots, D. R., Morrison, R., Harrington, W., Gwamaka, M., Duffy, P. E. Cytokine Profiles at Birth Predict Malaria Severity during Infancy. *PloS one*,2013; 8(10), e77214.

**Background.** Severe malaria risk varies between individuals, and most of this variation remains unexplained. Here, we examined the hypothesis that cytokine profiles at birth reflect inter-individual differences that persist and influence malaria parasite density and disease severity throughout early childhood. **Methods and Findings.** Cytokine levels (TNF- $\alpha$ , IFN- $\gamma$ , IL-1 $\beta$ , IL-4, IL-5, IL-6 and IL-10) were measured at birth (cord blood; N=783) and during subsequent routine follow-up visits (peripheral blood) for children enrolled between 2002 and 2006 into a birth cohort in Muheza, Tanzania. Children underwent blood smear and clinical assessments every 2-4 weeks, and at the time of any illness. Cord blood levels of all cytokines were positively correlated with each other (Spearman's rank correlation). Cord levels of IL-1 $\beta$  and TNF- $\alpha$  (but not other cytokines) correlated with levels of the same cytokine measured at routine visits during early life ( $P < 0.05$ ). Higher cord levels of IL-1 $\beta$  but not TNF- $\alpha$  were associated with lower parasite densities during infancy ( $P=0.003$ ; Generalized Estimating Equation (GEE) method), with an average ~40% reduction versus children with low cord IL-1 $\beta$  levels, and with decreased risk of severe malaria during follow-up (Cox regression): adjusted hazard ratio (95% CI) 0.60 (0.39-0.92),  $P = 0.02$ . **Conclusion.** IL-1 $\beta$  levels at birth are related to future IL-1 $\beta$  levels as well as the risk of severe malaria in early life. The effect on severe malaria risk may be due in part to the effect of inflammatory cytokines to control parasite density.

160. Kabyemela, E., Goncalves, B.P., Prevots, D.R., Morrison, R., Harrington, W., Moses, G., Kurtis, J., Fried, M., Duffy, P.E. Cord Levels of Inflammatory Cytokines Predict Severe Malaria Risk during Early Childhood. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Severe malaria risk varies between individuals. Although factors such as human genetics, parasite virulence and environmental factors can all contribute to variations in risk, most of this variation remains unexplained. **Objectives:** Here, we examined the hypothesis that cytokine profiles at birth reflect inter-individual differences that persist and influence malaria parasite density and disease risk throughout early childhood. **Methods:** Cytokine levels (TNF- $\alpha$ , IFN- $\gamma$ , IL-1 and TNF- $\alpha$  (but not other cytokines) correlated with levels of the same cytokine measured at routine visits during early life (**Results:** Cord blood levels of all cytokines were positively correlated with each other (Spearman rank correlation). Cord levels of IL-1 (0.60 (0.39-0.92),  $P = 0.02$ ), TNF- $\alpha$  (0.68 (0.45-1.03),  $P = 0.07$ ; Cox regression). during follow-up (adjusted hazard ratio [HR] (95% CI)): IL-1 and TNF- $\alpha$  levels observed at birth are related to future cytokine levels as well as the risk of severe malaria in early

life. The effect on severe malaria risk may be due in part to the effect of inflammatory cytokines to control parasite density. Further study is needed to identify the factors that influence the fetal cytokine profile, as well as interventions that might target these factors to improve malaria outcomes during early childhood. Conclusion: IL-1

161. **Kadigi D. M., Matee M, Mohamed M, Klaucke D, Mghamba J, Mmbuji P Moshia F Etiology and antimicrobial susceptibility patterns of bacterial agents causing urinary tract infection in children under-five year, Dar es Salaam, 2010 .*Bacteriol Parasitol 2013, 4:4.***

**Background:** The global magnitude of antimicrobial resistance is unknown and more likewise in the developing countries where the literature is very scanty and in most cases deficient. The empirical therapy of urinary tract infections (UTI) relies on the predictability of the agents causing UTI and knowledge of their antimicrobial susceptibility testing patterns. Also due to rapid change in antimicrobial susceptibility pattern and development of antimicrobial resistance, this information needs to be updated regularly. This study was conducted to determine the etiology and antimicrobial resistance patterns of bacterial agents of UTI among children under-five years presenting with clinical symptoms suggestive of UTI at two Municipal hospitals in Dar es Salaam. **Methods:** This was a cross-sectional study which was carried out at Amana and Mwananyamala Municipal hospitals from February to April 2010. Children who presented with symptoms of UTI were enrolled in the study. Mid stream urine sample was collected from every child who was recruited in the study. Urine samples were cultured in cystine-lactose-electrolyte deficient (CLED) agar media and susceptibility test was done in Mueller Hinton agar using Kirby Bauer technique. A questionnaire containing socio demographic information and antimicrobial drug use behaviors was administered to the children's parents. Data was entered, cleaned and analyzed using Epi info version 3.5.1 software. **Results:** A total of 270 children were recruited, the mean age was 26 months,  $\pm 15$ SD with a range of 12 to 60 months. Male contributed 60% (162) of the respondents while majority (39%) were, aged less than twelve months. Seventy three percent of mothers were housewives. Of the 270 cultured mid-stream urine samples, 80 (29.6%) revealed a significant single isolate growth of  $\geq 10^5$  colony-forming units per milliliter of urine, 33 (12.2%) had mixed growth, 27 (10%) non-significant growth, and the remainder 130 (48.1%) revealed no bacterial growth. *Escherichia coli* was the most common isolate 34 (42.5%), followed by *Klebsiella* spp 32 (40%), *Streptococcus* spp 4 (5%) while 3 (3.8%) were isolated each for *Staphylococcus aureus*, *Proteus mirabilis* and unidentified coliforms. *Pseudomonas* spp was isolated only once. The isolated bacteria had high resistance to amoxicillin 79 (98.7%), trimethoprim-sulfamethoxazole 77 (96.2) and ampicillin 76 (95%). They had less resistance against amikacin 6 (7.5%) and nitrofurantoin 16 (20%). Self medication to children showed no significant association with the development of multiple drug resistance. **Conclusions and Recommendations:** Based on the results of this study, the empirical treatment of UTI should be done mostly with nitrofurantoin which revealed lower resistance; also ciprofloxacin can be secondly considered as amikacin has limited

usage to pediatrics due to side effects. In view of the high drug resistance amongst bacteria (95–98%), therapy should mostly be done after culture and susceptibility test has been performed. Meanwhile more studies are required to get the baseline susceptibility patterns of antibiotics to be incorporated in the National guideline for management of UTI for under-fives.

- 162. Kagashe, G.A.B., Honest, G. Knowledge and use of contraceptives among secondary school girls in Dar es Salaam Tanzania. *Journal of Applied Pharmaceutical Science*, 2013; 3 (1), pp. 66-68.**

Use of contraceptives is one of the ways which can help to reduce unwanted pregnancy in adolescent girls. Adolescent pregnancy has been identified as one of the reasons for girls dropping out from school in Tanzania, however the knowledge and practice of secondary school girls regarding contraceptive methods is not well documented. This descriptive study was therefore undertaken to assess knowledge and use of contraceptives among secondary school girls in Dar es Salaam region. It was found out that majority (97%) of the girls knew at least one contraception method but only (40%) used any of the methods. The major source of information on contraceptives was from schools and media. Majority of the participant (87%) were aware of unwanted pregnancies prevailing among school girls and problems associated with it. Educational interventions are still needed in order to increase use of contraceptives by adolescent school girls.

- 163. Kagashe, G.A.B., Maregesi, S.M., Mashaka, A. Availability, awareness, attitude and knowledge of emergency contraceptives in Dar es Salaam. *Journal of Pharmaceutical Sciences and Research*, 2013; 5 (11), pp. 216-219.**

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.

164. Kahesa, C., Kjaer, S., Ngoma, T., Mwaiselage, J., Dartell, M. & Rasch, V. Risk factors for VIA positivity and determinants of screening attendances in Dar es Salaam, Tanzania. 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.

**Background:** Tanzania is among the countries in the world where the cervical cancer incidence is estimated to be highest. Acknowledging an increase in the burden of cervical cancer, VIA was implemented as a regional cervical cancer screening strategy in Tanzania in 2002. **Objectives:** Describing the risk factors for VIA positivity and determinants of screening attendances in Tanzania, **Methods:** 14 107 women aged 25-59 enrolled in a cervical cancer screening program in Dar es Salaam in the period 2002 - 2008. The women underwent VIA examination and took part in a structured questionnaire interview. Socioeconomic characteristics, sexual behavior, HIV status and high-risk (HR) HPV infection were determined in a subpopulation of 890 who participated and 845 who did not participate in the screening. **Results:** Being widowed/separated OR=1.41 (95% CI: 1.17-1.66), of high parity OR=3.19 (95% CI: 1.84-5.48) of low education OR= 4.30 (95% CI: 3.50-5.31) and married at a young age OR=2.17 (95% CI: 1.37-3.07) were associated with being VIA positive. Women who participated in the screening were more likely to be HIV positive OR=1.59 (95% CI: 1.14-2.25) in comparison with women who had never attended screening, while no difference was found in the prevalence of HR-HPV infection among women who had attended screening and women who had not attended screening. **Conclusion:** Women who are widowed/separated, of high parity, of low education and married at a young age are more likely to be VIA positive and thus at risk of developing cervical cancer. The study further documents that a referral linkage between the HIV care and treatment program and the cervical cancer screening program is in place in the setting studied, where HIV positive were more likely to participate in the cervical cancer screening program than HIV negative women.

165. Kakoko, D.C.V. Reported heterosexual intercourse and related behaviours among primary school pupils in Kinondoni district, Dar es Salaam, Tanzania. *Culture, Health and Sexuality*, 2013; 15 (2), pp. 235-245.

A cross-sectional questionnaire survey was conducted among 2820 pupils in 22 randomly selected primary schools in Kinondoni district, Tanzania. The objective was to identify the proportion of pupils who reported ever having had sexual intercourse, as well as sociodemographic and psychosocial factors and other sexual-related behaviours associated with heterosexual intercourse among pupils. About 13% (376) of participating pupils reported having had heterosexual intercourse. The proportion of pupils who reported doing so varied significantly by age, sex, school grade and parents' education. Regarding psychosocial factors, pupils who agreed that having sexual intercourse implies love for a partner and that sexual intercourse creates peer approval were significantly more likely to report having had heterosexual intercourse. Pupils who reported having a girl/boy friend, kissed a boy/girl, engaged in light petting, engaged in heavy petting or practised oral sex and anal sex were more likely to report ever having

heterosexual intercourse. The implications for programme and intervention development are discussed.

- 166. Kakoko, D.C., Leshabari, M.T., Massawe, S.N., Mpembeni, R., Wangwe, P., Sukums, F., Saronga, H.P. Appraisal of in-service training among maternal and neonatal health workers in rural settings of southern Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** In order for maternal and neonatal health workers to provide quality care and meet their communities' changing health care needs, they must regularly get opportunities to attend in-service trainings so as to update their professional knowledge, skills, values and practice. **Objectives:** To assess in-service trainings of health workers, in terms of participant's selection, their perceptions regarding facilitators' skills, and the fulfillment of trainees' expectations. **Methods:** Across-sectional qualitative study was conducted in Lindi district in 2009. A total of 30 health service providers were interviewed through semi-structured in-depth interviews. Study participants were sampled purposefully to include CHMT members; supervisors of health centres; and maternal health care providers. Data was analysed using the content analysis. **Results:** Study participants reported to have attended various in-service trainings that were based on contemporary issues in maternal health care. Majority of participants said that there was neither equity nor fairness in the selection of participants for the training, and were of the opinion that selection of health workers for in-service training should be participatory and objective. Most of participants reported that the training fulfilled their expectations because they became more knowledgeable, skillful, confident, and efficient. However, some said that the training was too short and many issues were condensed and overloaded. Majority of participants observed that facilitators had the required knowledge and skills and they used appropriate teaching methods and materials. **Conclusion:** Given that in-service training is an essential component of successful health care systems it is important to ensure that training opportunities are given on fair and equal basis. Duration of the training needs also to be carefully considered based on the training content.

- 167. Mpembeni, R., Massawe S., Leshabari, M., Wangwe, P. et al. Clients satisfaction with health facility delivery care services and associated factors. The case of Lindi and Mtwara rural districts, Southern Tanzania. 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** High maternal mortality rates still prevail in most developing countries especially in Sub Saharan Africa, including Tanzania with a currently estimated maternal mortality ratio at 454 per 100,000 live births. Skilled attendance during delivery is an effective intervention to reduce maternal deaths. However in Tanzania there is low utilization (51%) of facility deliveries and of skilled attendance (50%) despite a high ANC utilization with 96% attending at least once. This disparity in service utilization needs to be explored. The quality of care, including patient's satisfaction has been shown to be contributing factors. **Objectives:** To assess women's satisfaction with delivery care services and to determine the factors associated with satisfaction. **Methods:** As part of the baseline quality maternal health care (QUALMAT) pre- intervention

study in, Lindi and Mtwara rural districts, exit interviews to newly delivered mothers in selected primary health care facilities were done using a standard structured instrument. **Results:** 504 women were interviewed. The majority (92%) reported to be satisfied with the delivery care services. The reported satisfaction varied with different aspects of care ranging from 30% satisfied with labour pains management, to 96% satisfied with the care of the newborn. None of the social demographic variables was significantly associated with satisfaction although a smaller proportion of those with secondary education and parity 2 or lower reported satisfaction. **Conclusion:** Majority of women reported satisfaction with delivery care but there were significant variations across different care items. Women experiences and satisfaction with services can be used to inform the health sector to set strategies for improving care quality.

168. **Kakoko, D. C., Simba, D. O., Semali, I. A., Ezekiel, M. J. Strategies and challenges in the provision of health services in context of health service providers' shortage in Tanzania: a qualitative study. *International Journal of Innovative Healthcare Research* 2013; 1(2), 6-14.**

This study aimed to assess perceptions on the shortage of health service providers, strategies of coping with shortage of health service providers and implications of the strategies of used in coping with shortage of health service providers. Semi-structured interviews were held with the regional and district AIDS Coordinators, Medical Officers, Health Secretaries, as well as in-charges of health facilities in five regions of Tanzania. Data analysis followed principles of open coding. The shortage of health service providers was described to be a huge problem. Service providers are compelled to ask the patients to wait for some hours, make priorities of the day and thus allocating health workers to the neediest areas and to the critical health conditions, providing services as quick as possible. However, it was reported that specializing in some units is likely to magnify the problem of health service providers' shortage. Recommendations to improve the situation of health service providers included continuing employing health workers and making sure that employment is based on kinds of available in the job market. Shortage of health service providers results into a heavy burden among service providers and affect the quality of health services.

169. **Kakoko, D. C., Tarimo, E. A., Francis, J. M., Munseri, P., Bakari, M., Sandstorm, E. Perceptions about Repeat HIV Testing in an Incidence Study: A Qualitative Study Among a Potential Cohort for HIV Vaccine Trials in Dar Es Salaam, Tanzania. *Science Journal of Medicine and Clinical Trials*, 2013; 2013.**

**Background:** Information regarding repeat HIV testing is useful in the conduct of HIV vaccine trials as potential trial participants are required to undergo repeat HIV testing. In an incidence study conducted in 2008 among 1042 Police Officers 30% of them did not participate in a repeat HIV test. This study was therefore conducted to explore perceptions on repeat HIV testing among members of the incidence study cohort that also served as a source of volunteers for subsequent HIV vaccine trials. **Methods:** This qualitative cross-sectional study was conducted in Dar es Salaam. The study included

male and female Police Officers who were eligible to participate in the HIV incidence study. Participants were selected purposefully from eight Police stations out of the 32 stations. Data was collected using in-depth interviews and analysed qualitatively using the content analysis approach. **Results:** A majority of participants were willing to undergo a repeat HIV test and stated that it was important to repeat an HIV test to confirm their health status, and hence continue protecting themselves. Participants who participated in a repeat HIV test as a part of incidence study reported that the repeat HIV testing process was acceptable because counselling was provided, testing was voluntary, there was trust in the health care providers and a freedom to choose where to test. Participants who did not repeat the HIV test held that repeat a HIV test was not necessary since they believed that the initial test was adequate. Others said that communication breakdown was the main cause as they weren't aware of the importance of a repeat HIV test. Fear of the test results was also mentioned as one of the reasons. The participants were eager to gain more knowledge about the importance of a repeat HIV test. **Conclusion:** In order to facilitate repeat HIV testing in potential cohorts for HIV vaccine trials, more information and education regarding the repeat HIV test is needed. It is also important to make sure that researchers are well informed on what study participants are supposed to know.

170. **Kakoko, D.C.V., Leshabari, M.T., Massawe, S.N., Mpembeni, R., Saronga, H., Sukums, F., Wangwe, P. Preferences of non-financial incentives and appreciation appraisal among health workers in Lindi district, southern Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Provision of incentives is very crucial for improving performance among health workers. This is particularly so with maternal health care providers who need extra diligence and commitment in their work **Objectives:** To conduct a systematic literature review regarding non-financial incentives and to determine maternal health service workers' preferences of non-financial incentives and appreciation. **Methods:** A cross-sectional qualitative study was conducted in Lindi district in 2009. 31 health workers were interviewed through semi-structured in-depth interviews. Study participants were sampled purposefully. Data were analysed qualitatively using the content analysis approach. **Results:** Available literatures provide a range of non-financial incentives including those given or intended for health workers. In the interviews, non-financial incentives that were preferred by health workers in maternal and neonatal care services included; recognition of work and achievement, team building, supportive supervision and feedback, improved leadership, improved communication, provision of job description and induction, as well as access to training. Even though some of the participants reported that their work was appreciated by the employer, supervisors and community members, others were of the views that their work was not adequately appreciated. **Conclusion:** Non-financial incentives for and appreciation of work well done by health workers are important aspects that can contribute to the filling of the "know-do" gap particularly in resource constrained rural and remote settings.

171. **Kaleebu, P., Sandhu, M.S. Association of HIV and ART with cardiometabolic traits in sub-Saharan Africa: A systematic review and meta-analysis. *International Journal of Epidemiology*, 2013; 42(6), 1754-1771.**

**Background:** Sub-Saharan Africa (SSA) has the highest burden of HIV in the world and a rising prevalence of cardiometabolic disease; however, the interrelationship between HIV, antiretroviral therapy (ART) and cardiometabolic traits is not well described in SSA populations. **Methods:** We conducted a systematic review and meta-analysis through MEDLINE and EMBASE (up to January 2012), as well as direct author contact. Eligible studies provided summary or individual-level data on one or more of the following traits in HIV+ and HIV-, or ART+ and ART- subgroups in SSA: body mass index (BMI), systolic blood pressure (SBP), diastolic blood pressure (DBP), high-density lipoprotein (HDL), low-density lipoprotein (LDL), triglycerides (TGs) and fasting blood glucose (FBG) or glycated hemoglobin (HbA1c). Information was synthesized under a random-effects model and the primary outcomes were the standardized mean differences (SMD) of the specified traits between subgroups of participants. **Results:** Data were obtained from 49 published and 3 unpublished studies which reported on 29 755 individuals. HIV infection was associated with higher TGs [SMD, 0.26; 95% confidence interval (CI), 0.08 to 0.44] and lower HDL (SMD, -0.59; 95% CI, -0.86 to -0.31), BMI (SMD, -0.32; 95% CI, -0.45 to -0.18), SBP (SMD, -0.40; 95% CI, -0.55 to -0.25) and DBP (SMD, -0.34; 95% CI, -0.51 to -0.17). Among HIV+ individuals, ART use was associated with higher LDL (SMD, 0.43; 95% CI, 0.14 to 0.72) and HDL (SMD, 0.39; 95% CI, 0.11 to 0.66), and lower HbA1c (SMD, -0.34; 95% CI, -0.62 to -0.06). Fully adjusted estimates from analyses of individual participant data were consistent with meta-analysis of summary estimates for most traits. **Conclusions:** Broadly consistent with results from populations of European descent, these results suggest differences in cardiometabolic traits between HIV-infected HIV, it will be important to clarify these findings to reliably assess the need for monitoring and managing cardiometabolic risk in HIV-infected populations in SSA.

172. **Kalugira,P.The role of pay for performance in improving maternal and child health in Mkuranga district Tanzania.Master of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

Pay for performance programs are one of the few health policy interventions intended to motivate health workers to improve their performance. This program was introduced in Tanzania with the aim of improving reproductive and child health services. The program was piloted in Mkuranga district in Tanzania since Jan 2011. **Objective** of the study is to evaluate the role of Pay for Performance on improving reproductive and child services. **Methodology:** Qualitative and quantitative cross sectional explorative evaluation study was conducted involving 31 health facilities in the program and 123 health care workers providing maternal and child health services. Data on performance and level of motivation of four indicators were collected before (retrospectively) and after P4P program. Mean level of motivation was calculated and compared before and after the program and tested for significance. Proportion of number of clients serviced was calculated before and after the program and compared for significance. Qualitative data



was collected by conducting indepth interview conducted with health workers. **Results:** There was increase in number of ANC clients received IPT2 for hospital, health centre and dispensaries. The observed increase was statistically significant for health centre and dispensary ( $p < 0.001$ ). For Children received Measles vaccine there was no statistic significant increase for hospital ( $p = 0.36$ ). For dispensaries the number of clients received measles vaccine was greater than target population while for health centre there was statistically significant increase in number of clients attended ( $p < 0.001$ ). Facility deliveries findings show statistic significant increase in the number of clients attended at dispensaries and health centres ( $p < 0.001$ ). For hospital the number of deliveries exceeded the target population. PENTA 3 vaccine results show slight drop which was not statistically significant ( $p < 0.001$ ). Number of facility deliveries for health centres and dispensaries increased statistically significant ( $p < 0.001$ ). **Conclusion and recommendation:** Pay for performance (P4P) program has positive effect on motivating health care workers to improve their performance. The policy of pay for performance should be adopted and rolled out to other regions of Tanzania. Moreover case control studies should be done.

173. **Kamuhabwa, A.A.R., Silumbe, R. Knowledge among drug dispensers and antimalarial drug prescribing practices in public health facilities in Dar es Salaam.** *Drug, Healthcare and Patient Safety*, 2013; 5 (1), pp. 181-189.

**Background:** Irrational prescribing and dispensing of antimalarials has been identified as a contributing factor in the emergence of malaria parasites resistant to existing antimalarial drugs. Factors that contribute to such irrational prescribing and dispensing should therefore be identified to address this problem. The aim of this study was to assess irrational antimalarial drug dispensing and prescribing practices in public health facilities. **Methods:** A descriptive-retrospective cross-sectional study was conducted between January and June 2011 in order to assess prescribing and dispensing practices for antimalarial drugs in three public hospitals and nine health centers in Dar es Salaam, Tanzania. Thirty-two drug dispensers were interviewed using a structured questionnaire. A total of 4,320 prescriptions for the period January to December 2010 were collected and assessed for antimalarial drug prescribing patterns. **Results:** The majority (84.6%) of drug dispensers had poor knowledge regarding the basic information required from patients before dispensing artemether-lumefantrine. Seventeen of 32 drug dispensers did not know the basic information that should be given to patients in order to increase absorption of artemether-lumefantrine after oral intake. Most drug dispensers also showed limited knowledge about the dosage and contraindications for artemether-lumefantrine. Eighty-seven percent of all prescriptions contained artemether-lumefantrine as the only antimalarial drug, 77.1% contained at least one analgesic, and 26.9% contained at least one antibiotic, indicating unnecessary use of analgesics and antibiotics with antimalarial drugs. A substantial number of prescriptions contained antimalarial drugs that have already been declared ineffective for the treatment of malaria in Tanzania, providing additional evidence of inadequate knowledge among health care workers concerning treatment policy. **Conclusion:** Despite the government's efforts to increase public awareness regarding use of artemether-lumefantrine as first-line treatment for uncomplicated malaria, there is still irrational prescribing, dispensing, and

use of this combination. Based on the results of this study, it is proposed that regular on-the-job training and continuing education be provided to drug dispensers and prescribers in public health facilities.

- 174. Kamwaya, M. E., Ngassapa, F. N., Kanesato, M. A gadolinium (III) complex of tripodal tris (((5-chlorosalicylidene) amino) ethyl) amine, its structure. *TaJONAS: Tanzania Journal of Natural and Applied Sciences*, 2013; 1(1), 5-10.**

The complex  $C_{27}H_{24}N_4O_3Cl_3Gd$ ,  $M_r = 716.12$ ,  $a = 10.042(2)$ ,  $b = 13.261(1)$ ,  $c = 21.6346(9)\text{\AA}$ ,  $\rho = 101.990(6)\text{g cm}^{-3}$ ,  $V = 2818.1(5)\text{\AA}^3$ .  $Z = 4$ ,  $F(000) = 1412$ ,  $D_{\text{calc}} = 1.688\text{ Mg cm}^{-3}$ , is monoclinic, space group  $P2_1/c$ ;  $MoK\alpha$  radiation,  $\lambda = 0.71069\text{\AA}$ ,  $\mu(MoK\alpha) = 26.79\text{ cm}^{-1}$ ,  $R = 0.042$ ,  $R_w = 0.052$  for 2904 observed reflections with  $I > 3.0\sigma(I)$ . The Gd atom has a coordination number of seven: Gd...N 2.737(8), Gd...N(1) 2.542(8), Gd...N(2) 2.539(8), Gd...N(3) 2.529(7), Gd...O(1) 2.223(1), Gd...O(2) 2.235(7), Gd...O(3) 2.216(7)  $\text{\AA}$ . It is observed that whereas the average metal-oxygen distances increase in the transition metals with increasing atomic number, the lanthanide-oxygen distances do decrease with increasing atomic number.

- 175. Kamwaya, M. E., Ngassapa, F. N., Kanesato, M. A Samarium (III) complex of tripodal tris (((5-chlorosalicylidene) amino) ethyl) amine, its molecular structure. *TaJONAS: Tanzania Journal of Natural and Applied Sciences*, 2013; 1(1), 11-17.**

The complex  $C_{27}H_{24}N_4O_3Cl_3Sm$ ,  $M_r = 709.27$ ,  $a = 12.742(2)$ ,  $b = 15.381(3)$ ,  $c = 15.130(2)\text{\AA}$ ,  $\rho = 110.93(1)\text{g cm}^{-3}$ ,  $V = 2769.7(8)\text{\AA}^3$ .  $Z = 4$ ,  $F(000) = 1404$ ,  $D_{\text{calc}} = 1.701\text{ Mg cm}^{-3}$ , is monoclinic, space group  $P2_1/n$ ;  $MoK\alpha$  radiation,  $\lambda = 0.71069\text{\AA}$ ,  $\mu(MoK\alpha) = 24.5\text{ cm}^{-1}$ ,  $R = 0.042$ ,  $R_w = 0.054$  for 3157 observed reflections with  $I > 3.0\sigma(I)$ . The Sm atom has a coordination number of seven: Sm...N 2.778(6), Sm...N(1) 2.546(6), Sm...N(2) 2.545(6), Sm...N(3) 2.562(6), Sm...O(1) 2.243(5), Sm...O(2) 2.240(5), Sm...O(3) 2.237(5)  $\text{\AA}$ . It is observed that whereas the average metal-oxygen distances increase in the transition metals with increasing atomic number, they do decrease in the lanthanides with increasing same.

- 176. Kaswahili, J. P. Social, economic and demographic factors influencing membership of Community Health Fund(CHF), IN Magu district, Mwanza region, Tanzania. Masters of Public Health Dissertation, 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.***

**Background:** The Community Health Fund (CHF) was introduced in Tanzania as part of the Ministry of Health's (MOHSW) endeavour to make health care affordable and available to the rural population and the informal sector. The scheme started in 1996 with Igunga acting as a pilot district, and was later expanded to other districts. Despite of its apparent benefits, enrolment level in all districts has remained far below the projected target. **Objectives:** The main objective of this study was to assess community knowledge and views on social, economic and demographic factors influencing CHF membership and participation in Magudistrict. **Methods and materials:** The study

adopted a cross-sectional study design involving 200 household heads. Data collection methods included administering of questionnaire and an in-depth interview to the key informants in the district. In order to answer all the objectives data was analysed to get frequencies, percentages and where the need raised cross tabulation was done to get interpretations using Statistical Package for Social Sciences (SPSS). **Results:** The study findings revealed that 55% of community members interviewed reported inadequate information dissemination which caused poor understanding of the scheme. Major concerns were pointed out such as poor services delivery attributed by lack of medicine, community ability to pay, poor management of CHF funds, longer waiting time of health service especially in public health facilities, poor infrastructures just to mention a few. **Conclusion:** The decision to enrol in CHF membership is moulded by a combination of many factors including, education, gender, economic status, awareness strategies, improved health services and low margin of social inequality within the community.

177. **Katale, B. Z., Mbugi, E. V., Karimuribo, E. D., Keyyu, J. D., Kendall, S., Kibiki, G. S., Matee, M. I., Godfrey Faussett, P., Michel, A.L., Kazwala, R.R., van Helden, P., Prevalence and risk factors for infection of bovine tuberculosis in indigenous cattle in the Serengeti ecosystem, Tanzania. *BMC Veterinary Research*, 2013; 9 (1): pp 267.**

**Background:** Bovine tuberculosis (bTB) is a chronic debilitating disease and is a cause of morbidity and mortality in livestock, wildlife and humans. This study estimated the prevalence and risk factors associated with bovine tuberculosis transmission in indigenous cattle at the human-animal interface in the Serengeti ecosystem of Tanzania. **Results:** A total of 1,103 indigenous cattle from 32 herds were investigated for the presence of bTB using the Single Intradermal Comparative Tuberculin Test. Epidemiological data on herd structure, management and grazing system were also collected. The apparent individual animal prevalence of tuberculin reactors was 2.4% (95% confidence interval (CI), 1.7 - 3.5%), whereas the true prevalence was 0.6% CI, 0.6 - 0.7% as indicated by a reaction to avian tuberculin purified protein derivatives (PPD) which is more than 4 mm greater than the reaction to avian tuberculin PPD. The results showed that 10.6% (117/1,103) showed non-specific reactions (atypical mycobacterium). The herd prevalence of 50% (16/32) was found. Tuberculin skin test results were found to be significantly associated with age, location, size of the household and animal tested. Of 108 respondents, 70 (64.8%) individuals had not heard about bovine tuberculosis at all. Thirty five percent (38/108) of respondents at least were aware of bTB. About 60% (23/38) of respondents who were aware of bTB had some knowledge on how bTB is spread. Eighty one percent (87/108) of respondents were not aware of the presence of bTB in wildlife. There is regular contact between cattle and wild animals due to sharing of grazing land and water sources, with 99% (107/108) of households grazing cattle in communal pastures. **Conclusion:** The study has demonstrated a high reported interaction of livestock with wildlife and poor knowledge of most cattle owners concerning bTB and its transmission pathways among people, livestock and wildlife. Although the overall proportion of animals with bTB is relatively low, herd prevalence is 50% and prevalence within herds varied considerably. Thus

there is a possibility of cross transmission of bTB at wildlife-livestock interface areas that necessitates use of genetic strain typing methods to characterize them accurately

178. **Katale, B. Z., Mbugi, E. V., Karimuribo, E. D., Keyyu, J. D., Kendall, S., Kibiki, G. S., Matee, M. I. Prevalence and risk factors for infection of bovine tuberculosis in indigenous cattle in the Serengeti ecosystem, Tanzania. *BMC veterinary research*, 2013; 9(1), 267.**

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179. **Katana, D.B. Predictors of exclusive breastfeeding among women with children aged 6 to 12 months in Mkuranga district, June 2013. Master of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** The World Health Organization (WHO) recommends that infants should be exclusively breastfed for the first six months of life to achieve optimal growth and development. Breast milk contains all the nutrients that an infant needs in the first 6 months of life and bioactive factors that augment the infant's immature immune system,

providing protection against infection, and other factors that help digestion and absorption of nutrients. Exclusive breastfeeding (EBF) for the first six months of infants' life is a cost effective intervention in saving children's lives especially in developing countries. Despite all the advantages of EBF, in Tanzania many women still do not practice it as recommended. Women's decisions regarding breastfeeding may be influenced by social, environmental, physical and personal factors. **Main objective:** To explore predictors of exclusive breastfeeding among women with children aged 6 to 12 months in Mkuranga District, Coast Region. **Methodology:** This was a across sectional study involving 300 mothers with children aged 6 to 12 months and 10 elderly women residing in selected villages of Mkuranga District. The mothers were selected through multistage cluster sampling while the elderly women were conveniently identified within the households where the postnatal mothers were living. Information from the postnatal mothers and the elderly women was collected using a structured interview schedule and a key informant guide respectively. Data was entered and analyzed using Epi Info version 3.5.4 computer software. Bivariate analysis and multiple logistic regressions were performed to identify statistically significant predictors of exclusive breastfeeding. **Results:** The highest proportion of mothers (81.3%) initiated breastfeeding within one hour after birth. Knowledge of EBF for the first six months of life was relatively high (86%) compared to the EBF practice (7%). In the multivariate analysis, mothers with knowledge on the duration of EBF (OR 5.56, p-value = 0.02) and the principle of emptying one breast first before shifting to the other (OR 18.34, p-value < 0.00) were significantly more likely to practice EBF compared to mothers who did not use this principle. Elderly women played a major role of caring for both newborns and mothers after delivery, but study findings showed that they had insufficient knowledge on EBF. **Conclusion:** The predictors of EBF on the study area were knowledge on the duration of EBF and the time spent to empty one breast. Strategies targeting on improving breastfeeding knowledge and skills among mothers as well as elderly women may help to improve EBF in Mkuranga District.

180. Kawai, K., Meydani, S. N., Urassa, W., Wu, D., Mugusi, F. M., Saathoff, E., Bosch R.J., Villamor E., Spiegelman D., Fawzi, W. W.. **Micronutrient supplementation and T cell-mediated immune responses in patients with tuberculosis in Tanzania. *Epidemiology and infection*, 2013: PP 1-5.**

Limited studies exist regarding whether incorporating micronutrient supplements during tuberculosis (TB) treatment may improve cell-mediated immune response. We examined the effect of micronutrient supplementation on lymphocyte proliferation response to mycobacteria or T-cell mitogens in a randomized trial conducted on 423 patients with pulmonary TB. Eligible participants were randomly assigned to receive a daily dose of micronutrients (vitamins A, B-complex, C, E, and selenium) or placebo at the time of initiation of TB treatment. We found no overall effect of micronutrient supplements on lymphocyte proliferative responses to phytohaemagglutinin or purified protein derivatives in HIV-negative and HIV-positive TB patients. Of HIV-negative TB patients, the micronutrient group tended to show higher proliferative responses to concanavalin A than the placebo group, although the clinical relevance of this finding is

not readily notable. The role of nutritional intervention in this vulnerable population remains an important area of future research.

**181. Kayombo, E. J. Impact of Training traditional birth attendants on maternal mortality and morbidity in Sub-Saharan African countries. *Tanzania Journal of Health Research*, 2013;15(2).**

This paper presents discussion on impact of training traditional birth attendants (TBAs) on overall improvement of reproductive health care with focus on reducing the high rate of maternal and new-born mortality in rural settings in sub-Saharan Africa. The importance of TBAs for years has been denied by professional western trained health practitioners and other scientists until during the late 1980s, when World Health Organization through Safe motherhood 1987 found TBAs have a significant role in reducing maternal and new-born mortality. Trained TBAs in sub-Sahara Africa can have positive impact on reducing maternal and new-born mortality if the programme is well implemented with systematic follow-up after training. This could be done through joint meeting between health workers and TBAs as feed and learning experience from problem encountered in process of providing child delivery services. TBAs can help to break socio-cultural barriers on intervention on reproductive health programmes. However projects targeting TBAs should not be of hit and run; but gradually familiarize with the target group, build trust, transparency, and tolerance, willing to learn and creating a better relationship with them. In this paper, some case studies are described on how trained TBAs can be fully utilized in reducing maternal and new-born mortality rate in rural areas. What is needed is to identify TBAs, map their distribution and train them on basic primary healthcare related to child deliveries and complications which need to be referred to conventional health facilities immediately.

**182. Kayombo, E. J. Indigenous Knowledge and HIV/AIDS Prevention and Management in Local Communities in Africa South of the Sahara. *Pharmaceut Anal Acta*, 2013; 4(1), 204.**

The aim of this paper is to establish role of indigenous knowledge (IK) on prevention and management of human immune virus/acquired immunodeficiency syndrome (HIV/AIDS) in local communities in south of Saharan countries. Published articles in books, peer reviewed journals and gray literature that focused on HIV/AIDS and IK in south of the Saharan countries were critical reviewed. Literature reviewed showed that traditional remedies helped many HIV/AIDS to cope with illness. Traditional remedies mainly from herbs, honey and psychosocial counselling arrested symptoms of HIV/AIDS that would lead to AIDS. Some of traditional remedies formulations had food components for patients who had no appetite. IK with its practitioners has a significant role to play on HIV/AIDS both in prevention and treatment. It can be captured, translated and be used for the general public for both in prevention and treatment among the HIV/AIDS patients.

- 183. Kayombo, E. J., Mahunnah, R. L. A., Uiso, F. C. Prospects and Challenges of Medicinal Plants Conservation and Traditional Medicine in Tanzania. 2013; 1(3), 108.**

A qualitative study was carried to assess prospects and challenges of medicinal plants conservation and traditional medicine in Tanzania. The study shows that TRM and medicinal have great prospects in healthcare delivery worldwide. These prospects have more impact in developing countries where 70%-80% of population used TRM for Primary Healthcare (PHC). It is reported that 25% of prescribed drugs in conventional healthcare were derived from their ethnomedicinal use in TRM. Medicinal plants still provided hope for discovery of new drugs for the resistant diseases and those that were not treated by conventional prescribed drugs. Traditional medicine and medicinal plants were faced with challenges notably; threats due to increasing depletion of the natural resource as an impact of population increase, urbanization, modernization of agriculture and climatic change. There was erosion of indigenous medical knowledge as most of the traditional health practitioners were aging and dying, while the expected youths to inherit the practice shy away from practice. The youths in rural settings who were willing to practice some of them die because of AIDS. The other major challenges on traditional medicine and MPs were constraints and include lack of data on seriously threatened and endangered medicinal plant species. Others include inadequate and conflicting guidelines on management and utilization of natural resources, especially medicinal plants. Efforts for scaling up the practice of TRM and medicinal plant conservation have been suggested. These were creating awareness of the importance traditional medicine and medicinal plants in healthcare; training THPs on good practices for provision of healthcare; conserving medicinal plants through in-situ and ex-situ programs and sustainable harvesting of medicinal plants resources and training conventional health workers on the contribution of TRM and medicinal plants in PHC. Traditional health practitioners, TRM and medicinal plants should be essential components in PHC in order to meet the health millennium goals by 2025.

- 184. Kayunze, K. A., Kiwara, A. D., Lyamuya, E., Kambarage, D. M., Rushton, J., Coker, R., Kock, R. Utilisation of One Health Approaches in the Surveillance and Mitigation of Risks of Animal Derived Infections in Tanzania: Attitudinal Profiles of Human and Animal Health Experts. 2013.**

Effective detection, identification, monitoring and control of zoonoses and other animal-derived infections call for embracement of multi- and trans-disciplinary partnership as a means towards optimising the health of humans, animals and their ecosystems. This study was thus aimed at evaluating attitudinal profiles of human, animal and wildlife health experts in Ngorongoro (Manyara Region) and Kibaha (Coastal Region) Districts to this partnered arrangement in dealing with infectious diseases of humans and animals. This was carried out using a structured questionnaire which comprised a 100-point Likert scale on which <60, 60 and 60< points represented unfavourable, neutral and favourable attitudes respectively. The questionnaire was administered to 91 medical, veterinary and wildlife experts in July and August 2012. It was found that, overall, the respondents had positive attitude (64.8%) towards inter-

sectoral collaboration. The proportions of the respondents with unfavourable, neutral and favorable attitudes were 22.0%, 8.8% and 69.2%, respectively. The scores by the three categories of experts showed no significant difference ( $F = 1.428$ ,  $p = 0.248$ ). This indicates that human and animal health experts value the use of one health approaches in dealing with zoonoses and other animal-derived infections.

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- 186. Kazula, A.M. Tuberculosis and hiv/aids co-infection related awareness, attitude and practices: a case study in Tundurudistrict. Masters of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** It is estimated that up to 50% of people who are living with HIV were also infected with TB. Tuberculosis is among the most important infectious diseases in Tanzania with a high mortality, especially among the HIV infected individuals. The number of tuberculosis cases has increased from 11,753 in 1983 to 62,092 in 2006; a five-fold increase due to HIV pandemic. It has been found that the community perception and awareness of TB and HIV/AIDS co-infection may influence early health seeking behavior and hence control of TB and HIV/AIDS in the community. **Objective:** The main objective of this study is to explore community awareness, attitude and practice towards prevention of TB and HIV/AIDS co-infection in the general population of Tunduru District. **Methodology:** A descriptive cross sectional study using quantitative techniques was conducted in Tunduru district council. Four divisions, eight wards and



one village in each particular ward were selected using multi stage cluster sampling techniques. Inclusion criteria was all people aged 18 years and above. A semi structured interviewer administered questionnaires were used as an instrument to assess information of TB and HIV awareness, attitude and practices. Data were analyzed by descriptive statistics. Adjusted odds ratios (aOR) and 95% confidence intervals (95% CI) of potential determinants of TB and HIV awareness, attitude and practices were estimated by multivariable logistic regression using SPSS version 16.0 software. **Results:** Awareness of symptoms of TB in HIV patients was found to be higher for individuals who were employed. The findings also show that individuals above 25 years old, male, employed and able to read and write were reported to have positive attitude towards TB and HIV co-infection. Furthermore the findings revealed that individuals who were married were more likely to practice cough hygiene as preventive measure of TB. Finally study established statistically significant association between HIV testing and gender, age, level of education and employment status among respondents. **Conclusion and Recommendation:** The study findings revealed that those individuals who had never attended formal education, younger generation and unemployed had poor practices, awareness and negative attitude towards TB and HIV co-infection. This calls for innovative action to reach those with limited writing and reading skills through TB/HIV drama, verbal and pictorial messages as part of a comprehensive ACSM strategy. Furthermore, an effort to educate younger generation and unemployed is needed. I strongly recommended planning a program to bring desired change in awareness, attitude and practices based on socio-cultural context of the society.

187. **Kennedy, C. E., Brahmbhatt, H., Likindikoki, S., Beckham, S. W., Mbwambo, J. K., Kerrigan, D. Exploring the potential of a conditional cash transfer intervention to reduce HIV risk among young women in Iringa, Tanzania. *AIDS care*, 2013: 1-7.**

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.

- 188. Kenyunko, K.M. Profile of trochanteric fractures at MOI: treatment and short-term outcome 2012. Masters of medicine in (Orthopaedics and Traumatology). Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

Trochanteric fractures are one of the hip fractures, common in old age. However, they are not uncommon in younger age group. They commonly occurs in elderly following low energy trauma. In young people, these fractures result from high energy trauma. Despite different treatment modalities of these fractures, complications do occur. **Study Objective:** This study aimed to determine the causes of injury, treatment modalities used and short-term outcome of trochanteric fractures at Muhimbili Orthopaedic Institutes (MOI) from January 2012- Decamber2012. **Methods:** A cohort study was done on adult patients with trochanteric fractures admitted and treated at Muhimbili Orthopaedic Institute (MOI). Ninety one patients met the study inclusion criteria, four were lost follow-up, hence 87 patients were reviewed and completed the 16 weeks of follow ups. The structured questionnaire was used to interview the participants. These patients were treated either surgically or non surgical. Those who were surgically treated, immediate post-operative radiographs were taken, length of the lower limb and coxa vara deformity were assessed. Patients who were treated non surgically were put on skin traction for four weeks, then control radiographs were taken, lower limb length and coxa vara deformity were again assessed. There after each patient was followed up for a period of 16 weeks post treatment. In the follow-up visits, state of the wound, limb length discrepancy, coxa vara deformity and function of the hip joint were assessed. The obtained data were then analyzed by using **SPSS version 16.0 Results:** In this study 49% of cases occurred after simple fall, 43.7% of cases occurred after Road Traffic Crash (RTC). Average age of occurrence was  $62.26 \pm 19.19$  years with male to female ratio of 2:1. Most cases were Evan's type II classification. 60 patients were surgically treated and 27 patients were treated conservatively. Of the participants, 37.9% had coxa vara, 40.2% had limb shortening, 85.1% had score of above 20 by Salvati - Wilson hip score. **Conclusion:** Trochanteric fractures occur due to simple fall and road traffic crash. Most of these fractures, have better outcome when surgically treated.

- 189. Kereth, G. A., Lyimo, M., Mbwana, H. A., Mongi, R. J.; Ruhembe, C. C. Assessment of Post-harvest Handling Practices: Knowledge and Losses of Fruits in Bagamoyo District of Tanzania. Food Science & Quality Management ,2013:11.**

The harvesting practices, knowledge and post-harvest losses of fruits along the supply chain in Bagamoyo District were investigated. 142 farmers, 50 retailers and 10 wholesalers dealing with fruits were involved in the study. Data were collected using structured questionnaires. The results indicate that, 90.14% of the respondents harvested fruits when they are just ripe and the great market losses were reported to occur due to rotting (microbial) at 63%, physiological at 20% and 17% by insects and rodents. Along

the supply chain, mechanical damage was observed to be the major type of loss during harvesting (79%) and transportation (56%) while microbial damage was observed by majority (67%) during marketing. Poor infrastructure from farm to the market was observed to account for large percentage of losses in the market. The findings also shows that all farmers (100%) interviewed have no knowledge on post-harvest losses and management. In the view of the findings, it can be concluded that, post-harvest handling practices and knowledge of stakeholders involved in fruit sub sector in the country are not good enough to prevent the losses. It is therefore imperative to improve educational knowledge, skills and fruits quality from the field to reduce post-harvest losses.

190. **Kevany, S., Khumalo-Sakutukwa, G., Murima, O., Chingono, A., Modiba, P., Gray, G., Morin, S. F. Health diplomacy and the adaptation of global health interventions to local needs in sub-Saharan Africa and Thailand: Evaluating findings from Project Accept (HPTN 043). *BMC public health*, 2013;12(1), 459.**

**Background.** Study-based global health interventions, especially those that are conducted on an international or multi-site basis, frequently require site-specific adaptations in order to (1) respond to socio-cultural differences in risk determinants, (2) to make interventions more relevant to target population needs, and (3) in recognition of 'global health diplomacy' issues. We report on the adaptations development, approval and implementation process from the Project Accept voluntary counseling and testing, community mobilization and post-test support services intervention. **Methods.** We reviewed all relevant documentation collected during the study intervention period (e.g. monthly progress reports; bi-annual steering committee presentations) and conducted a series of semi-structured interviews with project directors and between 12 and 23 field staff at each study site in South Africa, Zimbabwe, Thailand and Tanzania during 2009. Respondents were asked to describe (1) the adaptations development and approval process and (2) the most successful site-specific adaptations from the perspective of facilitating intervention implementation. **Results.** Across sites, proposed adaptations were identified by field staff and submitted to project directors for review on a formally planned basis. The cross-site intervention sub-committee then ensured fidelity to the study protocol before approval. Successfully-implemented adaptations included: intervention delivery adaptations (e.g. development of tailored counseling messages for immigrant labour groups in South Africa) political, environmental and infrastructural adaptations (e.g. use of local community centers as VCT venues in Zimbabwe); religious adaptations (e.g. dividing clients by gender in Muslim areas of Tanzania); economic adaptations (e.g. co-provision of income generating skills classes in Zimbabwe); epidemiological adaptations (e.g. provision of 'youth-friendly' services in South Africa, Zimbabwe and Tanzania), and social adaptations (e.g. modification of terminology to local dialects in Thailand: and adjustment of service delivery schedules to suit seasonal and daily work schedules across sites). **Conclusions.** Adaptation selection, development and approval during multi-site global health research studies should be a planned process that maintains fidelity to the study protocol. The successful implementation of appropriate site-specific adaptations may have important implications for intervention implementation, from both a service uptake and a global health diplomacy perspective.

191. **Khamisi, R.H. indications and findings of patients undergoing upper gastrointestinal endoscopy at Muhimbili national hospital, Dar es salaam, Tanzania. Master of Medicine (General Surgery) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background.** OGD is a safe, widely available technique for which demand continues to grow, resulting in an increase in costs and waiting lists for endoscopic procedures<sup>3, 4</sup>. So, the appropriateness of indications for OGD is critical in assessing quality in endoscopy units, improving cost-effectiveness and providing better patient care.<sup>7, 8</sup> The rationale of the study was to obtain information that will assist in formulating guidelines for upper GI endoscopy examination in Muhimbili National Hospital and probably Tanzania; so that a better quality of care is provided within such a financially constrained environment. The therapeutic services provided at the National Hospital's endoscopy unit are also worth documenting and hence be in a position to suggest some solutions in order to improve or assist patient care. **Objectives.** The aim of this study was to profile by documenting the pattern of demographic characteristics, indications, and endoscopic findings of patients undergoing upper GI endoscopy at MNH. **Methodology.** A descriptive, prospective, cross-sectional study to establish the profile including indications and the endoscopic findings of all the subjects who attended and did upper gastro-intestinal endoscopy at the MNH endoscopy unit from March 2011 to December 2011 was conducted. The data were analyzed using SPSS to obtain frequencies, mean, and percentage of variables. **Results.** A total of 159 subjects aged between 12 and 93 years were enrolled in the study whereby 94 (59.1%) were males. Most of the study population was from Dar es Salaam that comprised of 54.1%. The indications for endoscopy procedure were mainly for diagnosis and none was for therapeutic reasons. These included isolated dyspepsia (44.7%) followed by dysphagia (26.4%) and UGI bleeding (9.4%) and others. Combined symptoms comprised of 15.7%. The causes of these symptoms, all diagnosed endoscopically, included Gastritis in 39.0% of cases, malignancy in 20.7% and PUD in 12.6%; Most of the isolated dyspeptic patients had gastritis. Significant endoscopic findings were detected in those with dyspepsia complicated by alarm symptoms or isolated alarm symptom in those aged 40 yrs and above. There were no therapeutic endoscopic interventions performed during the study period. **Conclusion.** OGD plays a pivotal role in diagnosis and management of a number of upper GI diseases. At MNH, it is being utilized mostly by subjects aged 45.3 yrs on average who came mainly from Dar es Salaam and coastal regions of the country. Dyspepsia remained the leading indication for the procedure and the commonest upper GI endoscopic finding was gastritis. 25% of the upper GI malignancies were found between 40 to 50 yrs of age. No therapeutic interventions were done during the study period. **Recommendations.** Guidelines to do Upper GI endoscopy at MNH should be established pending a further evaluation by a larger prospective study, involving a number of endoscopy units in different regions where duration of symptoms and Histopathological results may be included. The demand for therapeutic/interventional endoscopy at MNH is high. The Hospital should acquire accessories required for these services, in order to improve quality of health care at the MNH endoscopy unit. Surveillance protocols and programme need to be strengthened so

that significant people with potential risk for Upper GI malignancy may be picked earlier.

**192. Khan, S. F. Magnetic resonance imaging findings in advanced hiv/aids patients with central nervous system manifestations at Muhimbili National Hospital. Master of Medicine (Radiology) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Background:** A wide range of central nervous system pathologies can be seen in HIV-infected patients. Neuroimaging is essential for accurate diagnosis and follow-up after treatment. Imaging techniques may range from basic CT to functional MRI and nuclear medicine techniques. There is a considerable overlap of imaging features between the various disease subtypes; therefore, a systematic approach to interpretation is essential. Since MRI is the mainstay of investigation of the CNS in AIDS, this study concentrates on the MRI appearances. It aims to simplify the process of radiological analysis by categorizing the various patterns of disease and highlighting the main differential diagnoses for each pattern **Broad Objectives:** To determine Magnetic Resonance Imaging Findings in HIV/AIDS patients with Central Nervous System manifestations referred to MRI Unit, Muhimbili National Hospital, July to December 2012. **Methodology:** This was hospital based descriptive cross sectional study whereby a convenient sample of 45 patients was obtained from HIV infected patients with CNS manifestations who attended MRI unit of Radiology Department, Muhimbili National Hospital, Dar es salaam, Tanzania from July to December 2012. Each patient was investigated by using contrasted MRI and thus was evaluated. The obtained data was analyzed using SPSS Version 15. Continuous data was analyzed by mean (standard deviation) and categorical data by number (percentage). Statistical level of significance was set at  $p < 0.05$ . **Results:** A total of 45 patients who underwent MRI investigation who were known cases of HIV/AIDS and presented with CNS manifestation were recruited in this study, out of which 33 (73.3%) were males and 12 (26.7%) were females. The mean age of the participants was 33 years and there was definite increase of incidence of CNS manifestations in age group of 29-38 years. Most common indications were headache, fever, vomiting and history of seizures. Among 43 (95.55%) with positive MRI findings, 14 (32.55%) had similar specific clinical and MRI Imaging diagnosis. Twenty nine (67.44%) patients the specific clinical and MRI diagnosis did not match. Two (4.44%) patients despite of having CNS manifestations, neither had any specific diagnosis on request form nor had any abnormal imaging findings on MRI.  $X^2$  value of 0.94 and p-value of 0.331 were obtained, hence the findings were not statistically significant and it supports the null hypothesis, which states that there is no correlation between clinical diagnosis reached before MRI imaging and diagnosis reached after MRI imaging. Majority of patients were diagnosed with Cerebral Toxoplasmosis (40%), Cerebral Tuberculosis (13.33%) and HIV Encephalitis (13.33%). Other diagnosis was less frequent. **Conclusion** Neuroimaging plays a very vital role in diagnosis and management of HIV infected patients. The most common presenting complaint in the study population was headache 24 (54%), seizures 19 (41%), fever 18 (40%) and vomiting 17 (37%). The commonest MRI finding was Cerebral Toxoplasmosis 18 (40%). Most common findings seen in MRI was focal mass with enhancement followed by

diffuse white matter disease. MRI is the modality of choice owing to its higher sensitivity 43 (95.5%) of lesion detection and superior contrast resolution. **Recommendation** Where MRI modality is available a patient with HIV/AIDS with neurological manifestations should always be screened. MRI should be made available at subsidised cost for HIV/AIDS infected individual so that it is seen as first line of investigation in such patients. Further studies with a larger sample size and including other regional and district hospitals are recommended to determine different patterns of lesions seen on MRI

**193. Khanbhai, K. ECG patterns and three months outcomes in patients admitted with new onset stroke at Muhimbili National Hospital. Master of Medicine (Internal Medicine) Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Stroke is on the rise in Tanzania with great impact on morbidity and mortality. One of the factors associated with poor outcome among stroke patients are some abnormal electrocardiographic (ECG) changes resulting from massive autonomic discharge along the sympathetic outflow tracts of the nervous system that interferes with cardiac autonomic control. This study aimed at determining the ECG patterns among new onset stroke patients and their clinical outcomes in terms of morbidity and mortality at 3 months. **Objective:** To determine ECG patterns and three months outcomes of patients admitted with new onset stroke at Muhimbili National Hospital. **Methodology:** This was a descriptive follow up study conducted at the Muhimbili National Hospital in-patient neurology units. We enrolled 160 patients with new onset stroke regardless of its type. All eligible patients who consented for the study underwent 12 lead resting ECGs. These patients were then followed up at 1 month and 3 months from the day of enrollment for determination of their survival/morbidity and mortality outcomes. Descriptive statistics were used to describe the socio-demographics of the study population in terms of frequencies. Chi-square test was used to compare proportions of different ECG patterns, type of stroke, and outcomes in terms of mortality or survival in 1 month and 3 months of follow up. Multivariate analysis was used to control for confounding factors on socio-demographic characteristics and ECG patterns as related to the outcomes. **Results:** From August 2012 to mid December 2012 a total of 527 patients were admitted at MNH neurology unit. Out of these 160 patients met the inclusion criteria and consented for the study. Their mean age was 58 years with standard deviation of  $\pm 14.695$ . Of these 53.1% were Males. 87.5% had HTN, 41.3% were diabetic (DM), 39.4% had both HTN and DM. A total of 9 ECG patterns were identified out of which LVH, ischemic changes and QT Prolongation were dominant; (83.1%, 63.1% and 50.6% respectively). QT prolongation and Ischemic changes were found to be statistically significant in predicting outcomes at 1 month and at 3 months with P-value  $<0.001$  and  $0.036$  respectively. Those with QT prolongation and Ischemic changes had poor outcomes than other patterns. Patients with more than three patterns had poor outcomes as compared to those with less than three patterns ( $p=0.018$ ) with risk of three times likely hood of mortality at three month. Patients with hemorrhagic stroke were more likely to present with multiple ECG patterns than were patients with ischemic stroke ( $p <0.001$ ). Patients with Hemorrhagic stroke had poor outcomes

compared to ischemic stroke ( $p < 0.001$ ) in terms of mortality at 3 months. **Conclusion :** Bed side ECG was a significant tool in identifying certain ECG patterns associated with predicting poor outcomes. ECG patterns such as QT-prolongation and Ischemic changes were associated with poor outcomes at three months, irrespective of the co-existence of co-morbid conditions such as (HTN, DM). Although not definite some ECG patterns such as QT-prolongation was highly predictive of type of stroke (hemorrhagic vs. Ischemic stroke). But CT-scan still remains definitive tool. **Recommendation:** Every stroke patients should have a bedside ECG which is easily available, and which will guide in overall management of patients and prognosis. A new study should be done to see different ECG patterns in patients with HIV disease who presents with acute event of stroke.

194. **Khumalo-Sakutukwa, G., Morin, S. F., Fritz, K., Charlebois, E. D., van Rooyen, H., Chingono, A., Coates, T. J. (2008). Project Accept (HPTN 043): a community-based intervention to reduce HIV incidence in populations at risk for HIV in sub-Saharan Africa and Thailand. *Journal of acquired immune deficiency syndromes (1999)*, 2013; 49(4), 422.**

**Background.** Changing community norms to increase awareness of HIV status and reduce HIV-related stigma has the potential to reduce the incidence of HIV-1 infection in the developing world. **Methods.** We developed and implemented a multi-level intervention providing community-based HIV mobile voluntary counseling and testing (CBVCT), community mobilization (CM), and post-test support services (PTSS). Forty-eight communities in Tanzania, Zimbabwe, South Africa and Thailand were randomized to receive the intervention or standard clinic-based VCT (SVCT), the comparison condition. We monitored utilization of CBVCT and SVCT by community of residence at 3 sites, which was used to assess differential uptake. We also developed Quality Assurance procedures to evaluate staff fidelity to the intervention. **Findings.** In the first year of the study a four-fold increase in testing was observed in the intervention versus comparison communities. We also found an overall 95% adherence to intervention components. Study outcomes, including prevalence of recent HIV infection and community-level HIV stigma, will be assessed after three years of intervention. **Conclusion.** The provision of mobile services, combined with appropriate support activities, may have significant effects on utilization of VCT. These findings also provide early support for community mobilization as a strategy for increasing testing rates.

195. **Kibusi, S.M., Ohnishi, M., Outwater, A., Seino, K., Kizuki, M., Takano, T. Sociocultural factors that reduce risks of homicide in Dar es Salaam: A case control study. *Injury Prevention*, 2013; 19 (5), pp. 320-325.**

**Objectives:** This study was performed to examine the potential contributions of sociocultural activities to reduce risks of death by homicide. **Method** this study was designed as a case control study. Relatives of 90 adult homicide victims in Dar es Salaam Region, Tanzania, in 2005 were interviewed. As controls, 211 participants

matched for sex and 5-year age group were randomly selected from the same region and interviewed regarding the same contents. **Results** Bivariate analysis revealed significant differences between victims and controls regarding educational status, occupation, family structure, frequent heavy drinking, hard drug use and religious attendance. Conditional logistic regression analysis indicated that the following factors were significantly related to not becoming victims of homicide: being in employment (unskilled labour: OR=0.04, skilled labour: OR=0.07, others: OR=0.04), higher educational status (OR=0.02), residence in Dar es Salaam after becoming an adult (compared with those who have resided in Dar es Salaam since birth: OR=3.95), living with another person (OR=0.07), not drinking alcohol frequently (OR=0.15) and frequent religious service attendance (OR=0.12). **Conclusions** Frequent religious service attendance, living in the same place for a long time and living with another person were shown to be factors that contribute to preventing death by homicide, regardless of place of residence and neighbourhood environment. Existing nonstructural community resources and social cohesive networks strengthen individual and community resilience against violence.

**196. Kidanto, H. L., Garison, J., Wangwe, P. Large neurofibroma of the labia majora: A case report. *Tanzania Journal of Health Research*, 2013;15(1).**

Neurofibromatosis is an autosomal dominant progressive disorder with an incidence of approximately 1 in 3000 live births. Its recognized features include hyper-pigmented skin lesions (cafe-au-lait spots), neurofibromas, iris hamartomas, macrocephaly, central nervous system tumors, defects of the skull and facial bones, and vascular lesions. Involvement of the external genitalia is extremely unusual. This report describes a case of a vulva neurofibroma in a 15-years old teenage girl with no history of trauma or features of Von Recklinghausen's disease. Treatment involved total excision of the tumor under spinal anesthesia. The diagnosis of neurofibroma was confirmed by histological examination which showed spindle shaped cells with wavy nuclei arranged in a loose myxomatous stroma. No further treatment was offered but the patient was counseled on the possibility of recurrence. She was seen one month after excision and there were no signs of recurrence.

**197. Killewo, J. Coverage, quality and equity of maternal and newborn health services in a rural area of Morogoro in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Integrated packages of maternal and newborn health services provided from pregnancy to postpartum periods, have been shown to correspond to significant reductions in morbidity and mortality. While the technical interventions are known, challenges remain in appropriately packaging and implementing service delivery across the continuum of care equitably, at high coverage, and without compromising quality. **Objectives:** The objectives of the study was to: 1) describe the coverage of MNH care in Morogoro region in Tanzania; 2) to assess the quality of MNH care by the level of health facility where it was received (hospital, health center, or dispensary); and



3) to assess the equity of MNCH service receipt. **Methods:** As a part of the evaluation of the Morogoro Integrated program, a baseline household survey was conducted in August and September 2011. Two-stage cluster sampling was used to randomly select a sample of 1971 recently-delivered women from the catchment areas of 9 intervention and 9 comparison health facilities. The survey questionnaire measured coverage of routine maternal and child health services, location of service delivery, and the quality of care and counseling received during routine visits. **Results:** The coverage of ANC-1 was high (86%), but coverage rates decreased for ANC-4 (68%), facility delivery (66%), and postnatal care (22%). Dispensaries, the lowest level of service provision in the health system, were found to be a major source of care for ANC (45% of all women), delivery (25%), and postnatal care (10%). Women receiving care at dispensaries were less likely to receive some key interventions during ANC and delivery, such as counseling on health behaviors. Utilization of dispensary services was highest among poorer families, which were found to be more likely to live in an area where a dispensary is the closest health facility. **Conclusion:** Due to their importance in serving the poor, dispensaries should be improved to provide high quality service during ANC, delivery and postnatal periods.

**198. Kilewo, C., George, A., LeFevre, A., r Mohan, D., Killewo, J., Baqui, A. Continuity of ANC, and PMTCT services in Morogoro, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Mother to child transmission of HIV is the second cause of HIV transmission in Tanzania. Knowledge of HIV status allows pregnant women to protect their babies from HIV, by accessing focused ANC and PMTCT services which are now intergrated into routine pregnancy care services throughout Tanzania. Despite the near universal attendance of any ANC, little is known about the continuity of ANC and HIV services initiated during pregnancy. **Objectives:** The analysis explored the continuity of MNCH care received during routine antenatal care specifically seeking to determine the proportion of women attending ANC who reportedly received HIV & MTCT counseling; HIV Testing; Partner Testing; and subsequently continued with the services in the continuum of MNCH services. **Methods:** A household survey was conducted in 4 districts of Morogoro Region, from August to November 2011 as part of the Morogoro Evaluation Project. A total of 1,913 recently delivered women were asked to provide details on knowledge and care seeking during pregnancy, delivery, and postpartum periods. **Results:** Survey findings indicate that 99% of recently delivered women attended one or more ANC visits, 77% received counseling on HIV during ANC; and 66% on MTCT constituting a missed opportunity for 23% and 44% of women. Of those counseled during ANC, 84% tested and receipt of results was 97%. However, only 77% received counseling on results. When stratified by location, dispensaries were the preferred place for ANC (45%). However, the proportion of women who received HIV counseling was nearly 10% lower in dispensaries than other facilities. For women that did receive HIV counseling, a higher proportion of dispensary patients (56%) received testing as compared to health centers (45%) and hospitals (48%). **Conclusion:** Overall findings suggest that strategies should be developed to

improve the quality testing and counseling for PMTCT of HIV particularly in dispensaries.

- 199. Kilewo, C. Integration of HIV counseling and testing into routine ANC: implications for quality of care. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Mother to child transmission of HIV/AIDS is the second most common cause of HIV transmission in Tanzania. Knowledge of HIV status allows pregnant women to take action to protect their babies from HIV, to access treatment for themselves, and to plan for their future needs. With the introduction of Focused Antenatal Care in 2002, HIV counseling, testing, treatment and prevention services were integrated into routine pregnancy care services throughout Tanzania. Despite the near universal attendance of any ANC, little is known about the continuity of HIV services initiated during pregnancy. **Objectives:** The goal of this analysis is to explore the continuity of HIV services received during routine antenatal care. **Methods:** Study findings stem from a household survey conducted in 4 districts of Morogoro Region, Tanzania from August to November 2011 as part of the Morogoro Evaluation Project. A total of 1,971 recently delivered women were asked to provide details on knowledge and care seeking during pregnancy, delivery, and postpartum periods. **Results:** Survey findings indicate that 86% of recently delivered women attended one or more antenatal clinics, although only 78% of these individuals received counseling on HIV during ANC; constituting a missed opportunity for 22% of women. Of those women counseled on HIV during ANC, 84% were tested for HIV. Once tested, reported receipt of results was nearly universal (97%). However, only 77% of those tested reportedly received counseling on HIV test results. When stratified by location, dispensaries were the preferred source for ANC (45%). However, the proportion of women who received HIV counseling during ANC was nearly 10% lower in dispensaries than other facilities. For women that did receive HIV counseling, a higher proportion of dispensary patients (56%) received testing as compared to health centers (45%) and hospitals (48%). Overall findings suggest that strategies should be developed to improve the quality of HIV and PMTCT counseling, particularly in dispensaries and specifically of test results. **Conclusion:** Emphasis should be placed upon increasing coverage of partner testing and additional strategies should be developed to improve coverage of HIV testing for postpartum mothers and infants.

- 200. Kimario, J., Lukmanji, Z., Hendricks, K., Reyn, F.C. Bakari, M., Waddel, R, Magohe, A. Development of dar-uji nutritional supplement and its acceptance. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Maintaining adequate energy intake and optimal nutrition to enhance immune system and slow disease progression among HIV infected persons remain a major challenge in developing countries including Tanzania. **Objectives:** To develop culturally acceptable energy and protein dense nutrition supplement with local foods to be used in 2 randomized controlled trials among HIV positive women. **Methods:** 1st

stage: Several porridges, each with different ingredients (composed using Tanzania Food Composition tables), RUTF and RUCT were prepared to meet specified nutrient composition goals. Their acceptability, mode of delivery and barriers to consumption were determined through three focus discussions involving a total of 13 women. 2nd Stage: Taste tasting of these formulae was done to paste, biscuits and DAR- UJI. Ten women were involved. Questions asked were similar to those of the focus group discussions. Women tasted each of them and indicated their preference. Responses were used to identify the most appropriate DAR-UJI. **Results:** DAR-UJI is currently being used in two nutrition intervention studies conducted at DarDar. It is packed in 250g packets each with 1057 calories and 41 g of protein, one packet to be consumed every day. DAR-UJI has been observed to be well accepted by majority of participants in both studies with 48 breastfeeding women with HIV and 33 Tb/HIV co-infected women. More than half have been found to have consumed all given 30 packets per month and the rest 25 -28 packets. **Conclusion:** These preliminary observations imply DAR-UJI to be culturally acceptable and nutritionally appropriate.

201. **Kingu, A. N. Assessment of pre-hospital care of road traffic injured patients admitted at Muhimbili National hospital and Muhimbili orthopaedic institute Dar es salaam, Tanzania. Master of Science in Nursing (Critical care & Trauma) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Injury and other medical emergencies are becoming increasingly common in low and middle-income countries. Most of the deaths from these conditions occur outside of hospitals, necessitating the development of pre-hospital care which is inadequately developed in Tanzania to meet the growing needs for emergency care. **Objective:** The aims of the study was to assess and describe the current status of pre-hospital care of road traffic injured victims, establish the monthly prevalence of RTI patients admitted at Muhimbili National Hospital and Muhimbili Orthopedic Institute, and determine the resulting disabilities caused by road traffic crash injuries. **Methods:** A descriptive cross-sectional study design using quantitative research methods was used. A non-probability convenience sampling method was used to select 161 road traffic injured patients from surgical, orthopedic and neurosurgical departments at MNH and MOI. A structured questionnaire which contained closed-ended questions was used to collect information. The total number of inpatients during study period was gathered through hospital data. **Results:** Majority of patients 121(75.2%) were aged between 18–40 years with the mean age of  $33.66 \pm SD11.3$  years. Most 121(75.2%) were males with male to female ratio of 3:1. Primary school leavers and self employed patients were the largest groups of road traffic crash victims. Most crashes occurred along the highways and passengers were the most injured followed by drivers and pedestrians. Almost 12.4% of the respondents had used alcohol 6 hours before injury. Motorcycles were

responsible for most road traffic crashes followed by motor vehicles. Most cars (31.7%) did not have seat belt. Regarding helmet use most victims (46.0%) reported to have used helmet sometimes and 21(13%) have never used helmet in the past 30 days before Injury. Most victims (55.3%) sustained multiple injuries followed by fractures (32.9%) and most of them were transported to health facility by private cars. A bigger proportion of RTI patients 97.5% received some form of pre-hospital care with some first aid before reaching the health facility. However, only 1.3% of these patients had pre-hospital care been provided by trained ambulance personnel. The pre-hospital care was unsatisfactory in the sense that it was provided by untrained and unskilled bystanders. Regarding the nature of pre-hospital care received most of them 137(87.3%) reported that they were removed from the wreck only and sent to health facility. Majority 149(92.5%) reported to have disability following the current road traffic injury mostly 92(61.7%) inability/difficult to use lower limbs and upper limbs. **Conclusion:** There is an urgent need for the government to establish Emergence Medical Care System and shift informal pre-hospital care provided by untrained society to formal one rendered by trained and skilled health care professionals. Also there is a need to improve and reinforce the existing system of informal pre-hospital care provided by bystanders, friends/family and police with adequate and skilful training.

**202. Kipasika, H.J. Health related quality of life in children with sickle cell disease aged 8 - 18 years attending clinic at Muhimbili National Hospital in Dar es Salaam, Tanzania. Master of Medicine (Paediatrics and Child Health). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Sickle cell disease (SCD) is prevalent in most of Africa countries, including Tanzania. In Dar es salaam, Tanzania approximately 17% of children entering hospital for any reason are carrier of sickle cell gene<sup>3</sup>. As a chronic illness and recurrent pain condition, SCD may cause a substantial burden on the daily functioning and wellbeing of children and their families. Less is known on HRQoL in children with SCD in Sub Saharan Africa particular in Tanzania. **Study Question;** Do children with SCD in countries with limited resources like Tanzania have similar health related quality of life like children without SCD. **Broad Objective;** To determine HRQoL in children with SCD aged 8-18 years compared to children without SCD in Dar es Salaam, Tanzania. **Methodology;** This is descriptive comparative cross sectional study that involved children with SCD aged 8-18years. The patients under consideration were enrolled from the ongoing prospective SCD study at MNH. Comparison group were the random sample of siblings who do not have SCD obtained from the database in the same hospital in which the study population was obtained. The study used Generic PedsQL questionnaire for assessing HRQoL. Data entry was done using Epi Info and transferred to SPSS version 16 for analysis. The Independent sample t test and Analysis of variance (ANOVA) was applied to look for the association of HRQoL and factors such as socio demographic factors. Independent sample t test was also used to test for significant differences between children without SCD and the children with SCD. Association between HRQoL and hospitalization was tested using ANOVA. P - Value of less than 0.05 ( $p < 0.05$ ) was considered significant. **Results;** 100 children with SCD and 99

siblings without SCD aged 8-18 years and their parents were enrolled in this study. Females were 53% in SCD children and 63% in children without SCD. 45% of parents had primary education level and >85% were biological parents in both groups. Children with SCD and their parents scored lower HRQoL as compared to children without SCD, ( $p < 0.001$ ). Total mean score was  $77.53 \pm 12.9$  in SCD children and  $98.43 \pm 3.5$  in children without SCD. Children with SCD described their own HRQoL significantly better than their parents perceived it to be. Lower age of the children and increased frequency of hospitalization had negative impact on HRQoL of these children. **Conclusion and Recommendations;** Children with SCD and their parents perceived overall HRQoL and all subdomains to be lower than for children without SCD, therefore Assessment of HRQoL should be included in the guidelines of management of children with SCD as it will help to identify those who need psychosocial support and behavior intervention to promote appropriate functioning and to minimize activities restriction in order to improve their quality of life.

203. **Kisanga, F., Nyström, L., Hogan, N., Emmelin, M. Parents experiences of reporting child sexual abuse in Urban Tanzania. *Journal of Child Sexual Abuse*, 2013; 22 (5), pp. 481-498.**

This article reports parental experiences of legally reporting child sexual abuse in Tanzania. Based on in-depth interviews, four types of sexual abuse incidents are portrayed. Each evokes different reactions from parents and the community. An incident characterized as *the innocent child* was associated with a determination to seek justice. The *forced-sex youth* elicited feelings of parental betrayal of their child. The *consenting curious youth* resulted in uncertainty of how to proceed, while the *transactional-sex youth* evoked a sense of parental powerlessness to control the child because of low economic status. Differentiating between types of sexual abuse incidents may increase awareness of the complexities of child sexual abuse reporting. Education on laws regulating sexual offenses and a functional national child protection system are needed to address child sexual abuse complexities and safeguard the rights of children in Tanzania.

204. **Kisanga, A.C., Innocent, E., Gamba, N., Kisinza, W.N., Hassanali, A. Effect of Annona formulations on mosquito and non-target invertebrates in laboratory and semi-field condition. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Studies reveal that plant species from family Annonaceae particularly the genus *Annona* have biopesticides properties that offer alternative to synthetic ones. *Annona squamosa* leaf formulations from two regions of Tanzania **Objectives:** Coastal region and central region were evaluated against laboratory reared *An. gambiae* s.s. and *C. quinquefasciatus* at laboratory and wild collected anopheline and culicine larvae in mosquito sphere. Impact of environmental parameters on the efficacy of the formulations and impact of the formulations on survival of non-target fauna were assessed. **Methods:** Percentage larvae reduction was done by using Mullas' formula.

Mortalities were statistically analyzed by one-way analysis of variance (ANOVA) and Student t-tests with pixel. **Results:** In the laboratory leaf powder from both regions were equally effective against anopheline and culicine at day 4. In semi-field study both formulations showed high efficacy against anopheline larvae reaching 100% and 89% larvae reduction in 4 days post exposure for leaf powder from central and coastal regions respectively. The activity of both formulations against culicine larvae was significantly lower in the semi-field environment. The formulations had no significant impact on the physico-chemical parameters of water from which larvae was collected. The formulations had minimal effects on survival of ten selected non-target invertebrates except for some members from order Ephemeroptera (Mayflies) where the formulation exhibited  $\geq 85\%$  mortality. **Conclusion:** Formulations have proved to be efficient in semi-field environment with low impact on other non-target biota

**205. Kishaluli, S. N. The renal sonographic findings in HIV/AIDS adult patients with proteinuria and cd4+ count correlation at mwananyamala care and treatment clinic. Master of Medicine (Radiology) Dissertation 2013. Muhimbili University of Health and Allied Science, Dar es Salaam.**

**Objective:** To determine renal sonographic findings in HIV/AIDS adult patients with proteinuria and CD4+ count correlation at Mwananyamala CTC clinic, from July to December 2012. **Methods:** This was a cross-sectional study which evaluated 152 patients with HIV/AIDS. These patients underwent right kidney sonography, urinalysis for proteinuria and leukocyte estimation, Renal cortical echogenicity was graded using Hricak standardized scoring method. Patients not consented, HIV negative, CD4+ count taken within three months, hypertension, Diabetic mellitus, chronic kidney diseases, cardiac disease and infection of urinary tract were excluded from the study. The patients were recruited from HIV/AIDS clinic (CTC) from July 2012. A systemic random sampling was used. Most current CD4+ count of not more than three months was taken from patients file. Renal cortical echogenicity, CD4+ count, and proteinuria were analyzed for correlation. **Results:** This study shows that there is high significant association between level of proteinuria and renal echogenicity appearance in HIV/AIDS adult patients  $4 (P < 0.001)$ . There is significant relation between right renal length and level of proteinuria in HIV/AIDS patients ( $p < 0.001$ ). This study also revealed that there is no relation between right renal length and level of CD4+ count ( $P = 0.982$ ) the study revealed also patients with higher CD4+ counts had renal echogenicity grade III however there was no significant association. It was shown that the most frequent renal echogenicity was normal renal length?? **Conclusions:** The following were observed: The level of proteinuria and the renal length can be used as good indicator for renal parenchyma disease in HIV/AIDS patients. There is no relation between level of CD4+ count and renal sonographic appearance.

206. **Kishimba, R.S, Richard, A., Samuel, T., Wilfred, E., Mohamed, M., Sembuche, S., Mpembeni, R., Mghamba, J. & Mmbuji, P. Measles Outbreak in Kilosa District, Tanzania 2012: A case for epidemiological pattern dynamic. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Measles is leading cause of childhood mortality for which an effective vaccine was developed almost half a century ago. Global efforts are in place to eradicate the disease and reduce childhood mortality. On 12th March 2012, the Ministry of Health and Social Welfare (MoHSW) received report of 119 suspected measles cases from Kilosa District. **Objectives:** A MoHSW team was dispatched with the aim of determining the magnitude and risk factors associated with the outbreak. **Methods:** Unmatched case-control study was conducted. A suspected case was any person living in Kilosa District from 10th December 2011 with fever and rashes with or without cough or conjunctivitis. Neighbourhood controls were enrolled. Hospital records were reviewed to identify cases and active case finding was conducted. **Results:** The index case was a 34 year old female with date of rash onset 10th December 2011. The outbreak persisted until March 2012 when there were 235 cumulative cases and a case fatality rate of 1.7%. The mean age of the cases was 14.74 (SD 15.12) years and majority (59.1%) were above five years. Contact with a measles patient [AOR=4.56, 95% CI: 2.32-8.94], being unvaccinated [AOR=5.37, 95% CI: 2.04-14.14], and living in an overcrowded house[AOR=2.58, 95% CI: 1.11-6.01] were found to be risk factors for measles illness. Estimated vaccine efficacy in all ages and across different age categories was below 80% except for under-five years. **Conclusion:** The investigation identified a measles epidemiological pattern dynamic whereby majority of infected individuals were aged above five years. Contacts with infected people, being unvaccinated and living in an overcrowded house were risk factors for contracting measles. Primary and secondary vaccine failure several years ago is the possible reasons for this outbreak. Supplementary immunization for those above five years is needed.

207. **Kisimbi, J., Shalchi, Z., Mahroo, O. A., Mhina, C., Sanyiwa, A. J., Mabey, D., Plant, G. T. Macular spectral domain optical coherence tomography findings in Tanzanian endemic optic neuropathy. *Brain*, 2013;136(11), 3418-3426.**

Bilateral optic neuropathy in Dar es Salaam is now considered endemic and is estimated to affect 0.3–2.4% of young adults. The condition is characterized by a subacute bilateral loss of central vision of unknown aetiology. Findings of spectral domain optical coherence tomography have not previously been reported for these patients. All patients diagnosed with endemic optic neuropathy over a 2-year period at the Muhimbili National Hospital underwent spectral domain optical coherence tomography macular imaging. Scans were graded qualitatively for severity of retinal nerve fibre layer loss as well as the presence of microcystic macular changes, which have not previously been described in this condition. Of the 128 patients included (54.7% male; median age 20 years), severe retinal nerve fibre layer loss was found in 185 eyes (74.0%). There was full concordance in retinal nerve fibre layer thickness between the two eyes in 113 (91.1%) patients. Microcystic macular spaces were found in 16 (12.5%) patients and

were bilateral in nine (7.0%) individuals. These changes were typically more prominent in the nasal than the temporal macula, predominantly involving the inner nuclear layer, and often occurred in an annular configuration that was evident on *en face* infra-red imaging, though not discernible on colour fundus photography or clinically. All patients with microcystic macular changes had severe thinning of the retinal nerve fibre layer ( $P = 0.02$ ). Four patients in whom cystic spaces were demonstrated had sequential scans, and there was no detectable alteration in the configuration of these changes over a period of up to 16 months. This is the first study to document optical coherence tomography findings in endemic optic neuropathy. We have observed symmetrical severe loss of the caeco-central projection (papillomacular bundle) with otherwise well-preserved macular architecture. Also, we have observed microcystic retinal changes in a significant proportion of patients, which were associated with severe retinal nerve fibre layer loss. Similar changes have recently been reported from optical coherence tomography images of patients with multiple sclerosis, relapsing isolated optic neuritis, dominant optic atrophy, Leber's hereditary optic neuropathy and a patient with a chronic compressive optic neuropathy, supporting the hypothesis that this may be a non-specific phenomenon secondary to ganglion cell death. The correspondence of the changes to an annulus discernible on infra-red *en face* imaging, but not using other conventional retinal imaging techniques highlights the potential usefulness of this modality.

**208. Kisisiwe, Y.A. & Masalu, J.R. Predicting intention to design communication strategy prior to developing Television spots. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Strategic design is a crucial step in health communication planning process in which theoretically grounded decisions regarding message development, delivery and evaluation are made and laid down as Communication Strategy. But literature suggests that the uptake of this important step in health communication practice is sub-optimal. Thus, the present study sought to examine factors influencing intention to design communication strategy using the Theory of Planned Behavior (TPB). **Objectives:** To examine the usefulness of the TPB and the relative contribution of Attitude (A), Subjective Norms (SN) and Perceived Behavioral Control (PBC) in predicting intention to design communication strategy prior to developing TV spots, based on communication practitioners' perspective. **Methods:** The study was a cross-sectional survey involving 86 communication practitioners residing in Dar es Salaam, Tanzania. Data on the TPB global measures (BI, A, SN and PBC) was collected using 14 items in a self-administered questionnaire. Internal consistence for the TPB measures ranged from Cronbach's alpha coefficients of 0.614 – 0.870. In predicting BI, linear regression analysis was first applied on the TRA components (A and SN), and then on the TPB (A, S and PBC). Coefficient of determination ( $R^2$ ) and Standardized Coefficients Beta ( $\beta$ ) were used respectively in examining the predictive power of the TRA and the TPB; and the relative contribution of the TPB components. **Results:** The TPB explained a sizable portion of variance in BI ( $R^2 = .441$ ,  $p = .000$ ). Attitude and SN (TRA), accounted for  $R^2 = .310$  ( $p = .000$ ) while PBC contributed an extra  $R^2 = .131$  of the variance in BI. PBC ( $\beta = .427$ ,  $p = .000$ ) and SN ( $\beta = .352$ ,  $p = .000$ ) predicted BI, while A was not significant ( $\beta = .123$ ,  $p = .189$ ). PBC emerged as the most important component. **Conclusion:** The present study supported application of the TPB in predicting intention to design communication strategy. The TPB provided a better model compared to the TRA, suggesting that the decisions of whether to design communication strategy or not is not under volitional control of communication practitioners. PBC and SN play



important role. This information should be considered in formulating policies and strategies for advancing use of proven effective approach in health communication practice

- 209. KO, W.-Y., Rajan, P., Gomez, F., Scheinfeldt, L., An, P., Winkler, C.A., Froment, A., Nyambo, T.B., Omar, S.A., Wambebe, C., Ranciaro, A., Hirbo, J.B., Tishkoff, S.A. Identifying darwinian selection acting on different human apol1 variants among diverse african populations. *American Journal of Human Genetics*, 2013; 93 (1): pp. 54-66.**

Disease susceptibility can arise as a consequence of adaptation to infectious disease. Recent findings have suggested that higher rates of chronic kidney disease (CKD) in individuals with recent African ancestry might be attributed to two risk alleles (G1 and G2) at the serum-resistance-associated (SRA)-interacting-domain-encoding region of APOL1. These two alleles appear to have arisen adaptively, possibly as a result of their protective effects against human African trypanosomiasis (HAT), or African sleeping sickness. In order to explore the distribution of potential functional variation at APOL1, we studied nucleotide variation in 187 individuals across ten geographically and genetically diverse African ethnic groups with exposure to two *Trypanosoma brucei* subspecies that cause HAT. We observed unusually high levels of nonsynonymous polymorphism in the regions encoding the functional domains that are required for lysing parasites. Whereas allele frequencies of G2 were similar across all populations (3%-8%), the G1 allele was only common in the Yoruba (39%). Additionally, we identified a haplotype (termed G3) that contains a nonsynonymous change at the membrane-addressing-domain-encoding region of APOL1 and is present in all populations except for the Yoruba. Analyses of long-range patterns of linkage disequilibrium indicate evidence of recent selection acting on the G3 haplotype in Fulani from Cameroon. Our results indicate that the G1 and G2 variants in APOL1 are geographically restricted and that there might be other functional variants that could play a role in HAT resistance and CKD risk in African populations.

- 210. Komba, E. V., Kimbi, E. C., Ngowi, H. A., Kimera, S. I., Mlangwa, J. E., Lekule, F. P., Thamsborg, S. M. Prevalence of porcine cysticercosis and associated risk factors in smallholder pig production systems in Mbeya region, southern highlands of Tanzania. *Veterinary parasitology*, 2013; 198(3), 284-291.**

Porcine cysticercosis (PC) caused by the larval stage of a zoonotic tapeworm *Taenia solium*, is known to pose serious economic losses and public health risk among smallholder pig production communities. The present study was conducted to determine prevalence and associated risk factors for PC in smallholder pig production systems in Mbeya region, the major pig rearing region of Tanzania. A cross-sectional survey employing a random sample of 300 pig keepers from 30 villages of Mbozi and Mbeya Rural districts, Mbeya region were used to evaluate pig production systems and practices. Concurrently, 600 male and female pigs of different age categories were

randomly selected and examined for PC using lingual examination method and antigen enzyme-linked immunosorbent assay (Ag-ELISA). The overall pig level PC prevalence in Mbozi district was 11.7% (95% CI = 8.5–15.8%) and 32% (95% CI: 27–37.5%) based on lingual examination and Ag-ELISA, respectively. In Mbeya Rural district, the prevalences were 6% (95% CI: 3.8–9.3%) and 30.7% (95% CI: 25.8–36.1%) by lingual examination and Ag-ELISA, respectively. In Mbozi district 46% of the households were found infected (one or more infected pigs) and the corresponding figure was 45% for Mbeya Rural district. The agreement between lingual examination and Ag-ELISA was poor ( $\kappa < 0.40$ ). There were no significant differences in the prevalence of PC in different sex categories of pigs. Significant risk factors associated with PC prevalence were free roaming of pigs (OR = 2.1; 95% CI = 1.3–3.6;  $p = 0.006$ ), past experience of porcine cysticercosis in the household (OR = 2.6; 95% CI = 1.5–4.8;  $p = 0.002$ ), increased age of pig (OR = 1.9; 95% CI = 1.2–3.0), slatted raised floor in pig pen (OR = 8.4; 95% CI = 1.0–70.0), in-house origin of the pig (OR = 1.6; 95% CI = 1.1–2.5) and sourcing of water from rivers (OR = 3.1; 95% CI = 1.6–6.3;  $p < 0.001$ ) and ponds (OR = 5.0; 95% CI = 1.2–21.7;  $p = 0.031$ ). This study has clearly revealed a high seroprevalence of PC in the study area, which imposes a major economical and public health burden to the smallholder pig farmers. The study also points to a number of important risk factors in smallholder pig management that may be addressed (e.g. confinement, quality of pens and water sources) in future interventions and educational campaigns for control of *T. solium*.

**211. Komba, E. V., Mdegela, R. H., Msoffe, P. L., & Ingmer, H. Human and animal Campylobacteriosis in Tanzania: A review. *Tanzania Journal of Health Research*, 2013; 15(1).**

Thermotolerant species of *Campylobacter* have become very important in public health, particularly as agents of infectious diarrhoea in human beings. Though the mechanism by which they cause disease is yet to be fully explained, they have been recognized as the leading cause of bacterial enteritis in both developed and developing countries. The organisms colonize different animal species without causing any symptoms of disease; and humans acquire infections through contact with or consumption of contaminated meat especially raw/undercooked poultry meat. The growing trend of antibiotic resistant *Campylobacter* isolates continues to pose significant public health challenges. In this review we present the available information generated in Tanzania about *Campylobacter* infections in humans and animals. We conducted a structured literature search of PUBMED and ScienceDirect electronic databases and identified 15 articles. Studies on humans reported *Campylobacter* infections in both symptomatic and asymptomatic subjects; with higher prevalence in children under the age of five years. Studies on animals found colonization of both domestic and wild species. Among isolates, some demonstrated antimicrobial resistance. The available information for both human and animal Campylobacteriosis in the country is sparse. It however provides an insight of the bacteriological and epidemiological aspects of *Campylobacter* infections in the country and eventually creates more awareness on the need to develop control strategies. Since the organism is zoonotic its control strategies should adopt the “One Health” approach involving collaborative efforts from veterinary and human medicine.

212. **Koyio, L.N., Kikwilu, E., Mulder, J., Frencken, J.E. Attitudes, subjective norms, and intention to perform routine oral examination for oropharyngeal candidiasis as perceived by primary health-care providers in Nairobi Province.***Journal of Public Health Dentistry*,2013; 73 (2), pp. 127-134.

**Objectives:** To assess attitudes, subjective norms, and intentions of primary health-care (PHC) providers in performing routine oral examination for oropharyngeal candidiasis (OPC) during outpatient consultations. **Methods:** A 47-item Theory of Planned Behaviour-based questionnaire was developed and administered, in a cross-sectional survey, to 216 PHC providers (clinical officers and nurses) working in 54 clinics, dispensaries, and health centers in Nairobi Province in January 2010. The constructs - attitudes, subjective norms, and perceived behavioral control (dependent variables) - and their individual indirect (direct) items were analyzed for scores, internal validity, independent variables (district, gender, years of service, profession, and age), and contribution to intentions. Perceived behavioral control had low construct validity and was therefore removed from subsequent analyses. **Results:** The questionnaire was completed by 195 participants (90 percent response rate). PHC provider's attitudes, subjective norms, and intentions to perform an oral examination during outpatient consultations were highly positive, with mean scores of 6.30 (0.82), 6.06 (1.07), and 5.6 (1.33), respectively, regardless of sociodemographic characteristics. Indirect attitude and subjective norms were strongly correlated to their individual items ( $r = 0.63-0.79$ ,  $P < 0.05$  and  $r = 0.78-0.87$ ,  $P < 0.05$ ) and moderately to their direct items ( $r = 0.44$ ,  $P < 0.0001$  and  $r = 0.52$ ,  $P < 0.0001$ ). Attitudes ( $P = 0.0026$ ) and subjective norms ( $P < 0.0001$ ) were both predictive of intentions. **Conclusions:** PHC providers were willing to integrate patients' oral health care into their routine medical consultations. Emphasizing the importance of detecting other oral problems and of the fact that routine oral examination for OPC is likely to give patients' fulfillment will enhance PHC providers' morale in performing routine oral examinations. Winning support from policy makers, their supervisors, specialists, and colleagues is important for motivating PHC providers to perform routine oral examinations for OPC at their workplaces.

213. **Kupka, R., Manji, K.P., Bosch, R.J., Aboud, S., Kisenge, R., Okuma, J., Fawzi, W.W., Duggan, C. Multivitamin supplements have no effect on growth of tanzanian children born to HIV-infected mothers.***Journal of Nutrition*,2013; 143 (5): pp. 722-727.

Growth faltering and micronutrient deficiencies commonly coexist in HIV-exposed children in sub-Saharan Africa, and correcting deficiencies, such as those of vitamins B-complex, C, and E, may improve HIV-related endpoints and child growth. We therefore examined the effect of daily oral supplementation of vitamins B-complex, C, and E on growth among 2341 children born to HIV-infected mothers in Tanzania. HIV-infected women pregnant at  $\leq 32$  wk of gestation were enrolled in the study. Children were randomized at age 6 wk to receive multivitamins or placebo until age 104 wk. All women received the same types of vitamins pre- and postnatally. At 6 wk, 256 children (11.1%) were HIV infected and the mean (SD) Z-scores for length for age (LAZ), weight for length (WLZ), and weight for age (WAZ) were  $-0.39 \pm 1.20$ ,  $-0.21 \pm 1.23$ ,

and  $-0.52 \pm 1.11$ , respectively. There was no overall treatment effect on LAZ, WLZ, or WAZ profiles during the follow-up ( $P \geq 0.15$ ). There was no treatment effect from 6 to 104 wk on LAZ [(95% CI: -0.14, 0.13);  $P = 0.94$ ], WLZ [(95% CI: -0.17, 0.13);  $P = 0.78$ ], or WAZ [(95% CI: -0.15, 0.16);  $P = 0.97$ ] or on the incidence of growth failure, defined as respective Z-scores  $< -2$  ( $P \geq 0.29$ ). Among the subgroup of HIV-uninfected children, there was no treatment effect from 6 to 104 wk on LAZ, WLZ, and WAZ ( $P \geq 0.71$ ) or on the incidence of growth failure ( $P \geq 0.16$ ). Multivitamin supplements had no effect on growth among children born to HIV-infected women who were themselves receiving multivitamins.

214. **Kwesigabo, G., Urassa, D., Ngowi, V., Wolff, J., Schadt, R., Merton, P., Waddell, R., Purvis, L., Splaine, M., Tombs, K. Promoting Student Centered Learning in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Cognitive science indicates that traditional teaching methods like lecturing are inadequate to prepare students to meet the complex challenges facing society. Partnership activities have focused on facilitating faculty skills development and curriculum redesign to actively engage students in their learning and develop stronger analytical and problem solving skills. **Objectives:** The School of Public Health and Social Sciences (SPHSS) of Muhimbili University formed a partnership with Dartmouth College and Boston University School of Public Health (D/BU) to improve public health education in Tanzania. The goals of the project are to revise current curriculum from knowledge to competency based and to develop a program for faculty excellence at SPHSS. **Methods:** The partnership collaborated to design a student-centered core curriculum for master's candidates in all graduate programs at SPHSS. One of the key components is to prepare faculty to develop and teach with case studies. D/BU and SPHSS conducted a two-day workshop for 35 faculties to provide guidelines for case development and prepare and pilot-teach cases for their core curriculum. **Results:** In the workshop faculty considered the rationale and challenges of case teaching at SPHSS and created guidelines for their development. Eight cases for the new core were developed and pilot-taught. Faculty consultations formed the basis for building necessary case development and teaching skills and understanding the situational factors affecting case teaching at SPHSS. **Conclusion:** Teaching with cases provides one important way of transitioning from a teacher-centered to a student-centered, interactive, and problem-based learning environment. To make this transition effective, the partnership is building faculty expertise not only in case teaching but in other student-centered, interactive teaching methodologies. This workshop modeled for faculty a student-centered method in a predominately teacher-centered, lecture environment and it could easily be replicated in other settings.

215. **Kwesigabo, G., Urassa, D., Kessy, A., Vagi, K. J., Brookmeyer, K. A., Gladden, R. M., Chiang, L. F., Brooks, A., Nyunt, M., Mercy, J. A., Dahlberg, L. L., Multi-Sectoral Task Force. Sexual Violence against Female and Male Children**

**and related health conditions in The United Republic of Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Sexual violence against children is a global human rights and public health issue that has a profound impact on emotional, behavioural, and physical health throughout development. There is little national information on the prevalence of sexual violence against children on which to base policy and programmatic actions **Objectives:** Determination of magnitude and health related conditions for sexual violence among girls and boys 13-24 years in Tanzania **Methods:** A national probability split sample of 13-24 year olds, (female and male), the sampling frame consisting of enumeration areas, structured questionnaire administered after informed consent. Logistic regression was conducted to determine risk factors. Experience of violence was measured for three time periods: lifetime, prior age 18 and in 12 months prior the survey. **Results:** Overall 3,739 were conducted in Tanzania mainland and Zanzibar, 908 and 891 females and males for mainland, 1,060 and 880 for females and males for Zanzibar (year 2009-10). Response rate 93.8%. Almost 3 in 10 females 27.9% (95%CI 24.0-32.2) and 13.4% (11.1-16.1) of males experienced some form of sexual violence before turning 18 years of age. The most common type of childhood sexual violence reported was unwanted touching (16% (12.9-19.6) and 8.7% (6.3-11.3) of females and males, respectively) followed by attempted unwanted intercourse (14.6% (12.4-17.0) and 6.3 % ( 4.8-8.2) of females and males, respectively). Approximately 5.5% (3.7-7.9) of females and 2.2 % ( 1.2-4.0) of males reported that they had been physically forced to have intercourse before turning 18. Females experiencing sexual violence were at an increased risk of STD/I adjusted odds ratio 2.39(1.13-5.07), have anxiety 2.26(1.47-3.47) and increased alcohol consumption 4.3(2.1-9.0), while males were at an increased risk of STD/I 2.34-1.1-5.14) and anxiety 1.72(1-3.02). **Conclusion:** Magnitude of sexual violence is high, with health consequences in both sexes, efforts/interventions that have already started to address this problem should continue and evaluation done from time to time to gauge the progress of these interventions

**216. Kyesi, F. P. Child physical abuse: prevalence, risk factors and risk taking behaviour among secondary school students aged 12 - 17 years in Dar es salaam, Tanzania. Master of Medicine (Paediatrics and Child Health) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Child abuse, especially its definition, incidence and management, is difficult to comprehend. Perceptions of what constitutes child abuse have differed with time and culture. Practices that are now considered abusive have been accepted in the past as the normal exercise of parental rights, as economic necessity or as appropriate disciplinary measures. The 2009 Tanzania Violence against Children Study (VAC) is the first national survey of violence against children which showed almost three quarters of

both male and female children have experienced physical violence before the age of 18 by an adult or intimate partner. However, information regarding child physical abuse among children in Tanzania is limited and thus this study will provide more informative knowledge that will help in covering the gap. **Broad Objective** To determine the prevalence of Child Physical Abuse (CPA) and risk factors among secondary school children between 12-17 years of age in Dar es Salaam Region, Tanzania. **Methodology** This is a descriptive cross sectional study that involved randomly selected children aged 12 to 17 years attending secondary schools from June –December, 2012. Self administered questionnaires were used for data collection. Data was cleaned and analysis was done using SPSS version 16. Frequency distribution and two way tables were used to summarize the data and  $X^2$  and Fisher's exact test were used to determine the association between independent and dependent categorical variables. Univariate and multivariate logistic regression were further used to examine the factors associated with CPA **Results** the study enrolled 340 secondary students out of which 167 (49.11%) were male students. Out of these 191 (56.18%) experienced an incident of CPA the commonest being slapped or pushed (51.80%) and least common being threatened or use of weapon against them 30 (9.15%). Having older age, caretaker who supports corporal punishment and a parent who has history of being abused was significantly associated with occurrence of CPA. Among those who experienced CPA it was only 25.65% who reported the incidence to anyone about it. Alcohol use was less frequent among students who had not experienced CPA than the ones who experienced abuse. **Conclusion** CPA is common accounting 56.18% among secondary school students in Dar es Salaam and has negative impacts among those subject to violence. **Recommendation** Civic education with regards to children's rights to be given to the community so that it increases the awareness on CPA and prevents its complications. Further studies are needed to address all the factors affecting CPA in order to formulate interventions and thus prevent its occurrences.

217. Laeyendecker, O., Piwowar-Manning, E., Fiamma, A., Kulich, M., Donnell, D., Bassuk, D., Mullis, C.E., Chin, C., Swanson, P., Hackett Jr., J., Clarke, W., Marzinke, M., Szekeres, G., Gray, G., Richter, L., Alexandre, M.W., Chariyalertsak, S., Chingono, A., Celentano, D.D., Morin, S.F., Sweat, M., Coates, T., Eshleman, S.H. Estimation of HIV Incidence in a Large, Community-Based, Randomized Clinical Trial: NIMH Project Accept (HIV Prevention Trials Network 043). *PLoS ONE*, 2013; 8 (7), e68349.

**Background:** National Institute of Mental Health Project Accept (HIV Prevention Trials Network [HPTN] 043) is a large, Phase III, community-randomized, HIV prevention trial conducted in 48 matched communities in Africa and Thailand. The study intervention included enhanced community-based voluntary counseling and testing. The primary endpoint was HIV incidence, assessed in a single, cross-sectional, post-intervention survey of >50,000 participants. **Methods:** HIV rapid tests were performed in-country. HIV status was confirmed at a central laboratory in the United States. HIV incidence was estimated using a multi-assay algorithm (MAA) that included the BED capture immunoassay, an avidity assay, CD4 cell count, and HIV viral load. **Results:** Data from Thailand was not used in the endpoint analysis because HIV prevalence was

low. Overall, 7,361 HIV infections were identified (4 acute, 3 early, and 7,354 established infections). Samples from established infections were analyzed using the MAA; 467 MAA positive samples were identified; 29 of those samples were excluded because they contained antiretroviral drugs. HIV prevalence was 16.5% (range at study sites: 5.93% to 30.8%). HIV incidence was 1.60% (range at study sites: 0.78% to 3.90%). **Conclusions:** In this community-randomized trial, a MAA was used to estimate HIV incidence in a single, cross-sectional post-intervention survey. Results from this analysis were subsequently used to compare HIV incidence in the control and intervention communities.

218. Lahey, T., Czechura, T., Crabtree, S., Arbeit, R.D., Matee, M., Horsburgh, C.R., Mackenzie, T., Bakari, M., Pallangyo, K., Von Reyn, C.F. **Greater preexisting interferon  $\gamma$  responses to mycobacterial antigens and lower bacillary load during hiv-associated tuberculosis.** *Journal of Infectious Diseases*, 2013; 208 (10), pp. 1629-1633.

The role of preexisting interferon (IFN)  $\gamma$  responses in controlling bacillary burden in human immunodeficiency virus (HIV)-associated tuberculosis is not known. Among BCG-immunized HIV-infected adults who developed tuberculosis in a phase III trial of an investigational tuberculosis vaccine, greater baseline IFN- $\gamma$  responses to early secretory antigenic target 6 and Mycobacterium tuberculosis whole-cell lysate were associated with reduced bacillary burden on sputum smear grade, days to culture positivity on agar, and sputum culture grade during subsequent tuberculosis. This association was most consistent among recipients of the investigational vaccine. When HIV-associated tuberculosis develops, greater preexisting IFN- $\gamma$  responses to mycobacterial antigens are associated with reduced tuberculosis bacillary burden.

219. Lahey, T., MacKenzie, T., Arbeit, R.D., Bakari, M., Mtei, L., Matee, M., Maro, I., Horsburgh, C.R., Pallangyo, K., Von Reyn, C.F. **Recurrent tuberculosis risk among HIV-infected adults in Tanzania with prior active tuberculosis.** *Clinical Infectious Diseases*, 2013; 56 (1): pp. 151-158.

**Background.** Active tuberculosis is common among human immunodeficiency virus (HIV)-infected persons living in tuberculosis-endemic areas, but the hazard of subsequent tuberculosis disease has not been quantified in a single prospective cohort. **Methods.** Among HIV-infected, BCG-immunized adults with CD4 counts  $\geq 200$  cells/ $\mu$ L who received placebo in the DarDar tuberculosis vaccine trial in Tanzania, we compared the prospective risk of active tuberculosis between subjects who did and who did not report prior active tuberculosis. All subjects with a positive tuberculin skin test without prior active tuberculosis were offered isoniazid preventive treatment. Definite or probable tuberculosis was diagnosed during active follow-up using rigorous published criteria. **Results.** We diagnosed 52 cases of definite and 92 cases of definite/probable tuberculosis among 979 subjects during a median follow-up of 3.2 years. Among the 80 subjects who reported prior active tuberculosis, 11 (13.8%) subsequently developed definite tuberculosis and 17 (21.3%) developed definite/probable tuberculosis, compared

with 41 (4.6%) and 75 (8.3%), respectively, of 899 subjects without prior active tuberculosis (definite tuberculosis risk ratio [RR], 3.01; 95% confidence interval [CI], 1.61-5.63, P < .001; definite/probable tuberculosis RR, 2.55; 95% CI, 1.59-4.09, P < .001). In a Cox regression model adjusting for age, CD4 count, and isoniazid receipt, subjects with prior active tuberculosis had substantially greater hazard of subsequent definite tuberculosis (hazard ratio [HR], 3.69; 95% CI, 1.79-7.63, P < .001) and definite/probable tuberculosis (HR, 2.78; 95% CI, 1.58-4.87, P < .001). **Conclusions.** Compared to subjects without prior tuberculosis, the hazard of active tuberculosis is increased 3-fold among HIV-infected adults with prior active tuberculosis. Clinical Trials Registration. NCT0052195.

**220. Laisser, A. I. Factors associated with mortality among patients admitted at Muhimbili orthopaedic, ICU from august 2012 to Feb. 2013. Masters of Medicine (Anaesthesiology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** There is paucity of findings relating to the effectiveness of ICU units in majority of health care systems of sub-Saharan Africa. Studies aiming at identifying factors associated with mortality at ICU would likely contribute to improvement of care and quality control/quality assessment. **Objectives:** To determine factors associated with mortality among trauma and neurosurgical patients admitted at MOI ICU from August 2012 to Feb 2013. **Materials and Methods:** The study was a Cross sectional analytical study, conducted from August 2012 to Feb 2013 at Muhimbili Orthopaedic Institute (MOI) Intensive Care Unit. All trauma and neurosurgical patients admitted at ICU who met the criteria for recruitment were enrolled into the study. A structured questionnaire was used to collect the information as guided by the objectives of the study. Analysis was done using Statistical Package for Social Sciences (SPSS) version 17. Chi square tests were used to determine association between predictors / factors and outcome for categorical variables, and Student's t test for the significance difference among continuous variables. A P value of < 0.05 was considered statistically significant. **Results;** The study recruited 78 trauma and neurosurgical patients admitted at MOI ICU. That constituted 17 females and 61 males. Outcome was a binary variable that translated to a mortality rate of 57.6%. Female gender was found to have a protective association towards mortality ( $\chi^2=6.4736$ ,  $df=1$ ,  $p\text{-value}=0.0109$ ). APACHEII score was found to be significantly distinguishing the outcomes (T-test statistic= -10.03,  $df=1$ ,  $p<0.0001$ ) **Conclusion:** Mortality rate in this study of trauma and neurosurgical patients was very high since almost three-fifth of all patients admitted died during the study period. **Recommendations:** Provision of pre-hospital care for trauma patients should be emphasized. More opportunities for training in anaesthesiology/intensive care programmes for both physicians and nurses may likely contribute in reducing mortality rates among ICU patients.

**221. Lambdin, B.H., Bruce, R.D., Chang, O., Nyandindi, C., Sabuni, N., Zamudio-Haas, S., McCurdy, S., Masao, F., Ivo, Y., Msami, A., Ubuguy, O., Mbwambo, J. Identifying Programmatic Gaps: Inequities in Harm Reduction Service**



**Utilization among Male and Female Drug Users in Dar es Salaam, Tanzania.***PLoS ONE*,2013; 8 (6), . e67062.

**Introduction:** Current estimates suggest an HIV prevalence of 42% among people who inject drugs (PWIDs) in Dar es Salaam, while HIV prevalence is estimated to be 8.8% among the general population in the city. To address the HIV epidemic in this population, the government of Tanzania began establishing HIV prevention, treatment and care services including outreach and medication assisted treatment (MAT) for PWIDs in 2010. We assessed gender inequities in utilization of outreach and MAT services and evaluated differences in HIV risk behaviors between female and male PWIDs.**Materials and Methods:**Routine outreach data between December 2010 to mid-August 2012 and baseline data on clients enrolling in methadone from February 2011 to August 2012 were utilized. Binomial regression was used to estimate adjusted relative risk estimates comparing females to males.**Results:**From December 2010 to August 2012, 8,578 contacts were made to drug users; among them 1,898 were injectors. A total of 453 injectors were eligible and referred to MAT, of which, 443 enrolled in treatment. However, regarding total outreach contacts, outreach to PWID, referral to MAT and enrollment in MAT, 8% or less of drug users accessing services were women. In contrast, weighted estimations from surveys suggest that 34% of PWIDs are female, and this approximation is similar to recent population size estimations. Overall, 43% of traditional outreach workers conducting outreach with drug users were female. Though reporting higher levels of condom usage, female PWID were more likely to report multiple sex partners, anal sex, commercial sex work and struggle under a higher burden of addiction, mental disorders and abuse.**Conclusions:** Services have not been mobilized adequately to address the clear needs of females who inject drugs. A clear and urgent need exists for women-centered strategies that effectively engage female PWID into HIV prevention services.

222. Layer, E.H., Beckham, S.W., Mgeni, L., Shembilu, C., Momburi, R.B., Kennedy, C.E."After my husband's circumcision, I know that I am safe from diseases": Women's Attitudes and Risk Perceptions Towards Male Circumcision in Iringa, Tanzania.*PLoS ONE*,2013; 8 (8), e74391.

While male circumcision reduces the risk of female-to-male HIV transmission and certain sexually transmitted infections (STIs), there is little evidence that circumcision provides women with direct protection against HIV. This study used qualitative methods to assess women's perceptions of male circumcision in Iringa, Tanzania. Women in this study had strong preferences for circumcised men because of the low risk perception of HIV with circumcised men, social norms favoring circumcised men, and perceived increased sexual desirability of circumcised men. The health benefits of male circumcision were generally overstated; many respondents falsely believed that women are also directly protected against HIV and that the risk of all STIs is greatly reduced or eliminated in circumcised men. Efforts to engage women about the risks and limitations of male circumcision, in addition to the benefits, should be expanded so that women can accurately assess their risk of HIV or STIs during sexual intercourse with circumcised men.

223. Lekule, J. A. A burned child's pain during treatment as assessed by the Child, Caregiver and the Nurse. Master of Science in Nursing (Critical Care &Trauma). Dissertation .2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.

**Background:** Burn injuries in children remain a significant public health concern in Tanzania, where research and interventions to decrease risk are lacking or inadequate. Pain is the most common symptom experienced in these children. The extent to which burn pain is undertreated in under-ten year old children with burn injuries is unknown in Tanzania. **Purpose:** The purpose of this study was to assess pain management in children with burn injuries admitted at KCMC hospital. **Methods:** A descriptive cross-sectional study was conducted at KCMC hospital, in May and June, 2013. Information about the child was obtained from the caretakers by using semi-structured questionnaire. Also all 47 caretakers of recruited children were requested to rate the child's pain. Interview by using unstructured questionnaire was conducted in 23 nurses caring for children with burn injuries and they were also requested to rate the child's pain on a VAS scale. Pain was measured by using VAS for children 6 years and above, nurses and caretakers and FLACC for children below 6 years old. Data was analyzed using SPSS version 20 software. **Results:** Most children were under 4 years old, where 20(42.54%) were aged 1-2 years 3-4 years 10(21.3%) and 0-1 years 6(12.76%) years and most of them 30(63.8%) were males. A vast majority 40(85.1%) were from rural areas. All burns in these children were non-intentional and occurred at home mostly 33(70.2%) in the kitchen. Scald was the most common cause of burns in 33(70.2%). Burns between 10% and 20% constituted 29(61.7%) TBSA and above 20% constituted 18(38.3) TBSA. Most burns 31(66.0) were deep burns and 14(29.8) were full thickness burns. The most common agent of burn in these children 33(70.2%) were hot fluid or food. All children in the study were taken to hospital within 24 hours after sustained burn injury. A vast majority had local agents applied on the wound as a first aid treatment provided by parents or caretakers at home. Pain score in children ranged from 5 to 10 (mean = 8.83; SD 1.324). Most children 29(61.70%) were in worst pain during wound dressing. Severe pain was measured in 15(31.91%) of children and significant pain in 3(6.38%). More children with deep (mean = 9.00; SD = 1.00) and full thickness burns (mean = 9.00; SD = 2.00) experienced severe pain than those with superficial burn (mean = 7.00; SD = 1.00) during dressing changes. There was no significant difference between the mean pain score of children and caretaker ( $t=0.257$ ;  $SD=1.599$ ;  $df=92$ ;  $p=0.8$ ). The highly significant difference in pain score was observed between children and nurses ( $t=4.387$ ;  $SD=1.799$ ;  $df=92$ ;  $p<0.0018$ ). Result showed that there was no standard and common method used by nurses to assess child pain. Drugs administered orally and by injection were the main methods used to relief child's pain. Non-pharmacological methods are not commonly used by nurses to relieve pain in children with burn injuries. **Conclusion:** Burn injuries could be prevented by encouraging child supervision, improving the home environment, and living conditions and through educating parents and caretakers. Better pain management can be achieved encouraging nurses to trying to understand the child's experience of pain and by providing appropriate pain relief drugs and non-pharmacological methods.

**224. Lema, N.A. & Matee, M.A. Evaluation of Laboratory Based Multi Drug Resistant Tuberculosis (MDR TB) Surveillance System at Muhimbili National Hospital. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Tanzania ranks fourteenth among the 22 countries with the highest burden of tuberculosis (TB) worldwide; seeing a 60% increase of TB cases since the HIV/AIDS epidemic debut in the 1980s. The prevalence of HIV among TB cases is estimated at 43%. It is estimated that in new TB patients, the prevalence of Mycobacterium tuberculosis strains resistant to any of the four first-line drugs is 8.3% while the prevalence of multidrug-resistant TB (MDR-TB) is 1.1%. In retreatment patients, the prevalence of any resistance and of MDR-TB was 20.6% and 3.9% respectively. **Objectives:** The national MDR-TB surveillance system was assessed to determine if the system is meeting its objectives. **Methods:** CDC's guideline for evaluating surveillance systems was used. Review of the surveillance system protocol, reports and data collection tools was done. Interviews were held with 14 laboratory workers at the national level. EpiInfo and Microsoft excel were used for data analysis. **Results:** Between 2008 and 2012, 2,527 suspected cases of MDR-TB were reported of which 288 (11.4%) were laboratory confirmed. The mean age was 29 years and 1,560 (61.7%) were male. Ten out of 14 laboratory workers (71.4%) reported that the system uses a simple testing algorithm. There was 95% external quality assurance concordance meeting WHO standards. Majority of the specimen (82%) specimen were in good quality and the predictive value positive was found to be 11.3%. The turnaround-time (TAT) of the system was found to be 60 days for culture and drug sensitivity test by using MGIT technique. **Conclusion:** The system was able to pick cases of MDR-TB and was useful to describe the pattern of resistance in the country. The Ministry of Health and Social Welfare should create a comprehensive mechanism for submission of specimens to the national laboratory and prompt feedback of results to reduce the TAT.

**225. Lema, F., Nyambo, T., Mselle, T. Seroprevalence of Toxoplasma gondii infection in health blood donors at Eastern Zone Blood Transfusion Services (EZBTS) in Dar es Salaam, Tanzania. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Infection with Toxoplasma gondii (T. gondii) in blood donors could pose a potential risk for transmission in blood recipients. There is scarce information about the epidemiology of T. gondii infection in blood donors in Tanzania. The goal of this study was to determine the prevalence of T. gondii infection and associated socio-demographic characteristics in a population of healthy blood donors at the Eastern Zone Blood Transfusion Services (EZBTS) in Dar es Salaam, Tanzania. **Objectives:** To determine the seroprevalence of T. gondii infection among healthy blood donors in Tanzania. **Methods:** One hundred and sixty (160) blood donors at the EZBTS in Dar es Salaam, the largest centre in Tanzania, were examined for presence of antibodies to T. gondii in November 2011 through April 2012. Blood was tested for both: anti-T. gondii IgG and IgM antibodies by using an enzyme-linked immunoassays (Dialab GmbH., Neudorf, Austria). Further, the socio-demographic characteristics from each participant were also obtained. **Results:** Seventy six (48%) of 160 blood donors had IgG anti-T. gondii antibodies, and all donors were negative for IgM anti-T. gondii, antibodies raised in early phase of infection. The age group of 25–34 years showed a significantly higher frequency of T. gondii infection ( $p = 0.001$ ), and skilled blood donors had a significantly higher frequency of infection (61.2%) than the unskilled ( $p = 0.001$ ). Gender, domicile, and other socio-demographic characteristics of blood donors were not associated with T. gondii infection. **Conclusion:** The seroprevalence of T. gondii infection in healthy blood donors in Dar es Salaam, Tanzania is

high, suggesting the need to include *T.gondii* screening as a routine pre-transfusion test. The *T.gondii* infection in Dar es Salaam blood donors increases with age and decreased with level of education.

226. Leshabarii, S., Lubbockii, L. A., Kaijageiii, H., Kalalaiv, W., Koehlerv, G., Massawevi, S., Muganyizivi, P., Macfarlanevii, S. B., O'Sullivanviii P. S. **First steps towards inter-professional health practice: An educational experiment in rural Bagamoyo district.** 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Inter-professional collaboration is believed as critical to providing better protective interventions to patients' care by bringing multiple perspectives. **Objectives:** To explore the value of inter-professional training for Medical University students. **Methods:** Four teams each included a medical student, a nursing student, a pharmacy student and environmental sciences student participated. The MUHAS faculty leaders randomly assigned students to the teams before leaving for Bagamoyo, introduced members to one another, and explained the expectations, objectives, and tasks. Faculty asked students to consider how, through their respective professions, they could enhance the quality of the district hospital patient care and what they learned about practicing with other professionals. In Bagamoyo's district hospital, student teams and MUHAS faculty leaders (one of whom supervised each team) spent the day in the labor or pediatric wards or antenatal or pediatric clinics. Faculty, in consultation with hospital staff, selected a single patient for which each student team could make an assessment, conduct a complete history, and develop a plan of action. After a day working together, each team presented its case to the entire group of faculty and students. **Results:** The students demonstrated acquisition of an introductory level of a collaborative practice competency through joint examination of the patient using an inter-professional lens. They expressed increased respect for their colleagues' knowledge as a result of using a collective, inter-professional approach to each case. Students demonstrated sub-competencies calling for expressing one's knowledge and opinions with clarity and respect, listening in an active way, and encouraging opinions from other team members. The students wrote reports with balanced contributions from each profession and tied the perspectives together in a plan indicating that they placed high value on quality patient care. **Conclusion:** This pilot learning experience revealed the vision and benefits of collaborative practice hence calling for further studies

227. L'Esperance, V.S., Cox, S.E., Simpson, D., Gill, C., Makani, J., Soka, D., Mgaya, J., Kirkham, F.J., Clough, G.F. **Peripheral vascular response to inspiratory breath hold in paediatric homozygous sickle cell disease.** *Experimental Physiology*, 2013. 98 (1), pp 49-56.

**New Findings:** What is the central question of this study? Autonomic nervous dysfunction is implicated in complications of sickle cell anaemia (SCA). In healthy

adults, a deep inspiratory breath hold (IBH) elicits rapid transient SNS- mediated vasoconstriction detectable using Laser Doppler Flux (LDF) assessment of the finger-tip cutaneous microvasculature. • What is the main finding and its importance? We demonstrate significantly increased resting peripheral blood flow and sympathetic activity in African children with SCA compared to sibling controls and increased sympathetic stimulation in response to vasoprovocation with DIG. This study is the first to observe an inverse association between resting peripheral blood flow and haemoglobin oxygen saturation (SpO<sub>2</sub>). These phenomena may be an adaptive response to the hypoxic exposure in SCA. There is increasing evidence that autonomic dysfunction in adults with homozygous sickle cell (haemoglobin SS) disease is associated with enhanced autonomic nervous system-mediated control of microvascular perfusion. However, it is unclear whether such differences are detectable in children with SS disease. We studied 65 children with SS disease [38 boys; median age 7.2 (interquartile range 5.1-10.6) years] and 20 control children without symptoms of SS disease [8 boys; 8.7 (5.5-10.8) years] and recorded mean arterial blood pressure (ABP) and daytime haemoglobin oxygen saturation. Cutaneous blood flux at rest (RBF) and during the sympathetically activated vasoconstrictor response to inspiratory breath hold (IBH) were measured in the finger pulp of the non-dominant hand using laser Doppler fluximetry. Local factors mediating flow motion were assessed by power spectral density analysis of the oscillatory components of the laser Doppler signal. The RBF measured across the two study groups was negatively associated with age ( $r=-0.25$ ,  $P < 0.0001$ ), ABP ( $r=-0.27$ ,  $P= 0.02$ ) and daytime ( $r=-0.30$ ,  $P= 0.005$ ). Children with SS disease had a higher RBF ( $P= 0.005$ ) and enhanced vasoconstrictor response to IBH ( $P= 0.002$ ) compared with control children. In children with SS disease, higher RBF was associated with an increase in the sympathetic interval ( $r=-0.28$ ,  $P= 0.022$ ). The SS disease status, daytime and age explained 22% of the variance in vasoconstrictor response to IBH ( $P < 0.0001$ ). Our findings suggest that blood flow and blood flow responses in the skin of young African children with SS disease differ from those of healthy control children, with increased resting peripheral blood flow and increased sympathetic stimulation from a young age in SS disease. They further suggest that the laser Doppler flowmetry technique with inspiratory breath hold manoeuvre appears to be robust for use in young children with SS disease, to explore interactions between, ABP and autonomic function with clinical complications, e.g. skin ulceration.

228. Lewis, K. M., Harris, S., Camp, C., Kalala, W., Jones, W., Ellick, K. L., Younge, S. **The Historical and Cultural Influences of Skin Bleaching in Tanzania. In *The Melanin Millennium 2013*; (pp. 19-38).**

Springer Netherlands. Skin bleaching, a practice to chemically lighten the skin has become increasingly more common around the world in the past 30–40 years. In Africa, the practice is especially problematic because users, especially women, combine dangerous caustic agents (automotive battery acid, washing power, toothpaste, cloth bleaching agents) with common bleaching products that are high in mercury and lead; together, these increase the risk for severe health problems, such as irreversible skin damage, skin cancer, leukemia, and liver or kidney failure. Despite these great risks, skin bleaching is prevalent in Africa, with estimated rates rates nearing 30% in East

Africa. Little research has examined how the historical legacies of slavery, colonization, and westernization in East Africa may have shaped internalized dominant cultural ideals, resulting in the dangerous practice of skin bleaching. This chapter takes an exploratory look at the institutions of slavery, colonization, westernization, and neocolonialism in East Africa and argues that these institutions may have placed Tanzanians in a color-conscious society. This also may have fueled potent skin-color ideals that have resulted in efforts to assimilate to dominating groups. This examination has great potential to inform our understanding of current skin-bleaching practices and the related prevention or intervention efforts underway in Tanzania. Implications for research, policy, and practice are discussed.

229. Li, N., Manji, K.P., Spiegelman, D., Muya, A., Mwiru, R.S., Liu, E., Chalamilla, G., Fawzi, W.W., Duggan, C. **Incident tuberculosis and risk factors among HIV-infected children in Tanzania.** *AIDS*, 2013; 27 (8): pp 1273-1281.

**Objective:** To describe the burden of pediatric tuberculosis (TB) in a HIV-infected population and explore the demographic and clinical factors associated with the occurrence of pediatric TB. **Design:** Longitudinal analysis of a cohort of HIV-infected children. **Methods:** The endpoint of the study was clinically diagnosed TB. Cox proportional hazard regression was used to explore the predictors of incident TB among HIV-infected children under age 15 years after enrollment into the HIV program. **Results:** The cohort comprised of 5040 children [median age: 5 years, interquartile range (IQR) 1-9 years]. During a median follow-up of 0.8 (IQR 0.1-2.5) years, 376 out of 5040 children met the case definition for TB. The overall incidence of TB was 5.2/100 person-years. In multivariate analyses, older age at enrollment [relative risk (RR) 1.7, 95% confidence interval (CI) 1.5-1.8], severe wasting (RR 1.8, 95% CI 1.3-2.5), severe immune suppression (RR 2.6, 95% CI 1.8-3.8), anemia (RR 1.4, 95% CI 1.0-1.9) and WHO stage IV (RR 4.5, 95% CI 2.4-8.5) were all independently associated with a higher risk of TB. In addition, the use of antiretroviral drugs for more than 180 days reduced the risk of TB by 70% (RR 0.3, 95% CI 0.2-0.4). **Conclusions:** Antiretroviral therapy (ART) use is strongly associated with a reduced risk of tuberculosis among HIV-infected children, and should therefore be included in HIV care and treatment programs. Trials of interventions designed to improve the nutritional and hematologic status of these children should also be performed

230. Lidenge, S. J. **Chemotherapy in retinoblastoma: disease profile & therapy outcome in Tanzania, 2008-2010.** Master of Medicine (Clinical Oncology) Dissertation 2013. *Muhimbili University of Health and Allied Sciences, Dar es Salaam.*

Retinoblastoma (RB) remains to be one of the most common intraocular malignant tumours among children. While survival rates are high (over 90%) in developed countries, little is known about treatment outcomes of this condition in Africa, especially Sub-Saharan Africa. Before 2007, chemotherapy was not part of the routine regimen in the treatment of RB in Tanzania except for palliative basis in advanced recurrent

disease. This study aimed at looking at the socio-demographics, clinical presentation, treatment modalities given and evaluating the outcome of treatment and survival of children with retinoblastoma after introduction of chemotherapy protocols at ORCI. It was a retrospective study in which hospital data and case notes of all children with a diagnosis of retinoblastoma from Jan 2008 to Dec 2010 were analyzed. This study was done at ORCI, the only tertiary cancer referral centre in the country with a paediatric oncology unit of 17 beds capacity seeing about 150-300 children per year with about 10% of the cases being retinoblastoma. It was found that majority of the patients were female and were aged less than 36 months. It was also found that the overall 3-year survival of the patients was 26%. Chemotherapy courses completeness and stage of the disease were found to have significant relationship with survival. Emphasis should be on early diagnosis by informing the general public and health care providers especially at the primary health facilities.

231. **Ligoha, D., Dida F. & Mselle, T. Suitability of Rapid PSA Test for Prostate Cancer Screening in Tanzania. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Globally, prostate cancer is the commonest male malignancy, and the second leading cause of death in men above the age of 50. Because of delayed diagnosis, patients come to hospital with advanced disease not amenable to treatment. Blood screening for prostate specific antigen (PSA) is used globally for early detection of prostate cancer. This quantitative PSA assay available in few centers in Tanzania is costly, requires expensive equipment, and skilled personnel. Recently, a qualitative (rapid PSA) test has been developed that is cheap, does not require sophisticated instrument and can be used even in remote areas. This test however is currently not available in Tanzania. **Objectives:** To assess the accuracy and suitability of rapid PSA test, and determine whether obesity affects the level of PSA among Tanzanian men above 45 years of age. **Methods:** Blood samples of one hundred and eighty five (185) men volunteers above the age of 45 from Dar es salaam, Tanzania were analyzed for the presence of PSA qualitatively using the Diaquick (rapid) PSA method, and quantitatively, by Enzyme-Linked Immunoassay (ELISA) method. Additionally, data on BMI, smoking, and alcohol intake and socio-demographic were obtained. **Results:** Compared to gold standard (PSA ELISA), the sensitivity of rapid PSA test was 95.23%, and specificity of 82.42%, the positive predictive value (PPV) and negative predictive value (NPV) were 55.55% and 82.42% respectively. The BMI correlated with PSA level ( $r= 0.908$ ), whereas smoking and alcohol consumption were negatively associated with PSA level, with relative risks of 0.38 and 0.39 respectively. **Conclusion:** Rapid PSA test is simple, accurate and reliable, thus, should be introduced for prostate cancer screening in Tanzania. Obesity, smoking and alcohol consumption are risk factors that may interfere with PSA.

232. **Liu, E., Armstrong, C., Spiegelman, D., Chalamilla, G., Njelekela, M., Hawkins, C., Hertzmark, E., Li, N., Aris, E., Muhihi, A., Semu, H., Fawzi, W. First-**

**line antiretroviral therapy and changes in lipid levels over 3 years among HIV-infected adults in Tanzania.** *Clinical Infectious Diseases*, 2013; 56 (12): pp 1820-1828.

**Background.** With the rapid rollout of antiretroviral therapy (ART) in sub-Saharan Africa (SSA), there has been an increasing concern about cardiovascular risks related to ART. However, data from human immunodeficiency virus (HIV)-infected populations from this region are very limited. **Methods.** Among 6385 HIV-infected adults in Dar es Salaam, Tanzania, we investigated the nonfasting lipid changes over 3 years following ART initiation and their associations with different first-line ART agents that are commonly used in SSA. **Results.** In the first 6 months of ART, the prevalence of dyslipidemia decreased from 69% to 54%, with triglyceride (TG) decreasing from 127 mg/dL to 113 mg/dL and high-density lipoprotein (HDL) cholesterol increasing from 39 mg/dL to 52 mg/dL. After 6 months, TG returned to its baseline level and increased to 139 mg/dL at 3 years; total cholesterol and low-density lipoprotein cholesterol continued to increase whereas HDL cholesterol leveled off. The prevalence of dyslipidemia increased to 73% after a 3-year follow-up. In multivariate analyses, patients on zidovudine-containing regimens had a greater reduction in TG levels at 6 months (-16.0 vs -6.3 mg/dL), and a lower increase at 3 years compared to patients on stavudine-containing regimens (2.1 vs 11.7 mg/dL,  $P < .001$ ); patients on nevirapine-based regimens had a higher increase in HDL cholesterol levels at 3 years compared to those on efavirenz-based regimens (13.6 vs 9.5 mg/dL,  $P = .01$ ). **Conclusions.** Our findings support the latest World Health Organization guidelines on the substitution of stavudine in first-line ART in resource-limited settings, and provide further evidence for selection of lipid-friendly ART for patients in SSA.

233. Liu, E., Duggan, C., Manji, K.P., Kupka, R., Aboud, S., Bosch, R.J., Kisenge, R.R., Okuma, J., Fawzi, W.W. Multivitamin supplementation improves haematologic status in children born to HIV-positive women in Tanzania. *Journal of the International AIDS Society*, 2013;16(1): 18022.

**Introduction:** Anaemia is prevalent among children born to HIV-positive women, and it is associated with adverse effects on cognitive and motor development, growth, and increased risks of morbidity and mortality. **Objective:** To examine the effect of daily multivitamin supplementation on haematologic status and mother-to-child transmission (MTCT) of HIV through breastfeeding. **Methods:** A total of 2387 infants born to HIV-positive women from Dar es Salaam, Tanzania were enrolled in a randomized, double-blind, placebo-controlled trial, and provided a daily oral supplement of multivitamins (vitamin B complex, C and E) or placebo at age 6 weeks for 24 months. Among them, 2008 infants provided blood samples and had haemoglobin concentrations measured at baseline and during a follow-up period. Anaemia was defined as haemoglobin concentrations  $<11$  g/dL and severe anaemia  $<8.5$  g/dL. **Results:** Haemoglobin concentrations among children in the treatment group were significantly higher than those in the placebo group at 12 (9.77 vs. 9.64 g/dL,  $p = 0.03$ ), 18 (9.76 vs. 9.57 g/dL,  $p = 0.004$ ), and 24 months (9.93 vs. 9.75 g/dL,  $p = 0.02$ ) of follow-up. Compared to those in the placebo group, children in the treatment group had a 12% lower risk of anaemia (hazard ratio (HR): 0.88; 95% CI: 0.79-0.99;  $p = 0.03$ ). The treatment was associated



with a 28% reduced risk of severe anaemia among children born to women without anaemia (HR: 0.72; 95% CI: 0.56-0.92;  $p = 0.008$ ), but not among those born to women with anaemia (HR: 1.10; 95% CI: 0.79-1.54;  $p = 0.57$ ;  $p$  for interaction = 0.007). One thousand seven hundred fifty three infants who tested HIV-negative at baseline and had HIV testing during follow-up were included in the analysis for MTCT of HIV. No association was found between multivitamin supplements and MTCT of HIV. **Conclusions:** Multivitamin supplements improve haematologic status among children born to HIV-positive women. Further trials focusing on anaemia among HIV-exposed children are warranted in the context of antiretroviral therapy.

**234. Lubango, E. Performance of integrated logistic system in health facilities: A case of singida region. Master of Science (Pharmaceutical Management) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** The Integrated Logistics System (ILS), a system for reporting about use of drugs and related medical supplies and for requesting resupply, designed to move beyond the previous supply system by integrating the drugs and supplies for numerous vertical programs. Unsatisfactory performance of ILS fail to fulfill the six right of logistic system of ensuring that the right medicines, in the right quantities, in the right condition are delivered to the right place, at the right time for the right cost. However the performance of ILS in Singida region, Tanzania is unknown. **Objective:** To assess the performance of integrated logistic system in health facilities in Singida region, Tanzania **Methods:** The study was a cross sectional survey using logistic indicator assessment tools, developed by JSI DELIVER PROJECT for assessing the performance of logistic system in health facilities. It was conducted between April and May 2013. For this study a total of 55 health facilities were included of which 15 health centers were selected by convenient and 40 dispensaries selected randomly. The central zone Medical Stores Department (MSD – Dodoma) was included as the sole government agency for medicines and medical supplies in public health facilities and makes a samples size of 56 **Results:** Stock out duration was observed to be high for oxytocin injection, artemether/lumefantrine tablets and amoxicillin capsules and low for diazepam injection in all districts. The average supply gap ranged from 28.9% in Singida Municipal to 45.6% in Singida District. The average order fulfillment rate ranged from 54.4% in Singida District to 71.1% in Singida Municipal. Over supply of tracer medicines was found in Singida Municipal and delivery of unordered was observed in Singida Municipal, Iramba and Manyoni Districts. The average delivery time of medicines consignment in districts ranged from 16.5 to 48 hours in Singida Municipal and Singida district respectively and it was found to be independent on the distance from the zonal MSD. Availability of LMIS register ranged from 85.5% for injection and 98.2% for patient registers, filling accuracy ranged from 68.1% for injection to 93% for dispensing registers. Majority of health facilities in Singida Municipal adhered to prescribed storage standards while in Manyoni district 60% health facilities scored in unacceptable range storage condition. Generally 27% of health facilities visited had good storage conditions, 29% scored in acceptable range vi and 44% scored in unacceptable range as per JSI DELIVER/WHO 2003 storage standard. **Conclusion:** The performance of ILS in the

region varies within the districts. The overall availability of medicines in the region is still low. The stock-out duration of essential medicines is still high in the region; some key medicines were stocked out for more than 3 months. Order fulfillment rate by MSD is low and varies between districts in the region. The average delivery time of medicines from the zonal MSD to the health facilities is still high and it was found not depending on the distance from the zonal medical stores. Availability and completeness of LMIS tools in health facilities is still a problem and a number of health facilities were not adhering to.

**235. Lucas, G. Work related injuries and associated factors among hospital workers, a case of Iringa, Tanzania, 2012. Master of Applied Epidemiology Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Injuries from sharps and needles among hospital workers are major risk factors for blood borne infections. Globally, Hepatitis B, Hepatitis C and HIV infections accounted by sharp injury are 37%, 39% and 4.4% respectively among all the occupational infections affecting health care workers (HCW). This study aimed at assessing the injuries and associated factors that expose hospital workers to risks of contracting blood borne infections. **Methods:** We conducted a Cross-sectional study between December 2012 and May 2013. We derived study sample from four hospitals in which we obtained study subjects by simple random sampling from hospital sections. The study included 258 health care workers which represented 86% of eligible hospital workers. Data was collected using self administered questionnaire and was analyzed using SPSS software. Chi square test and binary logistic regression for categorical variables was performed and alpha was set at 5% level. **Results:** Of all participants, 27.9% had experienced at least one episode of work-related injury in twelve months prior to the study. Most of these injuries were needle pricks (72.2%) and cuts by sharps (23.6%) of which among all the injuries, 51.4% and 14.3% happened during use and after use of the item respectively. Of all 72 study participants who experienced Work Related Injuries (WRI), majority (41.7%) suffered the injury due to unexpected movement from patient. Likelihood of injury experience decreased if a hospital worker was trained on health and safety (OR: 0.42, 95% CI: (0.19, 0.91) or hospital worker was provided with health and safety guidelines (OR: 0.52, 95% CI: (0.28, 0.97). **Conclusion:** Work-related injuries especially needle-stick injuries were common among HCWs of the four hospitals we studied. Training HCW about health and safety, and provision of health and safety guidelines for HCWs will reduce the likelihood of exposure to WRI in HCWs. Small size of some of categories of participants might have resulted in large uncertainty intervals of their estimated association with an injury. The identified magnitude of WRIs suggests a need for trainings to enhance HCWs awareness and implementation of the standard precautions and procedures to health and safety.

**236. Lucas, H. Prevalence and pattern of cardiac disorders among pregnant women attending antenatal clinic at their first clinic visit at Muhimbili national hospital. Master of Medicine (Internal Medicine) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es salaam.**

**Background:** Increased cardiac demands during the course of pregnancy potentially increase morbidity and mortality in women with underlying heart diseases. In our setting, most women in child bearing age become pregnant without appraising their health particularly cardiac status and no effort are made at Antenatal clinic to screen for cardiac diseases. Improved quality of health care at delivery facilities in some countries (including Tanzania) has led to improved survival rates for those with congenital and valvular heart disease leading to an increasing number of heart disease patients who are reaching child bearing age, problems in most young women remain undetected especially in those with minor cardiac disorders. It is consequently essential to thoroughly evaluate expectant women for underlying cardiovascular disease in order to provide optimal care during pregnancy. **Objective:** To determine the prevalence and pattern of cardiac disorders among pregnant women attending Antenatal clinic at Muhimbili National Hospital (MNH) – Dar es Salaam. **Methods:** A hospital based descriptive cross-sectional study done from June to December 2012. A total of 310 pregnant women attending their first antenatal clinic at Muhimbili National Hospital (MNH) were recruited using a systematic sampling technique. A standard structured questionnaire was used to collect demographic data and other cardiac related symptoms. Each participant also had a thorough cardiovascular examination; Electrocardiogram and Echocardiogram were performed to identify types of cardiac disorders. **Results:** The overall prevalence of cardiac disorders among pregnant women attending antenatal clinic was found to be 29.7%. The prevalence of cardiac disorder (detected by ECHO) was found to be 20.6%. Of these pregnant women 30 (9.7%) had LVH likely due to chronic hypertension, followed by Mitral valve prolapse in 25(8.1%) pregnant women. The most frequent presenting symptoms and signs were easy fatigability in 221 (71.3%) followed by edema of the lower limbs in 190(63.1%) and palpitations 169 (54.9%). Majority of clinical findings were not significantly associated with the presence of ECHO abnormality. **Conclusion:** The prevalence of cardiac disorders among pregnant women attending their first ANC at Muhimbili National Hospital was found to be high at 29.7%. Hypertension was found to be the most prevalent cardiac related disorder followed by Mitral valve prolapse however the prevalence of congenital heart disease was found to be low and majority of pregnant women have not been screened before regarding their cardiac status. **Recommendations:** Screening for cardiac disease as part of ANC should be done and preferably women should be screened for cardiac disorders before pregnancy.

**237. Lufunga, N. Corneal endothelial cell loss after manual small incision cataract Surgery and Phacoemulsification at Muhimbili National Hospital, Dar es Salaam. Master of medicine (Ophthalmology). Dissertation. 3013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Cataract is the world's leading cause of blindness with around 20 million people bilaterally blind due to cataract<sup>1</sup>. The definitive treatment of cataract is surgical removal of the opacified lens which is aimed at restoring normal vision<sup>3, 5</sup>. However, every cataract extraction even in experienced hands is associated with some endothelial cell damage. Endothelial cell loss if sufficiently severe can cause endothelial cell density to fall below the threshold level needed to maintain corneal transparency. This can lead

to the development of late corneal decompensation which ultimately leads to poor visual outcome which has been reported to occur in about 1% of cataract extractions<sup>7, 11, 27, 28, 29</sup>. **Broad objective:** To assess the corneal endothelial cell loss after manual small incision cataract surgery and phacoemulsification at Muhimbili National Hospital, Dar es Salaam. **Methodology:** A hospital based descriptive, prospective cohort study was conducted between April 2012 and January 2013. A total of 127 adult patients with 131 eyes who underwent cataract surgery at MNH were enrolled. Patients were examined whereby demographic data, pre and post operative corneal endothelial cell count as well as post operative visual acuity were recorded. Corneal endothelial cell count was determined by use of a TOPCON SP.2000P specular microscope. **Results:** All 131 eyes assessed by specular microscope had preoperative corneal endothelial cell count ranging from 1500 – 3000 cells/mm<sup>2</sup> which decreased with increasing age (P<0.01). Eighty nine eyes (67.9%) underwent MSICS while 42 eyes (32.1%) underwent phacoemulsification with 84 eyes (64.1%) been for males and 47 eyes (35.9%) for females. Fifty four (60.7%) out of 89 eyes lost significant cornea endothelial cells on day 1 with average cell loss of 611.1 cells/mm<sup>2</sup> while 33 eyes (37.1%) had a significant cell loss 1 month post MSICS. In the phacoemulsification group, 19 (45.2%) out of 42 eyes had a significant cornea endothelial cell loss on day 1 with an average endothelial cell loss of 552.6 cells/mm<sup>2</sup> while 12 eyes (28.6%) lost cells 1 month post phacoemulsification. An accelerated decrease in corneal endothelial cell count in MSICS and phaco groups one month post cataract surgery was also noted in 17 eyes (19.1%) in MSICS group and 3 eyes (7.14%) in phaco group. However, there was no statistically significant association between postoperative visual acuity and different levels of corneal endothelial count on first day and one month post cataract surgery with P values of 0.111 and 0.142 on first day, 0.716 and 0.213 after one month for MSICS and phacoemulsification respectively. **Conclusion:** The loss of cornea endothelial cells post cataract surgery at MNH is significant although not to an extent of causing cornea oedema. **Recommendations;** 1. Emphasis on preoperative corneal endothelial cell evaluation should be done. 2. Further study is proposed to identify the factors responsible for corneal endothelial cell loss as well as long term follow up of post cataract surgery patients

**238. Lukmanji, Z., Hertzmark, E., Spiegleman, D., Fawzi, W.W. Dietary Patterns, Nutrient Intake, and Sociodemographic Characteristics in HIV-Infected Tanzanian Pregnant Women. *Ecology of Food and Nutrition*, 2013; 52 (1): pp 34-62.**

Routinely collected dietary intakes were available for 925 HIV-infected pregnant women participating in a longitudinal clinical trial of vitamin supplementation in Dar es Salaam, Tanzania. Information on sociodemographic and economic characteristics was recorded. Dietary macronutrient intakes were computed and analyzed using the Tanzania Food Composition Tables. Women's age, parity, education level, and economic independence were positively related to diet intake. Women younger than 25 years were at highest risk of inadequate food and nutrient intake. By World Health Organization recommendations, almost two-thirds of the participants were energy deficient, and nearly half were protein deficient.

239. Lutale J K, Thordarson H, Sanyiwa A, Mafwiri M, Vetvik K, Krohn J. **Diabetic retinopathy prevalence and its association with microalbuminuria and other risk factors in patients with Type 1 and Type 2 diabetes in Dar es Salaam, Tanzania. *JOECSA* ,2013;15(1).**

**Objectives:** The study was done to determine the prevalence of diabetic retinopathy in Dar es Salaam and its association with microalbuminuria, demographic features, metabolic control and some cardiovascular risk factors. **Methods:** Eighty six Types 1 (T1D) and 141 Type 2 (T2D) consecutive diabetic patients were reviewed. Presence and severity of diabetic retinopathy were evaluated by indirect ophthalmoscopy, and the relationship between retinopathy and diabetes duration, body mass index (BMI), blood pressure (BP), serum creatinine, cholesterol, HbA1c and albuminuria was analysed. **Results:** The prevalence of any grade of retinopathy was 18.6% (4.7% in T1D and 27% in T2D). Presence of retinopathy was significantly associated with diabetes duration. T2D with retinopathy had significantly higher systolic BP ( $p < 0.01$ ), diastolic BP ( $p < 0.05$ ) and serum creatinine level ( $p < 0.05$ ) than those patients without retinopathy. Albuminuria was the strongest predictor of retinopathy in T2D, ( $p < 0.001$ ). **Conclusion:** Retinopathy was associated with albuminuria, BP, and diabetes duration but not with the metabolic control.

240. Luyangi, F. **Development of near infrared spectroscopy and high performance thin layer chromatography screening methods for quality consistency assessment Of virgin sunflower oils. Masters of Pharmacy (Quality Control & Quality Assurance) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Virgin Sunflower oil is edible oil obtained without altering the nature of the oil, by mechanical procedures e.g. expelling or pressing, and application of heat only. Nowadays due to high demand and high price of sunflower oil, there has been a growing concern in Tanzania that these oils might be adulterated with other oils for the sake of making more profit and this is most likely done by either retailer in shops or in refining industries. The main analytical methods for most vegetable oils have been wet chemistry methods like titration or chromatographic methods which are time consuming and laborious. Near Infrared Spectroscopy combined with chemo metrics offers the following advantages as compared to conventional methods; it is a non-invasive and non-destructive technique, does not use solvents and results are obtained within a short time between one and five minutes. High Performance Thin Layer Chromatography (HPTLC) offers many advantages like use of small amount of solvents, several samples separated in parallel and high through-put analysis. As such HPTLC fingerprinting has been applied in the analysis of herbal products and phytochemicals. **Study objectives:** To develop and validate Near Infrared Spectroscopic method and High Performance Thin Layer Chromatography method for qualitative assessment of virgin sunflower cooking oil and also using the developed methods to assess quality of oils in the Tanzanian market. **Methods:** Near Infrared method: Forty (40) samples of virgin sunflower oil from different regions of Tanzania were collected and scanned to generate a spectra library that was used to create calibration models. The library was pre-treated

with different parameters to create different models. These models were also subjected to analysis of positive control samples (model validation), negative control samples and market samples. High Performance Thin Layer Chromatography (HPTLC) method: toluene, diethyl ether and ammonia in a ratio of 10:13:7 were used to develop mobile phase for chromatographic separation of vegetable oils at 245 nm wavelength with silica gel plates as stationary phase. **Results:** Near infrared method calibration model was created and the model with only Mean Centering Correction was found to be the best model. Model was validated by using positive control samples and found to be working perfectly. Analysis was conducted on 22 market samples of sunflower oils and it was found that 5 samples (18.2%) were not matched by the calibration model therefore posing doubt on their quality. HPTLC method did not yield better results as significant separation of the samples was not achieved particularly due to complex chemicals present in the vegetable oil samples and major components like fatty acids and glycerol being present in each oil sample. **Conclusion:** It has been observed that application of Principal Component Analysis together with Mahalanobis distance method in Near Infrared analysis resulted in a powerful analytical tool that can be used for discriminate analysis of Virgin Sunflower oils. The models created have successfully managed to identify correctly Virgin Sunflower oils from other samples which were not sunflower oil or adulterated oils. The method can be applied as a screening tool with which the failing samples will be subjected to extensive chromatographic analysis.

**241. Luziga, J.E. Implementation processes of emergency contraception in Tanzania: the case of three wards of Nyamagana district- Mwanza. Master of Arts (Health Policy and Management) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** The reproductive health hazards of unintended pregnancies and unsafe abortions are well documented. The potential of emergency contraceptives to prevent unplanned pregnancy in developed countries has been described, but in developing countries, the awareness about the method is poor. In Tanzania, awareness and knowledge regarding emergency contraception is also reported to be poor and largely remain to serve victims of sexual violence, an indication that access to information regarding emergency contraception is poor to many women and girls who need it. **Objective:** The aim of this study was to describe the implementation processes of emergency contraception service in Tanzania in order to identify the gap, reasons and challenges for low accessibility of emergency contraceptives among women and young girls. **Methods:** This was a qualitative purposive study conducted at three wards of Nyamagana District -Mwanza from March to April 2013. In-depth interview, exit interviews and Focus Group Discussions were the main technique for data collection. Respondents were obtained through purposive sampling and content analysis was used to analyze the collected data. **Results:** The study found that the service is passively provided. Integration of the EC service with family planning services and inadequate knowledge about ECPs were some of the factors that impede effective implementation and accessibility of EC service. **Conclusions and Recommendations:** Emergency contraception (EC) is an effective and safe method of preventing pregnancy. On strength of the concerns evolving around the ECPs and family planning in general, reproductive

health education should be reinforced at schools, communities and health facilities to empower people with factual information regarding family planning and ECP.

- 242. Lwoga, E. T. Measuring the success of library 2.0 technologies in the African context: the suitability of the DeLone and McLean's model. *Campus-Wide Information Systems*, 2013, 30(4): 288 – 307.**

The study aimed to examine the adoption of library 2.0 technologies among undergraduate students in the African context, and focused at the Muhimbili University of Health and Allied Sciences (MUHAS) of Tanzania. Not much research has been done to investigate the successful adoption of library 2.0 systems in the African context. This study assessed the success factors for the adoption of library 2.0 applications by using the DeLone and McLean's information systems (IS) success model. A case study research design was used in this study. Self-administered questionnaires were distributed to all first year undergraduate students (n=408) at MUHAS, with a rate of return of 71.8%. This study used the Structural Equation Modelling (SEM) approach to investigate the research model. The study findings confirm the validity of using the proposed IS model for library 2.0 adoption assessment. The users' intention to reuse is quite important, and accurately predicts the usage behaviour of library 2.0 services. The perceived net benefits had the strongest effect on users' intention to reuse library 2.0 systems than any other determinants within the model. Among the three quality-related constructs, service quality had the strongest total effect on perceived net benefits and intention to reuse. Compared with system quality, information quality had the largest effect on user satisfaction. It is thus important for librarians to consider all these factors for effective adoption of library 2.0 projects in research and academic institutions. This is the first comprehensive study focusing on the health sciences library patrons' usage behaviour of library 2.0 applications in Tanzania, and reveals findings that are useful for planning and implementing library 2.0 initiatives in other institutions with similar conditions.

- 243. Lwoga, E. T. Open access attitudes and uptake among health sciences faculty. Banda, T.M, Ngwira, ME and Chosowa, R. Proceedings and report of the 6<sup>th</sup> Annual Conference of the UbuntuNet Alliance, Kigali Rwanda 14-15 November 2013.**

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 faculty with more proficient technical skills and internet experience 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.

- 244. Lwoga, E. T., and Sife, A. S. Mapping the Research Productivity and Scholarly Impact of the Traditional Medicine Scholars in Tanzania: A Scientometric Analysis. *International Journal of Digital Library Services* 2013, 3 (3):38-52.**

A scientometric analysis was conducted to map out the research productivity and scholarly impact of researchers at the Institute of Traditional Medicine (ITM) of the Muhimbili University of Health and Allied Sciences (MUHAS) in Tanzania for the period between 1980 and 2013. The study analyzed the growth of the ITM's scholarly literature; ascertained the year-wise distribution of publications; determined the authorship pattern and degree of collaboration; and analyzed individual scholars' productivity and impact. Data were obtained using the Publish or Perish software that employs Google Scholar to retrieve scholars' publications and their citations. The findings show that there were a total of 381 publications published between 1980 and 2013, giving an average of 11.2 publications per year. The year 2012 had the most (12.3%) number of publications followed by 2007 and 2008 with 8.9% of all publications each. A vast majority (91.9%) of the publications were multiple-authored with 35.2% of the publications having six or more authors. The degree of collaboration was 0.92 and the ratio between team work and single author work was 11:1. Overall, M.J. Moshi and Z.H. Mbwambo were the top ranking scholars followed by R.L.A. Mahunnah and F.C. Uiso. All ITM researchers showed variation in their performance as no single scholar maintained the same rank in all nine metrics. The study findings call for scholars to recognize the importance of publishing in visible journals in order to receive large citation counts. 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.

- 245. Lwoga, E.T., Mosha, N.F. Information seeking behaviour of parents and caregivers of children with mental illness in Tanzania. *Library Review*, 2013, 62 (8/9), pp. 8 - 8.**

**Purpose:** The aim of this paper is to assess information needs and information seeking behaviour of parents and caregivers of children with mental illness at the Kilimanjaro Christian Medical Centre (KCMC) in Tanzania. The study mainly assessed the information needs of parents and caregivers of children with mental illness, their



preferable sources of health information, and their constraints on information seeking. Design/methodology/approach: This study used a case study research design, where 168 structured questionnaires were distributed to parents and caregivers of children with mental illness at the Neurological Pediatrics Outpatient Clinic of KCMC. The rate of response was 89.3 per cent. Findings: The study found that health information needs of parents and caregivers were mainly associated with health care (for example, nutrition, treatment) and health education. Parents and caregivers of children with mental illness used the internet as the main source of information about their children's health, which was followed by printed books and television. Health information seeking behaviour appeared similar across gender categories, but there were differences on the use of print and electronic information sources according to age and level of education. The main factors that hindered access to health information included low level of education, lack of funds and health information illiteracy. Practical implications: The paper provides useful suggestions that would facilitate information seeking and use among parents and caregivers of children with mental illness in Tanzania and other countries with similar conditions. Originality/value: Previous studies on the topic are scanty and, therefore, the paper provides important insights into the information needs and information seeking behaviour of parents and caregivers of children with mental illness in a developing country setting.

**246. Lwoga, E.T. Faculty perceptions and practices in health sciences information literacy instruction in Tanzania. *Library Philosophy and Practice*, 2013, 1017: 1-19.**

This study assessed the information literacy (IL) instruction perceptions and practices of faculty at Muhimbili University of Health and Allied Sciences in Tanzania. An online survey was distributed to all faculty members in five schools and one institute at MUHAS (235 in total) from 2011 to 2012, with a response rate of (34.5 percent). The study findings show a general support for IL development, and its importance in enabling students to do librarybased research. To a large extent, faculty believed that the IL competencies of students, including their ability to find, use and evaluate information, was average at the lower levels (first and second year students), and improved at the upper levels (third year undergraduates, and all postgraduates). Although faculty usually asked their students to conduct library research for their course assignments, students did not make sufficient use of library due to inadequate IL skills. Although faculty did not often collaborate with librarians in teaching IL, faculty believed that IL should be an independent, mandatory and credit earning course, and it should be taught by either a librarian only or undertaken collaboratively by both instructors and librarians. Faculty also indicated having seen some impact on the improvement in their students' research process after receiving library instruction. Based on the survey results, the study recommends the following: Universities should embed IL programmes into institutions, and librarians should include IL in professional development courses for teaching IL to faculty, use more proactive and interpersonal marketing strategy to promote IL, conduct regular IL needs assessment, use a flexible pedagogical approach and participative, studentcentred methods in teaching and developing IL curricula, and expand the sources in which IL.

247. Lwoga, E.T. **Open access perceptions and behavior of health sciences faculty and roles of information professionals in Tanzania.** 1<sup>ST</sup> Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Open access offers opportunities for health sciences faculty to conduct research, educate students, monitor public health, and integrate current best evidence from research into clinical policy and care delivery. However, the uptake of contributions to OA publications is low in Africa, including Tanzania **Objectives:** To investigate the faculty's awareness, perceptions and use of open access, and the role of information professionals in supporting open access (OA) scholarly communication in Tanzanian health sciences universities **Methods:** A cross sectional survey was conducted. Semi-structured interviews were conducted with 16 librarians, while questionnaires were physically distributed to 415 faculty members in all eight Tanzanian health sciences universities, with a response rate of 71.1%. **Results:** Most faculty members were aware about OA issues. However, a small proportion of faculty's research materials was made available as OA. Senior faculties with proficient technical skills were more likely to use open access than junior faculty. Major barriers to OA usage were related to ICT infrastructure, awareness, skills, author-pay model, and copyright and plagiarism concerns. Interviews with librarians revealed that there was a strong support for promoting OA issues on campus, however, this positive support with various open access-related tasks did not translate into actual action. **Conclusion:** This is the first comprehensive and detailed study focusing on the health sciences faculty's and librarians' behaviours and perceptions of open access initiatives in Tanzania, and reveals findings that are useful for planning and implementing open access initiatives in other institutions with similar conditions.

248. Lyimo, S., Premji, Z. & Mosha, F. **The Role Of Malaria Rapid Diagnostic Test On The Management Of Fever Amongst Children In Kisarawe District, Coast Region 2009.** Tanzania 1ST Scientific MUHAS Conference . Dar es Salaam, Tanzania, may 2-4, 2013.

**Background:** Malaria diagnosis continues to be a major challenge in malaria control strategies. Currently, there are three main approaches to laboratory-based diagnosis of malaria, which are Giemsa stain microscopy, Acridine orange (AO) microscopy and rapid diagnostic tests (RDT). **Objectives:** The objective of this study was to determine the role of malaria rapid diagnostic test (mRDT) in routine clinical practice for the management of malaria episode amongst children. **Methods:** A cross-sectional study of children aged five years and below attending a health care facility due to fever was conducted. Systemic sampling method was used to enroll children and blood samples were collected for mRDT, and smear microscopy. Exit interview was done. Data was analyzed using Epi info 3.5.1. **Results:** A total of 290 children, under five years of age, with fever were enrolled for malaria Rapid Diagnostic Test. Results revealed that RDT has Sensitivity of 94%, Specificity of 96% and Predictive Value Positive of 98%. A total of children 50 (17.2%) had malaria confirmed by RDT and microscopy. There was discordant in microscopy results for readers one (13.8%) and two (17%). For parasite density the liner Coefficient Correlation between two readers was 0.92, an acceptable range. A total of 16(5.5%) children were treated with anti-malarial based on presumptive treatment, while only 50 (17.2%) were positive for malaria by RDT. If there was no RDT treatment would have been to all 290 children with fever. **Conclusion:** This study shows that RDT has high sensitivity and specificity.

The use of RDT will help to avoid unnecessary treatment with anti-malarial and secondly will help in early treatment of other causes of fever if not due to malaria.

249. **Lyimo, M.A., Housman, M.L., Zain-Ul-Abideen, M., Hendricks, K., Lukmanji, Z., Mchaki, B., Maro, I., Magohe, A., von Reyn, C.F. & Connor, R.I. Dietary protein-calorie supplementation increases levels of sialic acid in breast milk from HIV-positive Tanzanian mothers. Tanzania 1ST Scientific MUHAS Conference . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Human breast milk is known to supply nutrients and immune support, which are essential for newborn growth and neurological development. Sialic acid (SA) is a highly conserved component of human milk oligosaccharides known to help prevent attachment of pathogens to the infant intestine. The levels of SA in mammalian milk can be influenced by maternal diet. **Objectives:** This study evaluated the impact of a protein-calorie supplement (PCS) on the levels of SA in the breast milk of HIV-positive Tanzanian mothers. **Methods:** HIV-positive women were randomized to receive either a micronutrient supplement (MNS) or MNS+PCS during the third trimester of pregnancy and the first 3 months of breastfeeding. Sequential milk samples were collected. Skim milk fractions were analyzed using a commercial ELISA to determine the levels of SA. **Results:** A total of 135 milk samples were tested for SA (MNS group, 74 samples; MNS+PCS group, 61 samples). Between 1-3 samples were collected. The highest levels of SA were found in samples collected within the first 30 days of lactation followed by a significant decrease from days 31-200. Mean levels of milk SA in the MNS and MNS+PCS groups did not differ significantly in the first 30 days of lactation. However, significantly higher levels of SA were observed from mothers receiving the MNS+PCS on Days 31-200, suggesting that dietary PCS may help sustain SA levels. **Conclusion:** Dietary PCS during late pregnancy and early lactation may help to sustain higher levels of SA in breast milk from HIV-positive mothers after the first month of breastfeeding. These findings have implications for infant health during a critical post-natal period.

250. **Lyombe, T.H., Analysis of medicines expenditures and pharmaceutical inventory control management at Muhimbili National Hospital. Master of Science (Pharmaceutical Management) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Background:** Good pharmaceutical management is an important approach to contain the increasing expenditures on medicines in developing countries. ABC and VEN analyses classify items according to their budgetary consumption and importance, respectively. When the two are combined together they increase efficiency in medicines supply chain systems and also diminish costs associated with overheads, wastages and inefficiencies. This study uses ABC and VEN approaches to analyse medicine expenditures and further explores inventory control methods employed and the associated challenges at Muhimbili National Hospital-Tanzania **Methods:** This was a descriptive hospital based cross-sectional study which was conducted at Muhimbili

National Hospital. Data were collected using pre-tested questionnaires and through document reviews. Analysis was performed by using Excel spreadsheet (Microsoft Excel®, Microsoft Corporation) and SPSS version 20 computer software. **Results:** The annual medicines expenditures was 1.2 billion Tanzanian Shillings (approx 750,000 US \$) which is equivalent to 1.3% of the total annual hospital expenditures. About 394 medicines were procured during the financial year, 143 from MSD and 251 from other suppliers. Overall, 46 (12 %) medicine belong to class A and 67 (17 %) to the vital category, based on ABC and VEN classifications. About 270 (approx 70%) medicines were essential and consumed 70% of the budget. Of the 143 medicines procured from the MSD, 8 consumed 50% of the budget; ceftriaxone injection (1 gram) alone contributing 15 % and only 4 of the class A items were Vital. Of the 251 medicines procured from other suppliers; 14 consumed 50% of the budget, and meloxicam and augment in tablets together contributed 16 %. Only 6 of the class A items could be classified as Vital. There was no special inventory control methods for class A items which are main drivers of medicine expenditures. Even though shortage of human resource is a major challenge **for the** pharmacy department, majority of the existing pharmaceutical personnel do not have sufficient expertise in inventory management. **Conclusion:** Based on the ABC and VEN analyses, there is inefficiency in allocating the scarce financial resources to medicines at Muhimbili National Hospital. Even for the few class A medicines which consumes nearly three-quarter of the budget, there is no special monitoring mechanisms to ensure rational prescribing and inventory management. In order to allocate scarce resources efficiently and to manage pharmaceutical inventories effectively, priority-setting decisions must employ ABC and VEN classifications.

251. **Mabiki, F. P., Magadula, J. J., Mdegela, R. H., Mosha, R. D. Optimization of Extraction Conditions and Phytochemical Screening of Root Extract of *Synadenium glaucescens* Pax. *International Journal of Chemistry*, 2013; 5(4),103-112.**

Optimization of extraction conditions and phytochemical screening of the root bark of *Synadenium glaucescens* were carried out in a stepwise manner in order to obtain the highest yields and the constituents of the extracts. Sequential extraction using Soxhlet method was performed using dichloromethane, hexane and petroleum ether, respectively, each followed by ethanol. Extraction conditions included: running time of 2 to 6 hours, temperature at 25 °C to 95 °C and particle size ranging from 0.4mm to >3mm diameter. Phytochemical screening was done using derivatisation techniques, gas chromatography-mass spectrometry and high performance liquid chromatography. Extraction with dichloromethane followed by ethanol resulted in a higher yield by 25%, within 4 hrs of extraction, particle size of 1mm, at temperatures of 30 °C for dichloromethane and 75 °C for ethanol. Fatty acid analysis indicated absence of free fatty acids in both Dichloromethane and ethanolic extracts. Silylation and Thin Layer Chromatography indicated the presence of non hindered and hindered functionality and the presence of triterpenoids in the dichloromethane extract. Phytochemical screening of the dichloromethane extracts indicated that it is composed of two main triterpenoids that best matched with Lanosterol (42%) and Cycloartenol (31%). Other minor compounds

identified through chromatographic analysis were phytol, ergostadiol, hentriacontane, sitastriol aceate, lupeol and hopenone. The ethanolic extracts indicated the presence of polyphenolic compounds.

**252. Mabiki, F. P., Mdegela, R. H., Mosha, R. D., Magadula, J. J. Antiviral activity of crude extracts of *Synadenium glaucescens* (Pax) against infectious bursal disease and fowlpox virus. 2013; 7(14), 871-876.**

The effect of crude extracts from different morphological parts of *Synadenium glaucescens* against infectious bursal disease virus (IBDV) and fowlpox (FP) virus using an *in ovo* assay were investigated. Viable 9 days embryonated chicken eggs were challenged with viral strains then treated with *S. glaucescens* extracts at concentration of 0.2 mg/ml. Un-inoculated group were saved as negative control and groups inoculated with virus and diluent saved as positive controls. The treatments were observed daily and embryo weights were measured 5 days post-inoculation. Embryo survival and mean embryo weight were significantly higher ( $P \leq 0.001$ ) in groups treated with *S. glaucescens* extracts than the positive control. More than 50% of the extract prevented death and deformation of embryo and formation of pock lesions in embryos. Furthermore, the treatments with ethanolic extract of the root bark demonstrated significantly higher mean embryo weight compared to other extract for both viruses ( $P \leq 0.001$ ). The mean embryo weights from eggs challenged with infectious bursal disease virus and fowlpox virus treated with the extract were  $6.3 \pm 2$  and  $5.9 \pm 0.5$  g, respectively. These findings demonstrate potential and feasibility of using *S. glaucescens* extracts for treatment of the viral diseases. Furthermore, it validates the ethnoveterinary exploitation at community level.

**253. Mabiki, F. P., Mdegela, R. H., Mosha, R. D., Magadula, J. J. In ovo antiviral activity of *Synadenium glaucescens* (pax) crude extracts on Newcastle disease virus. *Journal of Medicinal Plant Research*. 20137(14), 871-876.**

Investigation on the effect of root bark and wood, stem bark and wood, leaves and sap of *Synadenium glaucescens* extracts against Newcastle disease (ND) virus was done using an *in ovo* assay. Viable 9 days embryonated chicken eggs were arranged into 25 treatment groups ( $n = 5$ ). Groups 1 to 21 were challenged with a 13C/SUA virulent strain of ND virus treated with extract at concentration of 0.2 mg/ml. Un-inoculated group saved as negative control and groups inoculated with virus and diluent saved as positive controls. Haemagglutination test was used to quantify the amount for ND virus units. Embryo survival and embryo weight were significantly higher ( $P \leq 0.05$ ) in groups treated with *S. glaucescens* extracts than the positive control. The root bark demonstrated significantly higher antiviral activities ( $P \leq 0.05$ ). Furthermore, treatments with ethanolic extract SE1 resulted into 100% embryo survival, 91.2% mean embryo weight and reduced viral load by 99.2%. The minimum dose of SE1 with the highest efficacy was 0.2 mg/ml. The percent mean embryo weight and haemagglutination test demonstrated negative correlation ( $R^2 = 0.94$ ). These findings validate the

ethnoveterinary potential of *S. glaucescens* and the feasibility of its use for treatment and control of ND.

254. **Mabula, J.B., Gilyoma, J.M., Mchembe, M.D., Jaka, H., Kamugisha, E., Kidenya, B., Rambau, P.F., Chalya, P.L. Predictors of outcome among patients with obstructive jaundice at Bugando medical centre in north-western Tanzania. *Tanzania Journal of Health Research*, 2013; 15 (4).**

Despite recent advances both in preoperative diagnosis and postoperative care, obstructive jaundice still contributes significantly to high morbidity and mortality. A prospective study was undertaken to identify predictors of outcome among patients with obstructive jaundice at Bugando Medical Centre in north-western Tanzania. A total of 138 patients were studied. The male to female ratio was 1:1.6. The median age of patients was 58 years. Patients with malignant obstructive jaundice were older than those of benign type ( $P < 0.001$ ). Ca head of pancreas (65.1%) was the commonest malignant cause of jaundice whereas choledocholithiasis (51.9%) was the commonest benign cause. Twelve (9.7%) patients were HIV positive with a median CD4+ count of 342 cells/ml. A total of 130 (94.2%) patients underwent surgical treatment and the remaining 8 (5.8%) patients were unfit for surgery. The complication rate was 30.4% mainly due to surgical site infections and it was significantly influenced by malignant causes, WBC count  $> 10 \times 10^9/l$  and HIV infection with low CD4 ( $\leq 200$  cells/ $\mu l$ ) ( $p < 0.0001$ ). The median hospital stay and mortality rate were 18 days and 20.3%, respectively. A low haematocrit and presence of postoperative complications were the main predictors of the hospital stay ( $P < 0.001$ ), whereas age  $> 60$  years, prolonged duration of jaundice, malignant causes, high bilirubin levels, HIV infection with low CD4+ count ( $\leq 200$  cells/ $\mu l$ ) and presence of postoperative complications significantly predicted mortality ( $P < 0.001$ ). In conclusion, our study highlighted the important factors that predict the outcome of patients presenting with obstructive jaundice at BMC; therefore attention should be focused to these factors so as to improve the outcome of these patients.

255. **Macha, E.W. Environmental and occupational exposure to mercury in a small scale gold mining community in Handeni, Tanzania. Master of Science (Applied Epidemiology) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Mercury is a highly dangerous neuro-toxicant, affecting over 2 million people in Tanzania. High exposures in artisanal gold mining have significant health and environmental impacts. Burning of mercury amalgamate is of great concern as it emits mercury directly to the atmosphere affecting miners and nearby residents. We assessed environmental and occupational exposure to mercury in miners and their families from Handeni District, north-east Tanzania. **Objectives:** We aimed to determine mercury exposure levels among miners and their families by testing urine, blood and hair, as well as determining the relationship between exposure biomarker and signs and symptoms of mercury intoxication. We also aimed to determine the concentration of mercury in water

and vegetables, in the areas surrounding the gold mining community. Moreover, we aimed to assess the health effects of mercury exposure on miners and their families. **Methods:** A cross sectional descriptive study was conducted among 292 miners and their families. Interviews and medical examinations were conducted on all participants. A sample of 30 participants with history of mercury use, provided hair, urine and blood, residential ground water and vegetable samples for mercury analysis by Inductively Coupled Plasma Optical Emission Spectrometry. Data analysis was done using Epi-Info. **Results:** We enrolled 292 participants with a mean age of 31.8 years.. The mean mercury levels in urine and blood from selected participants were 46.3µg/L and 14.5µg/L respectively. Out of 21 urine samples, 10 (47.6%) exceeded the maximum acceptable level of 50 µg/L provided by the World Health Organization (WHO). Additionally, out of 25 blood samples, 13 (52%) exceeded the WHO normal range of 5-10µg/L. All hair samples were below the detection limit of 0.01ppm. Miners engaged in amalgamation and burning of amalgam had higher mean mercury levels in urine (53.7µg/L, p=0.02) and blood (27.6µg/L, p= 0.6). Mercury levels in groundwater were below Tanzanian standards of 1µg/L. Tremor of the eyelid (30%) was significantly higher (p<0.005) in miners than non-miners. Other signs recorded on examination of miners were blue line in gums (34%), blue coloured ring in periphery of iris (11%), dysmetria (9%), gingivitis (7%), intention tremor (5%), decreased mental labial reflex (5%) and decreased Babinski reflex (5%) . **Conclusion and recommendation:** High mercury concentrations in urine and blood were found in mining community of Handeni District. Miners, who are known to have a high occupational exposure, have higher mercury concentrations than non-miners. In addition; signs of mercury intoxication were also identified in miners. Immediate efforts should be directed into reducing occupational and residential exposures to mercury in communities near gold mines. Larger studies should be carried out to better characterize exposures found while control measures are implemented.

256. **Matuja, W.B.P., Fataki, M. Epilepsy following simple febrile seizure in a rural community in Tanzania; A community based observational cohort study. 1ST Scientific MUHAS Conference Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** fever is thought to play a role in inducing recurrent seizures in children **Objectives:** To study the outcome of subsequent epilepsy following a single uncomplicated febrile seizure in a cohort of children aged 6 months to 6 years followed up for 10-year period **Methods:** Following door-to-door interview children aged between 6months and 6 years were identified in each household and history of seizures was obtained from the head of household. Children with a single uncomplicated febrile seizure were further evaluation by a team of specialists. The primary health workers made follow-up at home every 6 months for children who neither reported neither to the health worker nor at the existing health facilities. The study team scrutinized recorded features of recurrent seizures and invited the children and parents for further evaluation whenever data was deemed insufficient. **Results:** A total of 6522 children aged 6 months to 6 years lived in the study area. Of these 213 (3%) had experienced one uncomplicated febrile seizures. At the end of 10 years follow-up period 145(65%) were still living in the study area. Of these 44 (30%) had developed epilepsy gibing an

equivalent of cumulative incidence rate of 3.8 per 100 person years. The age of onset of first uncomplicated FS between the ages of 2-5 years was significantly associated with the development of later epilepsy in comparison to other ages. The number of recurrent febrile seizures significantly influenced the development of later epilepsy. A positive family history of epilepsy did not significantly influence the development of later epilepsy. **Conclusion:** Cumulative incidence of epilepsy in rural Tanzanian children following a single uncomplicated FS was small but higher than that reported in developed countries. This risk was influenced independently by the number of recurrent FS, family history of FS, and the age of onset of the first ever FS

257. **Mgelea, E.M., Kisenge, R., Aboud, S. Validity of Clinical and Immunologic Monitoring to Detect Virologic Failure in HIV Infected Children on Antiretroviral Therapy. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Two million children are living with human immunodeficiency virus (HIV) worldwide, the majority in sub-Saharan Africa, South and Southeast Asia. In Tanzania, 160,000 children have HIV and more than 11,000 are on antiretroviral therapy (ART). Currently, response to treatment is monitored by clinical and immunologic parameters. The validity of these criteria to detect virologic failure is not well documented. **Objectives:** To determine the validity of clinical and immunological monitoring in detecting virological failure among HIV- infected children on ART in Dar es Salaam, Tanzania. **Methods:** Children attending ART clinics in Dar es Salaam from August 2011 to March 2012 were screened. Those on ART for at least 6 months were included in the study. Patients were considered to have virological failure if viral load was >400 copies/mL. Immunologic failure was defined as CD4 count below baseline after at least 6 months of ART or a fall of CD4 count to less than 30% of the peak level. Clinical failure was defined as a new or recurrent WHO clinical stage III or IV event after at least 6 months on ART. **Results:** We screened 485 children; 218 met inclusion criteria. The average age was 10.6 years and the mean duration on ART was 40.9 months. 124 (57.1%) had virological failure. Clinical and Immunologic criteria had sensitivity and specificity of 12.9% and 90.3%, 22.6% and 73.1% respectively. The combination of clinical and immunologic monitoring had a sensitivity of 25.8% and specificity of 69.9%. Children who received nevirapine based regimens were more likely to have virological failure compared to those on efavirenz and protease inhibitor regimens (OR=2.0, 95% CI(1.20-3.64) p=0.03). **Conclusion:** This study showed more than half of the children had virological failure. The clinical and immunological criteria performed poorly in identifying treatment failure in HIV- infected children on ART. Expanding access to viral load testing will help improve outcomes.

258. **Maeda, J.M. Glycaemic control and associated factors in type 2 diabetic patients attending a public health facility clinic in tanga regional hospital, Tanzania**



**2012.Masters of Science (Applied Epidemiology) Dissertation , 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** Glycaemic control denotes regulating and maintaining blood sugar levels in diabetic patients within normal ranges. World Health Organization (WHO) recommends the use of Glycated Haemoglobin (HbA1c) test as an objective measure of Glycaemic control with a target of maintaining HbA1c at an optimal value of 7.5% or less. Long-term glycaemic control reduces later incidence of diabetic related complications, however attaining the target has been a challenge to both patients and health care providers with 40% and 60% of patients unable to reach the optimal targets in developed and developing countries respectively. Tanzania is limited in studies exploring glycaemic control at local context, but the few studies conducted show high proportion of patients (over 65%) with uncontrolled glycaemia. The study aimed at determining the magnitude of glycaemic control and its associated factors among type 2 diabetic patients attending public health facility in Regional hospital of Tanga, Tanzania. **Methods:** This was a hospital based cross-sectional design with systematic random sampling conducted from December 2012 to March 2013. Diet was assessed using Food Frequency Questionnaire (FFQ), physical activity through the International Physical Activity Questionnaire (IPAQ), anthropometric measurement performed, and blood sample collected for laboratory testing of HbA1c levels. HbA1c level ( $>7.5\%$  = 1, else = 0) was set as an outcome variable with other factors being explanatory variables. Bivariate and multivariate analysis was performed and Chi Square test was used in comparing proportions with a significant difference set at P value of 0.05 or less. Ethical clearance was obtained from MUHAS Institutional Review Board (IRB). **Results:** A total of 224 study participants were enrolled into the study. Female were 137 (61.2%). The mean age (SD) was 55.4 (12.9) years. The prevalence of unacceptable glycaemic control was 83% (186/224). Factors found to be significantly associated with unacceptable glycaemic control in univariate analysis were, frequent fruit intake OR (95% CI): 0.3 (0.1, 0.8); Moderate physical activity, 3.0 (1.3, 6.9); Low physical active, 2.9, (1.2, 7.2); food insecurity, 7.1 (1.3, 53.9); high physical activity, 0.3 (0.1, 0.9); diabetic duration for more than 2 years, 2.5 (1.5, 5.1); Insulin treatment 6.0 (1.7, 15); being on Oral Hypoglycemic Agents (OHA) single drugs, 0.5 (0.2, 0.9); diet only therapy, 0.2 (0.1, 0.4); and satisfying self-diabetic care, 0.4 (0.2, 0.9). In multivariate analysis, significant factors were satisfying self-diabetic care practice AOR (95% CI): 0.3 (0.1, 0.8); on dietary therapy only, 0.2 (0.1, 0.6); on Insulin therapy, 6.7 (2.0, 22.4); Frequent fruit intake, 0.3 (0.1, 0.7); moderate physical activity, 3.41 (1.3, 9.0); and low physical active, 3.4 (1.3, 11.6). **Conclusion:** High prevalence of unacceptable glycaemic control at a tertiary diabetic care clinic level setting is alarming. Routine analysis, interpretation and use of information from patient's clinic visits record at facility needs to be empowered to facilitate close monitoring and evaluation of quality of care provided. Good practices towards achieving glycaemic control are to be encouraged to achieve a large number of patients practicing them for better glycaemic control.

259. Magadula, J. J., Mwangomo, D. T., Mainen Julius Moshi, M. H. A novel  $\gamma$ -lactone and other constituents of a Tanzanian *Antidesma venosum*. *Spatula DD-*

**Aim:** This study aimed at investigating the antimicrobial potential of isolated compounds from a Tanzanian *Antidesma venosum*. **Methods:** The pure compounds were isolated from the stem and root barks of *A. venosum* using standard column chromatography procedures with silica gel as a stationary phase and organic solvents of different polarities as mobile phases. Antimicrobial activity was determined using broth microdilution method against different bacteria and fungi. **Results:** Repeated column chromatography of the ethanol extract of the root bark of *A. venosum* led to the isolation of a new  $\gamma$ -lactone compound, namely (3R,4R,5S)-4-hydroxy-5-methyl-3-tetradecanyl  $\gamma$ -lactone (1) and  $\beta$ -sitosterol, while investigation of the stem bark afforded two known triterpenoids, friedelin (2) and lupeol (3) as well as a mixture of known phytosterols,  $\beta$ -sitosterol and stigmasterol. Their structures and absolute configurations were determined by using combined spectroscopic methods. Compound 1 didn't display antimicrobial activity even at the maximum concentration tested (MIC values > 5mg/ml) against all tested strains. Friedelin (2) was the most active compound with MIC of 0.1875 mg/ml against *Staphylococcus aureus* (ATCC 25923) and *Streptococcus pyogenes* (clinical isolate) while lupeol (3) had weak antibacterial activity against *S. aureus* and *S. pyogenes* with MIC of 1.25 mg/ml. No inhibition was observed against other tested strains. **Conclusion:** These findings indicate that compound 2 is the main contributor for the reported activity in the stem bark, while synergism is suggested to be a causative of high antimicrobial activity reported from root extracts.

260. Magadula, J.J., Mbwambo, Z.H., Gatto, J., Derbré, S., Guilet, D., Richomme, P., Polyphenolic compounds with anti-ages activity isolated from clusiaceae plants of Tanzanian origin. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** A series of polyphenolic compounds are well reported to be synthesized in different genera of the family Clusiaceae [1,2]. These compounds displayed different biological activities including malaria, HIV, cancer, oxidation stresses, etc **Objectives:** In this study, we aimed to investigate the Advanced Glycation End-products (AGEs) activity of crude extracts and compounds from three Clusiaceae plant species namely *Garcinia semseii*, *G. volkensii* and *Allanblackia ulugurensis*. The AGEs are known to be involved in the progression of numerous pathologies such as diabetes, atherosclerosis or neurological diseases. **Methods:** Their anti-AGEs activities were evaluated using a recently developed automated screening assay. **Results:** With the objective of finding molecules with inhibitory effects on AGEs formation, we isolated and identified several polyphenolic compounds exhibiting phloroglucinol moieties [e.g. polyprenylated benzophenones, such as guttiferone F or biflavonoids [such as morelloflavone **Conclusion:** With the objective of finding molecules with inhibitory effects on AGEs formation, we isolated and identified several polyphenolic compounds exhibiting phloroglucinol moieties [e.g. polyprenylated benzophenones, such as guttiferone F (1)] or biflavonoids [such as morelloflavone.

- 261. Maganda, B., Heudi, O., Cortinovis, A., Picard, F., Kretz, O., Minzi, O. A fast and reliable reversed phase high performance liquid chromatography method for simultaneous determination of selected anti-retroviral and lumefantrine in human plasma. *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences*, 2013; 919-920, pp. 52-60.**

A fast and reliable high performance liquid chromatography (HPLC) method with UV diode array detection for simultaneous quantitative analysis of the anti-retroviral drugs, nevirapine (NVP) and efavirenz (EFV) and the anti-malarial, lumefantrine (LUM) in human plasma has been developed and validated. The sample preparation consisted of a plasma protein precipitation with 0.5% acetic acid acetonitrile solution containing the internal standard halofantrine (HALO) prior the LC-analysis. Chromatographic separation was carried out on a Acclaim Polar Advantage C16, column (150mm×4.6mm, particle size, 3µm) using a gradient of mobile phase made of 0.01% TFA in 0.1M ammonium acetate (solvent A) and 0.1% TFA in acetonitrile (solvent B). The separation of NVP, EFV, LUM and HALO was achieved within 17min at a flow rate of 1.0mL/min and detections were initially performed at three wavelengths, 275nm (NVP), 255nm (EFV), and 300nm (LUM). The method selectivity was demonstrated in six different human plasma batches. In addition, several concomitant drugs were analyzed under our experimental conditions and none of them co-eluted with EFV, NVP and LUM. This demonstrated that our method is highly selective. Calibration graphs plotted with seven concentrations in duplicate for each compound were linear between the selected ranges with a regression coefficient (R<sup>2</sup>) greater than 0.998. Absolute extraction recovery for NVP, EFV and LUM were 99%, 98.6 and 102%, respectively. Inter- and intra-day coefficients of variation for LUM, EFV and NVP were ≤10%. The lower limits of quantification were 0.125µg/mL for LUM and 0.250µg/mL for both EFV and NVP. Intra- and inter-assay relative standard deviation values were found to be less than 15% at the concentrations examined (0.125-10.0µg/mL for LUM and 0.250-15.0µg/mL for both EFV and NVP). The present method was successfully implemented in Tanzania and only one wavelength (255nm) was used to measure samples of patients receiving either NVP or EFV in combination with LUM. The concentration found in human plasma samples for all three compounds were within the calibration range. This makes our method particularly applicable and useful to resource-limited settings.

- 262. Maganda, B.A., Minzi, O., Premji, Z., Ngasala, B., Sasi, P. & Aklillu, E. Clinical treatment outcomes for acute malaria treated with artemether/lumefantrine drugs in hiv-1 infected patients on anti-retroviral drugs. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Malaria and HIV-1 infection cause significant morbidity and mortality in sub-Saharan Africa. Malaria treatment for the HIV-1 infected patients on anti retroviral therapy (ARVs) poses significant challenges such as gaps in the knowledge of ARVs and artemisinin-based combination treatment (ACTs) drug- drug interactions (DDIs) and their consequences. The effect of antiretroviral drugs on the clinical treatment outcome in HIV-1 infected patients

with acute malaria treated with lumefantrine/artemether drug combination is still inconclusive. **Objectives:** The aim of this study was to investigate anti malaria treatment outcome in HIV-1 patients' co -infected with acute malaria on ARVs and not those not yet on ARVs. **Methods:** This an open label, non-randomized, three arms, and single center study included in total 227 HIV-1 infected patients  $\geq 18$  years old co infected with malaria. All patients involved in this study were treated with lumefantrine/artemether drug combination and followed for 28 days to monitor outcome. Treatment outcome of HIV -1 patients on ARVs was compared to those not yet on ARVs. The primary study outcome for both groups was clinical treatment failure, after anti malarial treatment. **Results:** still working on data. **Conclusion:** will be available once we have our results.

**263. Maganda, B., Minzi, O., Holler, A. & Olivier, H. A Fast and Reliable High Performance Liquid Chromatography Method for Simultaneous Determination of Selected Anti-retroviral and Lumefantrine in Human Plasma. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013.**

**Background:** There is increasing likelihood of drug-drug interactions (DDIs) in patients due to polypharmacy. In order to identify possible DDIs, pharmacokinetics studies (PK) are conducted. PK studies help to identify factors that cause changes in the dose-concentration relationship and the extent of these changes. Determination of concentrations of drug in human plasma requires a sensitive, selective and cost effective analytical method. **Aim:** the aim of this study was to develop a simple and cost effective method for simultaneous analysis of nevirapine (NVP), efavirenz (EFV) and lumefantrine (LUM) in human plasma. **Methods:** Sample preparation consisted of plasma protein precipitation with 0.5% acetic acid acetonitrile solution. An internal standard halofantrine was used. Chromatographic separation was carried out on an Acclaim Polar Advantage C<sub>16</sub>, column (150 x 4.6 mm x 3  $\mu$ m) using a gradient of mobile phase made of 0.01% TFA in 0.1 M ammonium acetate and 0.1% TFA in acetonitrile . Detections were performed at 275 nm (NVP), 255 nm (EFV), and 300 nm (LUM), and the separation was achieved within 17 min at a flow rate of 1.0 ml min<sup>-1</sup>. **Results:** The calibration curve for LUM, EFV and NVP all exhibited good linearity ( $r^2 > 0.998$ ). The intra and inter-day precision and accuracy were all within the acceptable ranges. Blank plasma from six different individual donors and 12 potential concomitant drugs, were all tested and no significant interfering peaks were observed. The mean extraction recovery was 100% for all the analytes. The tested analytes were all stable under the tested conditions. **Conclusion:** The developed method is fast and cost effective and can be implemented in Tanzania to determine human plasma levels of NVP or EFV in combination with LUM or both.

**264. Mage, S. Adherence to artemether-lumefantrine treatment in patients with uncomplicated malaria in rural Bagamoyo. Masters of Science (Clinical**

**Pharmacology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Since November 2006, Coartem® (Artemether-Lumefantrine-ALu) replaced Sulphadoxine-Pyrimethamine as first line drug of choice for treatment of uncomplicated malaria in Tanzania. Taking many pills of ALu, more than once daily for several days has proved to be problematic than single SP dose. **Objectives:** We assessed adherence to Artemether-lumefantrine treatment in patients with uncomplicated Malaria in rural Bagamoyo **Materials and Methods:** Confirmed malaria Patients were prescribed with ALu and then followed to their homes on day 3 where adherence was assessed by interviews and pill counts. In addition, blood slides for malaria parasites count were taken and auxiliary temperature was measured. The participants returned to the dispensary on day-7 where venous blood samples (2ml) for measurement of blood Lumefantrine concentrations and blood slides were collected. Lumefantrine plasma concentrations were described by age group and category of adherence as means with corresponding standard deviations. **Results:** Among 143 patients with analyzable data, 10/143 (7%) were probably adherent. The rest were probably or definitely non adherent. Non adherence was attributed to taking fewer doses (20.8%) and untimely dosing (72.2%). Blister packs were available in 122 (85.3%) of the visited households and tablets were still remaining in 29 (23.8%) of the patients. 13/90(14.4.0%) of the patients had Lumefantrine level <175ng/ml. The difference in mean Lumefantrine concentration between the adherent and non adherent groups was not statistically significant ( $p=0.643$ ). The median Lumefantrine concentration was higher in the adherent group (586.20 ng/ml, range 268.60-715.90) as compared to non adherent group (403.20 ng/ml range 0.00-2239.80). None of the patients failed to achieve parasite clearance on day-3 and day-7. **Conclusions:** The overall adherence in the remote rural Bagamoyo population appears to be low. Non adherence is mainly due to untimely intake of ALu doses rather than missing doses. Day-3 and day-7 parasite clearance can be achieved despite the patients not completing drug intake and even those with sub-therapeutic day-7 blood Lumefantrine concentrations.

265. Magohe, A , Bakari, M, Wamsele, J., MacKenzie, .T, Maro, I, Kimario, J., Ali, S., Dowla, S., Hendricks, K., Lukmanji, Z., Neke, N. M., Wadde, R., Matee, M., Pallangyo, K., Reyn, C.F. **DarDar 2-A: Macronutrient deficiencies among HIV-positive women with tuberculosis in Dar Es Salaam, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Tuberculosis places additional nutritional demands on women with HIV infection. However, only limited data are available from developing countries on the nutritional status of HIV-positive women with tuberculosis. **Objectives:** To assess anthropometric characteristics, dietary intake, and food insecurity among HIV infected women in Tanzania. **Methods:** We enrolled HIV-positive women with newly diagnosed tuberculosis in Dar es Salaam, Tanzania and assessed anthropometric characteristics, dietary intake, and food insecurity. Energy and protein intake were determined using Tanzania Food Composition Tables, and compared to dietary recommendations for

persons with HIV and tuberculosis to estimate deficits. Patients were re-evaluated after 4-6 months of tuberculosis treatment. **Results:** Among 43 women at baseline median CD4 count was 209 (range 8-721), and 19 (44%) had a CD4-dian food insecurity score was 6. Median kcal/day was 1693 (range 1290-2633) compared to the 2658 estimated need; median deficit was 875 kcal (range -65-1278). Median gm protein/day was 42 (range 27-67) compared to the 77-estimated need; median protein deficit was 35 gm (range 10-50). Median weight gain among 29 patients after 4-6 months was 6 kg. **Conclusion:** HIV-positive women with tuberculosis have substantial 24-hour deficits in both energy and protein intakes, report significant food insecurity, and frequently fail to gain weight on tuberculosis treatment. Enhanced dietary education together with macronutrient supplementation of 1000 kcal with 40 g protein may be required to improve health outcomes in these women.

**266. Mahenda, D.E. Profile and treatment outcome of patients with carcinoma of bladder as seen at Muhimbili National and Tumaini Hospitals, in Dar es Salaam, Tanzania. Master of Medicine (Urology). Dissertation.2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction** -Bladder cancer is ninth in worldwide cancer incidence. Approximately 356,000 new bladder cancer cases occurred worldwide in 2002. Globally men are more commonly affected than women with a male/female ratio of 10:3. The incidence rate in Tanzania is projected to be more than 3.7/100, 000], but more than 90% of new cases occur in persons 55 years of age or higher [1]. Globally it is estimated that 145,000 patients die from bladder cancer annually. Cigarette smoking and occupational exposure to urothelial carcinogens are the main risk factors in the US and Europe, but *Schistosoma haematobium* infestation is the main risk factor in Schistosoma endemic areas. Bladder cancer presents with haematuria and irritative symptoms. Transitional cell carcinoma is the commonest histological finding in the developed world and squamous cell carcinoma is associated with Bilharzial bladder cancer are more in the developing countries. **Objectives-** This study documents on the profile and early treatment outcome of patients with carcinoma of the urinary bladder as seen in two hospitals (Muhimbili National hospital and Tumaini) in Dar es Salaam from March 2012 to December 2012. **Methodology:** A descriptive, prospective, hospital-based study involving observation of patients from admission to outcome of management at discharge or death was carried out. Consecutive admissions of patients with bladder cancer attended at urology unit at the department of surgery Muhimbili National Hospital, and Tumaini hospital were enrolled in the study. The study was conducted from March to December 2012. The data were analyzed using SPSS version 16 software. **Results:** A total of 67 bladder cancer patients were enrolled during the study period. Males were 25 and females were 42 with male to female ratio of 1:1.7. The age range was from 30 to 80 years with the mean age of 54.31 years. Twenty two patients (32.8%) were in the age group of 60 to 69. Fifteen (34.9%) of patients in age group between 60 and 69 lived in high risk areas and twenty one (35.6%) in the same age group had high risk occupation. Cigarette smoking and Schistosoma infestation were common associated factors among patients who had squamous cell carcinoma. All patients who had transitional cell carcinoma presented with blood in urine while

39(58.2%) of squamous cell carcinoma patients had blood in urine as their clinical presentation. The ultrasound scan was able to pick bladder mass in 60 patients among the 67. However cystoscopy detected tumour in all 67 patients. There were four histological types in all patients of bladder cancer, squamous cell carcinoma 47 (70.1%), transitional cell carcinoma 16(23.9%), Adenocarcinoma 3 and Adenosquamous 1. The tumours were either well or moderately differentiated. In this study nearly half of the patients presented with clinical stage 4 diseases (46.3%). Among all 67 patients 13 (26.5%) had cystectomy and 3 (6.1%) had TURBT, the rest had palliation either in the form of chemoradiotherapy or home palliative care (16(12.2%) and 27 (55.1%) respectively. Anaemia was the leading complication (30.5%). Among 67 bladder cancer patients 33 (49.3%) died. Five (15.2%) died of renal failure and 18 (54.5%) died of advanced bladder cancer. There was no patient who absconded as all patients were called using either their personal telephone number or their close relative's telephone number. **Conclusions:** Women were more affected by the disease than men, *Schistosoma* infestation was the commonest risk factor for bladder cancer development. Haematuria was the commonest clinical presentation followed by irritative urinary symptoms; the disease was detected by ultrasound scan which was readily available, and affordable. Punch biopsy was the leading method of obtaining tissue specimen for histology diagnosis, and SCC was the leading histological type of bladder cancer. Most of the patients came at an advanced stage, thus few of them had surgical treatment. Wound sepsis and dehiscence were the commonest complication for those who underwent cystectomy and urinary diversion, and 49% of all patients died before treatment. **Recommendations:** The findings of this study with limitation of short duration have come up with the following recommendations: There is a need for a long duration study especially to get proper treatment outcome of a disease. Monitor for possible exposure to *Schistoma heamatobium* infestation and advice the prevention measures. Mass campaign for possible elimination of *Schistoma heamatobium* infestation. Early diagnosis of patients with bladder cancer will improve their treatment outcome. Create awareness to primary and secondary referring health facilities on early diagnosis of bladder cancer. CT scan for clinical staging of a disease can be used to supplement examination under anesthesia for clinical staging of a disease.

**267. Mahenge, B., Likindikoki, S., Stöckl, H., Mbwambo, J. Intimate partner violence during pregnancy and associated mental health symptoms among pregnant women in Tanzania: A cross-sectional study. *BJOG: An International Journal of Obstetrics and Gynaecology*, 2013. 120 (8): pp. 940-946.**

**Objective:** Violence against pregnant women is a prevalent issue with severe health implications, especially during pregnancy. This study seeks to determine the prevalence of intimate partner violence against women during pregnancy and its associated mental health symptoms. Design Cross-sectional survey conducted from December 2011 to April 2012. Setting Muhimbili National Hospital antenatal clinic in Dar es Salaam, Tanzania. Sample 1180 pregnant antenatal care patients. **Methods** Trained interviewers conducted face-to-face standardised interviews with the women in a private room prior to their antenatal care appointment. (PTSD), anxiety and depressive symptoms were assessed through the Conflict Tactics Scale, the John Hopkins Symptom Checklist (25)

and the Posttraumatic Diagnostic Scale. Main outcome measures The Conflict Tactics Scale, the John Hopkins Symptom Checklist (25) and the Posttraumatic Diagnostic Scale. **Results** Of the 1180 women who were interviewed, 27% reported experiencing both physical and sexual intimate partner violence in the index pregnancy, with 18% reporting physical violence and 20% reporting sexual violence. After adjusting for the sociodemographic characteristics of women, women who experienced physical and/or sexual intimate partner violence during pregnancy were significantly more likely to have moderate PTSD (AOR 2.94, 95% CI 1.71-5.06), anxiety (AOR 3.98, 95% CI 2.85-5.57) and depressive (AOR 3.31, 95% CI 2.39-4.593) symptoms than women who did not report physical and/or sexual intimate partner violence during pregnancy. **Conclusions** About three out of ten women experienced physical or sexual intimate partner violence during pregnancy by an intimate partner, which was significantly associated with poor mental health symptoms. These rates are alarming, and justify training and education of antenatal care providers to raise awareness.

268. **Mahiti, G. R., Mkoka, D., Mbekenga, C., Hurting, A., Angwara D. K., Goicolea, I. Women's perceptions on antenatal, delivery and postpartum services in rural Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Maternal health care provision remains one of the main challenges in developing countries. Despite the fact that reduction of maternal mortality has been a global health priority, progress to other MDGs is not good. From a rights approach to health, maternal mortality is a sign of States' failure to their female citizens to enjoy the highest standard of maternal health. **Objectives:** The aim of the study was to explore perceptions of the postpartum women towards maternal health services in Kongwa district, Tanzania **Methods:** Qualitative data was gathered from fifteen FGDs with postpartum mothers in Kongwa district, Dodoma, Tanzania. Data was transcribed verbatim. We used open code software programme for coding process. Qualitative content analysis was used to analyze data. **Results:** Mothers perceive that, maternal health services are beneficial during pregnancy and delivery. However, awareness of the complications during postpartum and the role that medical services could play during that stage was poor. Ambivalence regarding quality of services offered such as health workers' attitude to patients, their shortage and materials resource shortages such as drugs and equipment and barriers such as transport, and TBAs use for accessing maternal health services' were also revealed **Conclusion:** Women perceive that, maternal health care services could be beneficial during pregnancy and delivery. However, awareness of the complications during postpartum and the role that medical services could play during that stage was poor. The Ministry of Health and social welfare (MOHsw), NGOs and CSOs should sensitize the community on the importance of routine visits to postpartum care. The quality of services was low. The MOHsw should procure drugs and needful equipment in rural areas. Penalizing certain attitudes and practices of staff should be better implemented. Transportation to health facilities is a great challenge. The Ministry of works and transport should improve infrastructure in rural areas.



269. **Mahmoud, M. A. Prevalence of stroke and associated factors among elderly patients admitted at Muhimbili National Hospital. Masters of Medicine (Internal Medicine) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Cerebrovascular disease (CVD) is the third cause of death worldwide and the second cause of disability in adults. Ageing increases the risks for stroke, and several ageing-related changes have been demonstrated to increase the vulnerability to stroke among elderly people, and yet clinical and functional consequences may be compounded by other conditions associated with ageing. Therefore elderly people are more likely to experience stroke. However, stroke is not an inevitable consequence of ageing. By identifying and modifying risk factors among elderly, there are greater opportunities of reducing the prevalence of this condition in this special group of people. **Study Objective:** This study was carried out with the aim of determining the prevalence of and factors for stroke among elderly patients admitted at Muhimbili National Hospital from June to November 2012. **Methods:** A hospital based descriptive cross-sectional study was conducted where by 266 study participants were consecutively enrolled from the admitted elderly patients in general medical wards of the MNH. Structured questionnaire was used for data collection. Data entry and management and statistical analysis were performed using **SPSS version 18.0.** **Results:** A total of 84 (31.6%) of the 266 admitted patients had stroke. Males were slightly more than females 48 (57.1%) than females 36 (42.9%). Patients admitted with moderate stroke 36 (42.9%), as compared to moderate-to-severe stroke 33 (39.3%), severe stroke 8 (9.5%) and minor stroke 5 (6.0%). Majority had ischemic stroke 62 (73.8%). Factors significantly associated with stroke were cigarette smoking, history of hypertension, previous stroke, anaemia and left ventricular hypertrophy on ECG. **Conclusions:** Stroke in elderly is common and preventable. Factors associated with stroke were modifiable traditional risk factors apart from ageing (non-modifiable). **Recommendations:** There is a need to reduce risk factors for stroke among elderly and to establish stroke registry and treatment protocol at Muhimbili National Hospital. The primary preventive strategy should be directed to the ageing population as most of the stroke related factors are modifiable apart from age among the elderly people.

270. **Makani, J., Ofori-Acquah, S. F., Nnodu, O., Wonkam, A., Ohene-Frempong, K.. Sickle Cell Disease: New Opportunities and Challenges in Africa. The Scientific World Journal 2013 (2013), pp16.**

Sickle cell disease (SCD) is one of the most common genetic causes of illness and death in the world. This is a review of SCD in Africa, which bears the highest burden of disease. The first section provides an introduction to the molecular basis of SCD and the pathophysiological mechanism of selected clinical events. The second section discusses the epidemiology of the disease (prevalence, morbidity, and mortality), at global level and within Africa. The third section discusses the laboratory diagnosis and management

of SCD, emphasizing strategies that have been proven to be effective in areas with limited resources. Throughout the review, specific activities that require evidence to guide healthcare in Africa, as well as strategic areas for further research, will be highlighted.

**271. Makaranga, R M. Variation of branching pattern of middle cerebral artery among Tanzanian cadavers. Master of Sciences (Human Anatomy) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

The branches of middle cerebral artery are mostly the sites for aneurysms and the accessories arising from it are usually used as collaterals, therefore during surgical procedures it is necessary to produce the working place sufficiently and to prevent ischemic complication by avoiding injury to those early branches. So there is a need to know the anatomy of the middle cerebral artery, which is the common site for the development of these aneurysms. Knowledge on the early branches and the MCA, the size of these branches and the branching pattern will help surgeons to take necessary precautions in treating these neurosurgical pathologies. Also knowing the branching pattern of the middle cerebral artery will help the radiologists in interpreting the cranial magnetic resonance angiographies. The aim of this study was to study the variation of the branching pattern of middle cerebral artery among Tanzanian cadavers, and postmortem specimens. In this study the branching pattern of the middle cerebral artery were studied among 70 human cadavers at MNH and dissection rooms found in medical schools in Dar es Salaam and Ifakara. The study cases were taken regardless of their age and sex differences, this was a descriptive cross sectional study, in all these study subjects a coronal incision of the skull were made to expose the brain and the middle cerebral artery was identified from the point it branched the internal carotid artery, we therefore measured the length of the middle cerebral artery using a tape measure and determined the branching pattern of the middle cerebral artery. All 70 brains had bilateral middle cerebral arteries which were continuous from the internal carotid arteries. In 50(71%) of the cases branched within the temporal region, while in 20 (29%) of the cases branched within the frontal region. In 58(83%) cases terminated by bifurcation while the rest of arteries, 12(17%) terminated by trifurcation, and also this study revealed that the average length of the middle cerebral artery from its origin to different parts of termination is 10.5cm, further the study revealed that 2(3%) of the cases showed accessory arteries arising from the prebifurcation region. This study has managed to determine the branching pattern of the middle cerebral artery and these findings will assist clinicians in making proper and appropriate diagnosis of aneurysms and hence proper treatment, also further studies should be done involving larger sample sizes.

**272. Makene, P. J. Prevalence of bacterial vaginosis and associated factors among women with preterm labour at Muhimbili National Hospital. Masters of Medicine (Obstetrics and Gynecology). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

Bacterial vaginosis (BV), is a clinical syndrome resulting from replacement of the normal Hydrogen-peroxide (H<sub>2</sub>O<sub>2</sub>) producing Lactobacillus species with a higher concentration of anaerobic bacteria like *Prevotella* and *Mobilincus sp*, *Gadnerella vaginalis* and *mycoplasma hominis*. It is characterized by an increase of vaginal discharge with no obvious inflammation of the vagina. It represents about 40% to 60% of all cases of vaginitis, and it is thought to be more common than either Vulvovaginal candidiasis or Trichomoniasis. BV is being associated with some serious obstetric risks like premature labor, low birth-weight, chorioamnionitis, and infection of the uterus post delivery. A wide range of prevalence has been reported in studies done in various parts of the world ranging from 6.8% to 28.5%, in pregnant women and 32.8% to 62.9% in non pregnant women. This study was aimed at documenting the magnitude of BV among women with premature labor at the gestation age of least seven months pregnancy up to 36 weeks admitted at MNH labor ward and highlights the factors associated with it. A total of 206 patients were enrolled and the diagnosis of BV was done according to the clinical Amstel's criteria. The prevalence of BV in this study was found to be 39.2%. Women with history of abnormal vaginal discharge were fifteen times more likely to have BV as compared to those without abnormal vaginal discharge (OR 15, 95% CI 6.7-37, P= <0.001), while women who had no more than primary school education or housewives were over twice as likely to have BV (OR 2.07, 95% CI 1.18-3.66, P=0.012). HIV positive women had also a twofold increased risk of getting BV when compared to HIV negative women. (OR 2.76, 95%CI 1.02-7.46, P=0.046) There was a weak or no association between BV and such factors like low socio-economic status (being in the lowermost three wealth quintiles), history of recent antibiotics use, primigravidity, being in a polygamous marriage or being married or a history of previous miscarriage. **In conclusion**, BV appears to occur in a great magnitude in patients with premature delivery in our setting. The study therefore recommends that medical practitioners develop a high suspicion index for pregnant women with abnormal vaginal discharges. Besides, policy makers should probably include screening and treatment for BV in the future policy of Antenatal care package.

**273. Makenya, F.B. Factors associated with medicines wastage at Muhimbili National Hospital. Master of Science (Pharmaceutical Management) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Background:** Medicines wastage is a common problem in many health care delivery systems. It refers to medicines remaining without being administered to any patient. Improper management of medicines leads to medicine wastage. In many health care settings, the extent of medicine wastage is less known. **Study objectives:** General objective of this study was to assess medicines wastage and its associated factors at Muhimbili National Hospital. The specific objectives were to determine major types of medicines that were wasted, to identify factors contributing towards the wastage and finally to estimate the financial implication of medicines which were wasted. **Methodology:** The study was a cross sectional carried out in medical wards of internal medicine department and one OPD dispensing unit. The study population involved patient medical files, tracer medicines, nurses and pharmacists. Four hundred fifty nine patient files were analyzed for last inpatient treatment information for the year 2012.

Furthermore 49 health care workers (nurses and pharmacists) who consented to participate were self-administered with a questionnaire to find out their medicine wastage awareness. Medicines remained in medical wards stated to be leftovers were observed, whereas physical inventories and ledger balance of twenty tracer medicines was carried out in outpatient dispensing unit. Finally the data were analyzed using SPSS version 20 to identify major types of medicines wasted, contributing factors and financial implications. **Results:** About 56.3% of medicines prescribed were dispensed to patients. Out of the dispensed medicines, 730 medicines were wasted. Anti-infective medicines wastage was 18.9%, cardiovascular medicines (8.9%) and the other categories was 23.7% of the total medicines dispensed ( $p=0.0001$ ). The factors identified for the medicines wastage were excess amount provided to patients (44%), pilferage (26.5%), patient death (24%) and change/stop of medicines due to various factors was 5.5%. The value of medicines sold to patients was 7,828,370.20 Tsh. out of which a sum of 1,804,686.40 Tsh. corresponding to 23.1% of the value of dispensed medicines was wasted. Underlying factors were excess amount of medicines provided to patients, patient death, change/stop order from prescribers and pilferage. There is a need to contain medicine wastage in medical wards in order to improve medicines management. A patient was 7,828,370.20 Tsh. out of which a sum of 1,804,686.40 Tsh. corresponding to 23.1% of the value of dispensed medicines was wasted. **Conclusion:** Wastage of medicine was observed in medical wards. The major underlying factors were excess amount of medicines provided to patients, patient death, change/stop order from prescribers and pilferage. There is a need to contain medicine wastage in medical wards in order to improve medicines management.

**274. Mkoka, D. A. Partnership in governing Implementation of Emergency Obstetric Care. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Many health policies developed internationally often become adopted at national level and are implemented locally. A decentralized district health system led by a district health management team becomes responsible for implementing such policies. **Objectives:** This study aimed at exploring the experiences of district health management team in implementing Emergency Obstetric Care (EmOC) and identifies emerging governance aspects that need immediate attention for effective health policies implementation. **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 board and NGO representatives. Documentary reviews and observation was done to supplement the data. All the materials were analysed using qualitative content analysis approach. **Results:** It was reported that implementation of EmOC was a process accompanied by achievements and challenges. Achievements included increased institutional delivery, increased number of ambulances, training service providers on EmOC and building new rural health centre for comprehensive emergency obstetric care. Challenges were related to governance issues at different levels including delay in disbursement of funds from the central government, shortage of health workers, unclear mechanisms for accountability, lack of incentives to motivate

overburdened staffs and lack of working guidelines for partnership. **Conclusion:** Implementing EmOC is a process accompanied by challenges that need multiple partners approach to address them. However to have effective partnership, the roles and responsibilities of each partner should be well stipulated in a clear working framework within the district health system.

275. Makubi, A., Okuma, J., Spiegelman, D., Hawkins, C., Darling, A. M., Jackson, E., Fawzi, W. Burden and Determinants of Severe Anemia among HIV-Infected Adults Results from a Large Urban HIV Program in Tanzania, East Africa. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*, 2013.

**Background and Methods:** This cross-sectional study aimed at determining the prevalence and risk factors for severe anemia, severe microcytic anemia, and severe normocytic anemia among HIV-infected individuals aged >15 years. Univariate and multivariate analyses were performed to identify the risk factors for anemia. **Results:** Data from 40 408 patients were analyzed, showing an overall prevalence of 22% for severe anemia. The risk of developing severe anemia increased by 49% among patients with a body mass index of <18.5 kg/m<sup>2</sup>, by approximately 2-fold among patients with the World Health Organization (WHO) stage III, and by 3-fold among patients with WHO stage IV illness. Severe normocytic anemia was uniquely increased among patients aged ≥50 years, among those with chronic diarrhea and Kaposi sarcoma, and those taking cotrimoxazole. **Conclusion:** There was a high prevalence of severe anemia among adults infected with HIV. Focused identification of anemia should be based on the hemoglobin and mean corpuscular volume measurements.

276. Makuta, B. J. Stock management of emergency obstetric care products in public health facilities in Dar es Salaam region, Tanzania. Masters of Science (Pharmaceutical Management) Dissertation 2013. *Muhimbili University of Health and Allied Sciences. Dar es salaam.*

**Background:** In developing countries most women die from pregnancy related complications. In Tanzania maternal deaths is caused by haemorrhage, obstructed labour, unsafe abortion, infection (sepsis), and eclampsia (pregnancy induced hypertension). Indirect causes like malaria, HIV and anaemia also contribute to maternal death. All these lives could be saved if affordable, good quality obstetric care were available 24 hours a day, in the presence of skilled birth attendant and available and accessible medicines and medical supplies for emergency obstetric care. **Aim of the study:** To assess the availability and stock management of emergency obstetric care products in public health facilities. **Methods and materials:** A Descriptive cross-sectional study was conducted in the public health facilities selected in a stratified random sampling technique to represent the public health facilities found in three municipalities of Dar es Salaam region. The study population included drug store

managers, nurses in charge of the labour ward and pregnant women admitted and waiting to give birth (in hospitals), and those present at the facility on the day of visit. The Inventory Management Assessment Tool, a well validated tool of MSH was used to assess the availability of tracer products for the past three months at surveyed health facilities; Questionnaires were used to interview health workers and pregnant women. Data was collected between April 10<sup>th</sup> and May 29<sup>th</sup> 2013, after obtaining consent from the study participants. **Results:** The availability of EmOC products was found to be low at the health facilities; i.e. parental uterotonics by 19%, parenteral antibiotics 23.8%, parenteral anticonvulsants 33.3%. Most anti anaemic drugs were seen to be present by 66.7% at the health facilities. Medical supplies showed a significant low availability as well. Most pregnant women were asked to bring in their items for delivery and majorities were able to bring the items that they were asked to bring before they gave birth. The knowledge of the drug store managers on stock management was found to be low. Oxytocin was found to be stored either directly on the floor, in metallic trays or in cool boxes which uses gas as a source of power. The results revealed that the storage condition at the labour ward in hospitals was dissatisfactory as compared to the health centre and dispensary levels where it was very dissatisfactory. **Conclusion:** The availability of EMCOR products was found to be low at the surveyed health facilities. The consumption of EMCOR products in the labour wards was found to be lower than the real actual consumption. The storage conditions in the labour wards were very dissatisfactory. Pregnant women were asked to bring in their own products for delivery. The present result shows the stock management of emergency obstetric care products was poor and the products were kept in an inadequate storage area.

**277. Malibiche, T.C. To determine factors influencing laboratory diagnosis of malaria in Lindi region hospitals, 2012. Master of Science (Epidemiology and Laboratory Management) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background;** Malaria remains an important public health problem. Globally it accounts for 219 Million cases and 660,000 deaths, majority under 5 years. Africa continent contributing 90% of all deaths, it is estimated that, malaria accounts for 50% of outpatient, 20% of admissions in Sub Saharan Africa. Tanzania reporting 120,000 patients annually of whom 80,000 occur in children below 5 years of age. This study was carried out to determine factors influencing laboratory diagnosis of malaria in hospitals. **Methods:** Cross sectional quantitative study conducted from October to December 2012 in three Hospitals, Lindi Region. Patients, clinician and laboratory personnel were interviewed for their practice and quality of malaria patient management. Two thick blood smears were collected from patients, stained and examine by laboratory technologist at the study site and Bagamoyo – Ifakara research institute Laboratory. **Results:** Total of 479 patients, 28 clinicians and 17 laboratory personnel were recruited, Patients mean age was 25 years  $\pm$ STDev 23years, Female 288 (60.1%), Male 191 (39.9%). Clinicians mean age was 38 yrs  $\pm$ STDev 10.5 years, Female 16 (57.1%) Male 12 (42.9 %) Laboratory personnel, mean age was 25 years  $\pm$ STDev 10.4 years, Female 2 (11.8 %), Male 15(88.2%). Among 479 patients tested for malaria, 42 (8.8%) were positive for malaria compared to 20 (4.2%) obtained from reference laboratory with

33.3% PPV 94% NPV. Of the 17 laboratory personnel, 52% had no form of continue education in the field of malaria. There is only 26.3% of the required staff in the study area. Good prepared smear were 1.7 times likely to have given the correct results, while good staining were more likely to give correct results (P value 0.01), Correct smear microscopy was more probable to be reported by that technician who cleaned microscope before use (P value <0.001). Though 60.7% of clinicians mentioned to trust laboratory results; 4.6% of patients were given antimalarial prior laboratory test and 26.3% treated based on clinical diagnosis regardless of smear negative result. **Conclusion and Recommendations:** Malaria Laboratory results are more likely to be compromised by inadequate trained and over-worked laboratory personnel. Laboratory results contribute little to the patients' management. Skilled staff could improve laboratory results and hence patient management.

**278. Malichewe, C. V. Survival of patients with head and neck cancer-a retrospective study: a case of the Dar Es Salaam Ocean Road Cancer Institute (ORCI). Master of Medicine (Clinical Oncology). Dissertation. 20013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Worldwide Head and Neck cancer (HNC) is the 6<sup>th</sup> most frequent cancer, with an estimated world incidence of over 600,000 new cases per year and 300,000 deaths yearly. In Tanzania there is no population based (community wide) data are available to show the true magnitude and burden of the disease. Data from Ocean Road Cancer Institute show that HNC is the 5<sup>th</sup> most common malignancy. Tobacco has been implicated as a risk factor for Head and Neck tumour sites; other factor that has been associated with Head and Neck cancer includes Alcohol, Human Papilloma Virus, Epstein Barr virus and hereditary syndromes. Studies on survival of Head and Neck cancer patients from developed countries showed that Socio demographic factors, clinic pathologic factors and treatment modalities are associated with 3 and 5 year survival rates; however there is no information in Tanzania or at ORCI, the only centre for cancer treatment in Tanzania on survival and its associate factors. The knowledge of these factors for survival in HNC influences the public awareness on the modes of prevention as well as evidence based choice of therapy to be used in Tanzania. **Broad Objective:** To determine the survival rate and factors associated with survival of Head and Neck cancer patients at ORCI between Jan 2009 to December 2011. **Methods:** This was a Retrospective Descriptive study conducted at ORCI, the only centre for treatment of cancer in Tanzania. A total of 200 random selected files of the patients with diagnosis of Squamous Cell Carcinoma of Head and Neck treated between 1<sup>st</sup> January, 2009 to 31<sup>st</sup> December, 2011 were reviewed. A standardised Questionnaire was used to obtain Socio demographic characteristics, clinic pathologic characteristics and different treatment modalities that were used in the treatment of the patients. **Results:** The majority of HNC patients studied were above 56 years 43%, of these males were 76.6%. The Overall survival was 59%, factors seen to be associated with survival in this study were Stage at diagnosis with (P value =0.003), Anatomical site of the tumour (P value =0.038) and Total amount of radiation dose given (P value = 0.043). **Conclusion:** Early stages of Head and Neck disease, Anatomical sites of the disease and Standard high Radiation doses of >40Gy are associated with longer survival in patients with HNC. The effect of

socio demographic characteristics on HNC survival should be considered in the future prospective studies.

279. Malmberg, M., Ferreira, P.E., Tarning, J., Ursing, J., Ngasala, B., Björkman, A., Mårtensson, A., Gil, J.P. **Plasmodium falciparum drug resistance phenotype as assessed by patient antimalarial drug levels and its association with pfmdr1 polymorphisms.** *Journal of Infectious Diseases*, 2013;207(5), pp. 842-847.

**Background:** Multidrug-resistant *Plasmodium falciparum* is a major threat to global malaria control. Parasites develop resistance by gradually acquiring genetic polymorphisms that decrease drug susceptibility. The aim of this study was to investigate the extent to which parasites with different genetic characteristics are able to withstand individual drug blood concentrations. **Methods.** We analyzed 2 clinical trials that assessed the efficacy and effectiveness of artemether-lumefantrine. As a proof of concept, we used measured day 7 lumefantrine concentrations to estimate the concentrations at which reinfections multiplied. *P. falciparum* multidrug resistance gene 1 (pfmdr1) genotypes of these parasites were then correlated to drug susceptibility. **Results.** Reinfesting parasites with the pfmdr1 N86/184F/D1246 haplotype were able to withstand lumefantrine blood concentrations 15-fold higher than those with the 86Y/Y184/1246Y haplotype. **Conclusions.** By estimating drug concentrations, we were able to quantify the contribution of pfmdr1 single-nucleotide polymorphisms to reduced lumefantrine susceptibility. The method can be applied to all long-half-life antimalarial drugs, enables early detection of *P. falciparum* with reduced drug susceptibility in vivo, and represents a novel way for unveiling molecular markers of antimalarial drug resistance.

280. Malmberg, M., Ngasala, B., Ferreira, P.E., Larsson, E., Jovel, I., Hjalmarsson, A., Petzold, M., Premji, Z., Gi, J.P., Björkman, A., Mårtensson, A. **Temporal trends of molecular markers associated with artemether-lumefantrine tolerance/resistance in Bagamoyo District, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Development and spread of *Plasmodium falciparum* resistance to artemisinin-based combination therapy (ACT) constitutes a major threat to recent global malaria control achievements. Surveillance of molecular markers could act as an early warning system of ACT-resistance before clinical treatment failures are apparent. **Objectives:** The aim of this study was to analyse temporal trends of established genotypes associated with artemether-lumefantrine tolerance/resistance before and after its deployment as first-line treatment for uncomplicated malaria in Tanzania 2006. **Methods:** The aim of this study was to analyse temporal trends of established genotypes associated with artemether-lumefantrine tolerance/resistance before and after its deployment as first-line treatment for uncomplicated malaria in Tanzania 2006. **Results:** There was a statistically significant yearly increase of pfmdr1 N86, 184F, D1246 and pfprt K76 between 2006-2011 from 14% to 61% (yearly OR=1.38 [95% CI 1.25-1.52] p < 0.001). Unlike for the pfmdr1 SNP, a significant increase of pfprt K76 was observed



already between 2004-2006, from 26% to 49% (OR=1.68 [95% CI 1.17-2.40] p=0.005). From 2006 to 2011 the pfmdr1 NFD haplotype increased from 10% to 37% (OR=1.25 [95% CI 1.12-1.39] p. **Conclusion:** The temporal selection of molecular markers associated with artemether-lumefantrine tolerance/resistance may represent an early warning sign of impaired future drug efficacy. This calls for stringent surveillance of artemether-lumefantrine efficacy in Tanzania and emphasizes the importance of molecular surveillance as a complement to standard in vivo trials

281. **Malmberg, M., Ngasala, B., Ferreira, P.E., Larsson, E., Jovel, I. , Hjalmarsson, A., Petzold, M., Premji, Z., Gil, J.P., Björkman, A., Mårtensson, A.** Temporal trends of molecular markers associated with artemether- lumefantrine tolerance/resistance in Bagamoyo district, Tanzania. *MalariaJournal*, 2013; 12 , 103.

**Background:** Development and spread of Plasmodium falciparum resistance to artemisinin-based combination therapy (ACT) constitutes a major threat to recent global malaria control achievements. Surveillance of molecular markers could act as an early warning system of ACT-resistance before clinical treatment failures are apparent. The aim of this study was to analyse temporal trends of established genotypes associated with artemether-lumefantrine tolerance/resistance before and after its deployment as first-line treatment for uncomplicated malaria in Tanzania 2006. **Methods.** Single nucleotide polymorphisms in the P. falciparum multidrug resistance gene 1 (pfmdr1) N86Y, Y184F, D1246Y and P. falciparum chloroquine transporter gene (pfcr1) K76T were analysed from dried blood spots collected during six consecutive studies from children with uncomplicated P. falciparum malaria in Fukayosi village, Bagamoyo District, Tanzania, between 2004-2011. **Results:** There was a statistically significant yearly increase of pfmdr1 N86, 184F, D1246 and pfcr1 K76 between 2006-2011 from 14% to 61% (yearly OR = 1.38 [95% CI 1.25-1.52] p < 0.0001), 14% to 35% (OR = 1.17 [95% CI 1.07-1.30] p = 0.001), 54% to 85% (OR = 1.21 [95% CI 1.03-1.42] p = 0.016) and 49% to 85% (OR = 1.33 [95% CI 1.17-1.51] p < 0.0001), respectively. Unlike for the pfmdr1 SNP, a significant increase of pfcr1 K76 was observed already between 2004-2006, from 26% to 49% (OR = 1.68 [95% CI 1.17-2.40] p = 0.005). From 2006 to 2011 the pfmdr1 NFD haplotype increased from 10% to 37% (OR = 1.25 [95% CI 1.12-1.39] p < 0.0001), whereas the YYY haplotype decreased from 31% to 6% (OR = 0.73 [95% CI 0.56-0.98] p = 0.018). All 390 successfully analysed samples had one copy of the pfmdr1 gene. **Conclusion:** The temporal selection of molecular markers associated with artemether-lumefantrine tolerance/resistance may represent an early warning sign of impaired future drug efficacy. This calls for stringent surveillance of artemether-lumefantrine efficacy in Tanzania and emphasizes the importance of molecular surveillance as a complement to standard in vivo trials.

282. **Mamuya, S., Bratveit, M., Moen, B.** Dust and respiratory health among male and female workers in Tanzania dusty industries-NUFU support. 15<sup>th</sup> Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** The project on dust and respiratory health among was conducted between July 2007 and 2011 by University of Bergen and MUHAS. Respiratory disorders due to dust exposures are increasing especially in developing countries **Objectives:** To build capacity of MUHAS faculties to enable them train and conduct research in the area of OHS by assessing the dusty industries on exposure and respiratory health **Methods:** Suitable candidates were recruited from Tanzania to pursue MPhil and PhD programs at University of Bergen. Dusty industries such as Cement, Sisal and coffee were identified. Cross sectional studies were conducted. Respiratory questionnaire was administered among workers. Lung function indices were captured by spirometers well calibrated. Dust samples were collected using SKC pumps on Cellulose acetate and PVC filters. Dust was analysed in the laboratory in Euro fins Finland and Lulea University in Sweden. SPSS with various statistical tests were performed for assessing the relationship between exposure and respiratory symptoms .A criterion for significant differences was assumed when p value was less than 0.05.**Results:** A total of 13 scientific manuscripts were published in international journals. One female Tanzania completed PhD successfully, and another female and a male Tanzanians to complete PhD in autumn 2013. Significantly high dust and end toxin levels were noted to among sisal and coffee dust samples. High respiratory symptoms were also noted among workers in dust factory compared to referent factories. Reduced lung functions among workers in dust industries were also noted. **Conclusion:** The North South cooperation contributed towards capacity building for Occupational Health and Safety for Muhimbili University, and Tanzania at large. Dust control mechanisms to be instituted so as to safeguard the health of workers in dusty industries.

**283. Mamuya, S. H. Respiratory symptoms and inflammation among block workers in Kilimanjaro volcanic mine sites, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Volcanic building blocks have been exploited extensively by the population living in the East African Region for many years. The miners use poor hand tools which produce dust that may contribute to respiratory health problems. **Objectives:** To assess respiratory inflammation and symptoms among volcanic block workers in Kilimanjaro **Methods:** A cross sectional study was undertaken in 2010 involving 91 male and female workers. Fractional exhaled nitric oxide (FENO) as a marker of airway inflammation were measured with a NIOX MINO device among non-smoking, exposed workers (n=38) and controls (n=39). Personal samples of total dust (n=28) were collected in the breathing zone of the miners. Data was analysed by chi square and logistic regression for categorical variables while linear regression was used for continuous variables. The criterion for significant association was P **Results:** Mine workers had significantly higher prevalence of acute cough and red eyes compared to controls. Higher prevalence's of chronic respiratory symptoms were also noted among mine workers compared to controls, though not statistically significant. Exposed male workers had higher mean values of FENO than control males (27.9 ppb vs. 16.9 ppb, respectively). Among females there was a slight, non-significant difference between exposed and control. The ANOVA Boniferroni test showed statistical significant difference in mean FENO between workers cutting and shaping volcanic blocks and

controls (P=0.005). Logistic regression analysis showed that exposed miners had significantly higher odds of FENO>25ppb compared to controls [OR=5.4 95CI (1.6-18.9)], while controlling for age and sex. **Conclusion:** The study showed significant association between volcanic dust exposure, acute respiratory symptoms and increased FENO, indicating inflammatory responses in the respiratory system. There is a need for longitudinal study support any causal relationships between volcanic dust exposure and respiratory inflammation.

**284. Manyanga, V. P. Prevalence of malaria and anaemia among HIV infected pregnant women using co-trimoxazole prophylaxis in Kinondoni Municipality. Master of Pharmacy (Hospital and Clinical Pharmacy). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** HIV-infected pregnant women are particularly more susceptible to the deleterious effects of malaria infection particularly anaemia. The Ministry of Health introduced a daily co-trimoxazole prophylaxis among HIV infected pregnant women to prevent opportunistic infections and malaria in 2011. **Objective:** To determine the prevalence and the associated factors of malaria infection and anaemia among HIV infected pregnant women using co-trimoxazole prophylaxis. **Methodology:** This was a cross sectional study conducted among HIV-infected pregnant women in eight health facilities in Kinondoni Municipality from February to April 2013. **Results:** A total of 420 subjects with the mean±SD age of 28.2 ±5.2 years were recruited and analyzed. The prevalence of malaria infection was 4.5% (19/420). The proportion of subjects with poor adherence to co-trimoxazole was 50.5% (208/320). Factors that were significantly associated with malaria infection were poor adherence to co-trimoxazole prophylaxis [Adjusted Odds Ratio (AOR) = 6.81, 95%CI=1.35-34.43, P=0.02] and severe anaemia (AOR=10.77, 95%CI=1.38-84.05, P=0.022). The prevalence of anaemia was 54 % (227/420). Factors associated with anaemia were WHO clinical stage II (AOR=3.08, 95%CI=1.46-6.49, P=0.003), WHO clinical stage III or IV (AOR=2.65, 95%CI=1.18-5.95, P=0.018), poor adherence to co-trimoxazole prophylaxis (AOR=1.75, 95%CI=1.03-2.98, P=0.039), malaria infection (AOR=10.36, 95%CI=1.33-80.8, P=0.026) and history of episodes of malaria illness during current pregnancy (AOR=1.75, 95%CI=1.00-3.03 and P=0.048). **Conclusion:** The study showed a low prevalence of malaria; however, a significant proportion of subjects had anaemia. Efforts for monitoring of adherence to co-trimoxazole prophylaxis and mitigation of advanced HIV/AIDS are needed in order to reduce the burden of malaria and anaemia among HIV infected pregnant women.

**285. Maregesi, S., Kagashe, G., Dhokia, D., Maregesi, S. M. Research Article Determination of iron contents in Hibiscus sabdariffa calyces and Kigelia africana fruit. Scholars Academic Journal of Biosciences. 2013; 1(4):108-111.**

Anaemia is one of the most common conditions encountered in primary care. Its consequences, although mild in most cases, are potentially very severe. Anaemia is caused by a number of factors including; dietary deficiency due to low intakes of dietary iron, vitamin B12 and folic acid, inherited disorders or certain infections like malaria. This study aimed at determining the iron contents of the two plants used to treat iron deficiency anaemia in Tanzania namely; *Hibiscus sabdariffa* (calyces) and *Kigelia africana* (fruits). Iron content determination employed Atomic Absorption spectrophotometer. *Hibiscus sabdariffa* was found to contain a higher amount of iron content (164.78 mg/kg) than *Kigelia africana* (4.14 mg/kg). Presence of iron in both plants, justify their nutraceutical use as haemoglobin enhancer.

**286. Maregesi, S., Mwangi, B. Medicinal plants used for abortion and inducing/reducing labour pain in Njombe District. Tanzania. 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013**

**Aim:** The aim of this study was to document medicinal plants used for abortion and inducement/reduction of labour pain in three villages (Msombe, Imalinyi and Igosi) of Kidagula ward in Njombe district. **Methodology:** Information was collected through questionnaires administered to nine Traditional Healers (THs) and seven Traditional Birth Attendants (TBAs). Both the Tanzania national language (Swahili) and local languages (Bena and Hehe) were used during the interview. **Results:** Nineteen plant species, belonging to twelve families were recorded. For each plant species, Vernacular name(s), plant parts, method of preparation and route of administration were given and identification was done by using herbaria specimens. Most of the plants are used for labour pain management (52.6%) compared to abortifacients (31.6%) while the remaining are used for both (17.8%). Plants with highest frequency of mention were *Vernonia amygdalina* and *Ricinus communis* for induction of labour pain and abortion respectively. Leaves were the most preferred plant part (57.9%) followed by roots (15.85%). **Conclusion:** The use of herbs in getting rid of unwanted pregnancies and inducing or reducing labour pain is still in practice. The problem lies on the safety/toxicity of these herbal preparations to the unborn baby and mothers. Studies on pharmacological/toxicity and determination of phytochemical profile have to be conducted. Education for the public on medical hazards pertaining to such practices is essential.

**287. Maro, D., Roberts, H., Machibya, F., Kahabuka, F. K., Mugonzibwa, E. A. Previous toothache, dental visits and caries presence among primary school children in Dar es Salaam. Tanzania Dental Journal, 2013; 17(2), 50-55.**

**Background:** Dental pain is an ache or soreness within or around a tooth. It has a wide range of etiology, the commonest being dental caries. Dental pain is one of the main reasons for seeking dental care. **Objectives:** To assess the relationship between experiences of toothache, dental visits and caries experience among primary school

children in Dar es Salaam. **Subjects and Methods:** This was a cross-sectional study carried out among children attending standard one, two and three at Olympio primary school. Each of these classes had three streams, one stream was randomly picked and all children from selected classes who were present on the examination day were recruited. Structured questionnaires were used to interview children and clinical forms to record findings of clinical examinations which were done under natural daylight. Pain was recorded as ever had toothache or not. Those who reported history of toothache were asked whether they had ever been to a dentist due to toothache. Caries was scored according to WHO criteria, then children were categorized into caries free and having at least one DMFT. Analysis was done using Statistical Package for Social Sciences (SPSS) version 13.0. Frequency tables were generated and Cross tabulations done. Chi-square test was employed to test statistical differences. P-value of  $>0.05$  was set as a level of significance. **Results:** A total of 203 pupils were examined, 57.1% of them being girls. One hundred and twenty (59.1%) children reported toothache experience. Majority were females (55.0%). Among the 120 who reported pain, only 76 (63.33%) had consulted a dentist for toothache. Most (70.94%) of the pupils were found with dental caries which was more prevalent (79.2%) among the children who reported pain experience, than those who did not (59%). The difference was statistically significant. There was no difference in caries presentation between the group which had seen a dentist (78.9%) and those with no history of consulting a dentist (79.5%) for toothache. **Conclusion:** A large proportion of children (59%) reported history of dental pain. Out of those who have had pain 63.3% had consulted a dental professional and of those who had consulted a dentist for dental pain, a significant proportion (79.2%) was found with caries.

**288. Maro, I., Moshi, N., Clavier, O., MacKenzie, T., Kline-Schoder, R., Wilbur, J., Chambers, R., Fellows, A., Jastrzemski, B., Mascari, J, Bakari, M., Matee, M., Musiek, F., Waddell, R. Hearing impairment in hiv-infected individuals in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Recent data suggest that individuals with HIV/AIDS develop hearing problems. The nature of the hearing loss (middle ear, cochlea, central nervous system) and its relationship to treatment is not known. We are currently performing a study of hearing parameters in a cohort of HIV-infected adults and children in Tanzania compared to a group of HIV negative controls. **Objectives:** To determine prevalence of abnormal central and peripheral hearing among HIV-positive patients in Tanzania compared to HIV-negative controls. To determine the nature of any hearing loss and understand its relationship to medications, TB co-infection or other factors. **Methods:** Pure-tone thresholds, distortion product otoacoustic emissions (DPOAEs), tympanometry and a gap detection test were performed using a laptop-based hearing testing system on 664 individuals (100 in the U.S., plus 554 in Dar es Salaam Tanzania including 385 HIV+, 169 HIV-, 169 ART- and 267 ART+ subjects). Subjects completed a video and audio questionnaire about their hearing as well as a health history questionnaire. **Results:** No effects of TB treatment were seen. HIV+ individuals had reduced DPOAE levels compared to HIV-negative individuals, but their hearing thresholds and gap detection thresholds were similar. Within the HIV+ group, those on

ART reported significantly greater difficulties detecting 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 to the ART- group. **Conclusion:** The fact that the ART groups did not differ in measures of peripheral hearing ability (DPOAEs, thresholds), but that the ART+ group had significant more trouble understanding speech and had higher gap detection thresholds, points to a central processing disorder as a cause of the hearing findings.

**289. Masesa, D., Mafwiri, M., Sanyiwa, A., & Sangawe, J. Prevalence and causes of blindness in trachoma endemic area Ruangwa district of Tanzania. *Joecs*, 2013; 14(1).**

**Objective:** To establish the prevalence and causes of blindness. Subjects: One thousand one hundred and seventy three people of all age groups. **Results:** Prevalence of blindness in Ruangwa is 3.5%. The prevalence of blindness increases with advancing age ranging from 1.1% among children 15 years and below to 15.6% among adults aged 60 years and above. Prevalence is higher (8.9%) among people who had never been to school compared to those who had attended primary school (1.5%). The leading causes of blindness are cataract (32.6%) and trachomatous corneal opacities (32.6%). **Conclusion:** The prevalence of blindness in Ruangwa district is a public health problem. The prevalence of blinding cataract and that of blinding trachoma are equal. Recommendation: Prevention of blindness efforts in Ruangwa district should focus equally on cataract and trachoma.

**290. Mashauri, P. M. Factors affecting mental health practice in Dar es Salaam and Dodoma, Tanzania; the Nursing Perspective. Master of Science in Nursing (Mental Health). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** Recently, hospital management teams have experienced and received reports that are highly suggestive of elements of inadequate mental health care. Adverse events such as patient killing one another in the psychiatric wards are one among incidences that indicate the degree or severity of deterioration of the quality of mental health practice. Limited infrastructure makes patients cared for in a non therapeutic milieu; non-conducive working environment for nurses, including high workload, creating more demands from patients and their significant others. These factors compromise the quality of care provided and this affects the motivational factors for nurses working in mental health care. Understanding factors affecting mental health practice will be vital in correcting this anomaly. **Objective:** The study aimed at determining factors affecting mental health nursing practice in Tanzania. **Methodology:** The study deployed a descriptive qualitative design at Mirembe National Hospital for Mental Health and Muhimbili National Hospital. A total of 27 nurses participated in providing information through focused group discussions and in depth interviews were

by 16 nurses were Muhimbili and 11 nurses from Mirembe National Hospital. Also a total of 10 nurses in charges and managers were involved in filling up the institutional quality assessment tool. Sessions were audio recorded, transcribed, analyzed and translated. **Findings:** Un-conducive working environment was the main factors affecting mental health nursing practice in which there was low motivation to nursing staffs, lack of on job training for long time, limited infrastructure in mental health facilities, high workload, unguaranteed safety at work place, and nursing leadership in mental health units affected performance. Other factors included shortage of qualified nurses trained in mental health, limited treatment modalities, poor environments for hospitalized patients, inadequate funding of mental health services and absence of community mental health nursing. It was found that both facilities performed well in Case management for severe psychiatric disorders and length of treatment for substance – related disorders, specifically MNH also performed well in writing the patients’ daily progress report while Mirembe Hospital had few hospital readmissions for psychiatric patients. Generally both institutions performed below standard in most areas assessed hence there is a need to employ some measures to improve the quality of care. **Conclusion and recommendations:** There is a need for the government to provide adequate budget for financing mental health services which could enable to hospital managements improve the working environment and motivate nurses and increase their engagement in their work also to have effective community mental health nursing and training to nurses working in mental health settings. Mental health nursing needs to be provided by well trained and competent nurses in this area. Future research should investigate whether these findings remain consistent in other mental health facilities also there is a need to undergo study to find the impact of patients being enclosed in the wards for most of their hospitalized period.

291. Mashoto, K.O., Mubyazi, G.M., Makundi, E., Mohamed, H., Malebo, H.M. **Estimated risk of HIV acquisition and practice for preventing occupational exposure: A study of healthcare workers at Tumbi and Dodoma Hospitals, Tanzania.***BMC Health Services Research*, 2013; 13 (1): 369.

**Background:** Healthcare workers (HCWs) are at risk of acquiring human immunodeficiency virus (HIV) and other infections via exposure to infectious patients' blood and body fluids. The main objective of this study was to estimate the risk of HIV transmission and examine the practices for preventing occupational exposures among HCWs at Tumbi and Dodoma Hospitals in Tanzania. **Methods.** This study was carried out in two hospitals, namely, Tumbi in Coast Region and Dodoma in Dodoma Region. In each facility, hospital records of occupational exposure to HIV infection and its management were reviewed. In addition, practices to prevent occupational exposure to HIV infection among HCWs were observed. **Results:** The estimated risk of HIV transmission due to needle stick injuries was calculated to be 7 cases per 1,000,000 HCWs-years. Over half of the observed hospital departments did not have guidelines for prevention and management of occupational exposure to HIV infections and lacked well displayed health and safety instructions. Approximately, one-fifth of the hospital departments visited failed to adhere to the instructions pertaining to correlation between waste materials and the corresponding colour coded bag/container/safety box. Seventy

four percent of the hospital departments observed did not display instructions for handling infectious materials. Inappropriate use of gloves, lack of health and safety instructions, and lack of use of eye protective glasses were more frequently observed at Dodoma Hospital than at Tumbi Hospital. **Conclusions:** The poor quality of the hospital records at the two hospitals hampered our effort to characterise the risk of HIV infection acquisition by HCWs. Greater data completeness in hospital records is needed to allow the determination of the actual risk of HIV transmission for HCWs. To further reduce the risk of HIV infection due to occupational exposure, hospitals should be equipped with sufficient personal protective equipment (PPE) and HCWs should be reminded of the importance of adhering to universal precautions.

292. Mashoto, K.O., Mubyazi, G.M., Mohamed, H., Malebo, H.M. **Self-reported occupational exposure to HIV and factors influencing its management practice: A study of healthcare workers in Tumbi and Dodoma Hospitals, Tanzania.** *BMC Health Services Research*, 2013; 13 (1), 276.

**Background:** Blood borne infectious agents such as hepatitis B virus (HBV), hepatitis C virus (HCV) and human immune deficiency virus (HIV) constitute a major occupational hazard for healthcare workers (HCWs). To some degree it is inevitable that HCWs sustain injuries from sharp objects such as needles, scalpels and splintered bone during execution of their duties. However, in Tanzania, there is little or no information on factors that influence the practice of managing occupational exposure to HIV by HCWs. This study was conducted to determine the prevalence of self-reported occupational exposure to HIV among HCWs and explore factors that influence the practice of managing occupational exposure to HIV by HCWs in Tanzania. **Methods.** Self-administered questionnaire was designed to gather information of healthcare workers' occupational exposures in the past 12 months and circumstances in which these injuries occurred. Practice of managing occupational exposure was assessed by the following questions: **Results:** Nearly half of the HCWs had experienced at least one occupational injury in the past 12 months. Though most of the occupational exposures to HIV were experienced by female nurses, non-medical hospital staff received PEP more frequently than nurses and doctors. Doctors and nurses frequently encountered occupational injuries in surgery room and labor room respectively. HCWs with knowledge on the possibility of HIV transmission and those who knew whom to contact in event of occupational exposure to HIV were less likely to have poor practice of managing occupational exposure. **Conclusion:** Needle stick injuries and splashes are common among HCWs at Tumbi and Dodoma hospitals. Knowledge of the risk of HIV transmission due to occupational exposure and knowing whom to contact in event of exposure predicted practice of managing the exposure. Thus provision of health education on occupational exposure may strengthen healthcare workers' practices to manage occupational exposure.

293. Masimba, P., Kituma, E., Klimkait, T., Horvath, E., Stoeckle, M., Hatz, C., Felger, I . **Prevalence of Drug Resistance Mutations and HIV Type 1 Subtypes in an HIV Type 1-Infected Cohort in Rural Tanzania.** *AIDS research and human retroviruses*, 2013; 29(9), 1229-1236.



The development of resistance mutations in drug-targeted HIV-1 genes compromises the success of antiretroviral therapy (ART) programs. Genotyping of these mutations enables adjusted therapeutic decisions both at the individual and population level. We investigated over time the prevalence of HIV-1 primary drug resistance mutations in treatment-naïve patients and described the HIV-1 subtype distribution in a cohort in rural Tanzania at the beginning of the ART rollout in 2005–2007 and later in 2009. Viral RNA was analyzed in 387 baseline plasma samples from treatment-naïve patients over a period of 5 years. The reverse transcriptase (RT) and protease genes were reversely transcribed, polymerase chain reaction (PCR) amplified, and directly sequenced to identify HIV-1 subtypes and single nucleotide polymorphisms associated with drug resistance (DR-SNPs). The prevalence of major DR-SNPs in 2005–2007 in the RT gene was determined: K103N (5.0%), Y181C (2.5%), M184V (2.5%), and G190A (1.7%), and M41L, K65KR, K70KR, and L74LV (0.8%). In samples from 2009 only K103N (3.3%), M184V, and T215FY (0.8%) were detected. Initial frequencies of subtypes C, A, D, and recombinants were 43%, 32%, 18%, and 7%, respectively. Later similar frequencies were found except for the recombinants, which were found twice as often (15%), highlighting the subtype diversity and a relatively stable subtype frequency in the area. DR-SNPs were found at initiation of the cohort despite very low previous ART use in the area. Statistically, frequencies of major mutations did not change significantly over the studied 5-year interval. These mutations could reflect primary resistances and may indicate a possible risk for treatment failure.

**294. Massawe, J.J. Assessment of factors that affect adherence of health workers to Malaria Treatment Policy in Health Facilities in Singida Rural District. Masters of Health Policy and Management. Dissertation . Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** Malaria in Tanzania remains the main cause of morbidity and mortality especially in children below five years of age. The resistance of parasite has resulted into frequent changes in antimalarial regimens in Tanzania, however the adherence of health workers in prescribing antimalarials is likely to be affected by this frequent changes of regimen. The extent to which health workers adhere to malaria treatment policy in Tanzania is not clearly documented. **Objective:** The main objective of this study is to assess factors that affect adherence of health workers on malaria treatment policy in public and private health facilities. **Methodology:** An explorative, cross-sectional study was conducted in the health facilities of Singida Rural District. Convenience sampling technique was applied including: semi structured questionnaires with health workers (n=20) and patient exit interviews (n=240). Also direct observation conducted to health workers using checklist for history taking, counselling and prescription. **Results:** Although 75% of health workers received training, only 13.3% found in private health facilities. Nevertheless 63.7% of clinicians showed to be knowledgeable on malaria treatment policy. The results show that availability of varieties of antimalarials influence health workers adherence to malaria treatment policy. ALU reported to be available in both public and private health facilities; 14.3% of ALU blister prepacked according to

weight found in FBO health facilities. About 62.9% of exit patients showed to be prescribed ALU for treatment of uncomplicated malaria, and 1.9% of them in private health facilities received ALU. ALU was also prescribed correctly by majority of health workers. However 43.9% of exiting patients received ALU were not given instructions to follow when using ALU. About 76.5% were not told of any possible side effects and about 81.3% did not take their first dose at the facility. **Conclusion and Recommendation:** Public-sector health workers have higher knowledge on malaria treatment policy and prescribing practice on recommended antimalarials. Changes in treatment guidelines should be accompanied by subsequent implementation activities involving all sector players in unbiased strategies. Therefore constant supervision should be done to ensure that the policy continues to be effectively implemented.

**295. Massawe S, Sukums, .F, Wangwe, .P, Mpembeni, .R, .QUALMAT Collaborators- University of Heildeberg. Quality Maternal and Newborn Care (QUALMAT): Preliminary experience with the introduction of computer based Clinical Decision Support System (CDSS) in rural primary health care facilities in Lindi district. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Quality Maternal and Newborn (QUALMAT) project is multicentre collaborative intervention study implemented in Burkina Faso, Ghana, and Tanzania in collaboration with the Universities of Heidelberg in Germany, Ghent in Belgium, and Karolinska Institute in Sweden. **Objectives:** To improve the quality maternal and newborn care through the implementation of two interventions, namely i). Computer based Clinical Decision Support System (CDSS) and ii) Performance based incentives to health providers working in primary health care facilities. **Methods:** The study was conducted in Lindi rural district and Mtwara rural as the control. After baseline data collection all health providers from six health centers in Lindi were trained on the use of CDSS for the management of clients during antenatal, intra-partum and immediate postpartum period. Each facility was provided with a laptop installed with the CDSS. The facilities were visited regularly to provide supportive supervision and monitoring of CDSS use. Post intervention data collection will be done after one year of intervention. **Results:** Forty providers including four members of the District Health Management team (CHMT) were trained. Use of CDSS was initiated in May 2012 and the first four months were used for piloting that enabled us to identify and correct errors in data entry. So far the staff shows enthusiasm to use computer and the CDSS. About 1442 pregnant women have been managed using the CDSS, including 919 first visits and 523 revisits and 666 deliveries. We have observed progressive improvement in data quality, improvement in client-provider interaction including counseling on danger signs and on birth plan and emergency preparedness, improved documentation, and increase on correct use of partograph during labour. Challenges include, inadequate computer skills, how to sustain the motivation of providers who perceive CDSS as extra work and in addition there is a constant need for retraining due to frequent staff turnover. **Conclusion:** It is feasible to introduce CDSS technology to remote rural health facilities for improved quality of care. However, the challenges of inadequate computer skills, supportive supervision, and provider motivation have to be addressed.

296. Massawe, S., Mpembeni, R., Wangwe, P., Duysburgh, E. **Quality of intrapartum care in primary health care facilities in two rural districts in south east Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Although Tanzania has made some progress in reducing maternal mortality, the progress has been slow and thus it is considered not on track to achieve MDG5 target by 2015. The maternal mortality is estimated at 454 per 100,000 live births translating to about 8500 maternal deaths annually. Interventions, to reduce maternal and neonatal morbidity and mortality are known and are being implemented. However access to these interventions alone does not guarantee improved health outcomes. These will only be achieved if the quality of existing care is sufficiently high to provide adequate management and treatment and to encourage utilization of provided care. **Objectives:** To assess the quality of maternal health care in two rural districts before and after intervention. **Methods:** This study was done as part of a base line – pre-intervention assessment for Quality of maternal care intervention project (QUALMAT), that is ongoing in Lindi (intervention) and Mtwara (control) rural districts. Quality assessment was done using standard checklist for the infrastructure and availability of equipment and supplies, direct observation of care, and client satisfaction survey for the antenatal and delivery care. The quality assessment will be repeated after two years of interventions. **Results:** We present the results of the intrapartum aspect of the assessment. None of the facilities provided all the BEmOC services. Low quality scores were observed on care and examination of the woman, monitoring during labour and on counseling. The partograph was used in less than half of the facilities, and correct use of partograph was very low at 15%, and 14% in Lindi and Mtwara respectively. There was poor quality of clinical/technical performance on management and treatment of life threatening complications, including antepartum and postpartum haemorrhage and on screening for danger signs. Quality scores reflecting user's experience of care including client provider interaction were low. **Conclusion:** Our findings highlight the need to improve the counseling practices and the clinical and technical performance of health providers, and the need to avail all BEmOC services at primary level facilities.

297. Masumo, R., Bårdsen, A., Åström, A.N. **Developmental defects of enamel in primary teeth and association with early life course events: A study of 6-36 month old children in Manyara, Tanzania. BMC Oral Health, 2013; 13 (1), 21.**

**Background:** Children with low birth weight show an increased prevalence of developmental defects of enamel in the primary dentition that subsequently may predispose to early childhood caries (ECC). Focusing 6-36 months old, the purpose of this study was to assess the frequency of enamel defects in the primary dentition and

identify influences of early life course factors; socio-demographics, birth weight, child's early illness episodes and mothers' perceived size of the child at birth, whilst controlling for more recent life course events in terms of current breastfeeding and oral hygiene. **Methods:** A cross-sectional study was conducted in the high fluoride area of Manyara, northern Tanzania including 1221 child-mother pairs who attended Reproductive and Child Health (RCH) clinics for immunization and/or growth monitoring. After the primary caregivers had completed face to face interviews at the health care facility, children underwent oral clinical examination whereby ECC and developmental defects of enamel were recorded using field criteria. All erupted teeth were examined and the enamel defects were assessed on buccal surfaces according to the modified DDE Index. **Results:** The prevalence of enamel defects was 33.3%. Diffuse opacities were the most common defects identified (23.1%), followed by hypoplasia (7.6%) and demarcated opacities (5.0%). The most frequently affected teeth were the upper central incisors (29.0% - 30.5%), whereas lower central incisors (4.3% to 4.5%) were least frequently affected. Multiple logistic regression analysis, adjusting for confounding the factors revealed that having normal birth weight (equal or more than 2500 g) associated with lower odds of having enamel hypoplasia [OR 0.2 (95% CI 0.1-0.7)]. No statistically significant association occurred between birth weight and diffuse opacities, demarcated opacities or combined DDE. **Conclusion:** Children with the history of low birth weight were more likely than their normal birth weight counterparts to present with enamel hypoplasia. In view of the frequent occurrence of enamel defects and the fact that hypoplasia may constitute a risk factor for future ECC, enamel defects should be included as a dental health indicator in epidemiological studies of children in northern Tanzania.

298. Masumo, R., Bardsen, A., Mashoto, K., Åstrom, A.N. Feeding practice among 6-36 months old in Tanzania and Uganda: Reliability and relationship with early childhood caries, ECC. *Acta Odontologica Scandinavica*, 2013; 71 (5): pp. 1309-1318.

**Objective.** To assess the reproducibility of caregivers' responses to dietary recall from birth and 24-h dietary recall with respect to infants' intake of sugared snacks and to assess whether those assessment methods provide comparable results for groups of infants. Re-test reliability and clinical covariates of time to first exposure of sugared snacks and time to termination of breastfeeding were also examined. It was hypothesized that time to first exposure/termination would vary according to socio-demographic profile and ECC. **Method.** Interviews and clinical oral examinations were carried out in Kampala and Manyara, including 1221 and 816 child-caregiver pairs. Reproducibility was assessed using Cohen's kappa and Intra Class Correlation Coefficient, ICC. Adjusted Cox regression was used to model time to first exposure of sugared snacks and time to termination of breastfeeding. **Results.** Cohen's kappa for intake of sugar items ranged from 0.40-1.0, with no differences observed between average intakes at test-re-test. Mean sugar score based on 24-h recall increased significantly by increasing quartiles of the sugar score based on recall from birth. Cox regression revealed that the odds ratio, OR, for early exposure to various sugared snacks and the ORs for early termination of breastfeeding were significantly smaller in infants with than without ECC. **Conclusion.** Fair-to-good reproducibility was established.

Infant's sugar consumption emerge as early as 6 months of age. Survival of any breastfeeding and non-exposure to sugared snacks was most prolonged among infants with ECC. This has implications for interventions needed to improve feeding habits of infants and toddlers.

**299. Matimbwi, T. J. Assessment of workplace HIV/AIDS Policies and Programme Interventions in Commercial Farms in Iringa Region. Masters of Public Health Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** For about three decades, many companies have been responding to the HIV/AIDS crisis through establishment and implementation of HIV workplace policies and programme interventions. However, little is known about the effectiveness of these policies and programme interventions. **Objective:** The objective of this study was to assess the effectiveness of workplace HIV/AIDS policy and programmes interventions in commercial plantations in Iringa region. **Methodology:** A descriptive cross sectional study was conducted in five commercial plantations. Interviews were conducted with one representative of management from each company and self-administered questionnaires were administered to 273 employees from the commercial plantations. Data obtained was Analysed using Statistical Package for Social Scientist version 17 (SPSS). **Results:** Results showed a high level of knowledge and awareness of organizations HIV/AIDS policies, programme interventions and services among employees. More than three quarters (87.2%) of respondents were aware about the existence of company policy and 77.7% knew its content. Utilisation of the organisational offered programmes and services were very high. A majority 91.2% of respondents reported that condoms made available were utilized by employees. More than half (74.4%) of respondents utilised VCT services at workplace and majority (82.8%) preferring onsite VCT clinic. The study revealed that 76.2% and 76.6% of respondents are satisfied with the HIV prevention and care and treatment services respectively. **Conclusion:** Workplace HIV/AIDS interventions have contributed significantly to the employees' willingness to utilise condoms, VCT and treatment services. HIV/AIDS workplace programme interventions are effective and should be scaled-up to contribute to national efforts of reversing the epidemic.

**300. Matui, G. Environmental conditions affecting the health of children in early childhood care and education (ecce) programs in Kinondoni municipality, Dar es Salaam. Masters of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Despite the increase of reports on poor health care management to children around the globe, little is still known about environmental conditions that affect health of children enrolled in Early Childhood Care and Education (ECCE) programs in the country. This study therefore was designed to assess the environmental conditions affecting the health of children enrolled to ECCE Programs in Kinondoni Municipality, Dar es Salaam. The aim was to assess the level of implementation of national ECCE

standards in registered ECCE programs, specifically by; describing the physical environment of these Programs in respect to required standards that affecting health of the enrolled early age children. **Methods:** Cross-Sectional Quantitative study was conducted in 27 Wards of Kinondoni Municipality using a structured questionnaires and observation checklist. Using trained research assistants data was collected from 152 teachers of 52 ECCE programs in the Municipality. Programs' supervisors at both national and local Government level were also interviewed. **Results:** The study indicated that, environment conditions of studied Programs' in the Municipality is not good enough for health development of enrolled children in respect to required national standards. Out of 52 studied programs, only 50% were located in safer locations (*away from main roads, public services*):37% had poor '*size and safe playground for children*' while 37% had no '*playground*' at all. 69% had poor status of the '*available toilets*' and only 29% had '*clean and safe toilets for children use*'. Moreover, 82% of interviewed teachers were aware of general national ECCE Programs' Environmental Conditions: but unfortunately, high proportional of these 82% teachers were misinformed with *standards for children healthy learning*. **Conclusion and Recommendations:** Conclusively, the study revealed many challenges on Programs' environment conditions; and teachers' competence as basing on set national ECCE standards. The government through the ECD/ ECCE committee must mitigate addressed challenges by mainstreaming health required standard to main ECCE programs. And all teachers are also recommended to be well trained and attend to refresher courses.

**301. Matuja, W. B. P., & Fataki, M. Epilepsy following simple febrile seizure in a rural community in Tanzani. East African Medical Journal, 2013; 88 (12):PP 416-422.**

**Objective:** To study the outcome of subsequent epilepsy following a single uncomplicated febrile seizure in a cohort of children aged six months to six years followed up for a ten year period. Observational prospective cohort study Mahenge epilepsy clinic, Ulanga district, Morogoro region, Tanzania. **Subjects:** Children aged six months to six years living in Ulango District, Morogoro Region, Tanzania. **Results:** A total of 6522 children aged six months to six years lived in the study area. Of these 213 (3%) had experienced one uncomplicated febrile seizures within six months of the commencement of the study. At the end of ten years follow-up period 145(65%) were still living in the study area. Of these 44 (30%) had developed epilepsy giving an equivalent of cumulative incidence rate of 3.8 per 100 person years. The age of onset of first uncomplicated FS between the ages of two to five years was significantly associated with the development of later epilepsy in comparison to other ages  $X^2 = 26.43$ ;  $P < 0.001$ . This difference was significantly accumulative with time of follow-up. The number of recurrent febrile seizures significantly influenced the development of later epilepsy.  $X^2 = 32.3$ ;  $p = < 0.001$  with relative risk (odds ratio 5.4, 95% CI 2.6-11.41  $P < 0.001$ ). A positive family history of FS significantly influenced the development of later epilepsy.  $X^2 P < 0.001$  with relative risk (odds ratio 3.2, 95% CI 2.0-5.1;  $p < 0.001$ ). A positive family history of epilepsy did not significantly influence the development of later epilepsy  $X^2 = 38.1$ ;  $P < 0.212$ . **Conclusion:** Cumulative incidence of epilepsy in rural Tanzanian children following a single uncomplicated FS was small but higher than

that reported in developed countries. This risk was influenced independently by the number of recurrent FS, family history of FS, and the age of onset of the first ever FS.

- 302. Mayani , A .K. Clinical Outcome at One and three Month Post Radiotherapy for Patients With Epidemic Kaposi's Sarcoma at Ocean Road Cancer Institute. Masters of Medicine (Clinical Oncology) Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

Despite a sharp decline in incidence and mortality in developed countries following the introduction of anti-retroviral therapy, Epidemic Kaposi's sarcoma is still posing significant morbidity and mortality among HIV/AIDS patients in poor resource countries. Peak incidence occurs in the economically and most sexually active age group. Radiotherapy is the most commonly used local palliative treatment. Studies on the response and outcome to RT are available in developed countries but this information is very scant in African settings. The magnitude of the problem and the outcome of RT in our settings have not been systematically documented. This study address these gaps. **Objectives.** The study aimed at determining the clinical outcome at one and three months post RT among patients with Epidemic Kaposi's sarcoma at Ocean Road Cancer Institute. **Methodology:** A prospective hospital based cohort study was conducted at Ocean Road Cancer Institute, the only specialized cancer hospital in Tanzania. Participants were enrolled consecutively as they presented to hospital. Demographic characteristics, disease and treatment profiles were clearly documented. Each patient was followed up at one month and three months post radiotherapy. Adverse reaction if any, KS lesions remission and symptomatic relief were documented at each visit in a standardized structured questionnaire. **Results:** A total of 97 patients (44 males, 53 female) with HIV/AIDS related Kaposi's sarcoma were enrolled into the study but only 62 patients met the study criteria for final analysis. Most of the patients, 94.9%, were below 50yrs of age, with peak incidence occurring in the age group of 31- 40yrs, 46.4%. All patients except 1 were in the poor risk group. Majority started ARVs after KS appearance. 62 patients received a single fraction of either 6.0Gy or 8.0Gy from Co 60 machine. Complete disease remission was observed in 8.1 and 16.7% patients at one and three months respectively. Objective Response (CR + PR) was 64.6 and 69.1% a respective follow up while symptomatic objective response was achieved in 80.7 and 78.5%. 2 patients were noted to have grade 4 skin reaction at one month follow up. **Conclusion and Recommendations:** Most of our patients presented with late disease. A single fraction of either 6.0Gy or 8.0Gy offered very significant symptomatic relief to our patients. However the proportion of patients attaining complete disease remission following RT in our set up is low, most probably due to late disease presentation. Health education, income capacity buildup and improvement of health infrastructures are necessary in order to reduce HIV transmission, improve ARV use and overcome late disease presentation.

- 303. Mbarouk, A.M. Risk factors for schistosoma haematobium in northern rural villages in unguja island, in zanzibar. Master of Science in Tropical Disease Control Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Schistosomiasis continues to be a scourge of the health of people living in sub-Saharan Africa with a yearly ascribed death rate of over 200,000. In Zanzibar, *Schistosoma haematobium* is a public health problem but degree of its prevalence vary from one area to another. In endemic areas, the prevalence and intensity of schistosomiasis is usually higher in children than in adults, giving rise to typically convex age-infection profiles. Recently, most schistosomiasis based researches in Zanzibar have focused on parasite infections, transmissions and control strategies and very few studies have reported on the risk factors for *Schistosoma haematobium* in the islands. On the other hand studies on the health effects of schistosomiasis have been carried out particularly to school age children. Therefore, there is need for updated information on the extent of disease burden and factors associated with infection at the Island, so as to simplify effective prevention and control programs.

**Main Objective of the study :** To examine associations of schistosomiasis infections with behavioral, socio-economic and environmental risk factors among people of northern rural villages at Unguja Island in Zanzibar.

**Methodology:** This study was conducted in six (6) villages between March and June 2012 to represent northern rural villages at Unguja Island where schistosomiasis is endemic. The study design was a cross-sectional study in which a structured questionnaire was used to produce the primary data. Moreover, urine samples were collected and tested by using haemastix so as to detect blood in urine, and then all urine samples were examined for *Schistosoma haematobium* ova using filtration method. The multi-stages sampling procedure was deployed to select participants during this study. The sample size was 438. Data was entered, processed and analyzed by using SPSS 13.0. Based on the low prevalence encountered in this study we have failed to generate Multivariate logistic regression analyses of the relationship between *Schistosoma haematobium* with available risk factors.

**Result:** About 438 people of them (211, 48.2% males and 227, 51.8% females), were registered with a mean age of 21.19 and (S.D.) of 13.31 years and a median of 17 years. All subjects submitted urine sample and all were included in the data analysis. The age of the participants varies from 6 to 70 years, Most participants reported having completed either primary ( $n = 210$ , 48%, %) or secondary ( $n = 112$ , 25.6%) level education. In general, ( $n = 100$  22.8%) individuals were with no formal education, mostly in the age of 7–55 years. Most common occupations were students ( $n = 183$ , 41.78%) or farmers ( $n = 157$ , 35.9%), only 1.6% of the participants were government employees. About 85% were from family with income Less than Tshs. 100,000/= per month. *Schistosoma haematobium* eggs were found in 31 (7.1%) individuals. Infection was higher in males compared with females (9.0% versus 5.3%) however this difference was not statistically significant,  $Chi-square = 2.2989$  and  $P value = 0.129$ . Across age intervals, infection was higher between 7-17 years at 67.7% compared to the 18 – 35 years which was 29.0% , and for the 36-55 years and over the prevalence was 3.2%. This showed that, prevalence decreasing with increasing of age.

**Conclusion:** The findings from this study, will provide an important update on the status of infection in this part of Tanzania and it will guide the policy makers to design extra reasonable, ample and integrated schistosomiasis control programme in Zanzibar.



304. Mbawalla, H., Masalu, J.R., Masatu, M., Åstrom, A.N. Changes in adolescents' oral health status following oral health promotion activities in Tanzania. *Acta Odontologica Scandinavica*, 2013; 71 (2), pp. 333-342.

**Objective.** To assess the impact of oral health promotion integrated with a health promoting school (HPS) initiative on the oral health outcomes of secondary school students. **Materials and method.** Using an urban-rural stratified cluster randomized approach; the intervention was applied to secondary school students in Arusha, Tanzania. In the urban, three control (n = 315) and two intervention (n = 214) schools performed oral clinical examination and questionnaires at baseline. In rural the corresponding figures at baseline were two (n = 188) and three (n = 360) schools. After 2 years, 374 and 358 students remained in the intervention and control arms. **Results.** Mean number of decayed teeth (DT) increased in the intervention (mean score 1.0 vs 1.7,  $p < 0.001$ ) and control schools (mean score 1.2 vs 1.7,  $p < 0.001$ ). Mean number of teeth with plaque decreased significantly in intervention and control schools. No significant difference in caries increment and plaque decline scores was observed between groups. Mean number of teeth with bleeding decreased (0.5 vs 0.3,  $p < 0.05$ ) in intervention schools, whereas no change was observed in the control schools (0.4 vs 0.5,  $p = 0.051$ ). Increment in mean number of DT between baseline and follow-up was largest and smallest in students who, respectively, deteriorated and improved their plaque and bleeding scores. **Conclusion.** The intervention activities did not show any effect with respect to dental caries, calculus and plaque status among the students investigated. Compared with the control group, more favorable changes in the intervention group occurred with respect to bleeding on probing, suggesting a weak but positive effect on students' oral hygiene status.

305. Mbawalla, H.S. Dental caries among children and adolescents of Sub-Saharan Africa: Trends and future perspective - A review study. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** The state economy, politics, society and cultural development affect health directly through health system and indirectly through its impact to socio-behavioural influence on oral health and diseases. Dental caries (DC) as among non-communicable diseases is prone these changes. **Objectives:** Focusing on studies published from 1980 to 2012 among children and adolescents of Sub-Saharan Africa region, this review aim to describe patterns (severity-mean DMFT, prevalence), distribution and trend of dental caries among SSA children and adolescents. Secondly, identify its futures perspective and way forward. **Methods:** Review of studies reporting on prevalence, socio-demographic and behavioural distribution of dental caries among children of SSA from 1980 to 2012 was conducted. Results: Prevalence and severity of dental caries is 13.9% to 45.3% and mean DMFT 0.14 to 1.2. The DMFT had higher proportion of DT (Decayed Teeth) component, insignificant proportion of FT (Filled Teeth) component. Higher mean DMFT were reported among groups of children with lower prevalence of dental caries. Girls, urban dwellers, SES affluent, those from educated parents and older adolescents were more likely to have caries than their

counterparts. Poor oral hygiene expressed as accumulation of plaque and reporting dental visit is associated with higher OR for dental caries. **Conclusion:** Despite great variations revealed, DC among SSA adolescents is at lower level by international STDs and has concentrated in mouth of the few and the socio-demographic disadvantaged children and adolescents. Well thought theory and evidence based intervention, aiming into oral health promotion and prevention that is focus into population are proposed for improved oral health state of SSA adolescents.

306. Mbekenga, C. K., Pembe, A. B., Darj, E., Christensson, K., Olsson, P. **Prolonged sexual abstinence after childbirth: gendered norms and perceived family health risks. Focus group discussions in a Tanzanian suburb. *BMC international health and human rights*, 2013; 13(1), 4.**

**Background:** Prolonged sexual abstinence after childbirth is a socio-cultural practice with health implications, and is described in several African countries, including Tanzania. This study explored discourses on prolonged postpartum sexual abstinence in relation to family health after childbirth in low-income suburbs of Dar es Salaam, Tanzania. **Methods:** Data for the discourse analysis were collected through focus group discussions with first-time mothers and fathers and their support people in Ilala, Dar es Salaam, Tanzania. **Results:** In this setting, prolonged sexual abstinence intended at promoting child health was the dominant discourse in the period after childbirth. Sexual relations after childbirth involved the control of sexuality for ensuring family health and avoiding the social implications of non-adherence to sexual abstinence norms. Both abstinence and control were emphasised more with regard to women than to men. Although the traditional discourse on prolonged sexual abstinence for protecting child health was reproduced in Ilala, some modern aspects such as the use of condoms and other contraceptives prevailed in the discussion. **Conclusion:** Discourses on sexuality after childbirth are instrumental in reproducing gender-power inequalities, with women being subjected to more restrictions and control than men are. Thus, interventions that create openness in discussing sexual relations and health-related matters after childbirth and mitigate gendered norms suppressing women and perpetuating harmful behaviours are needed. The involvement of males in the interventions would benefit men, women, and children through improving the gender relations that promote family health.

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- 308. Mboneko, K. V. K., Munseri, P., Mugusi, F., Multi-drug resistant tuberculosis in Tanzania: Initial description of patients started on second line anti-tuberculous drugs at Kibong'oto Hospital. *Tanzania Medical Journal* , 2013; 26(2 ) pp15-20.**

**Background:** Drug resistant Tuberculosis is well documented worldwide and is associated with increasing morbidity and mortality complicating Tuberculosis control with increasing costs of managing the disease. Broad **Objective:** To describe clinical and laboratory characteristics of multi-drug resistant Tuberculosis (MDR-TB) patients on second line anti-TB drugs at Kibong'oto hospital in Tanzania.**Methodology:** A retrospective cohort study for MDR-TB patients in 56 patients on second line anti-TB treatment at Kibong'oto hospital and cross sectional study in 40 close contacts for MDR-TB residing in Dar-es-Salaam. Information of patients was abstracted from the MDR-TB register book and clinical file clinical notes containing demographics, clinical and radiological information at baseline and after treatment initiation, first line anti-TB drugs use, bacteriology results at baseline and after treatment initiation that were available at Kibong'oto hospital. A questionnaire was used to record clinical and demographic characteristics of MDR-TB close contacts. Sputum smear collection and chest radiographs were performed on MDR-TB close contacts with respiratory symptoms suggestive of Tuberculosis.**Results:** Fifty two (92.9%) patients had confirmed MDR-TB and four patients were started on empirically on second line anti-TB drugs following clinical deterioration despite negative cultures. Nine (16.1%) patients were HIV infected. Thirty two (57.2%) patients improved clinically with negative sputum smears and cultures six months after treatment initiation and were discharged home to their nearest centers to continue with intensive phase of treatment. Six (10.7%) patients died, 3 (5.4%) patients defaulted and 15 (26.8%) patients were still on initiation phase of treatment at the hospital. Twenty four (42.9%) patients experienced at least one drug adverse event while on treatment. None of MDR-TB close contact had active Tuberculosis.**Conclusion and recommendations:** This study shows

that MDR-TB patients had a good treatment response following use of second line anti-TB drugs. This data suggests the need of Rapid diagnostic methods such as PCR for early diagnosis and therefore early treatment before clinical worsening or death.

- 309. Mbyuzi, A. O.; Komba, E. V. G.; Magwisha, H. B.; Salum, M. R.; Kafiriti, E. M.; Malamla, L. J. Preliminary evidence of vertical transmission of *Theileria parva* sporozoites from ECF immunized cows to offspring in southern Tanzania. *Research Opinions in Animal and Veterinary Sciences* . 2013 ;3(4):pp 92-100.**

An investigation was conducted in southern Tanzania on East Coast fever (ECF) immunization using Infection and Treatment Method (ITM). Two groups, each with 768 cattle were randomly allocated from study farms. One group was subjected to ITM while the second to acaricide application alone. ECF cases occurrence among study animals and calves born to them were investigated. ECF immunization, treatment records and herd dynamics were investigated from both farmers and livestock personnel in addition to conducting structured interviews. Samples were collected from suspect ECF cases and subjected to microscopy. Retrospectively, 2795 cattle were immunized against ECF in the years 2000 to 2009; whereas, during prospective investigation, 768 cattle were immunized. Questionnaire survey revealed that majority of the respondents 154/156 appreciated the protection conferred to immunized animals. However, a good number of them (135/156) complained that calves born to immunized cows succumb to ECF early in life unlike calves born to non-immunized animals. All interviewed livestock personnel (n=12) reported occurrence of ECF in majority of calves born to ECF vaccinated cows; and that most of the cases were detected in calves below ten days. Livestock personnel further pointed out that the response of such infected calves to treatment was poor. According to them, recovery rates of treated calves born from ECF immunized cows ranged from 21 to 60%. Five hundred and fifteen suspect ECF cases occurred in study groups during this period. Majority of the cases (431/515) were calves born to immunized cows, 247/431 being below ten days of age. Some (320/515) of the suspect cases of ECF were subjected to microscopy following Giemsa staining and 313/320 were confirmed by detection of Koch's blue bodies (KBBs) in lymph smears. Recovery rate of ECF cases in calves born to ECF immunized cows was 46.6% for those below ten days. The rate however increased with age to 100.0%. ECF calves born to non-immunized cows had a recovery rate ranging from 80.0 to 94.7% with the recovery rate increasing with age. In conclusion, ITM of the live *Theileria parva* confers a reasonable protection against clinical ECF to cattle. The method, however, results in new born calf losses due to *Theileria parva* infections originating from immunized cows irrespective of vaccine lot numbers. The vaccine thus needs further verification on its safety to the foetuses and non-immunized animals that are kept together with immunized animals.

- 310. McDonald, C.M., Manji, K.P., Kupka, R., Bellinger, D.C., Spiegelman, D., Kisenge, R., Msamanga, G., Fawzi, W.W., Duggan, C.P. Stunting and wasting are associated with poorer psychomotor and mental development in HIV-exposed Tanzanian infants. *Journal of Nutrition*, 2013; 143 (2): pp. 204-214.**

Infants born to HIV-infected women are at increased risk of impaired neurodevelopment, but little research has attempted to identify modifiable risk factors. The objective of this prospective cohort analysis was to identify maternal, socioeconomic, and child correlates of psychomotor and mental development in the first 18 mo of life among Tanzanian infants born to HIV-infected women. We hypothesized that child HIV infection, morbidity, and undernutrition would be associated with lower developmental status when taking into consideration maternal health and socioeconomic factors. Baseline maternal characteristics were recorded during pregnancy, birth characteristics were collected immediately after delivery, infant micronutrient status was measured at 6 wk and 6 mo, and anthropometric measurements and morbidity histories were performed at monthly follow-up visits. The Psychomotor Development Index (PDI) and Mental Development Index (MDI) of the Bayley Scales of Infant Development, 2nd edition (BSID-II) were used to assess developmental functioning at 6, 12, and 18 mo of age. Multivariate repeated regression models with time-varying covariates were used to estimate adjusted mean MDI and PDI scores for each level of the variables. A total of 311 infants contributed  $\geq 1$  BSID-II assessments for 657 PDI and 655 MDI measurements. Of infants, 51% were male, 23% were born preterm, 7% were low birth weight, and 10% were HIV-positive at 6 wk. Preterm birth, child HIV infection, stunting, and wasting were independently associated with lower PDI and MDI scores. Strategies to lower mother-to-child transmission of HIV, prevent preterm birth, and enhance child growth could contribute to improved child psychomotor and mental development.

311. Mchembe, M.D., Rambau, P.F., Chalya, P.L., Jaka, H., Koy, M., Mahalu, W. **Endoscopic and clinicopathological patterns of esophageal cancer in Tanzania: Experiences from two tertiary health institutions.** *World Journal of Surgical Oncology*, 2013; 11: pp257.

**Background:** Esophageal cancer is one of the most serious gastrointestinal cancer worldwide, owing to its rapid development and fatal prognoses in most cases. There is a paucity of published data regarding esophageal cancer in Tanzania and the study area in particular. This study was conducted to describe the endoscopic and clinicopathological patterns of esophageal cancer in this part of the world. The study provides baseline local data for future comparison. **Methods:** This was a retrospective study of histologically confirmed cases of esophageal cancer seen at Bugando Medical Center and Muhimbili National Hospital between March 2008 and February 2013. Data were retrieved from medical record computer database and analyzed using SPSS computer software version 17.0. **Results:** A total of 328 esophageal cancer patients were enrolled in the study, representing 25.3% of all malignant gastrointestinal tract tumors. The male to female ratio was 2.2:1. The median age of patients at presentation was 47 years. The majority of patients (86.6%) were peasants coming from the rural areas. Smoking and alcohol consumption were documented in 74.7% and 61.6% of patients respectively. Family history of esophageal cancer was reported in 4.6% of cases. The majority of patients (81.7%) presented late with advanced stage of cancer. Progressive dysphagia and weight loss were the most common presenting symptoms occurring in all patients. The middle third esophagus (58.5%) was the most frequent anatomical site for esophageal cancer

followed by lower third (27.4%) and upper third esophagus (10.4%). Squamous cell carcinoma (96.0%) was the most common histopathological type. Adenocarcinoma occurred in 13 (4.0%) patients. TNM staging was documented in only 104 (31.7%) patients. Of these, 102(98.1%) patients were diagnosed with advanced esophageal cancer (Stages III and IV). According to tumor grading, most of tumors were moderately differentiated accounting for 56.1% of cases. Distant metastasis was documented in 43.3% of patients. **Conclusion:** Esophageal cancer is not uncommon in this region and shows a trend towards a relative young age at presentation and the majority of patients present late with advanced stage. There is a need for screening of high-risk populations and detecting esophageal cancer at an early stage in order to improve chances for successful treatment and survival.

**312. Mdoe, P.F, Massawe, S. Quality of partograph recordings and perinatal outcomes at Muhimbili National Hospital, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The management of labor using partograph is the standard way of improving both maternal and perinatal outcomes. The partogram increases the quality and regularity of all observations on the fetus and the mother in labor and aids early recognition of problems in both mother and fetus. One third of stillbirths takes place during delivery and is largely avoidable. **Objectives:** To assess the quality of partogram recordings and compare with fetal outcomes among women delivering at Muhimbili National Hospital. **Methods:** A cross-sectional study was conducted from 1st September to 30th November 2011. Partographs of women delivered at the hospital were reviewed immediately after delivery. Using checklist recordings of parameters the progress of labour, fetal outcome (Apgar score at 5 minute, still birth and admission to neonatal ward for special care) and immediate maternal outcomes (PPH, perineal tear, visceral injuries following cesarean section) were assessed. Partograph recordings were judged as standard if standard as per standard protocols. **Results:** Partograph was used for all women admitted with spontaneous labor. 1,051 partographs were reviewed during the study time. Majority (79.5%) had spontaneous vaginal delivery and 18.6% delivered by cesarean section. Only 8.9% of partographs had all parameters with standard recordings. The most unrecorded parameter was maternal pulse rate. Most (81.4%) of partographs had substandard recording of uterine contractions. There were 53 newborns with Apgar score less than 7 at 5 minutes and 17 fresh stillbirths. Substandard fetal heart rate recording was significantly associated with Apgar score less than 7 at 5 minute and with stillbirths P-value. **Conclusion:** This study as other studies conducted as where found high proportion of substandard partogram recordings. Supportive supervision and on job training on correct use of partograph is recommended as a way of improving labor monitoring and improved fetal and maternal outcomes.

313. Mehta, S., Mugusi, F.M., Bosch, R.J., Aboud, S., Urassa, W., Villamor, E., Fawzi, W.W. **Vitamin D status and TB treatment outcomes in adult patients in Tanzania: A cohort study.** *BMJ Open*, 2013; 3 (11), 18.

**Objectives:** Vitamin D is an immunomodulator and can alter response to tuberculosis (TB) treatment, though randomised trials have been inconclusive to date. We present one of the first comprehensive analysis of the associations between vitamin D status and TB treatment, T-cell counts and nutritional outcomes by HIV status. Design: Cohort study. Setting: Outpatient clinics in Tanzania. Participants: 25-hydroxyvitamin D levels were assessed in a cohort of 677 patients with TB (344 HIV infected) initiating anti-TB treatment at enrolment in a multivitamin supplementation (excluding vitamin D) trial (Clinicaltrials.gov identifier: NCT00197704). Primary and secondary outcome measures: Information on treatment outcomes such as failure and relapse, HIV disease progression, T-cell counts and anthropometry was collected routinely, with a median follow-up of 52 and 30 months for HIV-uninfected and HIV-infected patients, respectively. Cox and binomial regression, and generalised estimating equations were used to assess the association of vitamin D status with these outcomes. **Results:** Mean 25-hydroxyvitamin D concentrations at enrolment were 69.8 ( $\pm$ 21.5) nmol/L (27.9 ( $\pm$ 8.6) ng/mL). Vitamin D insufficiency ( $\leq$ 75 nmol/L) was associated with a 66% higher risk of relapse (95% CI 4% to 164%; 133% higher risk in HIV-uninfected patients). Each unit higher 25-hydroxyvitamin D levels at baseline were associated with a decrease of 3 ( $p=0.004$ ) CD8 and 3 ( $p=0.01$ ) CD3 T-cells/ $\mu$ L during follow-up in patients with HIV infection. Vitamin D insufficiency was also associated with a greater decrease of body mass index (BMI; -0.21 kg/m<sup>2</sup>; 95% CI -0.39 to -0.02), during the first 8 months of follow-up. No association was observed for vitamin D status with mortality or HIV disease progression. **Conclusions:** Adequate vitamin D status is associated with a lower risk of relapse and with improved nutritional indicators such as BMI in patients with TB, with or without HIV infection. Further research is needed to determine the optimal dose of vitamin D and effectiveness of daily vitamin D supplementation among patients with TB.

314. Mfinanga, J. A., Sawe, H. R., Mwafongo, V., Reynolds, T. **Paediatric trauma causes, patterns and early intervention at theMuhimbili national hospital emergency department in Dar es Salaam, Tanzania.**

**Introduction:** *African journal of emergency medicine*, 2013; 3(4) pp7.Trauma remains the leading cause of death and disability in paediatric and adolescent population worldwide, though most of the childhood injury burden rests in low-income and middle-income countries.Many paediatric deaths attributable to trauma are preventable,and morbidity may be greatly reduced by early intervention, but efforts in sub-Saharan Africa are hampered by a lack of regional data to guide interventions.**Methods:** This was a prospective descriptive cohort study of children under 18 years of age based in the Emergency Department (ED) at Muhimbili National Hospital (MNH) in Dar es Salaam. We used standardized trauma data collection embedded within the clinical chart to assess the mechanism and pattern of injury, and collected follow-up data on interventions performed in the first 24 h after presentation.**Results:** We enrolled 509

children from August to December 2012, 65.6% male and 34.4% were female. The majority (98.6%) sustained unintentional injuries. 31% of injured children were under the age of 5 years, 28.5% were between 5 and 9 years, and 21.0% were 10–14 years. Motor traffic accident (MTA) was the most common mechanism (40.9%) followed by falls (38.3%) and burns (14.5%). The majority of MTAs (54.3%) were a result of pedestrians struck by vehicles. Fractures and dislocations of upper and lower limbs were the most.

- 315. Mfinanga, J.A., Sawe, H.R., Nicks, B.A. Reynolds, T.A., Mwafongo, V. The state of emergency medicine in the United Republic of Tanzania: challenges and opportunities in Emergency health care systems development. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Medical resources are limited in Tanzania infectious disease such as HIV, malaria and the increase in the incidence of non communicable diseases (NCDs), impacting morbidity and mortality there is an obvious need for specialized Emergency care services in the country **Objectives:** To describe the state of emergency care in Tanzania and the strategies created to develop emergency care infrastructure **Methods:** Review of emergency care related burden of diseases, emergency care infrastructure and health care system in the country. Information was gathered through emergency medicine association of Tanzania (EMAT) which conducted a survey of emergency care services, programs and resources within the country. Data was also sought from (AFEM) data base. **Results:** Currently at most hospitals, emergency patients are cared for in Emergency Centres (ECs) staffed with rotating personnel who are neither trained nor equipped to provide complete resuscitative care. The first Emergency Medicine residency in the country was initiated in Muhimbili University of Health and Allied Sciences (MUHAS) in 2010 and will produce its first graduates in 2013. In 2011, a dedicated Emergency Nursing curriculum was introduced at MNH. The Emergency Medical Association of Tanzania (EMAT), the first Emergency Medicine professional society in the country, was formed and ratified by the Ministry of Health in 2011. EMAT has been given a mandate to develop feasible initiatives for the dissemination of emergency care training to district and sub-district facilities and the development of emergency care services within and outside the hospital. **Conclusion:** In Tanzania significant gaps still exist in the capacity for emergency medical care including deficits in human resources, essential equipment and infrastructure. The training of emergency Medicine Specialist, Dedicated Emergency care in nurses, and the development of a professional Emergency care society (EMAT) are the positive signs of changes to come in health care.

- 316. Mgasia, A. Anaemia and its associated risk factors among patients with human immunodeficiency virus attending Muhimbili National Hospital - Medical Department. Master of Medicine (Internal Medicine) dissertation .2013. Muhimbili University of Health and Allied Science. Dar es Salaam.**



**Background:** Human Immunodeficiency Virus (HIV) infection is associated with significant haematological abnormalities. In this study anaemia and associated risk factors were evaluated among HIV-infected in-patients and outpatients attending the HIV care and treatment clinic of the Medical department. **Methods:** A standardised questionnaire was used to obtain information on social-demographic characteristics, clinical history, and information on anti-retroviral therapy. Patients were staged according to WHO guidelines and CD4 counts determined. Anaemia was determined from a complete blood count. Iron status was established using transferrin concentration, serum iron and serum ferritin levels, and serum B12 and folate were analyzed. Univariate and multivariate logistic regression were used to determine the association between anaemia and associated risk factors. **Results:** A total of 316 HIV-infected patients were recruited. Anaemia was significantly higher among the no income (63.1%) and low income (54%) compared to the medium income (42.4%) and high income (37.5%) patients,  $p=0.047$ . Severity of anaemia increased with advanced stage of HIV infection and low CD4 count ( $p=0.0001$  and  $p=0.0001$  respectively). Patients who were not on any anti-retroviral therapy were found to have higher prevalence of anaemia compared to those on therapy, 68.1% vs 49.3%: with those on AZT containing regimes having a higher prevalence of anaemia 50.3% compared to those on non-AZT containing regimes 47.4% ( $p=0.0001$ ). Low serum folate and low iron were found to be associated with anaemia ( $p=0.002$  and  $0.0001$  respectively). On multivariate analysis history of blood transfusion since HIV diagnosis, thrombocytosis, low CD4 count and low serum iron were predictors of anaemia. **Conclusion and recommendation:** The risk factors for anaemia among HIV-infected patients are multifactorial. Treatment of anaemia in HIV infection should include initiating anti-retroviral therapy together with administration of iron and folic acid supplements

317. Mgaya, A. H., Massawe, S.N., Kidanto, H. L., & Mgaya, H. N. **Grand multiparity: is it still a risk in pregnancy?** *BMC pregnancy and childbirth*, 2013;13(1), 241.

**Background.**The association of grand multiparity and poor pregnancy outcome has not been consistent for decades. Classifying grand multiparous women as a high-risk group without clear evidence of a consistent association with adverse outcomes can lead to socioeconomic burdens to the mother, family and health systems. We compared the maternal and perinatal complications among grand multiparous and other multiparous women in Dar es Salaam in Tanzania. **Methods.** A cross-sectional study was undertaken at Muhimbili National Hospital (MNH). A standard questionnaire enquired the following variables: demographic characteristics, antenatal profile and detected obstetric risk factors as well as maternal and neonatal risk factors. Predictors of adverse outcomes in relation to grand multiparous women were assessed at  $p=0.05$ . **Results.**Grand multiparas had twice the likelihood of malpresentation and a threefold higher prevalence of meconium-stained liquor and placenta previa compared with lower-parity women even when adjusted for age. Neonates delivered by grand multiparous women (12.1%) were at three-time greater risk of a low Apgar score compared with lower-parity women (5.4%) (odds ratio (OR), 2.9; 95% confidence interval (CI), 1.5–5.0). Grand multiparity and low birth weight were independently associated with a low Apgar score (OR, 2.4;

95%, CI 1.4–4.2 for GM; OR, 4.2; 95% CI, 2.3–7.8) for low birth weight.  
**Conclusion.** Grand multiparity remains a risk in pregnancy and is associated with an increased prevalence of maternal and neonatal complications (malpresentation, meconium-stained liquor, placenta previa and a low Apgar score) compared with other multiparous women who delivered at Muhimbili National Hospital.

318. Mghamba, F.W., Minzi, O.M.S., Massawe, A., Sasi, P. Adherence to antiretroviral therapy among HIV infected children measured by caretaker report, medication return, and drug level in Dar Es Salaam, Tanzania. *BMC Pediatrics*, 2013; 13 (1), 95.

**Background:** Adherence to antiretroviral drugs in the treatment of paediatric HIV infection is complicated because of many factors including stigma and drug intake logistics. It is therefore important to identify children with non-adherence in order to intervene before they become at risk of developing treatment failure or drug resistance. The aim of this study was to determine the level of adherence to antiretroviral therapy (ART), measured by caretaker report, medication return and nevirapine plasma concentration. In addition, the association between level of adherence and patient's immune status was compared across the three methods of measuring adherence. **Methods:** This was a descriptive cross-sectional study involving HIV infected children aged 2-14 years, on nevirapine-based antiretroviral treatment for at least six months, attending care and treatment clinic in three municipal hospitals in Dar-Es-Salaam City. Eligible patients and their accompanying caretakers were consecutively enrolled after obtaining written informed consent. Structured questionnaires were administered to caretakers to assess patient's adherence by caretaker report and medication return whereas a single blood sample for CD4 cell count/percent and determination of nevirapine plasma concentration was taken from patients on the day of assessment. **Results:** A total of 300 patients and accompanying caretakers were enrolled and the mean patient age (SD) was 8 (3) years. Caretakers' report and medication return showed good adherence (98% and 97%) respectively. However, the level of adherence assessed by nevirapine plasma concentration (85%) was significantly lower than caretaker report and medication return ( $p < 0.001$ ). The agreement between nevirapine plasma concentration and medication return and between nevirapine plasma concentration and caretaker report was weak ( $k = 0.131$ ) ( $k = 0.09$ ) respectively. Nevirapine plasma concentration below 3  $\mu\text{g/ml}$  was associated with immunosuppression ( $p = 0.021$ ) whereas medication return (>5% of prescribed doses) and caretaker reported missing more than one dose within 72 hours prior to interview were not associated with immunosuppression ( $p = 0.474$ ), ( $p = 0.569$ ) respectively. **Conclusion:** Lower adherence level observed using nevirapine plasma concentration and its association with immunological response supports the validity of the method and indicates that adherence data obtained from caretaker report and medication return may overestimate the true adherence in paediatric antiretroviral therapy.

319. Mgonja, M., Horne, A., Massawe, S., Mbaruku, G., Alexander, M., Warner, P. Intrapartum and postpartum severe maternal morbidity in St Francis Hospital,

**Tanzania: annual incidence, associated risk factors and outcome. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Prevention of maternal death requires a better understanding of the epidemiology and outcome of various forms of severe maternal morbidity (SMM). **Objectives:** To estimate the annual incidence of intra partum and postpartum SMM at St Francis Referral Hospital in Kilombero district, Tanzania with associated demographic and obstetric factors as well as the maternal and fetal outcome. **Methods:** Retrospective case series study using hospital records of maternities who were admitted at St Francis Hospital from July 2008 to June 2009. **Results:** The incidence of intra partum and postpartum SMM among all deliveries was 19.2% (95% CI 18-20%). The incidence of intra partum SMM was 17.2% (95% CI 16-18%), the rate being higher among primigravidae, teenagers and unmarried women (P, eclampsia, severe preeclampsia, postpartum hemorrhage and puerperal sepsis. Neonatal death was more common among women with intra partum SMM. Maternal mortality was four-fold greater among women admitted in critical condition than among other women. **Conclusion:** There is a lot more to be done in the prevention of maternal mortality since most of intrapartum and postpartum conditions could be prevented through professional care and with involvement of the community. Thus continuing to partner with and educate the community in birth preparedness and complication readiness measures are of great priority.

**320. Mgozela, G.G. Near infrared spectroscopy as a field adapted technology for quality assessment of efavirenz and cotrimoxazole. Masters of Pharmacy (Quality Control and Quality Assurance) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background information** Near-infrared-spectroscopy (NIRS) combined with multivariate data analysis (MVA) represents the most recent and efficient technology in analytical chemistry. NIRS is simple, fast and suitable analytical method for quantitative and qualitative analysis. Although the common HPLC technique is accurate and precise with good reproducibility, excellent with respect to selectivity and sensitivity, however, it cannot be used for routine analysis because of its unique requirement which include cost, expertise and time requirement. **Objective** The main objective of this study was to utilize near infrared spectroscopy as a field adapted technology for quality assessment of selected drugs. Which specifically developed and validated a quantitative model for estimating amount of efavirenz in efavirenz tablets using NIR technology and a qualitative model for consistency assessment of cotrimoxazole tablets using hand held microPHAZIR™. **Methods** For efavirenz, the active principle (efavirenz) was quantified with partial least-square algorithm and constructed by cross-validation. Ultra-Violet (UV) spectrophotometric procedure was used as a reference method. Different pre-processing methods were used for development of calibration models. For Zentrim® the development of the method involved trial and error methods which were

proposed to reach to the ultimate threshold that would truly identify the product. The identification method used for expression of similarity was Spectral Matching. **Results:**For efavirenz, the best calibration model was found when partial least square (PLS) was used as regression algorithm in association with Multiplicative Scattering Correction as pre-processing spectrum method. The model estimators were as follows; coefficient of determination ( $R^2$ ) was 0.9815, standard error of cross validation (SECV) was 2.0346 and a factor of 5. The chosen model correlated well with the prediction results in accordance with the Mahalabinos distance (M-distance) limits. Samples for Zentrim<sup>®</sup> were identified by comparison of their spectra with standard spectra in a reference library. An unknown sample was assumed to be positively identified if its correlation coefficient exceeded the established threshold ( $\rho = 0.9994648$ ). **Conclusion :**The developed NIR methods allows for the identification of zentrim<sup>®</sup> and also estimation of amount of efavirenz in tablet form without sample preparation. Thus, NIR-chemometric methods can be used for *on-line, in line or at line monitoring* of the manufacturing process and are helpful in achieving the goals of the process analytical technology.

321. Mhalu, A. , Leyna, G.H. , Mmbaga, E.J. **Risky behaviours among young people living with HIV attending care and treatment clinics in Dar Es Salaam, Tanzania: Implications for prevention with a positive approach.***Journal of the International AIDS Society*, 2013; 16 (1).

**Introduction:** Prevention with a positive approach has been advocated as one of the main strategies to reduce new instances of HIV infection. Risky sexual behaviours among people living with HIV/AIDS are the cornerstone for this approach. Understanding the extent to which infected individuals practice risky behaviours is fundamental in designing appropriate population-specific interventions. With the HIV infection transmission rates remaining high among young people in sub-Saharan Africa, continued prevention among them remains a priority. This study therefore seeks to describe the magnitude and determinants of risky sexual behaviours among young people living with HIV. **Methods:** A cross-sectional study was conducted between June and July 2010 in selected Care and Treatment Clinics (CTCs) in Dar Es Salaam, Tanzania. A total of 282 HIV-positive patients aged 15-24 were interviewed about their sexual behaviours using a questionnaire. **Results:** Prevalence of unprotected sex was 40.0% among young males and 37.5% among young females ( $p < 0.001$ ). Multiple sexual partnerships were reported by 10.6% of males and 15.9% of females ( $p < 0.005$ ). More than 50% of the participants did not know about the HIV status of their sexual partners. A large proportion of participants had minimal knowledge of transmission (46.7% males vs. 60.4% females) and prevention (65.3% males vs. 73.4% females) of sexually transmitted infections (STIs). Independent predictors of condom use included non-use of alcohol [adjusted odds ratio (AOR), 0.40 95% confidence interval (CI); 0.17-0.84] and younger age (15-19 years) (AOR, 2.76, 95% CI: 1.05-7.27). Being on antiretroviral therapy (AOR, 0.38, 95% CI: 0.17-0.85) and not knowing partners' HIV sero-status (AOR, 2.62, 95% CI: 1.14-5.10) predicted the practice of multiple sexual partnership. **Conclusions:** Unprotected sex and multiple sexual partnerships were prevalent among young people living with HIV. Less knowledge on STI and lack of

HIV disclosure increased the vulnerability and risk for HIV transmission among young people. Specific intervention measures addressing alcohol consumption, risky sexual behaviours, and STI transmission and prevention knowledge should be integrated in the routine HIV/AIDS care and treatment offered to this age group.

- 322. Mhalu, F., Bakari, M., Lyamuya, E., Janabi, M., Aris, E., Buma, D., Moshiro, C., Munseri, P., Aboud, S., Joachim, A., Pallangyo, K. The HIV Vaccine Trials Group at MUHAS and MNH, Dar es Salaam. Challenges facing the conduct of HIV Vaccine Trials in Tanzania. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** HIV Prevention Vaccine Trials in humans have been going on in the world since 1987 and in Tanzania since 2006. To date more than 200 different trials have been completed in the world, 6 of those were in Tanzania. Three of the global HIV vaccine trials were efficacy (phase III) trials, conducted in USA, and Thailand. None of those candidate vaccines have satisfied the requirements for licensure for use. On the other hand, biomedical and social behavioral HIV interventions have resulted into the continuing decline in new HIV infections and to a fall in HIV associated illnesses and deaths. **Aim:** To review the challenges facing HIV vaccine trials with special reference to Tanzania. **Methods:** A critical review of the challenges encountered during the conduct of the HIV Vaccine Immunogenicity Trial 03 (HIVIS 03) in Dar es Salaam between 2007 and 2011 was made. **Results:** The following were the main challenges encountered during the conduct of the trial: delays in the review of trial protocols by ethical and regulatory authorities; difficulty in retention of study personnel for carrying out the trial; limited infrastructure; negative rumour mongering leading to irrational fear among potential volunteers and communities, of HIV transmission through candidate vaccines; and competition for scanty global and national financial and human resources to support the conduct of the trial. Since an effective vaccine is a powerful and highly cost effective public health tool and because we now have evidence from the recent phase III HIV vaccine trial conducted in Thailand that an HIV vaccine is possible, there is a need for Tanzania to adopt the African AIDS Vaccine Partnership (AAVP) advocacy and strategy for advancing research for an AIDS vaccine as an important tool in the combination prevention package. **Conclusion:** Tanzania should continue to play her role in the ongoing global efforts for the development and testing of HIV vaccines and should address the continuing challenges which are not insurmountable.

- 323. Mhila, G.J. Use of mobile health: awareness of pregnancy danger signs among women in Bagamoyo district, Pwani region Tanzania, Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** In Tanzania, the maternal mortality ratio is estimated at 454 deaths per 100,000 live births (TDHS 2010). In Sub-Saharan Africa 33% of maternal deaths are due to failure or delay in recognition of danger signs (Galjaart, 2008). Women usually learn about potential danger signs through counseling during antenatal visits through the traditional way, either one to one or in groups. D-Tree International working in collaboration with the Ministry of Health, Jhpiego and UNICEF developed and piloted a

phone-based electronic tool (mHealth) to assist health workers to deliver a set of very specific maternal guidelines using electronic decision- support running on mobile phones. **Objective:** The main objective of this study was to assess whether the use of mobile phone application (mHealth) during antenatal visits that emphasizes a complete maternal assessment and counseling about potential danger signs improves the mothers' awareness of pregnancy danger signs. **Methodology:** An electronic questionnaire running on the mobile phone was used to assess women's awareness of danger signs from two groups of women in two separate geographical locations in Bagamoyo district, one of the having been exposed to mHealth services. Each group consisted of 164 women attending antenatal or postnatal clinics. **Results:** All women who received counseling via mHealth were able to mention at least one pregnancy danger sign compared to 149 (90.9%) of women who were not exposed to the intervention. This difference was statistically significant, both in the univariate analysis (Chi-square 16.235, p-value 0.003) as well as in the independent-samples t-test (M=3.74, SD=1.612) and (M=3.35, SD=1.882) for mHealth and control group;  $t(326) = 2.017, p = 0.045$ . **Conclusion and recommendations:** Using mHealth increases awareness of pregnancy danger signs and therefore it is recommended that such intervention be scaled up. Further research using larger groups is also recommended in order to explore the potential of mobile phones that have highly penetrated Tanzania, which can be used to deliver health messages.

**324. Mhode, M. Lived experiences of stigma and discrimination among people on antiretroviral therapy: a qualitative study in Ilala municipality, Dar es Salaam. Master of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** There is little qualitative research on lived experiences of stigma and discrimination among the growing cohort of people in resource-limited settings who have had their health restored by Antiretroviral Therapy (ART). **Broad objective:** To explore lived experiences of stigma and discrimination among people on antiretroviral therapy attending care and treatment clinic. **Methodology:** This study employed a phenomenological approach. It took place at Mnazimmoja Care and Treatment Clinic in Ilala District, Dar es Salaam Region. A total of 26 PLHIV who have been on ART for more than two months, aged 18 years old and above were interviewed. A non probability, purposive sampling method was employed. Data were collected through in-depth interviews. Interviews were audio recorded, transcribed verbatim, translated and analyzed using thematic analysis. **Results:** The study found that, participants experienced different forms of HIV-related stigma such as verbal stigma, social stigma, and perceived stigma (fear of stigma associated with disclosing HIV status). Furthermore, the participants experienced various forms of discrimination, including: relational discrimination, mistreatment by health care workers, blame and rejection by spouses and workplace discrimination. It was also found that HIV related stigma and discrimination compromised ART adherence by reinforcing concealment of HIV status and undermining social support. The main coping mechanisms that emerged from participants' narrations included: spiritual devotion, becoming secretive; acceptance of the illness; seeking information and/or exchanging views about the illness; and pre-

emptive disclosure. **Conclusions:** After nearly a decade of scaling up provision of ART in Tanzania, PLHIV still experience various dimensions of stigma and discrimination – albeit to a smaller extent compared to the pre-ART era. Overall, this study has provided useful information for managers of HIV care and treatment services about the dimensions of stigma and discrimination and coping strategies being applied. This understanding will enable planning of supportive interventions.

325. **Michael, P. Assessment of disaster preparedness and response in Tanzanian Regional Hospitals. Master of Medicine (Emergency Medicine). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** A disaster is defined by the World Health Organization as —a serious disruption of the functioning of a community that exceeds the ability of the affected community or society to cope using its own resources. Healthcare facilities are critical in responding to disasters, but disasters have potential to overwhelm facility and human resources. **Aim:** To assess the current state of disaster preparedness and response in Tanzanian regional hospitals. **Materials and Methods:** This is a descriptive cross sectional study using a structured questionnaire based on WHO defined essential data. **Results:** All 25 regional hospitals in Tanzania were surveyed. Ninety two percent of regional hospitals reported experiencing a disaster in the past five years. The most common disasters were due to large motor vehicle accident (80%) and floods (24%). A majority of the hospitals had a disaster committee (60%), but only 36% had a disaster plan. Disaster planning, personnel and equipment resources varied greatly among regional hospitals. **Conclusions:** Regional hospitals in Tanzania experience disasters secondary to large motor traffic accidents, floods, bomb explosions and infection outbreaks. The survey found hospital preparedness was at an early stage of development. The results of this study suggest important opportunities to better prepare regional hospitals to respond to disasters. Particular gaps include inadequate surge capacity, lack of disaster planning, inadequate personnel, shortage of equipments, and lack of contingency communication systems.

326. **Minja, A. A. Prevalence, awareness and predisposing factors of dentine hypersensitivity among adult patients in Dar es Salaam. Master of Dentistry (Restorative Dentistry) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Dentine hypersensitivity (DH) has been defined as short or transient sharp pain of a rapid onset that arises from exposed dentine due to enamel loss and or denudation of cementum. Data on prevalence of DH in Tanzania is lacking however worldwide prevalence ranges from 3% to 57%. **Aim:** To determine prevalence, level of awareness and predisposing factors of dentine hypersensitivity among adult patients who attended for dental treatment in Dar es salaam, Tanzania. **Method:** This hospital based cross-sectional study was conducted between July and September 2012 that involved 323 adults aged 18 years and above who attended public dental clinics in Dar es Salaam. Upon consented to participate, Sample were conveniently selected and self administered

structured questionnaires were used to gather subject's socio-demographic particulars and information related to DH from participants. Using a mouth mirror and WHO recommended probe the dentition and periodontal status was assessed and recorded. Tactile stimulus test was used during clinical examination to assess level of sensitivity of the respondents. **Result:** The male to female ratio of the 323 participants was approximately one (1:1.1) with age range of 18-72 years. Level of awareness on DH was 88.2%. About two thirds (63.2%) of respondents, self reported to have suffered from DH. Of the predisposing practices, cigarette smoking was found to be statistically significantly related to DH ( $p=0.007$ ). The prevalence of clinically diagnosed DH was 46.4% and higher among males (52.7%) and age group 50-79 years (63.5%). Oral conditions diagnosed during clinical examination, namely, attrition, abrasion, erosion, gingival recession, periodontal pockets and plaque accumulation were statistically significantly ( $p \leq 0.05$ ) related with DH. Of the participants with dentine hypersensitivity, those who visited the dentist were 54 (43.5%) and most (59.5%) did not take any action. Multivariate analysis confirm tooth abrasion, attrition and gingival recession to be the most important predictors of DH occurrence **Conclusion:** Respondent's level of awareness and prevalence of clinically diagnosed DH was relatively high whereas tooth attrition, abrasion and gingival recession were observed to be the most important predictors for the development of DH. **Recommendation:** Similar studies should be conducted in other regions so as to establish the current status and data bank for DH in Tanzania. Preventive measures of DH need to be encouraged so as to maintain quality of life. Early diagnosis and treatment of DH should be emphasized so as to reduce suffering and the burden of rehabilitation cost.

**327. Minja, B.S. & Massawe, S. Assessment of Knowledge, Attitude and Practice of Voluntary Counseling and Testing for HIV/AIDS among Undergraduate Students at Muhimbili University of Health and Allied Sciences in 2012. Tanzania.1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** A significant number of undergraduate students are at an increased risk to HIV infection owing to their age group and high risk behaviors. Their attitudes and practice towards VCT for HIV are of great impact to the burden of HIV/AIDS in the country. **Objectives:** Assessment of the knowledge, attitude and practice of voluntary counseling and testing (VCT) for HIV/AIDS among undergraduate students at Muhimbili University of Health And Allied Sciences. **Methods:** A cross sectional study that used a random sample of 383 students and a self administered questionnaire for data collection. **Results:** A total of 383 undergraduate students were enrolled in the study with a sex ratio of 1:1.07. 71.8% of the students were sexually active and majority had heard about VCT services. 36.3% heard it from mass media that is radio and TV.84.1% of the respondents understood the importance of VCT services but more than half 51.7% were not ready for a HIV test. The main setback to the uptake among those who were not ready was the fear of knowing ones HIV status. **Conclusion:** Majority of the undergraduate students have the knowledge and awareness on VCT and also a positive attitude towards the uptake of the VCT services. The uptake of the VCT services wasn't satisfying with the main barrier being fear to have a positive HIV test. **Recommendation:** VCT and HIV/AIDS related programs should be set up in schools which will increase the knowledge and awareness and ultimately uptake of VCT services among students



328. Minja, L. T. **The use of the national tuberculosis and leprosy programme screening tool in identifying patients eligible for isoniazid preventive therapy and the role of tuberculin skin test among patients Attending Muhimbili national hospital HIV clinic.** Master of Medicine (Internal Medicine) Dissertation 2013. *Muhimbili University of Health and Allied Sciences, Dar es Salaam.*

**Background:** Screening and treatment for latent TB infection is necessary in the clinical Settings where people with HIV infection receive their care. Tanzania's National TB and Leprosy Program (NTLP) has started to provide Isoniazid Preventive Therapy (IPT) to HIV Infected patients with latent TB infection in 14 pilot sites. A screening tool which includes fever = 2 weeks, cough = 2 weeks, hemoptysis, noticeable weight loss for new patients or 3 kg weight loss in a month and excessive sweating at night for = 2 weeks is used to rule out active TB infection. Patients are considered to possibly have active TB when they present with any of the 5 symptoms in the tool and are further subjected to other TB investigations. **Objective:** To determine the usefulness of the NTLP screening tool in identifying patients eligible for IPT and the role of Tuberculin skin test (TST) among patients attending Muhimbili national hospital (MNH) HIV clinic. **Study design and setting:** Descriptive cross sectional study among HIV infected patients. **Methodology:** Socio demographic data was obtained using structured questionnaires. Patients underwent physical examination, chest x-ray (CXR), TST, induced sputum for acid fast bacilli (AFB) microscopy and mycobacterium culture, CD4 count and complete blood count. **Results:** A total of 373 patients were enrolled, 72.1% being females. Active TB was found in 4.1% (using culture) and 9.2% (NTLP TB definition) of the participants. The sensitivity and specificity of the NTLP TB screening tool was 71.4% and 75.9% respectively, with PPV and NPV of 11.4% and 98.4% respectively. A CXR identified 3 of the 4 participants with culture confirmed MTB that were missed by the screening tool. Cough = 2 weeks and ARV use were independent predictors of sputum culture defined TB. A positive TST was found among 24% of the participants and no relationship was observed between TST reactivity and TB. **Conclusion and recommendation:** The prevalence of PTB among patients attending MNH HIV clinic is high (4.1% and 9.2% using culture and NTLP PTB definition respectively). The screening tool showed a good sensitivity and specificity for TB with a high negative predictive value, making it a good screening tool in ruling out active TB. Whenever possible a CXR should be done as this may improve the sensitivity of the tool. No relationship was observed between TST and TB.

329. Minzi, O. M., Marealle, I. A., Shekalaghe, S., Juma, O., Ngaimisi, E., Chemba, M., Sasi, P. **Comparison of bioavailability between the most available generic tablet formulation containing artemether and lumefantrine on the Tanzanian market and the innovator's product.** *Malaria journal*, 2013; 12(1), 174.

**Background:** Existence of anti-malarial generic drugs with low bioavailability marketed on sub-Saharan Africa raises a concern on patients achieving therapeutic

concentrations after intake of such products. This work compared bioavailability of one generic tablet formulation with innovator's product. Both were fixed dose combination tablet formulations containing artemether and lumefantrine. **Methodology:** The study was conducted in Dar Es Salaam, Tanzania, in which a survey of the most abundant generic containing artemether-lumefantrine tablet formulation was carried out in retail pharmacies. The most widely available generic (Artefan®, Ajanta Pharma Ltd, Maharashtra, India) was sampled for bioavailability comparison with Coartem® (Novartis Pharma, Basel, Switzerland) - the innovator's product. A randomized, two-treatment cross-over study was conducted in 18 healthy Tanzanian black male volunteers. Each volunteer received Artefan® (test) and Coartem® (as reference) formulation separated by 42 days of drug-free washout period. Serial blood samples were collected up to 168 hours after oral administration of a single dose of each treatment. Quantitation of lumefantrine plasma levels was done using HPLC with UV detection. Bioequivalence of the two products was assessed in accordance with the US Food and Drug Authority (FDA) guidelines. **Results:** The most widely available generic in pharmacies was Artefan® from India. All eighteen enrolled volunteers completed the study and both test and reference tablet formulations were well tolerated. It was possible to quantify lumefantrine alone, therefore, the pharmacokinetic parameters reported herein are for lumefantrine. The geometric mean ratios for C<sub>max</sub>, AUC<sub>0-t</sub> and AUC<sub>0-∞</sub> were 84% in all cases and within FDA recommended bioequivalence limits of 80% – 125%, but the 90% confidence intervals were outside FDA recommended limits (CI 49–143%, 53 - 137%, 52 - 135% respectively). There were no statistical significant differences between the two formulations with regard to PK parameters (P > 0.05). **Conclusions:** Although the ratios of AUCs and C<sub>max</sub> were within the acceptable FDA range, bioequivalence between Artefan® and Coartem® tablet formulations was not demonstrated due to failure to comply with the FDA 90% confidence interval criteria. Based on the observed total drug exposure (AUCs), Artefan® is likely to produce a similar therapeutic response as Coartem.

**330. Minzi, O., Sasi, P , Ngasala, B., Maige, S. Assessment of adherence to multidosing artemether lumefantrine drug combination in a rural community in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Adherence to multi-dosing of artemether lumefantrine (ALu) drug combination taken for 3 days may be difficult especially in the rural community. **Objectives:** To determine the extent of adherence to prescribed doses of Alu in a rural community 6 years after switching from single dose SP to multidosing ALU. **Methods:** This was a prospective community-based study conducted at Bagamoyo district involving 150 malaria patients. Every patient found to be malaria positive by microscopy was prescribed ALu and followed to homes on day 3 for interview and pill count. Venous blood samples (2ml) for measurement of blood Lumefantrine concentrations and blood slides were collected on day-7 at the dispensary. The extent of adherence by pill count and patient self-report methods and their association with drug plasma concentration was determined. **Results:** Non adherence was due to taking fewer doses (20.8%) and untimely dosing (72.2%). Ignoring the timing of drug intake, the proportion of patients who were adherent raises to 79.2%. By pill count, 29/122

(23.8%) of the patients were found to be non-adherent, while (14.4.0%) had Lumefantrine level -7 parasite clearance was achieved despite poor adherence and even those with sub-therapeutic day-7 blood Lumefantrine concentrations. **Conclusion:** Adherence in this rural community was relatively low. Non adherence was mainly due to untimely intake of doses rather than missing doses. Taking a drug much earlier or so much later (>4 hrs) affects the drug pharmacokinetics and could impact therapeutic outcomes. The clearance of parasites despite poor adherence and even with sub-therapeutic day-7 blood Lumefantrine concentrations leaves a room of clinical pharmacology discussion.

**331. Minzi, O.M., Manyilizu, V.S. Application of basic pharmacology and dispensing practice of antibiotics in accredited drug-dispensing outlets in Tanzania. *Drug, Healthcare and Patient Safety*, 2013; 5 (1), pp. 5-11.**

**Background:** Provision of pharmaceutical services in accredited drug-dispensing outlets (ADDOs) in Tanzania has not been reported. This study compared the antibiotics dispensing practice between ADDOs and part II shops, or duka la dawa baridi (DLDBs), in Tanzania. **Methodology:** This was a cross-sectional study that was conducted in ADDOs and DLDBs. A simulated client method for data collection was used, and a total of 85 ADDOs, located in Mvomero, Kilombero, and Morogoro rural districts, were compared with 60 DLDBs located in Kibaha district. The research assistants posed as simulated clients and requested to buy antibiotics from ADDOs and DLDBs after presenting a case scenario or disease condition. Among the diseases presented were those requiring antibiotics and those usually managed only by oral rehydration salt or analgesics. The simulated clients wanted to know the antibiotics that were available at the shop. The posed questions set a convincing ground to the dispenser either to dispense the antibiotic directly, request a prescription, or refer the patient to a health facility. Proportions were used to summarize categorical variables between ADDOs and DLDBs, and the chi-square test was used to test for statistical difference between the two drug-outlet types in terms of antibiotic-dispensing practice. **Results:** As many as 40% of trained ADDO dispensers no longer worked at the ADDO shops, so some of the shops employed untrained staff. A larger proportion of ADDOs than DLDBs dispensed antibiotics without prescriptions ( $P = 0.004$ ). The overall results indicate that there was no difference between the two types of shops in terms of adhering to regulations for dispensing antibiotics. However, in some circumstances, eg, antibiotic sale without prescription and no referral made, for complicated cases, ADDOs performed worse than DLDBs. As many as 30% of DLDBs and 35% of ADDOs dispensed incomplete doses of antibiotics. In both ADDOs and DLDBs, fortified procaine penicillin powder was dispensed as topical application for injuries. **Conclusion:** There was no statistical difference between ADDOs and DLDBs in the violation of dispensing practice and both ADDOs and DLDBs expressed poor knowledge of the basic pharmacology of antibiotics.

332. Minzi, O.M.S., Marealle, I.A., Shekalaghe, S., Juma, O., Ngaimisi, E., Chemba, M., Rutaihwa, M., Abdulla, S., Sasi, P. Comparison of bioavailability between the most available generic tablet formulation containing artemether and lumefantrine on the Tanzanian market and the innovator's product. *Malaria Journal*, 2013; 12 (1), 174.

**Background:** Existence of anti-malarial generic drugs with low bioavailability marketed on sub-Saharan Africa raises a concern on patients achieving therapeutic concentrations after intake of such products. This work compared bioavailability of one generic tablet formulation with innovator's product. Both were fixed dose combination tablet formulations containing artemether and lumefantrine. **Methodology.** The study was conducted in Dar Es Salaam, Tanzania, in which a survey of the most abundant generic containing artemether-lumefantrine tablet formulation was carried out in retail pharmacies. The most widely available generic (Artefan®, Ajanta Pharma Ltd, Maharashtra, India) was sampled for bioavailability comparison with Coartem® (Novartis Pharma, Basel, Switzerland) - the innovator's product. A randomized, two-treatment cross-over study was conducted in 18 healthy Tanzanian black male volunteers. Each volunteer received Artefan® (test) and Coartem® (as reference) formulation separated by 42 days of drug-free washout period. Serial blood samples were collected up to 168 hours after oral administration of a single dose of each treatment. Quantitation of lumefantrine plasma levels was done using HPLC with UV detection. Bioequivalence of the two products was assessed in accordance with the US Food and Drug Authority (FDA) guidelines. **Results:** The most widely available generic in pharmacies was Artefan® from India. All eighteen enrolled volunteers completed the study and both test and reference tablet formulations were well tolerated. It was possible to quantify lumefantrine alone, therefore, the pharmacokinetic parameters reported herein are for lumefantrine. The geometric mean ratios for C<sub>max</sub>, AUC 0-t and AUC<sub>0-∞</sub> were 84% in all cases and within FDA recommended bioequivalence limits of 80% - 125%, but the 90% confidence intervals were outside FDA recommended limits (CI 49-143%, 53 - 137%, 52 - 135% respectively). There were no statistical significant differences between the two formulations with regard to PK parameters (P > 0.05). **Conclusions:** Although the ratios of AUCs and C<sub>max</sub> were within the acceptable FDA range, bioequivalence between Artefan® and Coartem® tablet formulations was not demonstrated due to failure to comply with the FDA 90% confidence interval criteria. Based on the observed total drug exposure (AUCs), Artefan® is likely to produce a similar therapeutic response as Coartem.

333. Mkenda, D . Knowledge, attitude and practice of safe infant feeding options among HIV infected mothers attending prevention of mother to child transimission of HIV clinic at Mbeya Referral Hospital. Master of Medicine in Obstetrics and Gynecology. Dissertation. 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Background:** Mother-to-child transmission of HIV is the most significant route and largest source of HIV infection in children below the age of 15 years. Prevention of mother to child transmission of HIV (PMTCT) is the package of interventions aiming at

preventing mother-to-child transmission of HIV (MTCT). One of its interventions is provision of counseling on safe infant feeding in the era of HIV infection. With specific interventions in breastfeeding population the risk of MTCT can be as low as 5% or even less and to less than 2% in non breastfeeding population . **Objectives:** This study describes the level of Knowledge, Attitude and Practice of safe infant feeding options among HIV infected mothers attending Prevention of Mother to Child Transmission of HIV clinic at Mbeya Referral Hospital. **Methodology:** This was a descriptive cross sectional study which was conducted at a PMTCT of HIV clinic at Mbeya Referral Hospital. Participants were recruited consecutively until the estimated sample size was achieved. Data was collected by using a structured questionnaire. The data obtained was entered into EPI-INFO and then analyzed using the Statistical Package for Social Science (SPSS) version 16. Knowledge on PMTCT and safe infant feeding was assessed by using the blooms cut off points and those with a score of 75-100% were regarded as having good knowledge. Univariate analysis for frequency computation was done to determine proportions. **Results** -The results showed that the participants who had good knowledge on MTCT were 57.2%, good knowledge on PMTCT 68.3% and good knowledge on safe infant feeding were 49.6%. Overall 105 (51.2%) of the respondents were positive while 100 (48.8%) were negative about safe feeding options recommended to HIV infected mothers. Regarding the infant feeding practices among the study participants 113(55.1)% practiced exclusive breast feeding 4(2.9%) exclusive replacement feeding and 86(41.9%) % practiced mixed feeding. **Conclusion** -The results of this study indicated that nearly all women knew that HIV can be transmitted from an infected mother to her child. With regard to the level of knowledge, about two thirds of the mothers had good to satisfactory knowledge on MTCT, PMTCT, and safe infant feeding options. Despite the high level of knowledge seen regarding the safe infant feeding options only half of the study participants were practicing exclusive feeding in the first six months of life.

334. **Mkhoi, M. L. Performance characteristics of clinical, Immunological and virologic criteria in monitoring Response to antiretroviral therapy among hivinfected Patients in Dar - es - salaam, Tanzania. Master of Medicine (Microbiology and Immunology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es salaam.**

**Background:**WHO recommends the use of clinical assessment and/or CD4+ T-cell count as surrogate markers to monitor response to antiretroviral therapy (ART) in resource-limited settings. There is limited published data regarding the performance of clinical, immunological and virologic criteria in monitoring the response to ART in the local settings. **Objectives:** To determine the performance characteristics of clinical, immunological and virologic criteria in monitoring response to ART among HIV-infected patients in Dar es Salaam, Tanzania. **Methodology:** Prospective cohort study was carried out from August 2012 to May 2013. Patients initiating ART at Care and Treatment Center at IDC, Amana and Mwananyamala were recruited in the study after obtaining informed consents. Data on socio-demographic characteristics, clinical and laboratory parameters was obtained using standardized case report forms. Blood samples were collected to determine CD4+ T-cell count and plasma viral load at baseline and six

months after initiation of ART. Data was analyzed using the SPSS version 17.0. Sensitivity, specificity, positive and negative predictive values of clinical and immunological monitoring were determined using virology criteria as gold standard. Logistic regression analysis to assess the predictors associated with treatment failures was performed. A p-value of <0.05 was regarded as statistically significant. Ethical clearance and informed consent were obtained prior to the enrolment in the study. Data was analyzed using the SPSS version 17.0. **Results:** A total of one hundred and forty HIV-infected patients were enrolled in the study. The overall mean age (SD) was 40.0 (9.8) years. Majority of patients were females 95 (67.9%). Seventy nine (56.4%) were in WHO clinical stage III at enrollment. The median CD4+ T-cell count (IQR) was 255 (147-255). Of eighty three patients with complete follow up data 34.9% and 31.3% experienced virological and immunological failure respectively. Clinical failure was detected in 7.2% of the patients. The sensitivity and specificity of immunological criteria in detecting virological failure were 34.5%, 95%CI (19.9%-52.7%) and 70.4%, 95%CI (57.1%- 83.9%) respectively. The sensitivity and specificity of clinical criteria were 17.2%, 95%CI (7.1%-35.0%) and 98.1%, 95%CI (89.3%-100%) respectively. Patients with CD4 count below 200 cells/ $\mu$ l at enrollment were more likely to experience virologic failure than those with CD4 count equal or above 350 cells/ $\mu$ l. **Conclusion and Recommendation:** This study further highlights low sensitivity and specificity of immunological and clinical criteria in detecting virological failure in HIV- infected patients in the first six months on ART in Dar es salaam, Tanzania. The low performance of clinical and immunological criteria may lead to misclassification of response to treatment, accumulation of resistance mutations and even poorer treatment outcomes. A CD4 T cell count of < 200 cells/ $\mu$ l was shown to be significantly associated with treatment failure thus HIV- infected patients with such baseline count should have close laboratory monitoring including viral load testing to better improve treatment outcomes. However more data is required from larger studies to support the findings so that they can eventually translate into policy guidelines.

335. **Mkiga, S.M. Prevalence of stress and associated factors among nurses working in intensive care unit at Muhimbili National Hospital Dar esSalaam, Tanzania. Masters of science. Critical Care and Trauma Nursing Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Stress is a physical or psychological response towards unbalanced demands and resources. It is becoming increasingly recognized as one of the most serious occupational hazards for nurses who work in critical care units. Poor stress management in Intensive Care Unit (ICU) among nurses has serious impact to the patients care and outcome; and the result is increasing cost to the organization and the nation as a whole. The aim of this study was to identify prevalence of stress and associated factors among ICU nurses working at Muhimbili National Hospital (MNH). **Materials and methods:** A descriptive cross sectional study design was conducted to assess prevalence of stress symptoms and associated factors. A total of 80 nurses working in ICUs such as Main ICU, Cardiac ICU, Acute Pediatric Care Unit (APCU), Emergency Medicine Department and Highly Dependent Unit at MNH were recruited. A questionnaire with 31 items was used. Data was coded and entered into SPSS version

16.0 (Statistical Package for Social Sciences) for descriptive analysis and inferential statistics. **Results:** Out of 80 participants 69 (87%) were female nurses; 62 (78%) were nurse officers with diploma or degree while 18 (23%) were nurses with certificates. Significant stress symptoms were physical stress symptoms which include (back pain, headache, chest pain, stomach upset and sudden weight gain/loss); forty eight (60%) of the participants had physical stress symptoms and mean score was = 2.23 and (SD = 1.49) (moderate), thirty (38%) had psychological stress symptoms and mean score was = 1.23 (SD = 1.21) (mild), and twenty (25%) of the participants had behavioral change and mean score for behavioral changes was = 0.85 (SD= 0.92) (mild). Therefore significant stress symptom was physical stress symptoms since 60% of the participants had physical stress symptoms. By multivariate analysis three factors were associated with significant stress symptoms: 1. Personal characteristics with p-value = 0.07 for physical stress and 0.04 for psychological stress 2. Interpersonal relationship with p-value 0.05 for physical stress and 0.04 for psychological stress 3. Management issues with p-value = 0.01 for physical stress. **Conclusion:** Majority of ICU nurses at MNH suffer moderate physical stress which was associated with poor interpersonal relationship, personal characteristics and management issues. Therefore, these factors need further investigation and additional methodological approaches to deal with issues such as recall bias, selection bias and information bias. **Recommendations:** ICU nurses need to learn effective stress coping mechanisms like how to position themselves while turning or lifting patients. The organization has to look for possibilities to get enough and durable efficient adjustable beds to lessen nurses' muscle straining, and efforts to raise staffing requirements since physical stress symptoms are the ones found to be significant. Also the hospital management should encourage good communication skills and interpersonal interaction that are potent for team work building. The researcher recommends qualitative approach in future to study coping mechanisms which the nurses use in managing the physical stress.

**336. Mkony, M. F . Usefulness of c- reactive protein and newborn scale sepsis for screening of neonatal sepsis at Muhimbili National Hospital in Dar es salaam. Master of Medicine (Paediatrics and Child Health) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Background** Significant challenges exist in the diagnosis of neonatal septicaemia due to the non specific nature of clinical presentation as well as problems in laboratory confirmation of suspected cases. In most deprived countries often diagnosis is made on the basis of clinical suspicion and antibiotics are prescribed empirically. **Objective** To determine prevalence of neonatal sepsis, spectrum of etiological agents and their antibiotic susceptibility pattern and evaluate the efficacy of Rubarth's newborn of sepsis and C- reactive protein in the diagnosis of neonatal sepsis using blood culture as a gold standard. **Methodology:** This was a hospital based prospective cross sectional study conducted at the neonatal ward of the Muhimbili National Hospital in Dar es Salaam city from March 2012 to April 2013. Participants were neonates who had clinical features suggestive of neonatal sepsis by WHO criteria. Babies were physically examined and investigations which included; a blood for culture and sensitivity, full blood picture and two serial measurements of C – reactive protein (CRP), taken 12 hours

apart were collected. Rubarth's newborn scale of sepsis which is based on combining physical findings and FBP results was used for scoring sepsis. The efficacy of Rebirth's newborn scale of sepsis and serial CRP was assessed by calculating sensitivity, specificity, negative and positive predictive values as well as likelihood ratios (LHR). Blood culture was used as a gold standard and if the confidence did not include 1 and p value of  $< 0.05$  was considered statistically significant. **Results:** A total of 208 neonates were recruited out of whom 40 (19.2%) blood culture had a positive blood culture. The isolated organisms were *Klebsiella species* (35%), *Coagulase Negative Staphylococcus* (30%), *Staphylococcus aureus* (10%), *Escherichia coli* (22.5%), and *Pseudomonas species* (2.5%). The overall resistance to the WHO recommended first line antibiotics was for cloxacillin 100%, ampicillin 96.4% and gentamicin 39% while for second line drug ceftriaxone was 41%. Resistance to vancomycin and amikacin was 53.6% and 13.9% respectively. Clinical features that were significantly associated with neonatal sepsis were fever (67.3%), fast breathing (79.8%), and low muscle tone (38.9%) and this was statistically significant with  $p < 0.001$ . The first CRP had sensitivity of 87.5% and specificity of 70.8%, the likelihood ratio for positive test was 3, while LHR for negative tests 0.18 both with a p value of  $< 0.001$ . Combined CRP had sensitivity of 97.4% and specificity of 53.7%. Rubarth's neonatal score of sepsis had sensitivity of 65% and specificity of 79.7% serial CRP had sensitivity of 97.4%. Combining CRP and neonatal scale of sepsis reduced sensitivity to 94.71% as compared to when CRP was used alone. **Conclusion:** Serial CRP has a high sensitivity of 97.4% to diagnose neonatal sepsis. The etiological agents to neonatal sepsis were identified to be *Klebsiella spp*, *CoNS*, *S. aureus*, *E. coli*, and *Pseudomonas spp*. These agents were found to be sensitive to amikacin and resistant to the currently prescribed first line antibiotics and moderate resistant to the second line drugs whose use can be guided by sensitivity results. **Recommendation:** In the management of suspected neonatal sepsis, serial CRP done twelve hours apart in combination with Rubarth's Neonatal scale of sepsis can be used for screening of neonatal sepsis. Once the results for the screening tests are available a blood sample for culture can be taken for those neonates with a positive test. There is also a room for follow up studies on usefulness of CRP in combination with RNSOS in monitoring for response to treatment. Because of high resistance observed, there is a need to have follow up studies to assess the efficacy of the current first line antibiotics used in the management of neonatal sepsis.

337. **Mkopi, R.K. The structure and process quality of care and its determinant in the management of under-nutrition among under-five children attending public health facilities in dares salaam. Master of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Globally under-nutrition has affected many children, it contributes to about one third of the eight million deaths among under-fives every year, Tanzania like many other developing countries suffers from the problem of malnutrition with about 42% of under-five children with chronic under-nutrition, also known as stunting. There have been several interventions conducted to reduce under-nutrition among children all over the World and Tanzania in particular, however within the past ten years the levels of nutrition status of children under five years in Tanzania has not shown much of a



significant improvement rather the levels of stunting and wasting has increased significantly. The structural and process quality of care in health facilities plays an important role in the management of under-nutrition in health facilities but also provides a preventive health education to mothers and care givers, it is therefore imperative to explore the quality of core elements in the management of under-nutrition that may have resulted in the persistent high rates of under-nutrition in Tanzania **Objective:**To determine the structure and process quality of care and its determinants in the management of under-nutrition among under-five children attending Public Health facilities in Dar es Salaam **Design:** Cross Sectional study **Setting:** The study was conducted in one district hospital, two health centers, and 17 dispensaries, in Kinondoni District in Dar es Salaam region. **Methods:** A total of 384 health care providers and 384 children aged 6 – 59 months were included in this study. Kinondoni District and District hospital were selected conveniently and health centres and dispensaries included in this study were randomly selected. Quantitative data was collected using a standardized questionnaire from health care workers. Anthropometric measurements were taken from children participants by the trained researchers and compared to measurements taken by the health care providers. Anthropometric data were converted to nutrition status values using Epi-Info ENA Ver. 3.5.1, 2008 (CDC, Atlanta, Georgia, USA) software, using WHO reference values. All data were analyzed using SPSS version 17(SPSS Inc., Chicago, Illinois, USA). The main outcome variable was the structure and process quality of care and its determinants in the management of under-nutrition. and the independent variables assessed included availability of equipment for taking anthropometric measurements, availability of human resource, availability of therapeutic foods, treatment guidelines and management of acute malnutrition. **Results:** All facilities had weighing scales and only a few had length boards, consequently length measurements were not adequately taken. As a result, the main nutrition status assessed was weight for age using Road to health care which was found mostly in dispensary levels. Few facilities had treatment guidelines and staff trained on the management of malnutrition. The only medication used for treatment of under-nutrition was Ready To Use Therapeutic Food (RUTF) found in a few health facilities. There was a significant mean difference between the assessments of under-nutrition done by the researchers compared to that done by the health care worker. **Conclusion:** The overall result of this study indicates that there is inadequate structure quality to facilitate screening, assessment, and management of under-nutrition at all levels of health facilities. Such health facilities also had a low number of trained personnel for the management of under-nutrition. There is also inaccuracy and inconsistency in practices.

**338. Mkumbwa, S. H. Challenges of medicines registration process in Tanzania. MSc Programme (Pharmaceutical Management) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Background:** Medicines are only authorized to circulate in the market after being registered. The Tanzania Food and Drugs Authority (TFDA) has been mandated by the Ministry of Health and Social Welfare (MOHSW) to ensure quality, safety and efficacy of medicines. Since about 70% of medicines are imported from abroad, registration process contribute to the availability of quality, safe and efficacious medicinal products

in the country. In this regard the registration process needs to be effective and should avoid unnecessary delays in order to increase the variety of medicines registered in the country. **Study objective:** The aim of this study was to identify challenges of medicines registration process in Tanzania. **Methodology:** A descriptive cross sectional study design was used to survey the regulatory authority and pharmacies in Dar es Salaam region. Forty one pharmacies were involved in the study. A total of 42 medicines evaluators, 41 pharmacists' in-charge and 41 representatives of manufacturers were interviewed using structured questionnaires. An in-depth interview was conducted to two key informants at the regulatory authority using interview schedule. A designed medicines status form was used to assess dossier applications received in the past two years; 2010 and 2011. A total of 743 dossiers of applications submitted at TFDA during this period were assessed. **Results:** Among forty two (42) medicines evaluators; 33 pharmacists, 4 medical doctors and 5 veterinary doctors were included in this study. Among them 27 had high knowledge regarding medicines registration concept with a statistically significant association between training and knowledge of medicines evaluation ( $P = 0.001$ ). Out of 41 manufacturers' representatives; 11 pharmacists, 25 businessmen, 3 marketing managers, one IT specialist and one economist were interviewed. Among 41 pharmacists in-charge, more than half (61.0%) had low knowledge on medicines registration process with a significant association between training and knowledge of medicines evaluation ( $P = 0.007$ ). The average evaluation time per dossier was found to be  $2.98 \pm 0.811$  days, with 95% CI for the mean value ranging from 2.169 to 3.791. Majority of evaluators (72.93%) are supported by TFDA management with significant association between management support and payment satisfaction ( $P = 0.002$ ). Out of 743 applications received in two years, 478 applications were evaluated. Among those, only 170 were registered, 220 rejected, 62 queried and 26 had their status not determined as on April 2013. This indicated that more than half (58.60%) of the applications were either rejected or queried due to poor quality of dossiers submitted. The challenges identified include inadequate evaluators, insufficient payment, lack of regular training of expertise, instability of management information system, insufficient evaluation time, poor submitted dossiers, long registration time and communication gap between applicants and TFDA. **Conclusion and recommendations:** Medicines registration in Tanzania is faced with challenges multifaceted from TFDA management, manufacturers and their representatives. Due to inadequate number of evaluators the process of medicines registration has been observed to take longer time than the time of 12 months as suggested in the Client Service Charter. Furthermore, the pharmacist in-charge had limited knowledge on medicines registration concept. Based on these findings, it is proposed that TFDA management should deploy sufficient number of qualified personnel to undertake evaluation activities. The Government through MOHSW and Schools of Pharmacy in Tanzania should review their training curricula in order to impart pharmacist in-charge with knowledge on how to review and prepare dossiers for medicines registration. TFDA in collaboration with Pharmacy Council should provide regular on-job training and continuing professional development to improve pharmacist's knowledge and skills in order to enable them to cope with developments in pharmaceutical science and technology.

339. Mlawa, M. S. **Gingival recession: occurrence, severity and associated factors among patients attending Dental Clinics in Dar es Salaam, Tanzania. Master of Dentistry (Restorative Dentistry). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Gingival recession refers to the vertical shift of the gingival margin from the crown of the tooth leading to the exposure of the root of the tooth, measured from the cemento-enamel junction (CEJ) apically to where the gingival margin is at its maximum height. Gingival recession is a multifactorial problem arising mainly from periodontal diseases and mechanical factors of tooth brushing. Gingival recession is becoming a more prominent condition in different populations and it is becoming a big problem globally. It is a common problem in adults and adolescents. Its prevalence varies from 3% to 100% depending on the type of study, study population and methods used for analysis. In Tanzania few studies conducted on gingival recession have shown that the recession is evident among populations. Gingival recession interferes with dental aesthetic appearance. This aesthetic problem is more embarrassing in females than in males. Not only is it causing aesthetic problem but also lead to dentine hypersensitivity and increased susceptibility for root caries. Gingival recession is a preventable oral problem that if treated can drastically reduce discomfort and cost of treatment. This can be achieved by providing interventions to people/community based on the cause and associated factors that lead to the development of gingival recession.

**Aim:** The aim of this study was to determine the prevalence of gingival recession, its severity and associated factors among patients attending dental clinics at Muhimbili National Hospital and Temeke Municipal Hospital in Dar es Salaam region.

**Methodology:** This was a hospital based cross sectional descriptive study conducted in the dental clinics at Muhimbili National Hospital and Temeke Municipal Hospital between July and November 2012. A sample of 339 subjects, 168 male and 171 female subjects, aged 18 years and above were interviewed using a self administered questionnaire on oral hygiene behaviour, knowledge of cause and symptoms of periodontal disease. This was followed by full mouth examination to assess the presence of gingival recession in mm, presence or absence of gingival bleeding on gentle probing, plaque, calculus and periodontal pocket depth in mm at six points for each tooth. Data analysis was done by using SPSS version 16.0 and the statistical level of significance was  $p$  value  $< 0.05$ .

**Results:** The overall prevalence of the gingival recession  $\geq 1$ mm was 63.1%, the gingival recession was significantly higher in male (70.8%) than in female subjects (55.6%) ( $p$  value 0.004). The gingival recession of  $\geq 3$ mm tends to increase with age (1.6% of the subjects in 18 – 34 years age group had recession of  $\geq 3$ mm as compared to the 11.8% of the subjects in 65 + years age group). The lower jaw had more sites with gingival recession (61.1% of the subjects) as compared to the upper jaw (22.4% of the subjects). The buccal surfaces were more affected by the recession than the lingual/palatal surfaces (61.1% subjects were found to have gingival recession on the buccal surface and 48.7% subjects had gingival recession on the lingual/palatal surface). Age and periodontal diseases were found to be the significant contributors to the development of the gingival recession. The tooth cleaning device and toothbrushing techniques were not significantly associated with the gingival recession.

**Conclusion :** This study has shown that gingival recession is prevalent among sampled population in

Dar es Salaam. However, this problem does not seem to be very severe (the magnitude is generally <3mm). In this study population, gingival recession was significantly associated with age, gender and periodontal conditions (gingival bleeding, dental plaque calculus and periodontal pocket depth). Oral hygiene behaviour/practices (toothbrushing techniques) did not show association with recession of the gum. **Recommendation:** Effort should be made to increase awareness to the population, dental professionals and peer groups on gingival recession. Individuals/communities should be advised to visit dental clinics for check up and treatment if gingival recession is experienced. Improvement should be made in technical know - how to manage the gingival recession, availability of equipments and funding to deal with the gingival recession problem. Government should establish policies that will empower the individuals/communities and dental professionals in the prevention and treatment of gingival recession.

**340. Mlawa, Y. J. Assessment of gender norms influencing marital satisfaction for HIV and aids prevention among couples in Dar es salaam Región, Tanzania. Master of Public Health Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Concurrent sexual partnership is among the risk factors for HIV transmission in sub Saharan Africa and the quality of marital satisfaction is among the factors contributing to it. Marital satisfaction is influenced by many factors including gender norms and gender norms keep changing from time to time in different parts of the world towards more gender equality but how such gender norm transformation is translated by men and women in terms marital satisfaction is not well understood in Tanzania. This qualitative study was conducted to explore and better understand gender norms influencing marital satisfaction for HIV and AIDS prevention among couples **Methods:** A qualitative study was conducted in three districts (Temeke, Kinondoni and Ilala) of Dar es Salaam city in Tanzania. The study involved 12 focus group discussions which included a total of 49 married men and 55 married women. Focus groups were audio taped, transcribed and translated into English for analysis. Data were analyzed using thematic coding and matrices were developed. **Results:** Results showed that men and women are influenced differently by gender norms as the result they bring different realistic and unrealistic expectations and needs into marriage which ultimately influences negatively their marital satisfaction. Moreover, the findings showed that couples lack effective communication skills to resolve conflicts or when dealing with marital dissatisfaction. Engaging into risky sexual behaviors as a coping mechanism to marital dissatisfaction contributes to the vulnerabilities of couples to HIV and AIDS. However, some men and women have started to question some of the gender norms given the negative outcomes of their masculinity or femininity behaviors to family health **Conclusion and recommendation:** Men and women need to invest enough time knowing and harmonizing each other's needs and expectations before they get married. Programs on HIV/AIDS prevention including religious services need to employ gender synchronization strategies to achieve gender equality, and improve family health. Findings highlight the need for extensive studies sung both qualitative and quantitative research in order to understand the magnitude and other factors explaining marital dissatisfaction in other parts of Tanzania.

341. Mmbaga, E.J., Leyna, G.H., Ezekiel, M.J., Kakoko, D.C. **Fertility desire and intention of people living with HIV/AIDS in Tanzania: A call for restructuring care and treatment services.** *BMC Public Health*, 2013; 13 (1), 86.

**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). Programmes pay little 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. **Methods.** A cross-sectional study of all PLWHA aged 15-49 residing in Kahe ward in rural Kilimanjaro Tanzania was conducted. Participants were recruited from the community and a local counselling centre located in the ward. Data on socio-demographic, medical and reproductive characteristics were collected through face-to-face interviews. Data were entered and analysed using STATA statistical software. **Results:** A total of 410 PLWHA with a mean age of 34.2 and constituting 264 (64.4%) females participated. Fifty-one per cent reported to be married/cohabiting, 73.9% lived with their partners and 60.5% were sexually active. The rate of unprotected sex was 69.0% with 12.5% of women reporting to be pregnant at the time of the survey. Further biological children were desired by 37.1% of the participants and lifetime fertility intention was 2.4 children. Increased fertility desire was associated with living and having sex with a partner, HIV disclosure, good perceived health status and CD4 count  $\geq 200$  cells for both sexes. Reduced desire was associated with having more than 2 children among females, divorce or separation, and having a child with the current partner among both males and females. **Conclusion:** Fertility desire and intention of PLWHA was substantially high though lower than that of the general population in Tanzania. Practice of unprotected sexual intercourse with higher pregnancy rate was observed. Fertility desire was determined by individual perceived health and socio-family related factors. With increasing ART coverage and subsequent improved quality of life of PLWHA, these findings underscore the importance of integrating reproductive health services in the routine care and treatment of HIV/AIDS worldwide. The results also highlight a group of PLWHA with potentially high desire for children who need to be targeted during care.

342. Mmbaga, V.M. **Prevalence and factors associated with pulmonary tuberculosis among prisoners in Dar es Salaam, Tanzania, 2012.** Masters of Science in Applied Epidemiology Dissertation, 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

Tuberculosis (TB) is the disease caused by the bacterium called *Mycobacterium tuberculosis* which mostly affects the lungs but also other organs and tissues. It is estimated that about one third of the world's population is infected by *Mycobacterium tuberculosis*. The disease is the leading cause of death from infectious diseases in adults and responsible for an estimated 2 million preventable deaths each year. African region contribute about 26% of all deaths due to TB. Prisoners form a group of the society with a high risk of TB. Where studies have been done, the prevalence of TB among prisoners has been found to be up to 100 times higher than that of the corresponding non institutionalized population. In Tanzania, data on the knowledge on the prevalence and

factors contributing to TB in prisons is limited. The data collected from TB surveillance system by the National Tuberculosis and Leprosy Program (NTLP) cannot be reliable for estimating the prevalence and risk factors for transmission of Pulmonary Tuberculosis (PTB) in prison populations. This study aimed at determining the prevalence of PTB among prisoners in Segerea, Dar es Salaam and associated factors. **Methods:** A cross section study was conducted in Segerea prison from December 2012 to February 2013. The study population consisted of prisoners. The study population was stratified by sex and prison cell to get proportional representation of both sexes and by prison cell. Prisoners who consented were interviewed using a structured questionnaire and asked to provide sputum for microscopic examination of Acid Fast Bacilli. HIV test was done to those who consented. The dependent factor was the presence/absence of PTB while the independent variables included factors related social demographic, health, lifestyle and prison system. Data analysis was done using Epi info version 5.3.1. Prevalence of PTB was determined and Adjusted Odds Ratio(AOR) was calculated to ascertain the association between the dependent variable PTB and the explanatory variables. **Results:** A total of 448 prisoners aged between 18 to 68 years were recruited. Males were the predominant group forming 401(89.7%) of the prison studied population. A total of 380(84.5%) were still on remand and had not being sentenced to jail terms, about half 194(43.3%) had stayed in the prison for less than one month. Out of 448, 16 had PTB, making a prevalence of 3.6% (95% CI=2.1-5.9). There was no significant difference in prevalence in respect to gender or among the age groups (p value= 0.2 and 0.4 respectively). A total of 441 out of 448(98.4%) consented to HIV testing and out of those, 34(7.7%) were HIV positive and six were TB/HIV co infected (17.6%). About half, 221(48.3%) of the respondents had history of smoking, two thirds, 278(60.7%) had history of consuming alcohol and 84(18.6 %) had ever used addictive drugs. The factors that were independently associated with development of PTB included HIV infection (AOR= 6.7, 95% CI=1.7-26.1), previous history of TB (AOR=5.9, 95% CI=1.5-22.6), smoking cigarettes for more than 5 years (AOR=4.5, 95% CI=1.3-15.0), under-nutrition [BMI<18kg/m<sup>2</sup>] (AOR=4.8, 95% CI=1.3-16.8) and unemployment (AOR=5, 95% CI=1.57- 19.67). Although 391(87.3%) of the respondents were exposed to overcrowding, this did not contribute to PTB as one of the risk factors (OR=0.4, 95% CI=0.1-1.8, p=0.1). **Conclusion and Recommendations:** This study has shown that the prevalence of PTB in prisons in Dar es Salaam is comparable to other studies and it is contributed by individual prisoner risk factors rather than prison system factors. Screening for TB before entry to prisons is recommended for early detection of cases. The results from this study have implications for individual management of PTB as well as collective impact on the prison community as one of the high risk groups.

**343. Mngodo, J.J. Use of modern contraceptive methods and associated determinants among secondary school adolescents in Ilala Municipality. Masters of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Adolescence is a period between childhood and adulthood when young people undergo major physical, emotional and social development, with significant impact on their sexual and reproductive health, it cutters the age between 10 to 19 years.

Some of them fail to overcome the challenges of this important stage and eventually miss the opportunity to realise their full potential in life. About 13% of women and 7% men have been reported to have had sex at age 15 or below. There is inadequate knowledge and use of modern family planning methods. Currently the rate of contraceptive use among in school adolescents is not known. **Objectives:** To determine the magnitude of use of modern family planning methods and associated determinants among secondary school Adolescents in Ilala Municipality. **Methods:** This was a cross sectional study design among secondary school Adolescents in Ilala Municipality of Dar es Salaam. Structured Questionnaire was used to collect data from the adolescents and a check list for assessment of health facilities youth friendliness was used. Random samples of 273 adolescents and 8 health facilities were included. **Results:** The overall mean age of the participants was 16 years with male significantly older than females (mean age 17.3 versus 16.6,  $p < 0.001$ ). Of those interviewed, 72(26.4%) reported to have had sex and only 15.8% of them reported to have used a modern contraceptive method. Appropriate knowledge about danger period for pregnancy was expressed by 42(15.4%) of adolescents. Poor access to family planning method was reported to be due to lack of awareness about their reproductive rights and afraid of meeting the elderly/older providers. A total of 112(41.0%) adolescents reported to have not discussed any topic about adolescent reproductive health with parents/caregivers and only 15.4% of adolescents had appropriate knowledge about danger period for pregnancy. Determinants of family planning use were having a mother, being aware of family planning methods, being knowledgeable on issues related to reproductive health social influence particularly use of FP by friends and discussing reproductive health issues with parents. A total of 263(96.3%) said there is a need to guide heads of schools on how to implement the reproductive health policy. and a need to have policy statement regarding access to Adolescents reproductive health services. **Conclusion:** Use of family planning methods is still low among in school adolescents being influenced by poor access to services, lack of knowledge about pregnancy timing, fear for unfriendly health service providers and low parental communication on reproductive related issues. Family planning use was found to be influenced by family factors such as mother alive, parental discussion, peer influence and knowledge. Intervention measure should address parental, peer pressures as well as increasing awareness and knowledge about family planning. Youth friendly clinics have an important role in the provision of reproductive health services to adolescents. Hence School reproductive health policy review is called for.

344. Modlin, C., Naburi, H., Hendricks, K., Lyatuu, G., Kimario, J., Adams, L. V., Paul Palumbo, P., C. Reyn, C.F. **Nutritional deficiencies among HIV-infected children receiving care at Dar Dar Pediatric clinic in Dar es Salaam, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Poor nutrition has been associated with impaired immunity and accelerated disease progression in HIV- infected children. **Objectives:** To determine the nutritional status of children enrolled in a pediatric care program. **Methods:** We surveyed HIV-infected Tanzanian children enrolled in a pediatric care program that provided routine nutritional counseling and vitamin supplementation. We obtained

anthropometric measurements and determined 24-hour macronutrient and micronutrient intakes and food insecurity. Values were compared to recommended nutrient intakes based on age and gender. **Results:** We interviewed 48 children age 2-14 years: median age 6 and 60% female. The median weight-for-height z-score for children  $\leq 5$  years was 0.69 and BMI-for-age z-scores for children  $>5$  was -0.84. CD4% values were:  $\leq 15\%$  = 15 (31%), 16-25% = 16 (33%) and  $>25\%$  =17 (35%). Macronutrient evaluation showed that 29 (60%) children were deficient in dietary intake of energy; deficiency was more common in older children ( $p=0.004$ ). Micronutrient evaluation shows that over half of study subjects were deficient in dietary intake of vitamin A, vitamin D, vitamin E, thiamine, riboflavin, niacin, folate, vitamin B12, and calcium. Food insecurity was reported by 20 (58%) caregivers. **Conclusion:** The diets of many HIV-infected children at a specialized treatment center in Tanzania do not meet recommended levels of macro- and micro-nutrients despite nutritional counseling. Food insecurity was a contributory factor. Enhanced dietary counseling and provision of macro- and micro-nutrient supplements will be necessary to achieve optimal nutrition for most HIV-infected children in resource-poor regions.

- 345. Moen, K., Aggleton, P., Leshabari, M.T., Middelthon, A.-L. Situating Condoms in Sexual Lives: Experiences of Same-sex-Attracted men in Tanzania.***International Journal of Sexual Health*, 2013. 25 (3), pp. 185-197.

This article examines ways in which same-sex-attracted men in Dar es Salaam perceive, seek, and enact sexual pleasure, and the roles that use and nonuse of condoms play in the lived sexual lives in which such pleasure is sought and created. It also identifies several HIV risk-minimizing strategies that same-sex practicing men are employing in their sexual relations, including but not limited to condom use. The article draws on conversations and interviews conducted during 15 months of ethnographic fieldwork with and among a diverse group of same-sex-attracted men in 2008 and 2009.

- 346. Mokeha, R. Assessment of immediate obstetric outcome associated with elective caesarean delivery at Muhimbili National Hospital, Tanzania. Master of Medicine (Obstetrics and Gynaecology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background;** The safety of caesarean delivery has been improved compared to the 19<sup>th</sup> century but still there are several morbidities which need to be addressed especially in the developing countries where many of the factors that account for improved safety are still substandard. After CS, complications that can occur to the mother are infection, bleeding, deep vein thrombosis, visceral injury and anaesthetic complications. Data about maternal and neonatal outcome following elective caesarean delivery in developing countries are still limited. The study aimed to determine the immediate adverse maternal and neonatal outcomes associated with elective caesarean delivery. **Methods;** It was an analytical cross sectional study conducted at the Muhimbili National



Hospital for the period of six months. Maternal and neonatal follow up was done up to the time of discharge. Maternal outcomes variables included were amount of intraoperative blood loss, peripartum hysterectomy, blood transfusion, visceral injury, anaesthetic complication, puerperal febrile morbidity, surgical wound infection or dehiscence and secondary PPH. Neonatal outcomes included Apgar score at five minute, any respiratory morbidity, sepsis needing antibiotics, neonatal jaundice and time of initiation of breastfeeding. Data were analyzed by using SPSS computer program. Frequency distribution and measure of central tendency were used to summarize data. Association between caesarean delivery and neonatal outcomes were analyzed and  $\chi^2$  test was used in comparing proportions-p value of  $< 0.05$  was considered significant. **Results;** A total of 460 elective caesarean sections were recorded, among these 64.8% were from private patients. The rate of primary caesarean section was 40.4 %.The overall reported maternal morbidity was 32.6% the most frequent being blood loss  $\geq 1000$ mls (17.2%) and extension of uterine incision (6.5%).No maternal death was recorded. 15.7% of neonates were admitted to neonatal ward due to neonatal complications and 7.3% was due to respiratory complications. Neonates with  $< 2.5$  kg birth weight, in public patients and those delivered by registrars had more adverse neonatal outcomes compared to their counterparts and the difference was statistically significant with p value of  $< 0.01$ . **Conclusion ;**Most of the elective caesarean sections are done in private patients and they cannot be considered entirely safe in view of considerable maternal and neonatal morbidity. More than half of neonates were delivered before 39 weeks and caesarean section is risk factor for admission to neonatal unit, developing neonatal sepsis and delaying initiation of breastfeeding.

**347. Mori, A. T., Kaale, E. A., Haule, A. Factors Influencing the Persistence of Tobacco Smoking in Public Places in Tanzania: A Cross-Sectional Study in Urban, Rural and Semi-Rural Settings. *Journal of Public Health*, 2013; 2(2), 77-82.**

**Background:** In 2003 the government of Tanzania enacted the Tobacco Products (Regulation) Act 2003, which, among other things, prohibited smoking in public places. However, smoking has persisted despite the existence of the Act. This study aims to establish the reasons behind the persistence of tobacco smoking in public places. **Methods:** This was a cross-sectional study where data were collected using pre-tested, self-administered questionnaires with both open and closed questions and documentary reviews. The study was conducted in urban, rural and semi-rural areas in three districts located in eastern, central and northern Tanzania. Quantitative data were analyzed using SPSS ver. 15. Qualitative data were analyzed manually using a thematic content approach. **Results:** The study involved 240 participants, of whom 67% were males. Overall smoking prevalence was 26.5% (36.3% for males and 6.4% for females,  $p < 0.05$ ). The prevalence of smoking in rural, urban and semi-rural settings was 34.9%, 28.6% and 36.5% respectively, ( $p > 0.05$ ). About 40% of the smokers were between 25-35 years old and 52.4% had primary school as their highest level of education. About 56% of participants said they were aware of the Tobacco Regulation Act, but the majority could neither define it nor state the penalties for its infringement. Only 59.5% were aware that tobacco smoking causes lung cancer. About 4 out of 10 cigarette

smokers do not adhere to NO SMOKING warnings. **Conclusions:** Cigarette smoking in public places in Tanzania has persisted mainly due to low awareness and passive implementation of the Tobacco Regulation Act, 2003. Other causes are aggressive advertising and promotion by the tobacco industry and insufficient awareness about the health effects associated with tobacco smoking. This study calls for an increase in cigarette taxation, sensitization about the dangers of both smoking and second-hand smoke and active enforcement of the act as immediate intervention strategies.

348. Mori, A.T., Kaale, E.A., Risha, P. **Reforms: A quest for efficiency or an opportunity for vested interests'? a case study of pharmaceutical policy reforms in Tanzania.** *BMC Public Health*, 2013; 13 (1), 651.

**Background:** Regulation of the pharmaceutical sector is a challenging task for most governments in the developing countries. In Tanzania, this task falls under the Food and Drugs Authority and the Pharmacy Council. In 2010, the Pharmacy Council spearheaded policy reforms in the pharmaceutical sector aimed at taking over the control of the regulation of the business of pharmacy from the Tanzania Food and Drugs Authority. This study provides a critical analysis of these reforms. **Methods.** The study employed a qualitative case-study design. Data was collected through in-depth interviews, focus group discussions and document reviews. Data was analyzed thematically using a policy triangle framework. The analysis was done manually. **Results:** The reforms adopted an incremental model of public policy-making and the process was characterized by lobbying for political support, negotiations and bargaining between the interest groups. These negotiations were largely centred on vested interests and not on the impact of the reforms on the efficiency of pharmaceutical regulations in the country. Stakeholders from the micro and meso levels were minimally involved in the policy reforms. **Conclusion:** Recent pharmaceutical regulation reforms in Tanzania were overshadowed by vested interests, displacing a critical analysis of optimal policy options that have the potential to increase efficiency in the regulation of the business of pharmacy. Politics influenced decision-making at different levels of the reform process.

349. Mori, A.T., Ngalesoni, F., Norheim, O.F. & Robberstad, B. **The Cost Estimates of Providing in-patient and out-patient Services for Under-five Children with Malaria in Tanzania.** Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.

**Background:** Tanzania is the third country with highest burden of malaria in the WHO African Region and the disease is the leading cause of deaths in children under the age of five years. Malaria is also the leading cause of admissions and out-patient visits for under-fives in the country. **Objectives:** This study presents cost estimates of providing in-patient and out-patient services for under-five children with malaria in urban and rural district hospitals in Tanzania. **Methods:** The study was conducted from a provider perspective. Data for the most recent financial year was collected between August and November 2012 at Mwananyamala Hospital, Dar es Salaam and Tosamaganga Hospital in Iringa Rural District. An ingredient approach was employed, where capital and

recurrent items were first identified, counted and valued. Useful life span of capital items were solicited from the WHO-CHOICE Project and were discounted at 10%, as per Bank of Tanzania recommendations. Costing analysis was performed using Microsoft Excel. **Results:** The unit costs of providing out-patient and in-patient services for under five children with malaria were 7.63 US \$ and 88.75 US \$ in urban hospital and 72.33 US \$ and 338.18 US \$ in the rural hospital, respectively. Large fixed costs and small number of malaria cases recorded in the rural hospital explains the large differences in unit costs between the settings. **Conclusion:** The costs of providing in-patient and out-patient services to under-five children with malaria in Tanzania are immense, considering scarcity of healthcare resources in developing countries. Health authorities must continue to invest in cost-effective preventive strategies such as the use of Insecticide Treated Bed nets to minimize the treatment costs.

350. **Mori, A.T., Kaale, E.A, Ngalesoni, F., Norheim,O.F. & Robberstad, B. The Role of Evidence in Decision-Making Processes for Essential Medicines in Developing Countries: A Case Study in Tanzania. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013.**

**Background:** The low availability of essential medicines in developing countries is a major concern globally. Stakeholders are optimistic that increases in governments spending on pharmaceuticals will solve this problem. However, there is a paucity of research from developing countries showing the role of scientific evidence in formulary decisions to ensure efficient use of limited healthcare resources. **Objectives:** This study examines the role of evidence in decision-making processes for essential medicines in Tanzania. **Methods:** We conducted in-depth interviews with eighteen key informants who revised the Standard Treatment Guideline and National Essential Medicine List and document reviews. We used a thematic content approach to analyse the data. **Results:** Efficacy, safety, availability, affordability and cost criteria were considered in decision-making, although this was largely based on experience rather than evidence. In addition, international guidelines and medicine promotion were also considered to be influential in medicine selection. Cost-effectiveness evidence was not used in decision-making processes. **Conclusion:** Recent decisions for selection of essential medicines in Tanzania were largely based on experience rather than evidence. This practice increases the risk of choosing ineffective and costly interventions which may not be worth implementing. Policy makers need further training about how to search for relevant scientific evidences and how to systematically appraise, interpret and apply such evidence in decision-making processes.

351. **Mosha, I. H., Ruben, R. Communication, knowledge, social network and family planning utilization among couples in Mwanza, Tanzania. *African journal of reproductive health*, 2013; 17(3), 57-69.**

Family planning utilization in Tanzania is low. This study was cross sectional. It examined family planning use and socio demographic variables, social networks, knowledge and communication among the couples, whereby a stratified sample of 440 women of reproductive age (18-49), married or cohabiting was studied in Mwanza, Tanzania. A structured questionnaire with questions on knowledge, communication among the couples and practice of family planning was used. Descriptive statistics and Logistic regression were used to identify factors associated with family planning (FP) use at four levels. The findings showed that majority (73.2%) of respondents have not used family planning. Wealth was positive related to FP use ( $p=.000$ , OR = 3.696, and 95% C.I = 1.936 lower and upper 7.055). Religion was associated with FP use ( $p=.002$ , OR =2.802, 95% C.I = 1.476 lower and 5.321 upper), communication and FP use were significantly associated, ( $p=.000$ , OR = 0.323 and 95% C.I = 0.215) lower and upper = 0.483), social network and FP use ( $p=.000$ , OR = 2.162 and 95% C.I = 1.495 lower and upper =3.125) and knowledge and FP use( $p=.000$  , OR = 2.224 and 95% C.I = 1.509 lower and upper =3.278). Wealth showed a significant association with FP use ( $p=.001$ , OR = 1.897, 95% C.I = 0.817 lower and 4.404).Urban area was positively associated with FP use ( $p= .000$ , OR = 0.008 and 95% C.I = 0.001 lower and upper =0.09), semi urban was significant at ( $p= .004$ , OR = 3.733 and C.I = 1.513 lower and upper =9.211). Information, education and communication materials and to promote family planning in Tanzania should designed and promoted. (Afr J Reprod Health 2013; 17[3]: 57-69).

**352. Mosha, I., Ruben, R., Kakoko, D. Family planning decisions, perceptions and gender dynamics among couples in Mwanza, Tanzania: A qualitative study *BMC Public Health*, 2013; 13 (1), 523.**

**Background:** Contraceptive use is low in developing countries which are still largely driven by male dominated culture and patriarchal values. This study explored family planning (FP) decisions, perceptions and gender dynamics among couples in Mwanza region of Tanzania. **Methods.** Twelve focus group discussions and six in-depth interviews were used to collect information from married or cohabiting males and females aged 18-49. The participants were purposively selected. Qualitative methods were used to explore family planning decisions, perceptions and gender dynamics among couples. A guide with questions related to family planning perceptions, decisions and gender dynamics was used. The discussions and interviews were tape-recorded, transcribed verbatim and analyzed manually and subjected to content analysis. **Results:** Four themes emerged during the study. First, "risks and costs" which refer to the side effects of FP methods and the treatment of side -effects as well as the costs inherit in being labeled as an unfaithful spouse. Second, "male involvement" as men showed little interest in participating in family planning issues. However, the same men were mentioned as key decision-makers even on the number of children a couple should have and the child spacing of these children. Third, "gender relations and communication" as participants indicated that few women participated in decision-making on family planning and the number of children to have. Fourth, "urban-rural differences", life in rural favoring having more children than urban areas therefore, the value of children depended on the place of residence. **Conclusion:** Family Planning programs should

adapt the promotion of communication as well as joint decision-making on FP among couples as a strategy aimed at enhancing FP use.

- 353. Masha, I.H., Ruben, R. Communication, knowledge, social network and family planning utilization among couples in Mwanza, Tanzania. *African journal of reproductive health*, 2013; 17 (3), pp. 57-69.**

Family planning utilization in Tanzania is low. This study was cross sectional. It examined family planning use and socio demographic variables, social networks, knowledge and communication among the couples, whereby a stratified sample of 440 women of reproductive age (18-49), married or cohabiting was studied in Mwanza, Tanzania. A structured questionnaire with questions on knowledge, communication among the couples and practice of family planning was used. Descriptive statistics and Logistic regression were used to identify factors associated with family planning (FP) use at four levels. The findings showed that majority (73.2%) of respondents have not used family planning. Wealth was positive related to FP use ( $p=.000$ , OR = 3.696, and 95% C.I = 1.936 lower and upper 7.055). Religion was associated with FP use ( $p=.002$ , OR =2.802, 95% C.I = 1.476 lower and 5.321 upper), communication and FP use were significantly associated, ( $p=.000$ , OR = 0.323 and 95% C.I = 0.215) lower and upper = 0.483), social network and FP use ( $p=.000$ , OR = 2.162 and 95% C.I = 1.495 lower and upper =3.125) and knowledge and FP use( $p=.000$ , OR = 2.224 and 95% C.I = 1.509 lower and upper =3.278). Wealth showed a significant association with FP use ( $p=.001$ , OR = 1.897, 95% C.I = 0.817 lower and 4.404). Urban area was positively associated with FP use ( $p= .000$ , OR = 0.008 and 95% C.I = 0.001 lower and upper =0.09), semi urban was significant at ( $p= .004$ , OR = 3.733 and C.I = 1.513 lower and upper =9.211). Information, education and communication materials and to promote family planning in Tanzania should designed and promoted.

- 354. Moshi, F.V. Examination of birth preparedness and complication readiness among homebirth parents in Sumbawanga rural district: a qualitative study Master (Arts in Health Policy and Management) Dissertation , 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.***

**Background:** It has been documented that 69.6% of deliveries in Rukwa region are assisted by unskilled attendants [2]. Since childbirth is inherently risky and unpredictable, one wonders why such a high proportion of women fail to access skilled attendance during delivery. The objective of the study was to explore homebirth parents' perceptions and practices on birth preparedness and complication readiness. **Method:** The study employed a descriptive cross-sectional design using a qualitative approach. Purposive sampling technique was used to recruit study participants. Semi structured interviews and focus group discussions were used as methods of data collection. The data were analyzed using thematic analysis approach. **Findings:** This study has established that male partners have low risk perception on pregnancy and childbirth. And that their low risk perception is influenced by low level of awareness of obstetric danger signs. Low risk perception limits their involvement in health facility birth

preparedness and complication readiness. Likewise, the study found that women who chose to deliver at home have low risk perception on pregnancy and childbirth. The study found that these women's low risk perception and their decision to deliver at home were influenced by two factors. One, history of previous uneventful home deliveries assisted by unskilled attendants. Two, fatalistic attitudes – several study participants seemed to believe that obstetric complications are predetermined by supernatural powers. If they have to happen, they will, no matter what precautions are taken. **Conclusion:** This study has documented that apart from commonly cited structural barriers to skilled birth attendants, low risk perception among both parents on complications related to childbirth and home delivery play a substantial role. Hence, the identified factors that influence low risk perception need to be addressed in order to enhance health facility birth preparedness and complication readiness.

**355. Moshy, J., Hamza, O., Moshiro, C. An Audit of 6 years of Oral and Maxillofacial Surgical Conditions admitted for Interventional Treatment at Muhimbili National Hospital, Dar es Salaam – Tanzania. *East and Central African Journal of Surgery*, 2013; 17(2), 95-101.**

**Background:** The world wide pattern of OMFS conditions has been rarely reported despite its significance in the head and neck medicine; maxillofacial trauma and tumors. The main objective of this study was to audit oral and maxillofacial surgical (OMFS) conditions admitted for interventional treatment at Muhimbili National Hospital. **Methods:** Patients presenting to the OMFS unit with oral and maxillofacial pathological conditions between January 2003 – January, 2009 were studied prospectively. Data for analysis were obtained from the daily operation list and includes age, sex, and location, diagnosis of the pathological lesion, surgical procedure and date of procedure. **Results:** During the study period, the unit offered specialized services to 454 patients. Among them, 222 were males and 232 females. The mean age of the patients was 31.7 and the range was 79 years. Patient aged 21-30 years were mostly affected. Of the pathological lesions attended, benign tumors were the most common 255(56.2%) followed by fractures 58(12.8%), cysts 46(10.1%), malignant tumors 36(7.9%) and chronic infections 17(3.7%). Of the 255 cases of benign tumors 155(60.8%) were located on the mandible and 64 (25.1%) on the maxilla. Malignant tumors were 36 cases in which 11(30.6%) were located on the mandible. Maxillofacial fractures accounted 58 cases in which 31(53.4%) cases were located on the mandible. Cysts were 46 cases of which 17(37%) were located on the floor of the mouth, 10(21.7%) on the mandible and 7(15.2%) on the maxilla. Tumor excision was the commonest procedure performed 119(26.2%), followed by Tumor excision +reconstruction 89(19.6%), ORIF+IMF 51(11.2%), Fistulectomy 45(9.9%), Tumor enucleation 45(9.9%), Wide surgical excision 27(5.9%), Sinusectomy 16(3.5%) and Sequestrectomy 15(3.3%). **Conclusion:** There is a significant burden of OMFS conditions attended at MNH. We suggest that the government enhance the state of medical infrastructure in the local hospitals in terms of manpower and facilities for the diagnosis and treatment of simpler OMFS disease as well as timely referral on to regional center for the more complex issues. This will reduce the burden of OMF conditions experienced by this hospital and improve OMF services country wide.

356. Moshi, M.J., Mhame, P., **Medicinal Plants Legislation in Africa. In: *Medicinal Plants Research in Africa, Pharmacology and Chemistry*. Book, Edited by Victor Kuete, Elsevier Publications 2013 Edition 843-858.**

Africa is endowed with rich and high endemicity of plant biological diversity, and a number of species are used as traditional medicines. Many African countries, working within the guidelines of the Convention for Biological Diversity and the Global Strategy for Plants Conservation, have developed legislation for the management of plant biodiversity, covering forestry, environment, food, agriculture, access and benefit sharing, intellectual property rights, registration of herbal medicines, and other areas. Many countries have signed the Convention on Biological Diversity, though some have not. However, enforcement of these laws in almost all countries is very weak; there is a lack of harmonization at the national level, coupled with high border porosity, which leaves openings for biopiracy. The Kyoto Protocol 2010 provides a good opportunity for African countries to harmonize legislation governing the exploitation of medicinal plant biodiversity in a manner that is beneficial to their countries. This chapter reviews the status of some of the legislation in African countries, highlighting some specific country plant biodiversity situations; for each of the countries mentioned an attempt has been made to give information on the available capabilities for the evaluation of the safety, efficacy, and quality of herbal medicines and regulations on registration of herbal and traditional medicines. It is recommended that African countries continue to strengthen legislation related to medicinal plants; strengthen their capacity for safety, efficacy, and quality evaluation; and embark on commercial cultivation of medicinal plants to benefit from the expanding global market of herbal medicines.

357. Moshi, M.J., Haule, E., Nondo, R. , Mwangomo, .D. T , **A study of antimicrobial activity, acute toxicity and cytoprotective effect of a polyherbal extract in a rat ethanol-HCl gastric ulcer model.2013. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The decoction of the aerial parts of *Rhynchosia recinosa* (A.Rich.) Bak.[Fabaceae] is used in combination with the stem barks of *Ozoroa insignis* Del. (Anacardiaceae), *Maytenus senegalensis* (Lam.) Excell. [Celastraceae] *Entada abyssinica* Steud.ex A.Rich [Fabaceae] and *Lannea schimperi* (Hochst.)Engl. [Anacardiaceae] as a traditional remedy for managing peptic ulcers.**Objectives:** This study reports on an evaluation of the polyherbal extract for efficacy in a rat model of peptic ulcers. **Methods:** Methods A mixture of aqueous ethanol extracts of the five plants at different doses was evaluated for protection of Sprague Dawley rats against acidified ethanol gastric ulceration , in comparison with 40 mg/kg body wt pantoprazole. Evaluated was also done for brine shrimp toxicity and acute toxicity in mice. **Results:** The polyherbal extract caused a dose-dependent protection against acidified ethanol ulceration of rat gastric mucosa, reaching 81.7% mean protection as compared to 87.5% protection by 40 mg/kg body wt pantoprazole. Despite *Ozoroa insignis* being toxic to mice at doses above 1000mg/kg body wt, the other plant extracts and the combined

extract of the 5 plants were tolerated by mice up to 5000 mg/kg body wt. The brine shrimp test results showed the same pattern of toxicity with *Ozoroa insignis* being the most toxic (LC<sub>50</sub> = 10.63 µg/ml). Phytochemical tests showed that the combined extract of the five plants contained tannins, saponins, steroids, cardiac glycosides, flavonoids and terpenoids. Flavonoids, tannins and terpenoids are known to have antioxidant activity. **Conclusion:** The results support the use of the polyherbal extract in traditional medicine for management of peptic ulcers. However, the doses of the crude extracts showing protection of the gastric mucosa are too large for realistic translation to direct clinical application, so further studies using bioassay guided fractionation are needed to establish evidence for clinical application.

- 358. Moyo, S. J., 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*. 2013.**

His 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.

- 359. Mpembeni R.N.M., LeFevre, A., Urassa, D., Mohan, D., Kilewo, C., Killewo J., Impact of Antenatal Care Content on the Continuum of Care. The Case of Morogoro Region, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**



**Background:** Antenatal period marks the entry point of a pregnant woman to the health system and hence is an effective platform to facilitate better use of delivery and PNC services. Previous studies have shown a positive impact of ANC on utilization of delivery care. However these studies focused on the frequency and timing of ANC visits and not on care content.**Objectives:** To investigate the impact of ANC care content on the continuum of care.**Methods:** A cross-sectional study was conducted from August-November 2011. Women who had been pregnant within the past 12 months were interviewed using a structured instrument. ANC content scoring was done based on FANC guidelines and women reports of care received.**Results:** A total of 1971 women were interviewed. Of these 1926 (97.7%) reported to have attended ANC during pregnancy. Coverage of ANC essential activities ranged from 56% for urine tests to 95% for weight measurement. Only 18% of respondents reported to have received all 14 recommended services while 57% reported to receive at least 10 services. Even after controlling for other predictors, women who received optimum ANC content were twice more likely to utilize delivery care (OR 2.01 95%CI 1.4-2.6) compared to those who received less than optimum care. Utilization of Postnatal care was reported by 23% of which, majority (54%) were among those who received 10 or more essential ANC activities.**Conclusion:** Optimum coverage of essential ANC activities improves utilization of delivery and postnatal care services. We recommend strengthening the capacity of health facilities and health providers to ensure provision of good quality ANC care.

**360. Mpembeni R.N.M, LeFevre, A. Urassa, D., Mohan, D., Kilewo, C. Killewo, J. Quality of Antenatal Care Counseling in Morogoro, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Focused Antenatal Care (FANC) was adopted in Tanzania in 2002 with the aim of improving the quality of Antenatal care (ANC). FANC emphasizes strengthening of the information component through individual health education and counseling in order to promote health behaviour and improve continuum of care. However previous studies have reported low awareness of danger signs and low utilization of delivery and postnatal care services things which throw doubts on the quality of counseling provided to pregnant women during ANC.**Objectives:** To assess the quality of antenatal counseling in Morogoro, Tanzania.**Methods:** A cross sectional study was conducted in 18 facilities in 4 districts in Morogoro. Direct observation of health providers when providing ANC was used to assess the quality of counseling. A checklist which was developed based on the National FANC guidelines was used. Exit interviews were conducted to ANC women to determine their perceptions on the services received.**Results:** A Total of 203 observations were made. Duration of ANC consultation was rather short (median 13 minutes.) although first visit women had significantly longer consultation time compared to repeat visits (p<0.05). Reported waiting time was long (median 3.5 hours) and about two thirds of women felt that they waited for too long. **Conclusion:** Overall quality of ANC counseling was poor. Providers trained on FANC were observed to provide better quality counseling compared to untrained ones. Evaluation of innovative counseling

strategies including emphasis on group counseling and use of other modalities to increase exposure to critical messages like use of multi media are recommended

- 361. Mrema, E.J., Rubino, F.M., Mandic-Rajcevic, S., Sturchio, E., Turci, R., Osculati, A., Brambilla, G., Minoia, C., Colosio, C. Exposure to priority organochlorine contaminants in the Italian general population. Part 1. Eight priority organochlorinated pesticides in blood serum. *Human and Experimental Toxicology*, 2013; 32 (12), pp. 1323-1339.**

Despite extensive use of organochlorinated pesticides (OCPs) such as dichlorodiphenyltrichloroethane (DDT) in Italy in the 1940s to 1970s, especially for public health control of malarial mosquitoes, information on their exposure levels among the general population is limited. These OCPs can be a source of health risk to human. A total of 137 blood samples were collected from residents of the general population of three Italian towns, Novafeltria, Pavia and Milan, to determine the levels of eight OCPs in blood serum. The concentrations of beta-hexachlorocyclohexane, hexachlorobenzene (HCB), 1,1-dichloro-2-(o-chlorophenyl)-2-(p-chlorophenyl)ethylene, 1,1-dichloro-2,2-bis (p-chlorophenyl)-ethylene (p,p'-DDE), 1,1-dichloro-2-(o-chlorophenyl)-2-(p-chlorophenyl)ethane, 1,1-dichloro-2,2-bis (4-chlorophenyl)ethane, 1,1,1-trichloro-2-(o-chlorophenyl)-2-(p-chlorophenyl)-ethane and 1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane were measured by gas chromatography-mass spectrometry. Variations in serum concentrations of OCPs with respect to place of residence, gender, age and body mass index (BMI) were evaluated by non-parametric tests. p,p'-DDE and HCB were the most abundant and major contributors of total OCP concentration. Their levels differed significantly between the three towns with a trend Milan > Novafeltria > Pavia ( $p < 0.0001$ ). Females had significantly higher concentrations of HCB and p,p'-DDE than males in the overall population sample. HCB concentrations were significantly higher in females than in males of Milan ( $p = 0.029$ ). We observed positive correlations of p,p'-DDE and HCB with age in Novafeltria subjects ( $r = 0.468$ ,  $p = 0.004$ ). Total OCP concentrations differed significantly across BMI categories ( $p = 0.018$ ) in overall population. We have demonstrated a clear pattern of the main OCPs in a fairly large population. Generally, our study provides information on OCPs exposure among the Italian general population and provides indications for further investigations

- 362. Mrema, E.J., Rubino, F.M., Brambilla, G., Moretto, A., Tsatsakis, A.M., Colosio, C. Persistent organochlorinated pesticides and mechanisms of their toxicity. *Toxicology*, 2013; 307, pp. 74-88.**

Persistent organic pollutants comprised of organic chemicals like polychlorinated biphenyls, dibenzo-p-dioxins, dibenzofurans and organochlorinated pesticides which have many characteristics in common. Once released in the environment they resist physical, biological, chemical and photochemical breakdown processes and thus persist in the environment. They are subject to long transboundary air pollution transport. They accumulate in the food chain due to their lipophilicity, bioaccumulation and biomagnification properties. Human exposure occurs through inhalation of air, ingestion

of food and skin contact. Because most of them bioaccumulate and remain preferentially in fat, their long-term effects are still a matter of public health concern. They are condemned for health adverse effects such as cancer, reproductive defects, neurobehavioral abnormalities, endocrine and immunological toxicity. These effects can be elicited via a number of mechanisms among others include disruption of endocrine system, oxidation stress and epigenetic. However most of the mechanisms are not clear thus a number of studies are ongoing trying to elucidate them. In this review, the underlying possible mechanisms of action and their possible roles in adverse developmental and reproductive processes are discussed and where possible a linkage is made to some existing epidemiological data. Both genomic and nongenomic pathways are used to describe these effects. Understanding of these mechanisms will enable development of strategies to protect the public by reducing these adverse effects. This review is limited to persistent organochlorinated pesticides (OCPs) such as dichlorodiphenyltrichloroethane (DDT) and its metabolites, hexachlorobenzene (HCB), beta-hexachlorocyclohexane ( $\beta$ -HCH) and endosulfan.

**363. Mrema, E.J. Exposure Assessment Of Persistent Organic Pollutants And Associated Health Risks Among Italian Population, 2013; 74(7), 974-980.**

Persistent Organic Pollutants is a group of structurally diverse man-made chemicals characterized by a high bio-persistence and the ability to travel a long distance on the planetary scale. This class of chemicals includes polychlorinated biphenyls, organochlorinated pesticides such as DDT and its metabolites and other chemicals such as polychlorinated dibenzo-p-dioxins and polychlorinated dibenzo furans. These chemicals are widely distributed in the environment as some of them have long been employed in agriculture and in public health as pesticides, others as industrial chemicals and others are unavoidable by-products of industrial processes. These chemicals can be a source of health risk to human. Despite extensive use of OCPs such DDT in Italy in the 1940s to 1970s especially for public health control of malaria mosquitoes and PCBs in industry, in energy production and in industrial commodities, information on their exposure levels among the general population is limited. This study aims at determining the levels of OCPs and of PCB congeners among the residents from Italians living in three different places: Novafeltria (a village in Central Italy), Pavia (a mid-sized town) and Milan (the second-largest city in Italy) and at exploring the relationship with places of residence, gender, age and individual body size of their accumulation in the population. To measure PCBs concentrations, blood samples were collected from 372 consented subjects whereas to measure OCPs blood samples were collected from 137 subjects. Thirty six PCB congeners and eight OCPs were measured in blood serum by gas-chromatography-mass spectrometry. To normalize PCBs and OCPs concentrations to total blood lipid concentrations (a commonly employed technique to take into account the lipophilic character of the compounds), serum concentrations of triglycerides and total cholesterol were measured by standard clinical chemistry techniques. Personal information such as gender, age, height and weight, dietary habits, education, residence and occupation information were collected through a questionnaire. Statistical analyses were employed to highlight variation in analytes levels with respects to residence, age, gender and body mass index. The analytes concentrations were summarized for the

overall population of three sites and separately for the individual sites, for gender, for age groups and for BMI categories. The PCB congeners 138, 153 and 180 were the most frequently detected in overall population sample and were the major contributors of total PCB burden. PCB 153 had the highest median level in each site. Total PCB level differed significantly between the study sites ( $p < 0.0001$ ) with median concentrations of 837, 1355 and 2062 pmol/g lipid, respectively in Novafeltria, Pavia and Milan. No evidence was found for the difference in distribution of total PCB levels by genders. Total DL-PCB differed significantly ( $p < 0.0001$ ) between the sites (median 110, 51 and 167 pmol/g lipid, respectively) and genders of Novafeltria and Pavia ( $p = 0.011$  and  $0.009$ , respectively). PCB 138, 153, 170 and 180 differed significantly between the sites ( $p < 0.0001$ ) with higher values in Milan population. In overall population total PCB, PCB 138, 153, 156, 170 and 180 correlated positively with age ( $r$  for linear correlations range between  $0.320$ – $0.569$ ,  $p < 0.0001$ ). In Novafeltria the  $r$  correlations range between  $0.545$ – $0.670$  and  $0.516$ – $0.666$  in Pavia. In Milan,  $r$  correlations with age range between  $0.327$ – $0.417$  for total PCB, congener 138, 153 and 180. With exception of PCB 170 there was no evidence of significant difference in distribution of most abundant PCB congeners and total PCB across the BMI categories. Among the OCPs,  $p,p'$ -DDE and HCB were the most abundant and major contributors of total OCP concentration. Their levels differed significantly between the three towns with a trend Milan > Novafeltria > Pavia ( $p < 0.0001$ ). Females had significantly higher concentrations of HCB and  $p,p'$ -DDE than males in overall population sample. HCB concentrations were significantly higher in females than in males of Milan ( $p = 0.029$ ). We observed positive correlations of  $p,p'$ -DDE and HCB with age in Novafeltria subjects ( $r = 0.468$ ,  $p = 0.004$ ). Total OCP concentrations differed significantly across BMI categories ( $p = 0.018$ ) in overall population. We have demonstrated a pattern of distribution of the levels of the main PCB congeners and OCPs in a fairly large population in Italy. Generally our study provides information on PCBs and OCPs exposure among the Italian general population and provides indications for further investigations.

**364. Mruma, H., and Urassa, D., Factors affecting enrolment into CTCs among Mothers infected with HIV/AIDS in Morogoro Rural District. 2013. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** In Tanzania, only 22.2% of those in need of ARV have been enrolled into CTC programs in Tanzania. Barriers to accessing CTCs affect women disproportionately compared to men due to social cultural factors. The entry point to accessing CTC services and linkage to CTC services from PMTCT services is underutilized. **Objectives:** This study aimed at finding the factors that affect CTC enrolment of HIV infected mothers after being referred from PMTCT services. The findings of this study are to help strengthen the continuum of care of HIV services among women. **Methods:** A cross sectional study was conducted to 129 HIV infected mothers attending RCH services in Morogoro Rural District, Tanzania, through semi-structured interviews among HIV infected mothers who attended RCH clinics in the study duration, from July to August 2011. Cluster sampling was done to select health facilities. Data was analyzed using SPSS and Excel software. **Results:** Description of the results: 93 (72.1%) of HIV infected mothers referred from PMTCT to CTC enrolled

into CTC services. Social demographic characteristics and transport costs were shown to have no statistical significant association with CTC enrolment. Disclosure of HIV status to spouse, referral counseling given to the mother and the time she was to spend in seeking CTC services, were shown to have a statistical significant association with the outcome of enrolling into CTC services. After the multivariate analysis, disclosure of HIV status to spouse was found to be a significant predictor of CTC enrolment with P value. **Conclusion:** Disclosure of HIV status to spouse was the only predictor for CTC enrolment.

**365. Msagati, F., Simon, E. N., Owibingire, S. Pattern of occurrence and treatment of impacted teeth at the Muhimbili National Hospital, Dar es Salaam, Tanzania. *BMC oral health*, 2013; 13(1), 1-6.**

**Background:** Impacted teeth predispose to periodontal disease and dental caries of adjacent teeth resulting in pain, discomfort and loss of function. This study analyzed the pattern of occurrence of impacted teeth, associated symptoms, treatment and complications of treatment in patients who presented at the Muhimbili National Hospital, Tanzania. **Method:** This was a cross-sectional descriptive study which utilized notes and x rays of patients who were treated for impacted teeth at the Oral and Maxillofacial firm in Muhimbili National Hospital over five years, from January 2005 to August 2010. These records were retrieved and examined for the major complaint of the patient at presentation to hospital, demography, impacted tooth, type of impaction (for third molars), treatment offered and complications after treatment. Similar information was collected from all patients with impacted teeth attended in the same centre from 1st September 2010 to 31st August 2011. **Results:** A total of 896 patients (496 males and 400 females) treated for complaints related to impacted teeth were recorded. The male to female ratio was 1.2:1, age range of 16 to 85 years and a mean age of 28.9 years (SD = 9.5). Slightly more than 84% of the patients presented with mandibular third molar impactions. Most (44.7%) of these patients had an impacted lower right third molar followed by those presenting with a lower left third molar impaction (39.7%). In 1.3% of the patients all the four third molars were impacted. Sixty nine (7.7%) patients had impacted upper 3rd molars while 2% had impacted upper canines. Of the mandibular 3rd molar impactions 738 (76%) were mesio-angular type, 87 (8.9%) horizontal type and 69 (7.1%) disto-angular. Patients presented with a variety of complaints. About 85% of the patients presented to hospital due to varying degrees of pain. In 4.9% the detection of the impacted tooth/teeth was coincidental after presenting to hospital for other reasons not related to the impaction. Majority of the patients with impacted mandibular third molars had carious lesions on the impacted teeth, neighboring tooth or both. Four hundred and five (45.2%) patients had a carious lesion on one of the impacted teeth while 201(22.4%) patients had a carious lesion on the adjacent second molar. In 122 (13.6%) patients both the impacted third molar and the adjacent second molar were carious. In twelve patients who presented with a main complaint of fracture of the angle of the mandible there was an associated impacted 3rd molar. Eight hundred and fifteen (91%) patients with impacted teeth were treated by surgical removal. Among these only

15 (1.8%) had complications that ranged from excessive swellings, trismus and severe pain post operatively. One patient was reported to have fracture of the angle of the mandible sustained during surgical removal of an impacted 48.

**366. Mtenzi, J. & Mloka, D. Drug Cost implications of Treating HIV/ AIDS Patients with Mental Illness at Muhimbili National Hospital, Tanzania. Tanzania.1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013.**

**Background:** The Ministry of Health and Social welfare (MOHSW) cost sharing policy of 1993, puts a severe financial burden on the government to provide free treatment and care to an estimated 1.8 million HIV/AIDS patients. **Objectives:** To determine the drug cost implications associated with the treatment of HIV patients with mental illness as compared to those with HIV alone. **Methods:** Electronic Prescription data were retrieved from the MNH JEEVA electronic data base for all the attendees of Muhimbili National Hospital (MNH) HIV Clinic from January 2008 to December 2010. Data was analysed using SPSS and R- Statistical Computing Software. **Results:** A total of 1913 (96.7%) patient data were analyzed. Majority of attendees were from Kinondoni District Dar es Salaam (51.2%). The mean age was 43.2 years. Majority of patients were female and married, 69.7% and 51.3%, respectively. First visit to emergency medicine and psychiatry departments contributed 41% and 25% respectively of previously undiagnosed HIV infected persons. Total cost for ARVs was US\$ 804,449.5 Total cost for mental illness drugs for the same study period was US\$ 6,943.5. Drugs for mental illness were prescribed drugs to 16.5% of the patients. HIV Patients with mental illness had a significantly higher mean drug expenditure cost per person years of US\$ 278. 6 compared to patients with HIV alone at US\$ 226.7 (p-value. **Conclusion:** Mental illness develops in a significant proportion of HIV patients at MNH. Co- morbid HIV/mentally ill patients are a significantly more expensive group with respect to drug costs than patients with HIV alone. First case psychiatry presentation in identifying HIV infected persons strongly advocates that psychiatric care be part and parcel of routine HIV care and treatment programs at MNH.

**367. Mgassa, A, Lyimo, M, Mugusi, F Risk factors for anaemia among HIV-infected patients at Muhimbili National Hospital. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Human Immunodeficiency Virus (HIV) infection is associated with significant haematological abnormalities.**Objectives:** In this study anaemia and associated risk factors were evaluated among HIV-infected in-patients and outpatients attending the HIV care and treatment clinic of the Medical department.**Methods:** A standardised questionnaire was used to obtain information on social-demographic characteristics, clinical history, and information on anti-retroviral therapy. Patients were staged according to WHO guidelines and CD4 counts determined. Anaemia was determined from a complete blood count. Iron status was established using transferrin concentration, serum iron and serum ferritin levels, and serum B12 and folate were

analyzed. Univariate and multivariate logistic regression were used to determine the association between anaemia and associated risk factors. **Results:** A total of 316 HIV-infected patients were recruited. Anaemia was significantly higher among the no income (63.1%) and low income (54%) compared to the medium income (42.4%) and high income (37.5%) patients,  $p=0.047$ . Severity of anaemia increased with advanced stage of HIV infection and low CD4 count ( $p=0.0001$  and  $p=0.0001$  respectively). Patients who were not on any anti-retroviral therapy were found to have higher prevalence of anaemia compared to those on therapy, 68.1% vs 49.3%: with those on AZT containing regimes having a higher prevalence of anaemia 50.3% compared to those on non-AZT containing regimes 47.4% ( $p=0.0001$ ). Low serum folate and low iron were found to be associated with anaemia ( $p=0.002$  and  $0.0001$  respectively). On multivariate analysis being anti-retroviral therapy naïve, advanced clinical stage of HIV, low CD4 and iron deficiency were significantly associated with anaemia,  $p=0.0001$ . **Conclusion:** The risk factors for anaemia among HIV-infected patients are multifactorial. Treatment of anaemia in HIV infection should include initiating anti-retroviral therapy together with administration of iron and folic acid supplements.

**368. Makubi, A., Burden and determinants of severe anemia among HIV-infected adults in a large urban HIV programme, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Anemia is common among HIV infected individuals in sub-Saharan Africa, however, studies on the magnitude and determinants of severe anemia in this context are limited. **Objectives:** The aim was to determine the prevalence and risk factors for severe anemia, severe microcytic anemia and severe normocytic anemia among HIV-infected adults in Tanzania. **Methods:** Through a cross-sectional design, baseline data were extracted from a cohort of HIV-infected individuals enrolled between November 2004 and December 2010. We included HIV-infected males and non-pregnant women above 15 years of age with hemoglobin and mean corpuscular volume measurements (MCV) data. Univariate and multivariate analyses were performed to identify the risk factors for severe anemia. **Results:** Data from 40,408 patients were analyzed resulting in an overall prevalence of 22% for severe anemia. The risk of developing severe anemia increased by 49% among patients with a BMI of 1.2 mmol/l compared to those with normal renal function. Severe microcytic anemia shared many of the independent risk factors observed for severe anemia overall. Severe normocytic anemia was uniquely increased among patients aged  $\geq 50$  years, among those with chronic diarrhea, Kaposi's sarcoma and those taking co-trimoxazole. **Conclusion:** There was a high prevalence of severe anemia among adults infected with HIV infection. There is a need to have a focused approach of identifying patients with anemia based on the hemoglobin and MCV measurements, and examining the etiology and possible interventions of varying hematologic presentations.

**369. Mwangi, M., Frumence, G., Dereck Chitama, D., Oberlin Kisanga, O. Public Private Partnership in Health in Tanzania: Exploring the Emerging Institutional**

**Structures. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The government of Tanzania formulated the Public Private Partnership Policy in 2009 with the intention of expanding and improving delivery of public services to the population. In the health sector, the government has been implementing PPP since 2008 in order to meet the demand for health care and increase access to quality health services especially to the disadvantaged groups in society. Since then various institutional structures (both at central and local levels) have been created to facilitate PPP implementation. **Objectives:** The aim of this study was to examine the evolving institutional structures and their roles in facilitating the implementation of the PPP in health services delivery. **Methods:** This was an evaluation study that applied in depth interviews with key informants from national, regional, council and health facility levels, supplemented by group discussions with key stakeholders involved in the implementation of SA at various levels. Thematic analytical approach was used to analyze data. **Results:** Results indicate that a number of institutional structures both formal and informal have been formed at various levels of the health care delivery system (national, regional, council and health facility levels) to coordinate the implementation of PPP. Some of the structures are entirely new while others are old but have been given additional responsibility of coordinating PPP activities at their respective levels. **Conclusion:** The implementation of PPP has led to the creation of new institutional structures to coordinate the partnership activities. On the other hand the PPP agenda is gradually getting mainstreamed into the existing institutional structures.

**370. Mselle, L.T., Moland, K.M., Mvungi, A., Evjen-Olsen, B., Kohi, T.W. Why give birth in health facility? Users' and providers' accounts of poor quality of birth care in Tanzania. *BMC health services research*, 13(1), 174.**

**Background:** In Tanzania, half of all pregnant women access a health facility for delivery. The proportion receiving skilled care at birth is even lower. In order to reduce maternal mortality and morbidity, the government has set out to increase health facility deliveries by skilled care. The aim of this study was to describe the weaknesses in the provision of acceptable and adequate quality care through the accounts of women who have suffered obstetric fistula, nurse-midwives at both BEmOC and CEmOC health facilities and local community members. **Methods.** Semi-structured interviews involving 16 women affected by obstetric fistula and five nurse-midwives at maternity wards at both BEmOC and CEmOC health facilities, and Focus Group Discussions with husbands and community members were conducted between October 2008 and February 2010 at Comprehensive Community Based Rehabilitation in Tanzania and Temeke hospitals in Dar es Salaam, and Mpwapa district in Dodoma region. **Results:** Health care users and health providers experienced poor quality caring and working environments in the health facilities. Women in labour lacked support, experienced neglect, as well as physical and verbal abuse. Nurse-midwives lacked supportive



supervision, supplies and also seemed to lack motivation. **Conclusions:** There was a consensus among women who have suffered serious birth injuries and nurse midwives staffing both BEmOC and CEmOC maternity wards that the quality of care offered to women in birth was inadequate. While the birth accounts of women pointed to failure of care, the nurses described a situation of disempowerment. The bad birth care experiences of women undermine the reputation of the health care system, lower community expectations of facility birth, and sustain high rates of home deliveries. The only way to increase the rate of skilled attendance at birth in the current Tanzanian context is to make facility birth a safer alternative than home birth.

371. Msemo, G., Massawe, A., Mmbando, D., Rusibamayila, N., Manji, K., Kidanto, H.L., Mwizamuholy, D., Ringia, P., Ersdal, H.L., Perlman, J. **Newborn mortality and fresh stillbirth rates in Tanzania after helping babies breathe training.** *Pediatrics*, 2013; 131 (2), pp. e353-e360.

**Background:** Early neonatal mortality has remained high and unchanged for many years in Tanzania, a resource-limited country. Helping Babies Breathe (HBB), a novel educational program using basic interventions to enhance delivery room stabilization/resuscitation, has been developed to reduce the number of these deaths. **Methods:** Master trainers from the 3 major referral hospitals, 4 associated regional hospitals, and 1 district hospital were trained in the HBB program to serve as trainers for national dissemination. A before (n = 8124) and after (n = 78 500) design was used for implementation. The primary outcomes were a reduction in early neonatal deaths within 24 hours and rates of fresh stillbirths (FSB). **Results:** Implementation was associated with a significant reduction in neonatal deaths (relative risk [RR] with training 0.53; 95% confidence interval [CI] 0.43-0.65;  $P \leq .0001$ ) and rates of FSB (RR with training 0.76; 95% CI 0.64-0.90;  $P = .001$ ). The use of stimulation increased from 47% to 88% (RR 1.87; 95% CI 1.82-1.90;  $P \leq .0001$ ) and suctioning from 15% to 22% (RR 1.40; 95% CI 1.33-1.46;  $P \leq .0001$ ) whereas face mask ventilation decreased from 8.2% to 5.2% (RR 0.65; 95% CI 0.60- 0.72;  $P \leq .0001$ ). **Conclusions:** HBB implementation was associated with a significant reduction in both early neonatal deaths within 24 hours and rates of FSB. HBB uses a basic intervention approach readily applicable at all deliveries. These findings should serve as a call to action for other resource-limited countries striving to meet Millennium Development Goal 4.

372. Msemo, M. K. **Immunological response to antiretroviral treatment after exposure to zidovudine or single dose nevirapine prophylaxis for prevention of mother to child transmission of HIV in Dar es Salaam.** Master of Medicine (Obstetrics and Gynecology) Dissertation, 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Background:** Mother to child transmission (MTCT) of Human Immunodeficiency Virus (HIV) causes about 90% of newly infected infants and children. The risk MTCT of HIV without intervention ranges from 25 to 40% if breastfeeding is continued for two years. The use of antiretroviral (ARV) drugs for prophylaxis during pregnancy can reduce the

transmission significantly. The use of sdNVP or any other short regimens containing one or two drugs however induces viral resistance and can lead to treatment failure when a woman subsequently starts ART for her health **Objective:** To assess the immunological response to Antiretroviral treatment of immuno- suppressed women previously exposed to Zidovudine or single dose Nevirapine prophylaxis for prevention of mother to child transmission of human immunodeficiency virus in Dar es salaam. **Method:** A retrospective Cohort study was conducted in four CTC – clinics in public hospitals, in Dar es Salaam from July 2012 to October 2012. Women currently on ART but previously exposed to ARV prophylaxis for PMTCT were compared to unexposed (naïve) women also on ART and determined the immunologic response. Semi structured questionnaire was used to collect social demographic characteristics information. Data management was done using the SPSS statistical program version 16.0. **Results:** A total of 807 clients were analyzed, whereby 288 were exposed to either ZDV or sdNVP. Median CD4+ counts of exposed and unexposed were not comparable at baseline whereby there was statistical difference, as exposed group had higher median CD4+ counts 163 (IQR 89-206) as compared to the unexposed 124 (IQR 63-192) (p-value 0.000). At six months and twelve months the Median CD4+ counts changed the trend whereby the unexposed had slightly higher CD4+ counts as compared to exposed, although they were not statistically significant, (p-values 0.383 and 0.971 respectively). There was increase in median CD4+ counts of +70 and +164 cell/µl at six and twelve months of ART respectively in Exposed group, while in unexposed group the change was +126 and +196 cells/µl. These changes are with respect to the baseline CD4+ cells counts. At six months 12.5% of women who were exposed had Immunological failure while only 4.2% of unexposed had immunological failure, which was statistically significant (0.000), and had three times higher chance of developing failure CI (1.86-5.60). **Conclusion:** At baseline, six and twelve months of initiation of ART the statistical significant difference in CD4+ cell count levels was not observed among women exposed to the PMTCT prophylaxis and those who were unexposed. When immunological failure checked as per exposure the findings were statistically significant. Initiation of ART, within six months post exposure, contributed to the poorer CD4+ response significantly as well as immunological failure as compared to those who initiated beyond six months.

373. Mshana, S.E., Hain, T., Domann, E., Lyamuya, E.F., Chakraborty, T., Imirzalioglu, C. **Predominance of Klebsiella pneumoniae ST14 carrying CTX-M-15 causing neonatal sepsis in Tanzania.***BMC Infectious Diseases*,2013; 13 (1) : 466.

**Background:** Klebsiella pneumoniae strains expressing ESBLs are a predominant cause of hospital acquired infections. Here we describe the molecular epidemiology of these isolates in a tertiary hospital in Tanzania, as potential pathogens for neonatal infections. **Methods:** Between April 2009 and March 2010 all Klebsiella pneumoniae isolates with phenotypic expression Extended Spectrum Beta Lactamase (ESBL) were collected and characterized. Identification was done using in house biochemical tests in case of ambiguous results confirmation was done using API 20E. Susceptibility testing was determined using the disc diffusion method followed by specific PCR and sequencing to determine ESBL genes. Phylogenetic analysis, Pulse field gel

electrophoresis (PFGE) and Multi-Locus sequence typing (MLST) to PFGE clusters representative isolates were performed to determine clones of the isolates. Conjugation and hybridization were performed to determine the location of blaCTX-M-15 gene. Results: A total of 92 non-repetitive ESBL producing *K. pneumoniae* representing 50.3% of *Klebsiella pneumoniae* isolates were characterized. These isolates were from blood 61 (66%), wound swab 13 (14%), urine 12 (13%) and pus 6 (7%) were analyzed. Most blood culture strains originated from neonatal unit 39/61(64%) and 22 (36%) of the blood culture isolates were from neonatal ICU. All isolates were resistant to gentamicin and 54% were resistant to ciprofloxacin. Using a similarity index of 80%, the isolates were assigned to thirteen clusters based on PFGE patterns and contained sub-clusters with identical strains indicating clonal outbreaks. Cluster X5, X7 and X8, and X9 were grouped into ST48, ST14 and ST348 respectively. Based on *gyrA* PCR-RFLP phylogenetic analysis all isolates were grouped as KpI. The predominant ESBL allele detected was blaCTX-M-15 which was found in 76% of isolates, followed by blaTEM-104 (19%), blaSHV-11 (3.2%) and blaTEM-176 (2%). The blaCTX-M-15 gene was located in multiple conjugative IncF plasmids ranging from 25 kb-485 kb in size. **Conclusion:** The high prevalence of blaCTX-M-15 observed among ESBL producing *K. pneumoniae* in Tanzania, is possibly due to the spread of a common IncFII 145 kb plasmid and of certain clones such as ST14 and ST48. Furthermore the 485 kb plasmid detected is the largest plasmid reported to carry blaCTX-M-15 to date.

**374. Mshana, S.E., Matee, M., Rweyemamu, M. Antimicrobial resistance in human and animal pathogens in Zambia, Democratic Republic of Congo, Mozambique and Tanzania: An urgent need of a sustainable surveillance system. *Annals of Clinical Microbiology and Antimicrobials*, 2013; 12 (1): pp 28.**

A review of the published and unpublished literature on bacterial resistance in human and animals was performed. Sixty-eight articles/reports from the Democratic Republic of Congo (DRC), Mozambique, Tanzania and Zambia were reviewed. The majority of these articles were from Tanzania. There is an increasing trend in the incidence of antibiotic resistance; of major concern is the increase in multidrug-resistant *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Vibrio cholera*, non-typhoid *Salmonella* and other pathogens responsible for nosocomial infections. The increase in methicillin-resistant *Staphylococcus aureus* and extended-spectrum beta-lactamase (ESBL) producers in the countries under review confirms the spread of these clones worldwide. Clinical microbiology services in these countries need to be strengthened in order to allow a coordinated surveillance for antimicrobial resistance and provide data for local treatment guidelines and for national policies to control antimicrobial resistance. While the present study does not provide conclusive evidence to associate the increasing trend in antibiotic resistance in humans with the use of antibiotics in animals, either as feed additives or veterinary prescription, we strongly recommend a one-health approach of systematic surveillance across the public and animal health sectors, as well as the adherence to the FAO (Food and Agriculture Organization)-OIE (World Organization of animal Health) -WHO (World Health Organization) recommendations for non-human antimicrobial usage.

375. Msolla, R. Factors associated with late reporting for health care among patients having oral maxillofacial tumours or tumour-like lesions attending Muhimbili National Hospital. Masters of Public Health (MPH) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.

**Introduction:** Tumours of the maxillofacial region with an origin that is closely related to tooth formation are called odontogenic tumours. Both odontogenic and non odontogenic tumours can have malignant variants. In Tanzania, oral malignant tumours constitute 50.53% of neoplastic oral facial cases. At the inception most of the tumours occurring in the maxillofacial region are painless. **Aim of the study:** To determine the factors associated with late reporting for health care among patients having oral maxillofacial tumours or tumour-like lesions attending Muhimbili National Hospital. **Materials and Methods:** A descriptive cross sectional study was conducted, which involved 151 patients with either tumour like lesions or tumours of the oral and maxillofacial region. The study was conducted at the oral maxillofacial firm of Muhimbili National Hospital and oral maxillofacial department of the Muhimbili University of Health and Allied Sciences. Information was gathered using a structured questionnaire translated in Swahili language. Data was analysed using SPSS version 20. Ethical clearance was obtained from the Ethical committee of Muhimbili University. **Results:** Study findings revealed that 55.6% of the patients lived near to health facilities which had no oral health services. Ameloblastoma was the tumour that was seen with the highest (21.9%) frequency followed by squamous cell carcinoma (14.6%) and ossifying fibroma (6.6%). Patients with ameloblastoma showed more delay in reporting to a health facility as compared to patients with squamous cell carcinoma. After referral from the primary health facility, (23) patients reported to the referral centre after one month from the date of referral. Among these 8 (34.9%) reported after one year or more after referral. Lack of perception of the lesion as being a problem, costs involved for transportation and treatment, lack of pain, attending to traditional healers and the use of herbal medicines were found to be the reasons for the delay in reporting for health care among patients with oral maxillofacial tumours. Vast majority (98%) of the patients seen have never had any dental check-ups. **Conclusion:** The patients with oral and maxillofacial tumours showed a delayed reporting to primary health facilities and consequently to the referral centre. The average time for reporting to the referral centre was rather long (69 weeks). The main reasons cited for the delay in reporting for health care by this group of patients is the low level of awareness (did not perceive the lesion being a problem), cost involved for transportation, treatment and purchase of drugs and absence of pain from the lesion. **Recommendations:** There is need for education to the communities on the importance of early reporting whenever they suspect a lesion in the oral and maxillofacial region. Continuing education should be provided to the practicing oral and general health personnel who are working in the regions. There is a need for a more extensive study involving more regions and referral centres in the country.

376. Mubi, M., Kakoko, D., Ngasala, B., Premji, Z., Peterson, S., Björkman, A., Mårtensson, A. Malaria diagnosis and treatment practices following introduction of rapid diagnostic tests in Kibaha District, Coast Region, Tanzania. *Malaria Journal*, 2013; 12 (1), 293.

**Background:** The success of the universal parasite-based malaria testing policy for fever patients attending primary health care (PHC) facilities in Tanzania will depend highly on health workers' perceptions and practices. The aim of this study was, therefore, to assess the present use of malaria diagnostics (rapid diagnostic tests (RDTs) and microscopy), prescription behaviour and factors affecting adherence to test results at PHC facilities in Kibaha District, Coast Region, Tanzania. **Methods.** Exit interviews were conducted with fever patients at PHC facilities and information on diagnostic test performed and treatment prescribed were recorded. Interviews with prescribers to assess their understanding, perceptions and practices related to RDTs were conducted, and health facility inventory performed to assess availability of staff, diagnostics and anti-malarial drugs. The survey was undertaken at ten governmental PHC facilities, eight of which had functional diagnostics. Twenty health workers were interviewed and 195 exit interviews were conducted with patients at the PHC facilities. Of the 168 patients seen at facilities with available diagnostics, 105 (63%) were tested for malaria, 31 (30%) of whom tested positive. Anti-malarial drugs were prescribed to all patients with positive test **Results,** 14% of patients with negative results and 28% of patients not tested for malaria. Antibiotics were more likely to be prescribed to patients with negative test results compared to patients with positive results (81 vs 39%,  $p < 0.01$ ) and among non-tested compared to those tested for malaria (84 vs 69%,  $p = 0.01$ ). Stock-outs of RDTs and staff shortage accounted for the low testing rate, and health worker perceptions were the main reason for non-adherence to test results. **Conclusions:** Anti-malarial prescription to patients with negative test results and those not tested is still practiced in Tanzania despite the universal malaria testing policy of fever patients. The use of malaria diagnostics was also associated with higher prescription of antibiotics among patients with negative results. Strategies to address health system factors and health worker perceptions associated with these practices are needed.

377. Mudawi, H.M.Y., Fedail, S.S., Mchembe, M., Hadj, N.B., Mostafa, I., Kagimu, M., Sweidan, W., Moussa, A.M., Ojo, O.S., Redae, M.B., Leake, N., Abu-Safieh, Y., Gelan, E.A., Olaomi, O., Ouchemi, C., Ocama, P., Ismail, S., Mulder, C.J., Kassem, A.M. The African Middle Eastern society for digestive oncology mission against viral hepatitis and hepatocellular carcinoma. *Arab Journal of Gastroenterology*, 2013; 14 (1): pp31-33.

Until the 1980s, gastroenterology was considered as a part of internal medicine. Since the 1990s gastroenterology included hepatology. Digestive cancers are the most common cancers worldwide with 3 million new cases each year. Affected organs include the liver, pancreas, oesophagus, stomach, colon and rectum. They cause more than 2 million deaths worldwide each year. To raise awareness of this problem, the International Digestive Cancer Alliance (IDCA) was founded in 2002 and was co-chaired by Sidney Winawer (USA) and Meinhard Classen (Germany) under the patronage of Pope John Paul II. The IDCA aims to pool existing resources, increase awareness and assist those wishing to initiate their own digestive cancer campaigns [1]. This was followed by the founding of the European Society of Digestive Oncology (ESDO) in 2008 [2] and later the African Middle Eastern Society for Digestive

Oncology (AMSDO) in Rabat, Morocco in 2008, and was chaired by Suliman Fedail (Sudan).

- 378. Mugaka, B. P., Erasto, P., Otieno, J. N., Mahunnah, R. A., & Kaale, E. Comparison of N- Docosanol and  $\beta$  - Sitosterol Content in the leaf and Stem Bark of *Prunus Africana* Collected from different Geographical Zones in Tanzania *Int. J. Pure App. Biosci*, 2013. *1(6)*, 132-138.**

The study was designed to investigate quantitative differences of sterols and ferulic esters in the leaves and stem barks of *Prunus africana* if leaves can substitute destructive exploitation of stem barks in the production of anti-Benign Prostatic Hyperplasia herbal formulations. Plant collection from the Northern, Southern and Western region of Tanzania was From May to July, 2012 while Chromatographic analyses were carried out at the Institute of Traditional medicine, Muhimbili University of Health and Allied Sciences from September 2012 to March 2013. The quantitative comparison was done by determining the quantities of  $\beta$ -sitosterol and n-docosanol as marker compounds using Camag HPTLC analysis. The analysis revealed that, leaves had higher concentration of  $\beta$ -sitosterol than stem barks. The concentration of  $\beta$ -sitosterol in the leaves of *P. africana* ranged between 0.1518 – 0.2277  $\mu\text{g}$ . In the stem barks the concentrations of  $\beta$ -sitosterol was low compared with amount detected in the leaves. The concentration of  $\beta$ -sitosterol in the stem barks ranged between 0.0969 0.2184  $\mu\text{g}$ . The concentration of n-docosanol in the leaves was higher than in the stem barks of *P. africana*. In the leaves, the concentration ranged between 0.33991 – 0.4989  $\mu\text{g}$  and in the barks, the concentration ranged between 0.1484 – 0.2069  $\mu\text{g}$ . Generally, the concentration of  $\beta$ - sitosterol and n-docosanol in the leaves were much higher than in the stem barks of *P. africana*. For a sustainable harvesting and conservation reasons, it is therefore ideal to substitute stem barks by leaves in the preparation of herbal medicines used in the treatment of BPH. Further study on other essential phytochemicals responsible for anti-BPH efficacy should be done to emphasize on complementing harvesting of stem barks with leaves.

- 379. Muganyizi, P.S., Mageta, D. Does the use of modern family planning promote healthy timing and spacing of pregnancy in Dar es Salaam? *Reproductive Health*, 2013, *10* (1): 65.**

**Background:** Timing, spacing and limiting of pregnancy are key outcomes of family planning (FP) whose role in promoting health of mothers and babies is evidence based. Despite the evidence, recent studies in Tanzania have reported a trend towards child birth in older age, non-adherence to standard inter-pregnancy spacing, and preference of large families in the background of a rising national contraceptive prevalence rate. We explored if the use of modern FP promotes healthy timing and spacing of pregnancy among women seeking antenatal services. **Design** Analytical Cross-sectional study. **Methods.** Women seeking antenatal services at Muhimbili National Hospital, Tanzania (August-October, 2012) were enrolled. We used a semi-structured questionnaire to obtain information from the women. Data were analyzed using SPSS

version 19. Outcomes of interest were adherence to timing of first pregnancy and to inter-pregnancy spacing after normal childbirth. Use of modern FP prior to index pregnancy was the independent variable of primary interest. Bivariate and multivariate logistic regression analyses were conducted to obtain odds ratios (OR) and 95% confidence intervals (CI) as estimates risk and clinical importance respectively. Ethical approval was obtained from the Research and Publications Committee at Muhimbili University of Health and Allied Sciences. **Results:** In total 427 women were interviewed. Ages ranged 15-45 years, mean 29.2 (SD  $\pm$  5.1). Among all, 129 (30.2%) were primigravida, 298 (69.8%) multigravida. Of these 298 women, 51 (17.1%) lost pregnancies preceding the index. Overall, 179 (41.9%) had ever used modern FP, 103 (24.1%) were on modern FP just prior to index pregnancy. Non-adherence to timing was increased for primigravida (AOR = 4.5, 95% CI: 2.1-9.6) and for women older than 29 years (AOR = 7.6 95% CI: 3.8-15.2). Non-adherence to spacing was increased with loss of the immediate past pregnancy (AOR = 2.5; 95% CI: 1.3-4.7). Use of modern FP was neither associated with adherence to timing (AOR = 1.0; 95% CI: 0.5-1.9) nor spacing (AOR = 1.0; 95% CI: 0.6-1.8). **Conclusion:** Modern FP does not promote adherence to timing and spacing of pregnancy among women seeking antenatal services at MNH. Past obstetric experience was key to women's decisions on spacing. There is need to promote educational messages on timing and spacing of pregnancy for healthy outcomes.

**380. Muganyizi, P. S., Balandya, B. Pregnancy outcomes in the extremes of reproductive age: a seven-year experience in Tanzania. *Open Journal of Obstetrics and Gynecology*, 2013; 3, 51.**

**Background:** Extremes of reproductive age are associated with adverse pregnancy outcomes. Although varieties of adverse outcomes are reported across international studies, it has been difficult to compare the results due to inconsistencies in design partly due to arbitrary age cut offs for low and high risk groups. This study utilized the international consensus age cut offs to separate low and high risk age groups and compared pregnancy outcomes among them. **Methods:** Data of all deliveries at the Muhimbili National Hospital in Dar es Salaam, Tanzania from 1<sup>st</sup> January, 2005 to 31<sup>st</sup> December, 2011 were analyzed retrospectively and compared using IBM SPSS statistics 19. Ages 12 - 17 years (teenage) and 35 - 50 years were classified as high risk and 18 - 34 years as low risk. We treated the presence of any prenatal complication as primary outcome and intra/postpartum variables as secondary outcomes. Chi square test was used to compare proportions and t-test for continuous data among two independent groups. ANOVA with Bonferroni adjustment was used to compare differences in means across age groups. Binary logistic regression analyses were performed to determine odds of developing primary and secondary outcomes with age as an independent (categorical) variable. P-values of 0.05 or less were interpreted as statistically significant. **Results:** In total 65,453 singleton deliveries were identified of which 64,818 (99%) were analyzed including 1680 (2.6%) teenage and 7961 (12.3%) deliveries at 35 - 50 years. Teenage deliveries had progressively declined from 39/1000 in 2005 to 16/1000 in 2011 in contrast to a rise from 103/1000 to 145/1000 deliveries for the 35 - 50 years. Across all age groups, prenatal complications were least for teenage (11.4%) and most for 35 - 50 years

(32.7%,  $\chi^2 = 51.3$ ,  $P < 0.0001$ ). With reference to age 18 – 34 years, teenage deliveries had significantly lower odds for prenatal complications (OR = 0.4, 95% CI: 0.3 - 0.5), and for delivery of 4.0 kg or more (OR = 0.3, 95% CI: 0.2 - 0.5). Further, teenage deliveries had comparable odds for Cesarean section, stillbirths and maternal deaths. However, they had less antenatal care attendance (OR = 0.3, 95% CI: 0.3 - 0.4), more low APGAR score deliveries at five minutes (OR = 2.2, 95% CI: 1.9 - 2.6) and low birth weight (OR = 1.6, 95% CI: 1.4 - 1.8). In contrast, deliveries at 35 - 50 years had increased risks for Cesarean section (OR = 1.4, 95% CI: 1.3 - 1.5), low birth weight (OR = 1.2, 95% CI: 1.1 - 1.3), babies weighing 4.0 kg or more (OR = 1.2, 95% CI: 1.08 - 1.2) and maternal death (OR = 1.4, 95% CI: 1.1 - 2.0). The risks for prenatal complications and stillbirths were also increased for the 35 - 50 years but not after adjusting for confounders. **Conclusion:** Deliveries at 35 years or above were on increase and were associated with the worst pregnancy outcomes at MNH.

**381. Muganyizi, P. S., Kidanto, H. Sickle cell disease in pregnancy: trend and pregnancy outcomes at a tertiary hospital in Tanzania. *PloS one*, 2013; 8(2), e56541.**

SCD in pregnancy is associated with increased adverse fetal and maternal outcomes. In Tanzania where the frequency of sickle cell trait is 13% there has been scanty data on SCD in pregnancy. With progressive improvement in childhood survival the burden of SCD in pregnancy will increase. We analyzed all deliveries at Muhimbili National Hospital (MNH) from 1999 to 2011. Fetal and maternal outcomes of SCD deliveries were compared with non-SCD. Data were analyzed using IBM SPSS statistics version 19. Chi square and Fisher Exact tests were used to compare proportions and the independent t-test for continuous data. To predict risks of adverse effects, odds ratios were determined using multivariate logistic regression. A p-value<0.05 was considered significant. In total, 157,473 deliveries occurred at MNH during the study period, of which 149 were SCD (incidence of 95 SCD per 100,000 deliveries). The incidence of SCD had increased from 76 per 100,000 deliveries in the 1999–2002 period to over 100 per 100, 000 deliveries in recent years. The mean maternal age at delivery was lower in SCD (24.0±5.5 years) than in non-SCD deliveries (26.2±6.0 years),  $p < 0.001$ . Compared with non-SCD (2.9±0.7 Kg), SCD deliveries had less mean birth-weight (2.6±0.6 Kg),  $p < 0.001$ . SCD were more likely than non-SCD to deliver low APGAR score at 5 minutes (34.5% Vs 15.0%, OR = 3.0, 95% CI: 2.1–4.2), stillbirths (25.7% Vs 7.5%, OR = 4.0, 95% CI: 2.8–5.8). There was excessive risk of maternal deaths in SCD compared to non-SCD (11.4% Vs 0.4%, OR = 29, 95% CI: 17.3–48.1). The leading cause of deaths in SCD was infections in wholly 82% in contrast to only 32% in non-SCD. In conclusion SCD in pregnancy is an emerging problem at MNH with increased adverse fetal outcomes and excessive maternal mortality mainly due to infections.

**382. Mugeta, S. B. The practice of active management of third stage of labour: findings from Dar es salaam Municipal Hospitals. Master of Medicine (Obstetrics and Gynaecology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**



**Background:** The third stage of labour is defined as the interval between birth of the baby and complete expulsion of the placenta. Some degree of blood loss occurs after the birth of the baby due to separation of the placenta. This period is a risky period because the uterus may not contract well after birth and heavy blood loss can endanger the life of the mother. Active Management of the Third Stage of Labour (AMTSL) reduces the occurrence of severe postpartum haemorrhage by approximately 60 –70%. Active management consists of three interventions packages or steps. These are administration of oxytocin within one minute after delivery of the baby, controlled cord traction and uterine massage. **Objective:** To evaluate the performance of health care providers on AMTSL in Dar es salaam municipal hospitals. **Methodology:** This was an observational cross sectional study in three municipal hospitals of Dar es Salaam. It was a prospective direct observation of child birth, particularly in the third stage of labour. A total of 400 deliveries were observed. Study design. **Results:** The active management of the third stage of labour was correctly done for 46% of observed deliveries. Oxytocin administration within one minute of the birth of the baby was done in 54.3%, controlled cord traction in 85.2% and uterine massage in 93% of observed deliveries. **Conclusion:** Active management of the third stage of labour is an important skill to be acquired by every health care provider. Early preparation of oxytocin before delivery contributes a lot in provision of oxytocin within one minute of the delivery of the baby and therefore this practice should be highly addressed to every health care provider.

**383. Mugonzibwa, E.A., Mwalutambi, S., Kahabuka, F.K. & Kikwilu, E.N. The Current Status of Nylon teeth belief in Tanzania. Tanzania.1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013.**

**Background:** Since early 1980s, nylon teeth belief has been reported in Tanzania, mainly in Arusha and Singida regions (Mosha et al 1983). In early and late 1990s studies indicated signs of spread of the belief to more regions (Matee et al 1993, Hiza et al 1993, Kikwilu et al 1997). Existence of nylon teeth belief continued to surface in meetings, formal and informal communications in late 1990s, through year 2010. **Objective:** To determine the extent of nylon teeth myth and beliefs in the Tanzanian society by geographical area. **Methods:** Design was a cross sectional cluster study based on the 6 zones of Tanzania mainland being represented by Manyara, Dodoma, Rukwa, Kagera, Mtwara, and Dar es Salaam regions. Each region was targeted to have 200 respondents stratified by age and sex. Efforts were also made to include teachers, health workers and traditional healers of the sampled catchment area. **Results:** A total of 1359 respondents were included in the study. Respondents were aged 16 to 98 years, 61% of the women respondents had primary education or less; 15% were hospital workers, 15% were teachers and 2.2% were traditional healers. While 45% of the total respondents had heard of nylon teeth, most from Kagera region (97%) and most from Mtwara had not (94%). Nearly half (46%) of the respondents who had heard about nylon teeth thought that the nylon teeth problem is a reality. Regarding treatment trusted for curbing nylon teeth problem, nearly half (48%) disagreed that a child believed to be suffering from nylon teeth can be treated by modern medicine. Most respondents (76% to 83%) reported symptoms that are associated with nylon teeth problem, whereby, diarrhea was reported by 83%, long standing fevers by 81% and difficult in sucking milk from mother's breast by 77%. A larger proportion of females (48%) had heard of nylon teeth problem compared to 41% of males ( $p= 0.005$ ,  $\chi^2 = 7.749$ ). Also a larger proportion of males (60%) agreed that nylon teeth can be treated by modern medicine compared to 47% of the females, ( $p= 0.043$ ,  $\chi^2 = 4.013$ ). Of the professionals who had heard of the belief

and also believe it were nurses (33%), pharmacists (43%), teachers (45%), traditional healers (36%) and other professions (53%). **Conclusion:** Nylon teeth belief still exists in regions studied, with extensive variations. Typical of beliefs, hear says overweigh the facts. There are still a big proportion of Tanzanians who do not trust hospital care when it comes to management of nylon teeth especially in hard hit regions. The belief is still based on symptoms that are caused by infectious diseases. **Recommendation:** Therefore, policy interventions are recommended for the control of the nylon teeth belief.

**384. Mugoyela, V. & Minzi, O. Implementation of artemether-lumefantrine treatment policy for malaria at health facilities in Tanzania. Tanzania.1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** The purpose of this study was to compare knowledge on the part of health workers in public and private health facilities about prescribing and dispensing of an artemether- lumefantrine combination, 3 years after moving from sulfadoxine-pyrimethamine to artemether-lumefantrine as a first-line treatment for nonsevere malaria in Tanzania **Objectives:** This study aimed at assessing the implementation of artemether-lumefantrine treatment in Tanzania by measuring knowledge among health workers about artemether-lumefantrine as a first-line malaria treatment, the correct doses, and the need for concomitant food intake 3 years after a policy change in this country. **Methods:** A cross-sectional survey of a convenience sample of 306 dispensaries and pharmacies was conducted in Dar Es Salaam and the Coast region of Tanzania. Of these, 122 were community pharmacies, 143 were private dispensaries, and 41 were public dispensaries. Specific outcome measures were health workers' knowledge of the new malaria treatment guidelines, recommended doses of artemether-lumefantrine, and food requirements. **Results:** Nearly all workers in the public dispensaries and about 50% of workers in private dispensaries and community pharmacies were aware of recommended first-line malaria treatment. The difference in the proportion of health workers with adequate knowledge about the new recommended antimalarial medicine in public and private dispensaries was statistically significant ( $P = 0.0001$ ). There was a higher proportion of workers in public dispensaries who had adequate knowledge about doses of artemether-lumefantrine for adults compared with workers in private dispensaries ( $P = 0.001$ ). Only 58.0% of respondents were able to state correctly the recommended doses in private dispensaries as compared with 77.0% in public dispensaries. Knowledge about the requirement for a concomitant fatty meal was not significantly different between workers in public and private dispensaries ( $P = 0.280$ ) or between those working in public dispensaries and pharmacies ( $P = 0.622$ ). **Conclusion:** Knowledge about the use of artemether-lumefantrine was higher among health workers in public dispensaries than in their counterparts from private health care settings.

**385. Mugusi, S., Ngaimisi, E., Janabi, M., Minzi, O., Bakari, M., Riede, K., Juergen Burhenne,J., Lindquist, L, Mugusi, F., Sandstrom, E., Akillu, E.Liver enzyme abnormalities and associated risk factors in HIV patients on Efavirenz-based HAART with or without Tuberculosis co-infection in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Drug induced liver damage is major cause of morbidity and mortality among HIV patients.**Objectives:** To investigate the timing, incidence, clinical presentation, pharmacokinetics and pharmacogenetic predictors for antiretroviral and anti-tuberculosis drug induced liver injury (DILI) in HIV patients with or without TB co-infection.**Methods:** A total of 473 treatment naïve HIV patients (253 HIV only and 220 with HIV-TB co-infection) were enrolled prospectively. Plasma efavirenz concentration and CYP2B6\*6, CYP3A5\*3, \*6 and \*7, ABCB1 3435C/T and SLCO1B1 genotypes were determined. Demographic, clinical and laboratory data were collected at baseline and up to 48 weeks of antiretroviral therapy. DILI case definition was according to Council for International Organizations of Medical Sciences (CIOMS). Incidence of DILI and identification of predictors was evaluated using Cox Proportional Hazards Model.**Results:** The overall incidence of DILI was 7.8 % (8.3 per 1000 person-week), being non-significantly higher among patients receiving concomitant anti-TB and HAART (10.0%, 10.7per 1000 person-week) than those receiving HAART alone (5.9%, 6.3 per 1000 person-week). Frequency of CYP2B6\*6 allele (p=0.03) and CYP2B6\*6/\*6 genotype (p=0.06) was significantly higher in patients with DILI than those without. Multivariate cox regression model indicated that CYP2B6\*6/\*6 genotype and anti-HCV IgG antibody positive as significant predictors of DILI. Median time to DILI was 2 weeks after HAART initiation and no DILI onset was observed after 12 weeks. No severe DILI was seen and the gain in CD4 was similar in patients with or without DILI.**Conclusion:** Antiretroviral and anti-tuberculosis DILI does occur in our setting

386. Muhihi, A. J., Mpembeni, R. N., Njelekela, M. A., Anaeli, A., Chillo, O., Kubhoja, S., Ngarashi, D. Prevalence and determinants of obesity among primary school children in Dar es Salaam, Tanzania. *Archives of Public Health*, 2013; 71(1), 26.

Childhood obesity has increased dramatically and has become a public health concern worldwide. Childhood obesity is likely to persist through adulthood and may lead to early onset of NCDs. However, there is paucity of data on obesity among primary school children in Tanzania. This study assessed the prevalence and determinants of obesity among primary school children in Dar es Salaam.**Methods:** A cross sectional study was conducted among school age children in randomly selected schools in Dar es Salaam. Anthropometric and blood pressure measurements were taken using standard procedures. Body Mass Index (BMI) was calculated as weight in kilograms divided by the square of height in meters (kg/m<sup>2</sup>). Child obesity was defined as BMI at or above 95th percentile for age and sex. Socio-demographic characteristics of children were determined using a structured questionnaire. Logistic regression was used to determine association between independent variables with obesity among primary school children in Dar es Salaam. **Results:** A total of 446 children were included in the analysis. The mean age of the participants was 11.1±2.0 years and 53.1% were girls. The mean BMI, SBP and DBP were 16.6±4.0 kg/m<sup>2</sup>, 103.9±10.3mmHg and 65.6±8.2mmHg respectively. The overall prevalence of child obesity was 5.2% and was higher among girls (6.3%) compared to boys (3.8%). Obese children had significantly higher mean values for age (p=0.042), systolic and diastolic blood pressures (all p<0.001). Most obese children were from households with fewer children (p=0.019) and residing in urban areas (p=0.002). Controlling for other variables, age

above 10 years (AOR=3.3, 95% CI=1.5-7.2), female sex (AOR=2.6, 95% CI=1.4-4.9), urban residence (AOR=2.5, 95% CI=1.2-5.3) and having money to spend at school (AOR=2.6, 95% CI=1.4-4.8) were significantly associated with child obesity. **Conclusions:** The prevalence of childhood obesity in this population was found to be low. However, children from urban schools and girls were proportionately more obese compared to their counterparts. Primary preventive measures for childhood obesity should start early in childhood and address socioeconomic factors of parents contributing to childhood obesity.

**387. Muhozya, A. P. Caudal block for pain relief in children Undergoing perineal and lower abdominal Surgeries at Muhimbili National Hospital Dar es salaam, Tanzania, 2012. Master of Medicine (Anaesthesiology), Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Pain management is one of the important components of balanced anaesthesia. It can be provided by different methods intravenous, intramuscular, orally, topical or regional. Caudal block has evolved to become the most popular, safe and easy regional anaesthetic technique to be performed in children undergoing sub umbilical surgeries. **Objective:** The study was undertaken to assess the analgesic effect that is the duration and quality of analgesia provided by a single shot caudal epidural block using bupivacaine 0.25% for intraoperative and postoperative pain relief in children undergoing perineal and lower abdominal surgeries at Muhimbili National Hospital in Tanzania from April to December 2012. **Material and methods:** After local ethical committee approval and obtaining informed parental consent, a cross sectional observational study was done in the main operating theatre and paediatrics surgery ward at Muhimbili National hospital from April to December 2012. A total of 118 ASA I and II children, aged 6 months to 11 years, undergoing perineal, genitourinary and lower abdominal surgeries, were enrolled in the study. All surgeries were done under general anaesthesia. Following induction caudal block was performed in the lateral position. Preoperative Cardio- respiratory parameters, analgesic requirement and complications were recorded in all children. Quality of pain during recovery was assessed by FLACC pain scale for 30 minutes interval with maximum of 2 hours in the recovery room and then 2 hourly in the ward for 12 hours. In the recovery room a child with score 1 to 3 paracetamol suppository (15mg/kg) was inserted while in the ward a child with a score of 4 or above rescue analgesia (injection morphine 0.1mg/kg) was given. Children were followed up for 24 hours to identify and manage all detected complications. **Results:** Caudal block was performed in 118 children with a success rate of (98.3%). The hemodynamic parameters were reduced or remained stable in all successful blocks. The hemodynamic alterations observed during the operation were statistically significant when compared to values before incision. ( $P < 0.05$ ). Average duration of analgesia was (8.20±2.1) hours with a range of 3-12 hours. The duration of analgesia was prolonged in younger children when compared to those aged more than 72 months. Inguinal surgeries had a lower duration of analgesia when compared to other type of surgeries. FLACC pain score recorded at the time of rescue analgesia were not significantly different between different age groups or type of surgery  $p > 0.05$ . The Most common complication encountered was vomiting affecting 5% of 116 children, other complications rarely occurred. **Conclusions:** This study has shown that caudal block

success rate is high in providing intraoperative and postoperative analgesia. If there is no contraindication caudal block is the best choice analgesic technique in children undergoing sub umbilical surgeries. Caudal block provide safe and effective intraoperative and post-operative analgesia with less hemodynamic changes, complications and side effects. **Recommendation** Caudal epidural block should be part and parcel of paediatric anaesthetic management in children undergoing, genitourinary, perineal and lower abdominal surgeries in Tanzania.

- 388. Mujinja, P.G.M., Koivusalo, M., Mackintosh, M., Chaudhuri, S. NGOs, consumer rights and access to essential medicines: non-governmental public action in a low-income market context. In: Howell, Jude ed. *Non-Governmental Public Action and Social Justice. Non-Governmental Public Action Series. Basingstoke: Palgrave Macmillan, 2013 pp. 112–135.***

If medicines are obtained by a low income population largely through market exchange, then consumer rights become a key aspect of the right to health, and hence a key aspect of tackling severe injustice and inequality. In Tanzania and India, where market-based access to medicines is dominant, regulation of retail sales is also weak and impoverished consumers lack necessary information about the medicines they are buying. As a result they face, unprotected, dangers of the medicine markets that may include substandard medicines, incomplete treatment, inappropriate and even dangerous treatments, over-priced medicines, worsening impoverishment and/or exclusion for inability to pay, and rising anti-microbial resistance. We document just how vulnerable medicines consumers are in these circumstances, and the lack of effective consumer protection. We argue that consumers cannot place their trust in the market transaction alone to gain access to rational treatment with essential medicines. In these circumstances, non-governmental public action has an important role to play. We conclude that local and international non-governmental public action can do much more to promote consumer rights as one key route to the promotion of the right to health of impoverished populations.

- 389. Munga, M.A., Mwangi, M.A. Comprehensive health workforce planning: Re-consideration of the primary health care approach as a tool for addressing the human resource for health crisis in low and middle income countries. *Tanzania Journal of Health Research*, 2013; 15 (2).**

Although the Human Resources for Health (HRH) crisis is apparently not new in the public health agenda of many countries, not many low and middle income countries are using Primary Health Care (PHC) as a tool for planning and addressing the crisis in a comprehensive manner. The aim of this paper is to appraise the inadequacies of the existing planning approaches in addressing the growing HRH crisis in resource limited settings. A descriptive literature review of selected case studies in middle and low income countries reinforced with the evidence from Tanzania was used. Consultations with experts in the field were also made. In this review, we propose a conceptual framework that describes planning may only be effective if it is structured to embrace the fundamental principles of PHC. We place the core principles of PHC at the centre of

HRH planning as we acknowledge its major perspective that the effectiveness of any public health policy depends on the degree to which it envisages to address public health problems multidimensionally and comprehensively. The proponents of PHC approach in planning have identified intersectoral action and collaboration and comprehensive approach as the two basic principles that policies and plans should accentuate in order to make them effective in realizing their pre-determined goals. Two conclusions are made: Firstly, comprehensive health workforce planning is not widely known and thus not frequently used in HRH planning or analysis of health workforce issues; Secondly, comprehensiveness in HRH planning is important but not sufficient in ensuring that all the ingredients of HRH crisis are eliminated. In order to be effective and sustainable, the approach need to evoke three basic values namely effectiveness, efficiency and equity.

- 390. Munseri, P.J., Bakari, M., Janabi, M., Aris, E., Aboud, S., Hejdeman, B., Sandstrom, E Declining HIV-1 prevalence and incidence among Police Officers - A potential cohort for HIV vaccine trials, in Dar es Salaam, Tanzania. *BMC Public Health*, 2013;13 (1):722.**

**Background:** A safe effective and affordable HIV vaccine is the most cost effective way to prevent HIV infection worldwide. Current studies of HIV prevalence and incidence are needed to determine potentially suitable cohorts for vaccine studies. The prevalence and incidence of HIV-1 infection among the police in Dar es Salaam in 1996 were 13.8% and 19.6/1000 PYAR respectively. This study aimed at determining the current prevalence and incidence of HIV in a police cohort 10 years after a similar study was conducted. **Methods.** Police officers in Dar es Salaam, Tanzania were prospectively enrolled into the study from 2005 and followed-up in an incidence study three years later. HIV infection was determined by two sequential enzyme linked immunosorbent assays (ELISAs) in the prevalence study and discordant results between two ELISAs were resolved by a Western blot assay. Rapid HIV assays (SD Bioline and Determine) were used for the incidence study. **Results:** A total of 1,240 police participated in the HIV prevalence study from August 2005 to November 2008. Of these, 1101 joined the study from August 2005-September 2007 and an additional 139 were recruited between October 2007 to November 2008 while conducting the incidence study. A total of 726 (70%) out of the 1043 eligible police participated in the incidence study. The overall HIV-1 prevalence was 65/1240 (5.2%). Females had a non-statistically significant higher prevalence of HIV infection compared to males 19/253, (7.5%) vs. 46/987 (4.7%) respectively ( $p = 0.07$ ). The overall incidence of HIV-1 was 8.4 per 1000 PYAR (95% CI 4.68-14.03), and by gender was 8.8 and 6.9 per 1000 PYAR, among males and females respectively, ( $p = 0.82$ ). **Conclusions:** The HIV prevalence and incidence among the studied police has declined over the past 10 years, and therefore this cohort is better suited for phase I/II HIV vaccine studies than for efficacy trials.

- 391. Munseri, P., Kroidl, A., Nilsson, C., Moshiro ,C., Aboud, S., Joachim, A., Geldmacher, C., Aris, E., Buma, D., Lyamuya, E ., Godoy, K., Maboko, L., Marovich, M., Robb, M., Hoelscher, M., Janabi, M ., Mann, P., Joseph, S., Stoehr, W., Mhalu, F., Wahren, B., Biberfeld, G., Priming with a “simplified regimen” of HIV-1 DNA vaccine compared to a “standard regimen” after boosting with**

**heterologous HIV-1 MVA vaccine in Tanzania – the TaMoVac-01 trial. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The HIVIS-03 trial showed that intradermal priming with 1000ug DNA in 5 injections of 0.1 ml as separate plasmid pools prior to MVA boosting resulted in strong and broad immunogenicity. However that required 5 injections at each immunization. **Objectives:** In the TaMoVac-01 we assessed whether a higher concentration of DNA might allow a simpler administration. **Methods:** The TMV-01 trial recruited 120 (12 placebo) HIV-uninfected volunteers, in Dar es Salaam and Mbeya. Two pools of DNA plasmids (pool1 EnvABC + RevB, pool2 GagAB + RTB) were used for priming, boosting was with MVA CMDR. Volunteers were randomized to three groups of 40, to either two injections of 300ug, one in each arm of DNA with combined plasmids (group IA) or two injections of 300ug with one pool in each arm of DNA (group IIA) “simplified regimens” or five injections, 2 (pool1) and 3 (pool2) injections in the right and left arm respectively, (total 1000ug) of DNA (IIIA) “standard regimen”. DNA/Placebo was administered at weeks 0, 4 and 12 by a Biojector device. Boosting with 108 pfu of recombinant MVA/placebo at weeks 30 and 46 was done by a needle intramuscularly. The primary end point was the number of ELISpot responders to Gag and Env, 2 weeks post the last vaccination. **Results:** There were no safety concerns. Gag and/or Env response rate was 27/32 (84%) in group IA vs 31/33 (94%) in group IIA (p=0.26). Response rate when comparing the ‘simplified regimens’ vs ‘standard’ regimen was 58/65 (89%) vs 32/32 (100%) p=0.09. The median magnitude (IQR) response to Gag was 165 (100,365) SFC/million PBMC vs 210 (120,320), p=0.46 while the magnitude for Env was 150 (92,225) vs 110 (80,160) p=0.17 for the ‘simplified’ vs ‘standard’ regimens. **Conclusion:** The “simplified vaccination regimen employing a lower dose of combined DNA plasmids pools in 2 injections primed cellular immune responses as well as the “standard” regimen.

392. **Munyaradzi, M.; Rupere, T.; Nyambo, B.; Mukute, S.; Chinyerutse, M.; Hapanga, T.; Mashonjowa, E. A low cost automatic irrigation controller driven by soil moisture sensors. *international Journal of Agriculture Innovations and Research*, 2013; 2(1):pp 1-7.**

A substantial percentage of farmers in Southern Africa, including Zimbabwe, rely on rain for most of their farming activities but there are areas which are entirely dependent on irrigation water to produce viable crops. Water-saving agricultural practices and sound water management strategies are therefore required to ensure viability of the farming industry in those places that receive less rain. The study aimed at developing an automatic irrigation controller which is low cost and reliable for a low income farmer. The controller uses signals from the soil to schedule irrigation and was made from cheap and off the shelf components from our laboratory stores and local electronic retail shops.

The heart of the controller circuit was the PIC Microcontroller 16F872 that uses only 35 instructions for programming in assembly language. Two dielectric capacitance sensors (0.20 m ECH<sub>2</sub>O probe, Decagon Devices, Inc. Pullman, WA USA.) connected to the controller circuit, were used to measure the dielectric constant of the soil in order to determine its volumetric water content and hence the need to irrigate. Most of the low cost irrigation controllers that are locally available are ON/OFF type and these cannot give optimal results in terms of irrigation costs and crop yield. We determined that using our controller we could produce compatible results with other watermark methods for scheduling irrigation at lower costs (The total cost of other materials excluding the landed cost of the capacitance sensors and labour for populating the pc board was US\$36). We also managed to provide calibration data for soil water based irrigation control in the clay-loam soils of Northern Harare using the capacitance sensors.

- 393. Mutagonda, R., Kamuhabwa, A. A., Massawe, S., Mpembeni, R. Intermittent preventive therapy and treatment of malaria during pregnancy: a study of knowledge among pregnant women in Rufiji District, Southern Tanzania. *Tropical Journal of Pharmaceutical Research*, 2013; 11(5), 835-845.**

**Purpose:** To assess the knowledge and awareness of pregnant women regarding the use of sulfadoxinepyrimethamine (SP) for intermittent preventive therapy (IPT) and artemether-lumefantrine (ALu) for treatment of malaria during pregnancy. **Methods:** The study was conducted in Rufiji district, southern Tanzania from March 2011 to September 2011. Four hundred and seventy (470) pregnant women in their second and third trimesters were interviewed when attending antenatal clinics at the selected hospitals, health centers and dispensaries. Focus group discussions (FGDs) were also conducted with 46 pregnant women at the health facilities in the district. **Results:** More than half (54.3 %) of pregnant women did not know if SP it was used for IPT. Most women (76.6 %) did not know the use of SP for IPT in relationship with gestation age. Overall, the results show that most women had very low knowledge about the use of SP for IPT. Forty three (9.1 %) pregnant women reported to have had malaria during their current pregnancies. The antimalarials reported to be used by pregnant women were quinine 18(42.9 %), SP (23.8 %), ALu (21.4%) and sulphamethoxyprazinepyrimethamine (2.4%). Irrespective of the gestation age of pregnancy, almost all (98.3 %) pregnant women perceived ALu as unsafe drug to be used during pregnancy. **Conclusion:** Most pregnant women had minimum knowledge about the use and benefits of SP for IPT and ALu for treatment of malaria during pregnancy. Some erroneous beliefs about the safety of ALu during pregnancy were also identified among pregnant women. For effective implementation of IPT policy and treatment of malaria during pregnancy, pregnant women should be sensitized and educated on the use and benefits of antimalarial drugs.

- 394. Mutagonda, R., Kamuhabwa, A.R., Massawe, S., & Mpembeni, R. Intermittent preventive therapy and treatment of malaria during pregnancy: a study of knowledge among pregnant women in Rufiji District, Southern Tanzania. Tanzania.1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**



**Background:** use of sulfadoxine-pyrimethamine (SP) for intermittent preventive therapy (IPT) and artemether-lumefantrine (ALu) for treatment of malaria during pregnancy has been shown to be key strategy in reducing maternal and infant mortality due to malaria. **Objectives:** To assess the knowledge and awareness of pregnant women regarding the use of sulfadoxine-pyrimethamine (SP) for intermittent preventive therapy (IPT) and artemether-lumefantrine (ALu) for treatment of malaria during pregnancy. **Methods:** The study was conducted in Rufiji district from March 2011 to September 2011. Four hundred and seventy pregnant women in their 2nd and 3rd trimesters were interviewed when attending ANCs at the selected health facilities. Focus group discussions (FGDs) were also conducted with 46 pregnant women at the health facilities in the district. **Results:** More than half (54.3 %) of pregnant women did not know if SP was used for IPT. Most women (76.6 %) did not know the use of SP for IPT in relationship with gestation age. Overall, the results show that most women had very low knowledge about the use of SP for IPT. Forty three (9.1 %) pregnant women reported to have had malaria during their current pregnancies. The antimalarials reported to be used by pregnant women were quinine 18(42.9 %), SP (23.8 %), ALu (21.4%) and sulphamethoxyprazine-pyrimethamine (2.4%). Irrespective of the gestation age of pregnancy, almost all (98.3 %) pregnant women perceived ALu as unsafe drug to be used during pregnancy. **Conclusion:** For effective implementation of IPT malaria treatment guidelines during pregnancy, pregnant women should be sensitized and educated on the use and benefits of antimalarial drugs.

**395. Mutagonda, R., Kamuhabwa, A. A., Massawe, S., Mpembeni, R. Intermittent preventive therapy and treatment of malaria during pregnancy: a study of knowledge among pregnant women in Rufiji District, Southern Tanzania. *Tropical Journal of Pharmaceutical Research*, 2013; 11(5), 835-845.**

**Purpose:** To assess the knowledge and awareness of pregnant women regarding the use of sulfadoxinepyrimethamine (SP) for intermittent preventive therapy (IPT) and artemether-lumefantrine (ALu) for treatment of malaria during pregnancy. **Methods:** The study was conducted in Rufiji district, southern Tanzania from March 2011 to September 2011. Four hundred and seventy (470) pregnant women in their second and third trimesters were interviewed when attending antenatal clinics at the selected hospitals, health centers and dispensaries. Focus group discussions (FGDs) were also conducted with 46 pregnant women at the health facilities in the district. **Results:** More than half (54.3 %) of pregnant women did not know if SP it was used for IPT. Most women (76.6 %) did not know the use of SP for IPT in relationship with gestation age. Overall, the results show that most women had very low knowledge about the use of SP for IPT. Forty three (9.1 %) pregnant women reported to have had malaria during their current pregnancies. The antimalarials reported to be used by pregnant women were quinine 18(42.9 %), SP (23.8 %), ALu (21.4%) and sulphamethoxyprazinepyrimethamine (2.4%). Irrespective of the gestation age of pregnancy, almost all (98.3 %) pregnant women perceived ALu as unsafe drug to be used during pregnancy. **Conclusion:** Most pregnant women had minimum knowledge

about the use and benefits of SP for IPT and ALu for treatment of malaria during pregnancy. Some erroneous beliefs about the safety of ALu during pregnancy were also identified among pregnant women. For effective implementation of IPT policy and treatment of malaria during pregnancy, pregnant women should be sensitized and educated on the use and benefits of antimalarial drugs.

- 396. Muzdalifat, A., Projestine, M., Pia, O., Pia, A. Community Perceptions of Rape and Child Sexual Abuse in Rural Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Violence against women and children is increasingly recognized as a specific health and human rights issue. In Tanzania it is estimated that 20% of adult women, 28% of girls and 13% of young boys experienced sexual violence **Objectives:** The aim of the study was to explore important socio-cultural factors or norms that may perpetuate rape or child sexual abuse or hinder the disclosure of events, provision of care and support to sexual violence survivors in Morogoro, Tanzania **Methods:** Five focus group discussions were conducted with adult community members obtained through purposively sampling technique. The focus group discussions were recorded, transcribed verbatim and analyzed using qualitative content analysis. **Results:** Four themes emerged summarizing their perceptions of rape. The theme “change in social dynamics” entails perceptions of how modernity has influenced people’s behaviour and perpetuated rape events, while “community passivity, shame and fear” reflects lack of community’s cooperation with the legal system due to shame and fear of involvement. Under the theme “ legal system weaknesses” highlights the systemic weaknesses that may negatively affect legal proceedings and withdrawal from their cases, and “ plea for community education on sexual violence’s” reflects on the need for educating the community to raise awareness on sexual violence’s and their roles as preventive agents **Conclusion:** Addressing the identified challenges may promote health seeking behaviour and improve care among survivors of sexual violence, while changes in social and cultural norms are needed for the prevention of sexual violence’s.

- 397. Mwakanyamale, A .A. Nursing practice on post operative wound care surgical wards at Muhimbili Nation Hospital, Dar-es-salaam, Tanzania. Masters of Science (critical care and trauma) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Postoperative wound healing has been a problem which causes high mortality in the developing world; postoperative wound has been reported to cause devastating consequences and a measurable mortality. The objective of the study was to assess nursing practice on postoperative wound care in surgical wards at Muhimbili National Hospital. **Methodology:** A quantitative descriptive cross-sectional design was employed. Data was collected using a checklist from a convenient sample of 71 nurses

in surgical wards at Muhimbili National Hospital. The study was approved by the ethical committee of Muhimbili University of Health and Allied Sciences and permission to conduct the study was granted by Muhimbili National Hospital. Data was analyzed using SPSS program version 19. Results were summarized using frequencies, percentages, and presented using figures, tables and text. **Results:** The result shows that majority of the participants were female 76.5% and 40.8% of the participants aged 25 – 34 years. More than half of the participants were observed to have poor post operative wound care practice 57.7%. Male participants scored higher, and had better practice compared to female however there was no significant difference between the scores ( $P=0.803$ ). In the preparation phase, hand washing before and after the procedure was observed by less than half of the participants 49.3%. None of the participants ensured cleanliness of the environment and patient's privacy by screening or closing the room. The study findings revealed that nurses use clean gloves when removing the old dressing 99%, while use of sterile gloves during wound dressing was not observed by 63% of participants. Good practice was observed in applying dressing solution as prescribed 85% participants, dry sterile dressing applied 90%, arrangement of dressing forceps and other items by order to their application using forceps 20%, usage of forceps to dip gauze into antiseptic solution 35% and cleaning of the wound from least contaminated to most contaminated area 34%. Post-operative counselling and instructing the patient not to temper with the wound was done by only 15% of the participants. None of the participant documented wound changes, reported patient comfort, and recorded date or time after the procedure. **Conclusion:** Majority of the participants in surgical wards do not follow the postoperative wound care checklist provided by MNH although they know its importance. Assessment of the wound and documentation continues to be a problem in the nursing profession. Participants were reasonably knowledgeable about the principal of wound dressing; however lack of knowledge on some of the key principles of wound dressing is worth noting. Almost half of the participants did not wash hands before and after the procedures, they did not use single gauze in one direction only, nor cleaned from least contaminated to most contaminated area, which can lead to wound contamination. **Recommendation:** Ministry of health and social welfare should ensure that nurses are more trained at least to undergraduate level of nursing education. This can be achieved by providing more learning opportunities to nurses accompanied by sponsorships from the Ministry of Health and Social Welfare and sophisticated access to loan from Higher Education Loan Board (HELBS) Muhimbili National Hospital should recruits adequate number of nurses to cope with workload and number of patients. Adequate number of nurses will enable nurses to have more time to prepare equipments and to assess, plan, implement and evaluate care of patients with wound. Ministry of health and social welfare should also ensure that nurses caring for patients with wounds have refresher course to update them on issues of personal and patient protection from infection through infection control and prevention seminars. Increase economic power of the MNH to purchase items to ensure adequate supply of dressing materials including dressing packs, toothed forceps, cotton swabs, gauze, kidney dishes, dressing towels, artery forceps, eusol solution and Hydrogen peroxide solution, normal saline and Spirit.

398. Mwakigonja, A. R., Liset, M., Torres, M. Henry, A., Ephata, M., Kaaya, E. **Cervical cytomorphological changes amongst HIV-infected women attending care and treatment clinic at Muhimbili National Hospital, Dar es Salaam, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** HIV infected women appear to have a higher rate of persistent infection by high risk types of human papillomavirus (HPV) strongly associated with high-grade squamous intraepithelial lesions (HSIL) and invasive cervical carcinoma. **Objectives:** To determine the frequency and HIV/HPV association of cervical cancer and HSIL in HIV patients **Methods:** HIV-seropositive, women  $\geq 18$  years of age were recruited Muhimbili National Hospital (MNH) between 2005 and 2006. HIV seronegative, women recruited from the Cervical Cancer Screening unit (CCSU) at ORCI was used as controls. Pap smears were collected for routine cytodiagnosis and P53 immunohistochemistry (IHC). Cervical lesions were classified according to the Modified Bethesda System. **Results:** A total of 170 participants from the two centers were recruited including 50 HIV-seronegative controls from the CCSU. Ages ranged from 20–66 years (mean 40.5 years) for cases and 20–69 years (mean 41.6 years) for controls. The age group 36–45 years was the most affected by HIV (39.2%,  $n = 47$ ). Cervicitis, squamous intraepithelial lesions (SIL) and carcinoma constituted 28.3% ( $n = 34$ ), 38.3% ( $n = 46$ ) and 5.8% ( $n = 7$ ) respectively among cases, and 28% ( $n = 14$ ), 34% ( $n = 17$ ) and 2% ( $n = 1$ ) for controls, although this was not statistically significant ( $P$ -value = 0.61). IHC showed that p53 was not detectable in HPV + Pap smears and cell blocks indicating possible degradation. **Conclusion:** The frequency of SIL and carcinoma appeared to be higher among HIV-infected women on HAART compared to seronegative controls and as expected increased with age. HIV seropositive patients appeared to present earlier with SIL suggesting a role of HIV in altering the natural history of HPV infection and cervical lesions.

399. Mwakiwa, E., De Boer, W. F., Hearne, J. W., Slotow, R., van Langevelde, F., Peel, M., Prins, H. H. **Optimization of wildlife management in a large game reserve through waterpoints manipulation: A bio-economic analysis. *Journal of environmental management*, 2013; 114, 352-361.**

Surface water is one of the constraining resources for herbivore populations in semi-arid regions. Artificial waterpoints are constructed by wildlife managers to supplement natural water supplies, to support herbivore populations. The aim of this paper is to analyse how a landowner may realize his ecological and economic goals by manipulating waterpoints for the management of an elephant population, a water-dependent species in the presence of water-independent species. We develop a theoretical bio-economic framework to analyse the optimization of wildlife management objectives (in this case revenue generation from both consumptive and non-consumptive use and biodiversity conservation), using waterpoint construction as a control variable. The model provides a bio-economic framework for analysing optimization problems

where a control has direct effects on one herbivore species but indirect effects on the other. A landowner may be interested only in maximization of profits either from elephant offtake and/or tourism revenue, ignoring the negative effects that could be brought about by elephants to biodiversity. If the landowner does not take the indirect effects of waterpoints into consideration, then the game reserve management, as the authority entrusted with the sustainable management of the game reserve, might use economic instruments such as subsidies or taxes to the landowners to enforce sound waterpoint management.

**400. Mwambete, K. D., Justin-Temu, M. Challenges of secondary immunodeficiency and drug resistant opportunistic pathogens in developing countries. 2013.**

The immune system is composed of a variety of cells and proteins viz. lymphocytes, phagocytes, and cytokines, for which one of the principal functions is microbial defense. Abnormalities of the immune system (IS), particularly the secondary immunodeficiency, are due to old age, several pathologic conditions (diabetes mellitus, lymphohematologic neoplasias, malnutrition, HIV/AIDS etc.), surgical stress or burns, and immunosuppressive therapies. Such deficits in the IS can therefore lead to unusually severe or uncommon recurrent/opportunistic infections (OIs). These infections take advantage of this weak host IS and manifest their adverse effects. The main clinical manifestation of SI, inclusive HIV/AIDS, is severe OIs with abnormally high mortality. OIs are of endogenous nature because OI-causing pathogens are also present in healthy hosts, though only in limited quantities. It is recognized that the IS normally suppresses opportunistic pathogens, and immunodeficiency causes OIs. Drug-resistant microorganisms are frequently detected in individuals with immunodeficiency, and that this drug-resistance is partially responsible for the frequent lethal outcome of OIs incurable by antibiotics. No apparent link exists between immunodeficiency and drug-resistance of the microorganisms. However, drug resistance is a natural consequence of antibiotic abuse that results from natural selection of drug-resistant mutants under the selective pressure of antibiotics. Bacterial infections contribute to most human and animal diseases in developing countries and are those in which emerging antimicrobial resistance is most evident. Resistance to antimicrobial agents has become major health concern as a number of people with acquired/secondary immunodeficiency are also infected by drug resistant pathogens and/or opportunistic microorganisms.

**401. Mwambete, K. D., Tunzo, J., Justin-Temu, M. Prevalence and Management of Helminthiasis among Underfives Living with HIV/AIDS at Amana Hospital, Tanzania. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*, 2013; 12(2), 122-127.**

**Objective:** This was a cross-sectional study intended to assess the prevalence and management of helminthiasis (HL) among underfives living with HIV/AIDS (ULHA). **Methodology:** Clinical histories of ULHA were scrutinized for HIV/AIDS status, antiretroviral therapy (ART), HL prevalence, and their management. **Results:** About

364 ULHA were studied, 213 (58.5%) were girls and 151 (41.5%) were boys. Of the 364 ULHA, 171 (47.5%) had HL and 64.3% were treated with albendazole (ABZ). Trichuriasis was ascribed to 23.6% of HL. Majority (72.5%) of ULHA had a CD4 count below 200 cells/mm<sup>3</sup>. Direct association was observed between CD4 counts and HL. About 55% ULHA were on lamivudine (3TC)-stavudine (d4T)-nevirapine (NVP; LSN) combination therapy. The ABZ-LSN combination was frequently used for HIV/AIDS and HL management. **Conclusion:** High prevalence of HL and vivid correlation between HIV status and HL were observed. The LSN-ABZ combination was frequently employed for management of HIV/AIDS and HL. We recommended prompt diagnosis of HL to avoid acceleration of HIV infection to AIDS.

**402. Mwambete, K.D., Sangwa, E.K. Health concerns on microbiological quality of bottled drinking water sold in dar es salaam, Tanzania. *Journal of Pharmacy and Nutrition Sciences*, 2013; 3 (1), pp. 17-25.**

**Background:** Dar es Salaam City has over 10 million habitants, who are constantly circumvented by waterborne diseases. The city experiences humid and hot weather throughout a year, which lead to high consumption of bottled drinking water because of being perceived as safer than tap or well water. Waterborne disease outbreaks still create havoc among the city habitants. This study determines heterotrophic plate count (HPC) values in bottled water and performs antimicrobial resistance tests on isolated microorganisms. **Methods:** A cross-sectional study was conducted. Fifty-four samples of bottled water were randomly purchased from shops, supermarkets and street vendors. HPC values were determined and microbial contaminants identified. The disk diffusion method was employed for testing antimicrobial resistance of microbial contaminants against four widely used antibiotics. **Results:** HPC values were variable ( $4.7 \times 10^2$  to  $7.0 \times 10^5$  cfu/ml). Majority (86.7%) of analyzed samples revealed high HPC values. Four bacterial species were isolated and identified from 47 samples. Predominant bacterial contaminants were *Brevundimonas vesicularis* (54.5%), while *Pseudomonas thomasi* was only isolated from one brand A sample. Brand E samples had the highest HPC values ( $2.2 \times 10^4$  to  $2.16 \times 10^5$  cfu/ml) while F samples were free from microbial contaminants. A total of 21 (46.7%) bacterial isolates were resistant to commonly used antibiotics namely ciprofloxacin, ampicillin, cotrimoxazole and chloramphenicol. **Conclusion:** Of 54 analyzed bottled water samples, 47 had high HPC values. A high rate of antibacterial resistance was exerted against ciprofloxacin (68.2%) and ampicillin (56%). This calls for responsible authorities to impose more stringent measures on in-process quality control among bottled water producers and indefatigably conduct postproduction surveillance to avert the endemic water-borne outbreaks resulting from consumption of such products.

**403. Mwandalima, I. J. Utilization of maternal health services provided by community health workers among pregnant women, in Mkuranga District, Tanzania. Master of Medicine (Community Health) Dissertation 2013. *Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

**Background:** The burden of maternal mortality is higher in developing countries which is approximated to harbor 99% of the global burden; the Sub-Saharan Africa harbors an enormous portion of this burden, Tanzania inclusive. Efforts in improving maternal health are being hampered by number of factors which include Shortage of human resource for health (HRH) and poor access to care by pregnant women. To bridge this gap a Community health worker model is being implemented in a number of countries and has shown to be effective. Community health workers are community members who are given short course training, intended to enable them provide health services especially in remote and underserved areas. However little is known about utilization of the services offered by CHW and factors that influence the utilization of the services they provide in the community. **Objectives:** The aim of the study was to determine utilization of maternal health services provided by CHWs among pregnant women in Mkuranga district Tanzania **Materials and Method:** This Analytical cross sectional study was conducted among pregnant women attending antenatal clinic in Mkuranga district. Semi structured questionnaire and Reproductive and Child Health Card number 4 (RCH Card No 4) were used to collect data. Data was entered in SPSS version 20 statistical package. Descriptive statistics was used to describe the data, chi square was used to check evidence of association of variable at population level and logistic regression was used to check the relationship of factors with utilization. STATA version 12 was also used in constructing the wealth index. **Results:** Total of 612 pregnant women aged between 18 to 48 years, with median age of 28 were recruited in the study. Among the respondents 48 (8.5%) were HIV positive. More than a quarter (27.5%) of pregnant women reported to have utilized services provided by CHWs in their current pregnancy. Marital status, respondent education, partner education and occupation influenced utilization of maternal health services provided by community health workers. **Conclusion:** Significant number of pregnant women in Mkuranga district utilizes CHWs services. The study suggested different relationship of some factors known to influence utilization of health services provided by CHWs as compared to when provided by modern health care system. **Recommendations:** Deployment of more CHWs to improve their access by pregnant women, improving supportive supervision to CHWs as well as reviewing CHW scope of work and workload should be considered. Studying community acceptability of CHWs program and exploring CHW competency and effectiveness in executing the tasks assigned to them is of paramount importance.

**404. Mwandolela, M.M. Organizational factors influencing non disclosure of hiv status among sexual partners attending muhimbili national hospital care and treatment clinic in dar es salaam, tanzania. Master of Public Health Dissertation , 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam**

**Background:** Disclosure of HIV positive sero-status to sexual partners, friends or relatives is useful for prevention and care. Identifying factors associated with disclosure is a research priority as a high proportion of persons living with HIV&AIDS never disclose. HIV counseling and testing programmes as well as post test care services such as of antiretroviral therapy and pre-ART care emphasize HIV status disclosure among persons living with HIV&AIDS. **Objective:** The broad objective of this study was to

establish organizational factors influencing non disclosure among sexual partners attending Care and Treatment Clinic at Muhimbili National Hospital Dar es salaam Tanzania.**Methods:**A descriptive cross sectional study was conducted at the Muhimbili National Hospital Care and Treatment Clinic. A total of 215 respondents participated in this study (207 clients, 5 Counselors and 3 Administrators). Non probability purposive sampling technique was used to select counselors and the administrators. Exit interviews were conducted to the clients using a structured questionnaire to get information on organizational factors contributing to non disclosure of HIV status among sexual partners attending Care and Treatment Clinic. A review of various documents/records such as job allocation book, staff attendance book, staff roster and client register book, HIV&AIDS policy and guideline was conducted at the study site to get information on availability of personnel, work schedules, workload per care provider per day, number of clients and attendance and availability of policy and guidelines materials. Observations were conducted throughout the study on the issues like number of clients, client flow, availability of equipments and guidelines, client- provider interaction and emerging issues during the course of data collection. In-depth interviewing was conducted with the MNH administrators and the counselors to generate information on issues like availability of funds, staff availability, training, user involvement and their evaluation of the working environment they have at MNH. The questionnaire contained both close and open ended questions to generate data needed. The data was entered into a computer and analysed using Statistical Package for Social Sciences version 16 programmes and output was presented in tables.**Results:** The results showed that 72.8% of the study population disclosed HIV status to their sexual partners, only 27.2% did not disclose. Counselors were seen as a source of disclosure information to the majority of respondents (79.4%) but only few 10.6% got disclosure information from the doctors and only 1.7% got information from other sources. Long time were also reported by the majority of respondents (53.3%). Absence of workers' involvement was responded by majority of counselors interviewed. Also counselors stated that there was not enough counseling rooms, clients were congested in one room and there was no confidentiality during counseling. Counselors reported working in poor environment, face staff shortage and lacked necessary equipments. **Conclusion:**Poor organizational leadership existing at the MNH strongly influences low level of disclosure among sexual partners attending the Care and Treatment Clinic Muhimbili National Hospital that need to be addressed.**Recommendations:**This study did not cover all organizational factors that would influence disclosing of HIV status among the CTC MNH clients a gap that is recommended for further research. The MNH management should strongly improve the existing CTC conditions making sure that all the organizational factors are well addressed to encourage clients develop HIV status disclosing behaviors.

**405. Mwangu, M., Nyamhanga, T. Improving Quality and Quantity of Skilled Health Workers through proactive staff recruitment and retention measures: lessons from Lindi and Mtwara regions. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The problem of inadequate trained health staff in Mtwara and Lindi regions is quite critical estimated at 65% shortage. In an attempt to address the problem



a study was commissioned by GIZ/EPOS to look into the possible innovative ways of increasing the availability of trained health staff deployed in the two regions. **Objectives:** The aim of this study was to document the existing best practices in staff recruitment and retention in local councils in Lindi and Mtwara with the intention of formalizing and popularizing them in all councils in Lindi and Mtwara **Methods:** A qualitative study was carried out involving key actors in staff recruitment at council level in the Southern Zone and other councils outside the Zone. In-depth interviews were done with identified key informants among health staff working in councils and Health Training Institutions in the Southern Zone. Secondary data from council documents on staff recruitment and retention were used. Data analysis was done descriptively while simple tables were used to show some quantitative variables **Results:** Results show that the shortage of trained health workers continues to be a critical problem in the South as has been documented in many other studies. The study has also shown that some council has developed some coping mechanisms to increase the number of trained health staff through proactive recruitment and retention. **Conclusion:** The study concludes that there are good practices of staff recruitment and retention by some council in the Southern Zone and elsewhere that are worth adopting and adapting by other councils in order to reduce the problem of HRH for health crisis in their councils.

406. Mwanjali, G., Kihamia, C., Kakoko, D., Lekule, F., Ngowi, H., Johansen, M.V., Thamsborg, S.M., Willingham III, A.L. Prevalence and Risk Factors Associated with Human *Taenia Solium* Infections in Mbozi District, Mbeya Region, Tanzania. *PLoS Neglected Tropical Diseases*, 2013; 7 (3).

**Background:** *Taenia solium* cysticercosis/taeniosis is emerging as a serious public health and economic problem in many developing countries. This study was conducted to determine prevalence and risk factors of human *T. solium* infections in Mbeya Region, Tanzania. **Methods and Findings:** A cross-sectional survey was conducted in 13 villages of Mbozi district in 2009. Sera of 830 people (mean 37.9±11.3 years (SD); 43% females) were tested for circulating cysticerci antigen (Ag-ELISA) and antibody (Ab-ELISA). A subset of persons found seropositive by Ag-ELISA underwent computed tomography (CT) scan of the brain for evidence of neurocysticercosis. Stool samples from 820 of the same participants were tested for taeniosis by copro-antigens (copro-Ag-ELISA) and formol-ether concentration technique. Cases of *T. solium* taeniosis were confirmed serologically by EITB assay (rES38). A questionnaire was used for identification of risk factors. Active cysticercosis by positive Ag-ELISA was found in 139 (16.7%) persons while anti-cysticercal antibodies were detected in 376 (45.3%) persons by Ab-ELISA. Among 55 persons positive for Ag-ELISA undergoing CT scan, 30 (54.6%) were found to have structures in the brain suggestive of neurocysticercosis. Using faecal analysis, 43 (5.2%) stool samples tested positive for taeniosis by copro-Ag-ELISA while *Taenia* eggs were detected in 9 (1.1%) stool samples by routine coprology. Antibodies specifically against adult *T. solium* were detected in 34 copro-Ag-ELISA positive participants by EITB (rES38) indicating *T. solium* taeniosis prevalence of 4.1%. Increasing age and hand washing by dipping in contrast to using running water, were

found associated with Ag-ELISA seropositivity by logistic regression. Gender (higher risk in females) and water source were risk factors associated with Ab-ELISA seropositivity. Reported symptoms of chronic severe headaches and history of epileptic seizures were found associated with positive Ag-ELISA ( $p \leq 0.05$ ). **Conclusion:** The present study indicates *T. solium* infection in humans is highly endemic in the southern highlands of Tanzania.

**407. Mwansasu, C. S. Profile of head and neck cancer among patients attending at the otorhinolaryngology department of Muhimbili national hospital. Master of Medicine (Otorhinolaryngology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** It is estimated that there more than 640,000 new cases and 350,000 deaths due to head and neck cancers each year worldwide<sup>5</sup> Lack of baseline data in Tanzania concerning head and neck malignancies, make it difficult to appreciate the pattern and magnitude of the problem in our country The aim of this study is to determine the profile of head and neck cancer in otorhinolaryngology department of Muhimbili National Hospital which is a largest hospital in Tanzania. **Objective:** To determine the profile of head and neck cancer among patients attending at the otorhinolaryngology department of Muhimbili National Hospital **Study design:** Prospective hospital based descriptive cross-sectional study. **Study Setting** Otorhinolaryngology department, Muhimbili National Hospital. **Methods:** All inpatients and outpatients with clinically suspected malignant lesions in the head and neck region who attended at the Otorhinolaryngology department of Muhimbili National Hospital from 1<sup>st</sup> July 2012 to 31<sup>st</sup> January 2013. Patients were interviewed using a specially designed questionnaire. Clinical examination was done; computed tomography scan and/or magnetic resonance image was done accordingly, followed by fine needle aspiration cytology and/or tissue biopsy. A total of 113 patients with cytological and/or histologically confirmed malignant lesions were included in the study. Data were entered in a computer, cleaned and analyzed using SPSS for windows version 16. **Results:** A total of 113 patients, 75 (66.3%) males and 38 (33.7.0%) females with a ratio 2:1 were involved in the study. The age at the time of diagnosis ranged from 16 to 88 years with a mean age of  $51 \pm 18$  SD years. Patients bellow age of 40years accounted for 28.4% of all head and neck cancer. The commonest observed anatomical location was nose and par nasal sinuses (23.9%) followed by the larynx (20%). Carcinoma accounted for 94% of head and neck cancer in which squamous cell carcinoma was the most frequent (74%). Lymphoma was the least frequent histology encountered (2%). nose and par nasal sinuses had most histological variations of all anatomical locations of head and neck cancer. **Conclusion:** This study has shown a significant number of head and neck cancer patients in a younger generation relative to western literatures and a large magnitude of sin nasal cancer relative to other head and neck cancer. Prospective population-based studies are required to determine the national incidence and to identify risk factors for head and neck cancer in the Tanzania population

408. Mwashuuya, O.C., Makubi, A.N., Analysis of Bone Marrow findings at Muhimbili National Hospital from 2006 to 2009. *Tanzania Medical Journal* ,2013 ;26(1):pp 8-13.

**Background:** Hematological disorders are among the major causes of morbidity and mortality in the world. The disorders are found to affect all people all over the world with increasing prevalence. However the pattern of these disorders in Tanzania is unknown. The study aimed at determining the frequencies of various haematological disorders as seen at Muhimbili National Hospital. **Methodology:** It was a retrospective descriptive study. A total of 1083 bone marrow reports were analyzed in the study. These included bone marrow reports for patients who were seen at Muhimbili National Hospital from 2006 to 2009. **Results:** Of all 1083 bone marrow reports analyzed, iron deficiency anemia was the most encountered non malignant disorder contributing 20.9%. This was followed by leukaemias; Acute lymphoblastic leukemia (7.6%), chronic myeloid leukemia (5.9%) and chronic lymphocytic leukemia (4.2%). Also 3.6% had megaloblastic anemia and 3.4% had aplastic anemia. Other disorders like multiple myeloma, Idiopathic thrombocytopenic purpura, myelodysplastic syndrome etc constituted relatively smaller percentages in comparison and contrast to the above mentioned disorders. The cumulative frequency of haemato-oncolgical disorders shows that they constitute the highest percentage of all diagnoses (29.0%). **Conclusion and recommendations:** The findings of the study showed the pattern of haematological disorders both malignant and non malignant. It was recommended that education should be provided to the public regarding haematological disorders especially iron deficiency anaemia and haemato-oncological disorders, and health services be improved for proper diagnosis and treatment of scrupulous patients.

409. Mwamelo. K. Awareness of side effects of antiretroviral therapy among patients attending Care and Treatment Clinic at Mbeya Referral Hospital August 2012. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** HIV has been transformed into a chronic illness; as such the patient should have enough knowledge about the illness, the medications required and symptoms of medication toxicity. Awareness of the fact that side effects are transient or can be controlled by other medication can prove to be crucial in improving adherence. In some cases early detection of symptoms of adverse effects can be life saving. **Objectives:** To determine awareness of side effects of antiretroviral drugs among patients as well as to determine the proportion of patients who reported to have experienced side effects. **Methods:** A descriptive cross-sectional study was done, with a sample of 395 adult clients attending Mbeya Referral hospital CTC as outpatients. Hospitalized patients, patients on anti TB drugs, post exposure prophylaxis and prevention of mother to child transmission regimens were excluded. Ethical clearance was obtained from MUHAS, and permission was obtained from the administration at Mbeya Referral Hospital. A Swahili questionnaire was used as the data collection tool; data was analyzed using SPSS version 16. **Results:** 71.6% of patients were aware that antiretroviral drugs have side effects. Patients with formal education, older patients and patients who had experienced a side effect along the course of therapy were more aware.

49.9% of patients reported having experienced side effects due to ART. **Conclusion:** The awareness of side effects of ART among patients is still low. All patients should receive pre-treatment counseling; including the potential side effects of antiretroviral therapy in addition to adherence and lifestyle counseling.

410. Mwaiselage, J., Dartell, M., Rasch, V., Kahesa, C. & Ngoma T. **Human papillomavirus prevalence and type distribution in 3603 HIV-positive and HIV-negative women in the general population of Tanzania. 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013.**

**Background:** In Tanzania, cervical cancer is the most common type of cancer in women. Persistent genital HPV infection has been established as the main etiological factor in the development of cervical cancer, and HPV types 16 and 18 infection alone account for up to 70% of all cervical cancers. Relatively little is known about the HPV prevalence and the HPV type distribution in Tanzania. **Objectives:** The aim of the Prevention of Cervical Cancer in Tanzania (PROTECT) study is to assess the prevalence of oncogenic human papillomavirus (HPV) and to determine the type distribution among women in the general population according to human immunodeficiency virus (HIV) status, in preparation for a potential HPV immunization program. **Methods:** We included 3603 women from the general population in urban and rural areas of Tanzania. All women underwent a gynecological examination where a Pap smear was obtained and cervical cells were collected to assess the presence of high-risk (HR) HPV DNA by hybrid capture 2 test. Genotyping was performed by the LiPaExtra method. These women were also tested for HIV. **Results:** The prevalence of HR HPV types was 20.1%, ranging from 14.8% in women with normal cytology to 94.2% in women with high grade squamous intraepithelial lesion (HSIL) or worse (100% in 5 cancers). In women with normal cytology or low-grade lesions, the most common type was HPV52 (3.2%), followed by HPV16 (2.1%). In contrast, HPV16 was the dominating type in HSIL or worse (32.8%). No cancers contained HPV52. The HR HPV prevalence was higher in HIV-positive women (46.7%) than in HIV-negative women (17.2%). No specific HR HPV types were significantly more common in HIV-positive women. **Conclusion:** The HPV type distribution is similar in HIV-positive and HIV-negative women. These results suggest that the HPV vaccines that are currently available could protect women from HPV infection independently of their HIV status.

411. Mwela, B., Kikwilu, E. N. **Patient satisfaction with dental services rendered at School of Dentistry, Muhimbili University of Health and Allied Sciences, Tanzania. *Tanzania Dental Journal*, 2013; 17(2), 38-44.**

**Aim:** To determine patient satisfaction among dental patients treated at the School of Dentistry, MUHAS. **Study design:** Cross-sectional clinic based study. **Study participants and methods:** Two hundred twelve dental patients aged 18 years and above who attended the oral surgery and restorative dental clinics were given a 9-items-patient

satisfaction questionnaire to fill in immediately after treatment was completed. The responses were on a 4-point Likert's scale. Data was analyzed using SPSS version 17.0. Chi-square test was used to determine the differences in patient satisfaction between the back-ground variables studied. Significant level was set at  $p < 0.05$ . **Results:** 78.8% of dental patients were satisfied with oral care, with mean satisfaction score of 3.1 (0.9). "Opportunity for a patient to explain his/her problem", "examination" and "doctor's explanation" were the most satisfying aspects of oral care with mean (sd) values of 3.45 (1.01), 3.28 (1.12) and 3.33 (1.05) respectively. "Treatment time", "cost of treatment" and "waiting time" were the least satisfying aspects of oral care with mean (sd) values of 2.67 (1.31), 2.54 (1.35) and 2.25 (1.26) respectively. Patients who received oral surgical type of treatment were statistically significantly more satisfied with oral care ( $p < 0.05$ ); waiting time ( $p < 0.001$ ); cleanliness of clinic ( $p < 0.01$ ); technical competency ( $p < 0.05$ ); treatment time ( $p < 0.01$ ); treatment given ( $p < 0.05$ ); and cost ( $p < 0.001$ ) than patients who received restorative care. **Conclusion and recommendation:** Majority of the patients were satisfied with the oral care received. Efforts to reduce treatment fee, and shorten waiting and treatment time are recommended.

**412. Mwera, E. C., Predictors of poor glycemic control in type 2 diabetic patients attending public hospitals in Dar es salaam, Tanzania. Master of Pharmacy (Hospital and Clinical Pharmacy) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Diabetes is a major health problem worldwide thus becoming pandemic. Due to its chronic nature and complications accompanying the disease progression, the cost of managing diabetes is significant. Tanzania has also experienced a significant rise in the burden of diabetes and 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 which occur as a result of poor glycemic control. Various factors have been found to be associated with poor glycemic control. Identification of these factors is important in order to formulate appropriate interventions that will result in improved glycemic control and prevention of chronic complications. **Objectives** The aim of this study was to determine the level of glycemic control and explore the factors associated with poor glycemic control among type 2 diabetes mellitus (T2DM) patients. **Methodology** A cross sectional study was carried out at diabetic clinics for T2DM patients at Muhimbili National Hospital (MNH), Temeke hospital, Amana hospital and mwananyamala hospital where by a systematic random sample of 469 T2DM patients were enrolled over a period of 8 weeks from 3<sup>rd</sup> March 2013 to 10<sup>th</sup> May 2013 to participate in the study. After obtaining informed consent from patients, a structured questionnaire and data collection form were used to collect information from the participants. The questionnaires sought information about socio-demographic, clinical characteristics, self-care management behaviours and medication adherence. Blood pressure, weight and height and were measured. All available last readings for fasting blood glucose (FBG) measurements and lipid were abstracted from patients' records. Poor glycemic control was defined as  $FBG \geq 7.2 \text{ mmol/L}$ . Data entry, cleaning and analysis was conducted by use of Statistical package for Social Sciences (SPSS) software version 20. Data were described using mean 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” glycolic control. **Results:** The mean age of patients was 54.93 years. Majorities (63.5%) of patients were females and only 8 patients had records of lipid profile measurements. Out of 469 patients, 69.7% had FBG  $\geq$  7.2 mmol/L indicating poor glycaemic control. Females aged between 40-59 years were found to have a significant poor glycaemic control (76.1%) as compared to their male counterparts of the same age group. Thirty eight percent of T2DM patients had poor medication adherence, which was associated with poor glycaemic control. The mean disease duration since diagnosis was 7.19 years and the proportion of poor glycaemic control increased with age. Significantly high proportion of poor glycaemic control was observed in patients who had longer disease duration of more than 20 years since diagnosis ( $p=0.027$ ). In Multivariate analysis revealed five variables associated with poor glycaemic control; patients who were not insured for health care, taking more than one oral hypoglycaemic agent (OHA), having normal body mass index (BMI), being obese and not adhering to diabetic medications. **Conclusion** Despite the importance of serum lipids monitoring and established association of serum lipids and diabetes and their effect on cardiovascular complications, the unexpected finding in our study was that records in lipid profile measurements were not available for almost all the patients studied in public hospitals. The findings from this study indicate that T2DM patients in Dar es Salaam have generally poor glycaemic control and the independent variables associated with poor glycaemic control were lack of insurance for health care, taking more than OHA, Normal BMI, obesity and low adherence to oral hypoglycaemic agents. From these finding it is recommended that all diabetic patients should be screened for lipid profile since high cholesterol levels, triglycerides (TAG) and low density lipoproteins (LDL) are associated with increased risk of cardiovascular events and accumulation of cholesterol may contribute to  $\beta$ -cell dysfunction. An education program should be developed to educate patients on the importance of medication adherence and weight management for better glycaemic control.

413. Mwiru , R., Spiegelman, D., Hertzmark, E., Duggan, C., Msamanga, G., Aboud, S., Fawzi, W. **Nutritional predictors of acute respiratory infections among children born to hiv-infected women in Tanzania.***Journal of Tropical Pediatrics*,2013; 59 (3): pp. 203-208.

We prospectively determined the association between undernutrition and incidence of acute respiratory infections (ARIs) among 711 children born to HIV-infected women. Overall, underweight was associated with a 58% increased risk of ARI. Similarly, wasting (54%), very low birth weight (88%) and child HIV infection (62%) were significantly associated with increased risk of ARI during the first 2 years. Breastfeeding was associated with 52% reduction in risk of ARI only during the first 12 months of life. Among HIV-exposed, but uninfected, children, underweight, wasting and stunting were

associated with 73%, 61% and 33% increased risk of ARI, respectively. Very low birthweight and advanced maternal disease stage were also associated with increased risk of ARI. Similar results were observed among HIV-infected children, except for stunting and very low birth weight. Prevention of child undernutrition could have major impact in reducing child ARI morbidity in settings of high HIV prevalence.

## Chapter Two: Author Names (N – Z)

414. Nagunwa, T., Lwoga, E.T. **Developing an eLearning strategy to implement medical competency based curricula: experiences from Muhimbili University of Health and Allied Sciences.** *International Journal of Education and Development using ICT*, 2013; 8(3), 7-21.

This paper provides the practical experience of developing an eLearning technology as a tool to implement Competency-based Medical Education (CBME) in Tanzania medical universities, with a specific focus on Muhimbili University of Health and Allied Sciences. The paper provides a background to eLearning and the early attempt to adopt it in 2006 at MUHAS, with its challenges leading to failure. Next it presents the strategic re-establishment of eLearning to support the new CBME introduced in 2009. Finally, the paper discusses the challenges faced during the implementation process and provides a discussion of lessons learnt. The paper suggests that, in order to improve the quality of medical education in settings with limited resources, universities in developing countries should make effective use of innovative and emerging technologies relevant to their environments. Successful implementation of eLearning requires a strategic approach which should involve university management, academic staff and students. The approach should take into account significant issues including pedagogy, ICT infrastructure, appropriate technologies, human resources, eLearning policy, faculty and student training, integration of eLearning and information literacy as well as the university curricula and partnerships.

415. Namisi, F.S., Aarø, L.E., Kaaya, S., Onya, H.E., Wubs, A., Mathews, C. **Condom use and sexuality communication with adults: A study among high school students in South Africa and Tanzania.** *BMC Public Health*, 2013; 13 (1): 874.

**Background:** Fostering adolescents' communication on sexuality issues with their parents and other significant adults is often assumed to be an important component of intervention programmes aimed at promoting healthy adolescent sexual practices. However, there are few studies describing the relationship between such communication and sexual practices, particularly in sub-Saharan Africa. This study examined the relationships between adolescents' communication with significant adults and their condom use in three sites in this region. **Methods.** Data stem from a multi-site randomized controlled trial of a school-based HIV prevention intervention implemented in Cape Town and Mankweng, South Africa and Dar es Salaam, Tanzania. Only data from comparison schools were used. The design is therefore a prospective panel study

with three waves of data collections. Data were collected in 2004 from 6,251 participants in 40 schools. Associations between adolescents' communication with adults about sexuality issues and their use of condoms were analysed cross-sectionally using analysis of variance, as well as prospectively using multiple ordinal logistic regression analysis. **Results:** Cross-sectional analyses showed that consistent condom users had significantly higher mean scores on communication (across topics and communication partners) than both occasional users and never-users, who had the lowest scores. After controlling for condom use at the first data collection occasion in each model as well as for possible confounders, communication scores significantly predicted consistent condom use prospectively in all three ordinal logistic regression models (Model R<sup>2</sup> = .23 to .31). **Conclusion:** The findings are consistent with the assertion that communication on sexuality issues between adolescents and significant adults results in safer sexual practices, as reflected by condom use, among in-school adolescents. The associations between communication variables and condom use might have been stronger if we had measured additional aspects of communication such as whether or not it was initiated by the adolescents themselves, the quality of advice provided by adults, and if it took place in a context of positive adult-adolescent interaction. Studies with experimental designs are needed in order to provide stronger evidence of causality.

**416. Nathanael S., Angwara K., Honsia E. Addressing the human resource for health crisis: the lost in transition (lotta) syndrome. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Tanzania is experiencing a serious HRH crisis. Shortages are 87.5% and 67% in private and public hospitals respectively. Mal distribution and brain drain compound the shortage. Traditionally suggested solutions: train more, motivate or tailor curricula. This paper addresses 'lost in transition syndrome' and how it drives the crisis. This includes analyzing what happens to the graduate in the period: graduation-internship-appointment. **Objectives:** Improving knowledge on the HRH crisis by analyzing the graduation-internship-appointment (GIA) period **Methods:** Structured interviews with post intern graduates and employment permits review covering five years to determine how the GIA period contributes to the HRH crisis. **Results:** Attrition and HRH loss are evident within GIA. There is no adequate coordination between producer and employer. Internship depended on the graduates applying for internship at will. This provides significant delay and escape. It allows rejection of "labeled graduates" by some hospitals. Graduates do "other things" for up to a year after graduation. Accommodation and "salaries" are initial problems. Accommodation is sought with friends, relatives or in risky places. "Salaries" are delayed for up to six months. These challenges push some to seek employment elsewhere. There are delays in recruitment post internship. 2006 permission for recruitment allowed only 80 out of 218 MD graduates (37.7%). For DDs allowed were 7 out of 27 graduates (25.03%). 2008 permission for MDs was 265 out of 310 graduates (85.48%), for B.Pharm permission was for 44 of 47 graduates. 2009 permission for MD was 190 out of 330 graduates (57.58%), 2010 permission for MD was for 249 out of 408 graduates (61.03%). **Conclusion:** The graduation-internship-appointment period nurtures LOTTA.



It contributes significantly to the HRH crisis in Tanzania. The solution to this is within reach. Establish better HRH management system.

**417. Nchimbi, K. Early outcome of polytrauma patient attended at MOI and MNH Emergency department. Masters of Medicine (Orthopaedics and Traumatology) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

Polytrauma is the occurrence of injuries to more than one body systems. In Tanzania due to tremendous increase in motor traffic crashes hence number of cases which bring about challenges in management of polytrauma patients besides well established emergency departments in Muhimbili Orthopaedic Institute and Muhimbili National Hospital. **Methodology:** This was a cross sectional study. A convenient sampling method was used to recruit polytraumatic patients attended at emergency departments of MOI and MNH. Patients aged 12 years and above were assessed by using Revised Trauma Score (RTS), Systemic Inflammatory Response (SIRS) parameters following a signed consent during the study period. Data was collected using structured questionnaires and analyzed by computer software SPSS version 15 program. **Results:** Majority (89.3%) of study patients were males and half of the study participants were between age group of 21-46 years 51.8%. Formal employed participants were (33.9% Motor traffic injuries was the leading cause of polytrauma 85.7%, followed by fall from height (10.7%) and assault and others was 1.8%. Moreover the study revealed that among those with MTC; pedestrians were 37.5% and drivers and passengers had similar percent 27.1%. Most patients (57.1%) were admitted in MOI and MNH within 6 hours of injury, while (32.1%) and (10.7%) were admitted within 24 hours and after one day respectively. Majority of patients had complications within 24 hours of follow up. Sepsis was noted in (22.2%) and deaths 44.2% and DIC was the least. Within 7 days the same complications occurred with proportion of sepsis 17.8% and deaths 4.46%. The study revealed statistic significant difference on hospital stay and proportion of occurrence of DIC ( $p=0.005$ ) and death ( $p=0.002$ ) within 24 hours of observation. Only sepsis was observed within 7 days of follow up to be statistic significant ( $p=0.031$ ). Also the age group of 26-41 had the largest number of deaths 14 with the p value of 0.024 which is statistically significant. Most of the patients (72%) had Traumatic Brain injury. Mostly observed cause of traumatic brain injury in post-mortem 32.1% was severe head injury (diffuse axonal injury) by 16.1% followed by intracerebral haemorrhage which gave 8.9%. From a total number of 18 deaths which were observed in post-mortem reports were all because of TBI. (16.1%) of TBI were scored from GCS of 3 and 5-4 were about 11 patients which corresponds to a total number of 9 who had severe brain injury. (Diffuse axonal injury). **Conclusion and recommendations:** Polytrauma is still a challenging condition in present set up, and continue to take lives of young population. Moreover improvement in management of TBI, and further research should be done to establish national wide records of polytrauma.

418. Ng'wanasayi, M. D. P. Causes of ascites among adult patients admitted in medical wards at Muhimbili National Hospital in Dar es Salaam, Tanzania. Master of Medicine (Internal Medicine). Dissertation. 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Introduction:** Ascites is a common cause of admission in Africa, especially among patients with liver cirrhosis<sup>23</sup>, and schistosomal periportal fibrosis, both of which are associated with significant morbidity and mortality<sup>21</sup>. However, other causes of ascites are also prevalent in Africa. Tuberculosis account for 23% of all patients with ascites, but contributes up to 50% among those with HIV. Malignant ascites is also a significant morbidity and mortality, and has been reported in up to 25% of ascites in Africa<sup>14,15</sup>. Renal and cardiac causes of ascites are also significant. However, much is not known about the causes of ascites, and the clinical, socio-demographic characteristics of these patients in our settings. **Objectives:** To determine the causes of ascites and describe the characteristics of adult patients with ascites admitted in medical wards at Muhimbili National Hospital. **Methodology:** Hospital Based Descriptive Cross-Sectional Study. **Results:** A total of 103 participants, mean age 40.9±1.51 years were included in this study, with equal sexual distribution. The mean duration of symptoms was 3 months, and majority of the participants reported history of abdominal distension, generalized body malaise, lower limb swelling, loss of appetite, and difficulty in breathing. Only a few patients had history of fever (34%), or weight loss (38%). Common causes of ascites were liver cirrhosis 34%, malignant ascites 24.2%, heart failure 17.5%, chronic kidney disease 12.6%, and TB Peritonitis 8.7%. Less common causes were nephrotic syndrome 1.9%, and chronic pancreatitis 1%. Of the 25 participants with malignant ascites, Hepatocellular carcinoma 60% was the most common malignancy. However, the primary tumor site could not be identified in nine participants. **Conclusions:** Ascites commonly affect the younger age group with mean age 41 years. And the common causes of ascites were liver cirrhosis, malignant ascites, heart failure, chronic kidney disease, and tuberculous peritonitis. **Recommendations:** We recommend another study to further describe patients with malignant ascites in our settings. Another study is also needed to determine the prevalence and risk factors of Spontaneous Bacterial Peritonitis among patients with ascites in our settings

419. Ngaimisi, E., Habtewold, A., Minzi, O., Makonnen, E., Mugusi, S., Amogne, W., Yimer, G., Riedel, K.-D., Janabi, M., Aderaye, G., Mugusi, F., Bertilsson, L., Aklillu, E., Burhenne, J. Importance of Ethnicity, CYP2B6 and ABCB1 Genotype for Efavirenz Pharmacokinetics and Treatment Outcomes: A Parallel-Group Prospective Cohort Study in Two Sub-Saharan Africa Populations. *PLoS ONE*, 2013; 8 (7), e67946.

**Objectives:** We evaluated the importance of ethnicity and pharmacogenetic variations in determining efavirenz pharmacokinetics, auto-induction and immunological outcomes in two African populations. **Methods:** ART naïve HIV patients from Ethiopia (n = 285) and Tanzania (n = 209) were prospectively enrolled in parallel to start efavirenz based HAART. CD4+ cell counts were determined at baseline, 12, 24 and 48 weeks. Plasma and intracellular efavirenz and 8-hydroxyefavirenz concentrations were determined at

week 4 and 16. Genotyping for common functional CYP2B6, CYP3A5, ABCB1, UGT2B7 and SLCO1B1 variant alleles were done. **Result:** Patient country, CYP2B6\*6 and ABCB1 c.4036A>G (rs3842A>G) genotypes were significant predictors of plasma and intracellular efavirenz concentration. CYP2B6\*6 and ABCB1 c.4036A>G (rs3842) genotype were significantly associated with higher plasma efavirenz concentration and their allele frequencies were significantly higher in Tanzanians than Ethiopians. Tanzanians displayed significantly higher efavirenz plasma concentration at week 4 ( $p < 0.0002$ ) and week 16 ( $p = 0.006$ ) compared to Ethiopians. Efavirenz plasma concentrations remained significantly higher in Tanzanians even after controlling for the effect of CYP2B6\*6 and ABCB1 c.4036A>G genotype. Within country analyses indicated a significant decrease in the mean plasma efavirenz concentration by week 16 compared to week 4 in Tanzanians ( $p = 0.006$ ), whereas no significant differences in plasma concentration over time was observed in Ethiopians ( $p = 0.84$ ). Intracellular efavirenz concentration and patient country were significant predictors of CD4 gain during HAART. **Conclusion:** We report substantial differences in efavirenz pharmacokinetics, extent of auto-induction and immunologic recovery between Ethiopian and Tanzanian HIV patients, partly but not solely, due to pharmacogenetic variations. The observed inter-ethnic variations in efavirenz plasma exposure may possibly result in varying clinical treatment outcome or adverse event profiles between populations.

420. Ngaimisi, E., Shewiyo, D., Sasi, P. & Marealle, A. **Interlaboratory cross validation of a chromatographic method for determination of lumefantrine in human plasma-a proficient capacity assessment of bioanalytical laboratories in East Africa. Tanzania.1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, may 2-4, 2013.**

**Background:** Bio analytical laboratories in developing countries face challenges including lack of capacity to set and validate analytical methods developed by others. **Objectives:** To assess the capacity of Bio-analytical laboratories in emerging countries in setting and validating analytical methods. **Methods:** An HPLC method for determination of lumefantrine in human plasma was involved in the assessment. Three bioanalytical laboratories located in Public Medical Universities of Tanzania, Uganda and Kenya were assessed. The method was developed at Analytical Clinical Concept, Leidersbach, in Germany (ACC GmbH). Blinded plasma samples spiked with lumefantrine were provided and the analysis reports were submitted to ACC for evaluation within 6 weeks. Each laboratory was provided with reference standard, internal standard columns and precolumns. **Results:** The MUHAS Bio analytical (Tanzania) Laboratory met the criteria set by ACC laboratory. The results were within the range set by ACC laboratory and most calibration curves had good linearity with coefficient of correlation always  $> 0.990$ . The inter-day precision and accuracy (Relative standard deviation=RD of recovery) were always. **Conclusion:** This collaborative trial has shown that the MUHAS-Sida Bioanalytical Laboratory has capacity for setting and validating bioanalytical methods developed in other laboratories.

421. Ngaimisi, E., Mugusi, S., Minzi, O.M.S., Sasi, P., Riedel, K.D., Janabi, M., Mugusi, F., Haefel, W.E., Bertilsson, L., Burhenne, J. & Aklillu, E. **Optimization of HIV and co-morbidities co treatment: Emphasis on pharmacogenetics and drug interactions.** 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.

**Background:** HIV/TB co-treatment is complicated by wide inter-individual variations in efavirenz (EFV) exposure. **Objectives:** We aimed at investigating sources of variation in EFV exposure and their impact on enzyme induction and hepatotoxicity, so as to inform dose optimization. **Methods:** We recruited HIV infected patients with tuberculosis (arm2) and without (arm1) both in Tanzania and Ethiopia. Patients took EFV 600mg; and for arm2, rifampicin (RIF) based anti-TB was initiated 4 weeks before HAART. They were followed for 48 (arm1) and 52 (arm2) weeks to collect information on efavirenz exposure, treatment outcomes, liver functional tests and complete blood count at predetermined time intervals. Genotyping for single nucleotide polymorphisms (SNP) in genes encoding EFV metabolizing enzymes and drug transporters (CYP2B6, CYP3A5, UGT2B7 and ABCB1) was done. **Results:** Among arm1, patients with CYP2B6\*1/\*1 genotype (fast metabolizers) had significant decrease in EFV exposure between week 4 and 16. Among arm2, only fast metabolizers had significantly lower efavirenz exposure, 4 weeks after HAART, compared to their counterpart in arm 1 indicating that rifampicin induction occurred only in these individuals. ABCB1 c4036A>G SNP was associated with higher EFV exposure at week 4. Ethiopians, even after controlling for genetic and other differences, had lower efavirenz exposure and lower immunological outcomes compared to Tanzanians. Efavirenz induction of CYP3A4/5 among arm1 was highest (about 5 times) in poor and lowest (about 2 times) in fast metabolizers. After completion of TB therapy, induction dropped to 60% of its maximum, suggesting continued but lower induction of CYP3A4/5 by efavirenz. Only CYP2B6\*6/\*6 genotype and hepatitis C co-infection were associated with mild and transient elevation of liver enzymes. **Conclusion:** Time on therapy, SNPs in CYP2B6 and ABCB1 and ethnicity should be considered for efavirenz dose adjustments. The SNP, CYP2B6c516G>T, should be considered during dose optimization of concomitant drugs taken with efavirenz

422. Ngarina, M., Popenoe, R., Kilewo, C., Biberfeld, G., Ekstrom, A.M. **Reasons for poor adherence to antiretroviral therapy postnatally in HIV-1 infected women treated for their own health: Experiences from the Mitra Plus study in Tanzania.** *BMC Public Health*, 2013; 13 (1): 450.

**Background:** In a study of prevention of mother-to-child transmission of HIV (PMTCT) by triple antiretroviral therapy (ART) in Dar es Salaam, Tanzania (the Mitra Plus study), retrospective viral load testing revealed a high and increasing frequency of detectable viral load during follow-up for two years postnatally in women given continuous ART for their own health suggesting poor adherence. This study explored women's own perceived barriers to adherence to ART post-delivery so as to identify ways to facilitate better drug adherence among women in need of ART for their own health. **Methods.** Semi-structured interviews were conducted with 23 of the 48 women who had detectable viral load at 24 months postnatally. Content analysis was used to analyze the data. **Results:** Most women in the study did not acknowledge poor adherence until confronted with the viral load figures. Then, however, they revealed

multiple reasons for failing to adhere. They said that their motivation to take ART decreased once they had protected their children from becoming infected and successfully weaned them. Feeling well for some, and a feeling of hopelessness for others, also decreased motivation to continue ART. The overwhelming demands of everyday life, poverty and lack of empowerment also posed significant barriers to long-term adherence. The need to keep their HIV status a secret and not let anyone see them taking the drugs was another steep barrier. **Conclusion:** Reasons for postnatal failure to adhere by mothers put on ART for life during pregnancy included lack of motivation to continue ART after weaning the child, poverty and stigma. Projects that simultaneously address stigma, poverty and women's lack of empowerment may be necessary for PMTCT and ART to reach their full potential. Our results indicate that the new WHO proposal to start all HIV-infected pregnant women on lifelong ART regardless of CD4 cell count needs to address the challenging realities of women in resource-poor contexts if it is to be successful.

423. Ngaromba, D. Knowledge, attitude and socio-economic assessment for improved cook stoves, rombo district, kilimanjaroregion. Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.

**Introduction:** Indoor air pollution resulting from cooking, using poorly ventilated stoves is responsible for increased morbidity and premature deaths caused by pulmonary, eye, and cardiovascular diseases; Improvement in stoves and cooking practices may protect health of millions of women and children in developing countries and protect environmental deterioration. However, health benefits of cook stove interventions on community acceptability and use of appropriate stove technologies in exposed populations. **Objective:** This study, intended to assess knowledge, attitude and socio-economic status towards the use of improved cook stoves, among households in Rombo district, Kilimanjaro region. **Methodology:** A cross-sectional study with qualitative and quantitative components was conducted. A total of 276 households using three stone cook stoves, were randomly selected from 11 randomly selected wards. A person with the age of 18 to 49 years old, from each household who agreed to participate was enrolled into the study. A total of 236 households members were interviewed, and other 40, took part in focus group discussions. Quantitative data were processed and then analyzed using SPSS statistic package, version 15.0, while content analysis method was used to manually analyze the qualitative data. **Results:** Ninety three percent of participants (N = 276) took part in the study. Majority of them 157(66.5%) had primary education, with mean monthly income of 275,614 Tsh. Most respondents (64%) had low socioeconomic status (SES). Majority of respondents 224(94.9%) and 154(65.3%) had, positive attitude and high knowledge towards the use of improved cook stoves respectively. Both SES and Knowledge on importance of using improved cook stoves, have significant association ( $P_{\text{Fisher's exact test}} = 0.028$  and  $0.001$  respectively) with readiness to purchase and use improved cook stoves. From the qualitative study majority of respondents had high knowledge and positive attitude towards the use of improved cook stoves. They also mentioned challenges encountered when using improved cook stoves. These were the need of dry firewood for improved cook stoves, difficulties in lighting the stove, the fact that, the improved cook stove is immovable and

it is difficulties to warm themselves and their house using the improved cook stoves. **Conclusion and recommendation:** Knowledge on the health effect caused by the use of three stone cook stove and household socio-economic position, had effect on the willingness to purchase and use the improved cook stove. Therefore, when planning for any intervention in promoting the use of improved cook stoves, emphasis must be put in, provision of knowledge, about the new innovation and improve the household socioeconomic status, by either providing loans to those with low SES, through existing financial institutions, so that they increase both uptake and sustainable use of the improved cook stoves.

424. **Ngatoluwa, M., Munseri, P., Bakari, M., Mhalu, F., Tarimo, E., Sandstrom, E. Enrolment and logistical challenges in conducting HIV vaccine trial in Dar es salaam, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The participation of sub-Saharan countries in HIV vaccine clinical trials is important in the fight against HIV and AIDS. Experiences from earlier trials are expected to influence the design and performance of subsequent trials. Following the completion of HIVIS-03 and TaMoVac-01 trials in Dar Es Salaam, Tanzania **Objectives:** To report on the comparative enrolment and logistical challenges between the two trials **Methods:** The HIVIS-03 trial was conducted between February 2007 and February 2010 recruited 60 volunteers from the Police force in Dar Es Salaam. The subsequent TaMoVac-01 trial in Dar es Salaam has recruited 62 volunteers from Police force, Prisons force, and youths at the youth's clinic. Regular and numerous sessions containing study details were provided to the Police, Prisons and youth communities prior enrollment **Results:** Whereas enrollment of volunteers into the HIVIS-03 trial took 12 months (Feb 2007-Feb 2008), that of the TaMoVac -01 trial took 13 months (Mar 2010 to April 2011). In HIVIS-03 study 177 volunteers were screened to get 60 volunteers while in the TaMoVac-01 study 235 volunteers were screened to obtain 62 volunteers. The screened: enrolled ratio was 3:1 in the HIVIS-03 trial, while in the TaMoVac-01 trial the ratio was 4:1. Enrolment challenges The recruitment of female volunteers was a big challenge in the HIVIS-03 trial, but this was relatively easy in TMV-01 trial, largely due to the inclusion of youths from youth clinic. Misconceptions in the Police force remain an obstacle to recruitment despite being involved in earlier HIVIS-03 trial whereby regular information sessions were held. Adherence to schedules, as a result of competing prioritization of employment requirements Logistical challenges Difficulties in communication with volunteers who did not possess mobile phones. Pregnancy during the trial period. Limited space for conducting clinical trial. Abnormal laboratory and ECG results **Conclusion:** Enrolment and logistic challenges continued in HIV vaccine trials despite of previous trials done. Community awareness is very important as well as getting correct information.

425. **Ng'walali, P.M., Kabyemela, E.A, Premji, Z., Kitinya, J.N. Malaria and First Trimester Pregnancy Loss in Lindi Region, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** In sub-Saharan Africa, about 25 million pregnant women are at risk of *Plasmodium falciparum* infection every year. The true prevalence of malaria infection in early pregnancy, its effects and outcome have not been clearly described. Morphological changes in malaria related to early abortions, stillbirths and premature deliveries have yet to be fully characterized in the placenta and fetus. **Objectives:** To determine the prevalence of malaria infection in early pregnancy. To characterize morphology changes in the fetus and placenta in stillbirths, and their relationship to placental malaria infection. **Methods:** Pregnant women presenting with abortions and stillbirths were enrolled into the study after informed consent. A blood sample was obtained for Rapid Diagnostic Test and a thick and thin smears were taken for microscopic and species identification of malaria parasites. Placental tissues and fetal tissues evacuated for abortion or obtained by needle biopsy of liver in stillbirths were histologically studied as snap frozen sections or fixed in 10% neutral buffered formal saline. **Results:** total of 36 cases were enrolled between October 2011 and June 2012. Of these 5 did not have material for histological examination leaving 31 for analysis. All peripheral blood smears were negative and 3 of the cases were positive with the rapid diagnostic test. Nine cases showed presence of placental malaria infection in tissue sections. Two cases showed few mononuclear cells with pigment in inter-villous space indicating chronic infection. Seven others showed a pigment deposition score of grade I in inter-villous fibrin. **Conclusion:** We found evidence of malaria infection in 29% of first trimester abortions in a rural African area of Tanzania. These infections were mild and chronic. Their contribution to pregnancy loss is currently unclear. Study involving a larger sample size is recommended in this area of malariology.

426. Ngoma, A. M., Goto, A., Yamazaki, S., Machida, M., Kanno, T., Nollet, K. E., Yasumura, S. **Barriers and motivators to blood donation among university students in Japan: development of a measurement tool.** *Vox sanguinis*, 2013; 105(3), 219-224.

**Background and Objectives.** Despite growing demand for transfusion, the number of voluntary young blood donors has steadily decreased over recent years in Japan. This study aimed to develop an easy-to-use survey tool to assess barriers and motivators to blood donation among Japanese university students. **Materials and Methods.** We conducted cross-sectional studies at two universities in Fukushima Prefecture, Japan, in December 2011 (Stage 1) and February 2012 (Stage 2) using self-administered questionnaires. A short list of motivators and barriers to blood donation was developed from the open-ended questions asked of 50 students in Stage 1. In the Stage 2, we asked 105 students how important these items were when they decided whether or not to donate blood. Items showing a significant difference between donors and non-donors were kept in the final list. **Results.** Overall, 56% of the 100 participants analysed in Stage 2 were men, and ages ranged from 19 to 24 with a median of 20 years. Comparison of motivators and barriers between donors and non-donors revealed that only barrier item 8 ('Frightened by blood donation') showed a significant difference ( $P = 0.0006$ ) in an expected direction and with a consistency between two universities. **Conclusions.** This

study identified fear as being the most significant barrier to blood donation among Japanese university students, which could be used as a single convenient indicator to assess their readiness to donate. More academic and clinical efforts are needed to understand and address students' fear towards blood donation in order to increase the donor pool in Japan.

- 427. Ngoma, T., Adde, M., Durosinmi, M. & Ian M. Treatment of Burkitt lymphoma in equatorial Africa using a simple three-drug combination followed by a salvage regimen for patients with persistent or recurrent disease. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** there has been poor outcome of treatment for patients with Burkitts Lymphoma. Estimated survival of patients with Burkitt lymphoma in countries in Africa is probably no more than 10–20%. **Objectives:** To introduce the International Network for Cancer Treatment and Research (INCTR) protocol INCTR 03-06 for treatment of BL and assess its effectiveness in improving survival **Methods:** Use of a uniform treatment protocol consisting of cyclophosphamide, methotrexate, vincristine, and intrathecal therapy, and the introduction of non-cross resistant second-line (salvage) therapy, consisting of ifosfamide, mesna, etoposide and cytarabine, when patients failed to achieve a complete response to first-line therapy or relapsed early. **Results:** Overall survival rates of 67% and 62% were observed at 1 and 2 years (relapse is rare after 1 year of remission). Of interest was the small impact of cerebrospinal fluid (CSF) and bone marrow involvement on outcome. However, the presence or absence of abdominal involvement clearly defined two prognostic groups. An additional finding was the association between CSF pleocytosis and orbital tumours, suggesting that spread of tumour cells to the central nervous system may sometimes occur via direct involvement of cranial nerves in the orbit. **Conclusion:** Survival rates may be increased in patients with abdominal involvement by combining first- and second-line therapy, but verification will require a further clinical study.

- 428. Ngoma, M. Short term clinical outcome of treatment among patients with Oesophageal Cancer treated at Ocean Road Cancer Institute, Dar es salaam, Tanzania. Master of Medicine in Clinical Oncology. Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

There has been an increasing incidence of esophageal cancer in Tanzania. According to a report done at ORCI for the period between 2006 and 2009, the number of new cases per year increased from 181 per year in 2006 to 307 cases per year in 2009. Esophageal cancer is a disease in which malignant cells form in the tissues of the esophagus. The two most common forms of esophageal cancer are 1: Squamous cell carcinoma: Which is the commonest type and it is also known as epidermoid carcinoma. 2:Adenocarcinoma: Cancer that begins in glandular cells. Adenocarcinomas usually form in the gastroesophageal junction. Radiation therapy in esophageal cancer has been used for many years with good results, either as the definitive treatment or as



neoadjuvant treatment to improve locoregional control of disease; and attempt to preserve the larynx in cases of cancer of the cervical esophagus or the stomach in cases that involve the distal esophagus. It is successful in relieving dysphagia in approximately 50% of patients. Chemotherapy as a single modality has limited use. Type of Chemotherapy used will depend on the tumor type, but tends to be cisplatin-based every three weeks with fluorouracil (5-FU) either continuously or every three weeks. It may be given as adjuvant or neoadjuvant therapy. In general, the prognosis of esophageal cancer is quite poor, because most patients present with advanced disease. By the time the first symptoms such as dysphagia start manifesting themselves, the cancer has already well progressed. The overall five-year survival rate is approximately 15%, with most patients dying within the first year of diagnosis. There has been no study in Tanzania that has assessed the clinical outcome after treatment among patients with esophageal cancer. Based on the fact that acute side effects of radiotherapy normally take four weeks to disappear. The improvement of clinical symptoms and signs such as dysphagia and pain will be assessed at four weeks after completion of treatment.

**Objectives:** To evaluate the short-term outcome of treatment among patients with cancer of the esophagus treated at Ocean Road Cancer Institute for the month of April to September 2012.

**Methodology:** This was a Prospective cohort study covering four months (from April to September 2012). A total of 87 patients were recruited but only 75 patients were available for the final analysis. The patients recruited were new esophageal cancer patients received at ORCI who met the inclusion criteria during the study period. Data collection for this study was based on a structured questionnaire. The short-term outcomes of treatment were assessed clinically by evaluation of symptoms and signs 4 weeks after the end of treatment. Collected data was analyzed using SPSS programme version 15.

**Results:** Of the 75 patients assessed in the study, 61.3% were males and 38.7% were females. The mean (SD) of the studied patients was 55.8 (16.6) years. None of the patients was diagnosed with disease at stage I but most patients were diagnosed at stage II and III of the disease; 40% and 36% respectively. A significant improvement in dysphagia symptom score was found when comparing the mean pre-treatment and post-treatment dysphagia scores. Similarly, there was a significant improvement in pain score when comparing mean pre-treatment and post-treatment pain scores. When dysphagia was categorized as present or absent, none of the patients had no dysphagia at presentation. However after treatment, a significant number of patients (32%) experienced no dysphagia. Similarly, only 10.7% of the patients had no pain at presentation and this significantly raised to 20% after treatment. The results showed that an improvement in severity of dysphagia was significantly negatively related to stage of the disease, significantly negatively related to duration from arrival at ORCI to start treatment and significantly positively related to hemoglobin level.

**Conclusion and Recommendations:** This study found that treatment of patients with cancer of the esophagus at ORCI is associated with a significant decrease in the symptom of dysphagia as well as pain. The study also found that the decrease in the level of dysphagia is associated with early stage disease, higher hemoglobin level and shorter duration from arrival at ORCI to start treatment (waiting time). Recommendation: This study recommends patients with cancer of the esophagus should undergo intensive investigation to determine their disease which is important in relation to treatment outcome. Furthermore, Gastrostomy is a simple procedure that can

improve the quality of life of the patients with improvement in hemoglobin level. Due to increase in number of cancer patients, there is an increasing in waiting time before starting treatment, thus ORCI should develop plan for procurement of additional treatment machines in order to reduce the waiting time.

429. Ngombo, A.M. Factors affecting implementation of isoniazid preventive therapy in HIV/AIDS clinics in Dar es Salaam region, Tanzania. Masters of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.

**Background:** Tanzania is still facing challenges of rapid and widespread of HIV infection and AIDS. Recent data based on household surveys estimate the seroprevalence in adults aged between 15 -49 years in Tanzania to be 5.7 per cent. World Health Organization (WHO) and Joint United Nations Programme on HIV/AIDS recommend the use of Isoniazid Preventive Therapy (IPT) to people living with HIV and AIDS (PLHAs) as part of an essential care package. **Objective:** The main objective of this study was to determine factors affecting implementation of IPT in HIV care and treatment clinics in Dar es Salaam. **Materials and Methods:** To determine factors affecting implementation of Isoniazid preventive therapy, a cross sectional descriptive study was undertaken in 119 purposively selected health care workers in three municipalities in Dar es Salaam. Six out of seven health care facilities providing IPT in Dar es Salaam were involved such as the Muhimbili National Hospital, Amana Hospital, Temeke Hospital, Ukonga dispensary, Pastoral Activities and Services for people living with AIDS in Dar es Salaam Archdiocese (PASADA) and Shree Hindu Mandal Hospital. The study used self administering structured questionnaire to get information from the participants. The researcher tested the knowledge of IPT for health care workers by using a multiple choice question. Cross tabulation was done on duration of training and IPT Knowledge. **Results:** About half (52%) of the health care workers in HIV care clinics were trained in IPT related knowledge. In general behaviour of health care workers towards implementation of IPT was positive as 96% showed positive behaviour. Financial, supplies, policy and leadership factors positively favoured implementation of IPT in HIV care clinics. **Conclusion:** IPT implementation in HIV care and treatment clinics in Dar es Salaam is generally satisfactory but more efforts have to be made especially on training of health care workers and improve products such as INH and supplies such as HIV kits and tools for documentation.

430. Nilsson, J., Pembe, A.B., Urasa, M., Darj, E., Safe injections and waste management among healthcare workers at a regional hospital in northern Tanzania. *Tanzania Journal of Health Research*, 2013; 15 (1).

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.

431. **Ng'wananogu, R., Babybonela, L., Njegere, M., Migoha, C., Haefele, C., Kaale, E., Bonsman, C. Development of an enteric coated 20 mg omeprazole tablets formulation. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Omeprazole is a proton pump inhibitor used in the treatment of dyspepsia, peptic ulcer disease (PUD), gastroesophageal reflux disease (GORD/GERD) and Zollinger-Ellison syndrome. It degrades in the stomach acidic condition and slightly soluble in water hence poor dissolution, these challenges make its formulation expensive. **Objectives:** The aim is to develop a generic Omeprazole 20 mg tablets by inclusion of a cheaper solubilizing agent, Sodium Dodecyl Sulphate (SDS) . **Methods:** Three batches of Omeprazole 20 mg tablets were produced by wet granulation method. The granules were sieved and transferred to the Fluidized Bed Drier for drying. In-process quality control for obtained tablets was tested for weight variation, hardness, friability, disintegration and dissolution. The USP method applied was validated. **Results :** The percentage omeprazole release obtained at 45 minutes of the dissolution process for the three batches were 78.2%, 81.7%, 83.8%. The USP requirement is not less than 75%. The UV Spectrophotometer assay method used for the dissolution profile of Omeprazole were done and involved specificity, precision, linearity and accuracy. The relative standard deviations for the intra and inter day precision were 1.5% and 2.9% respectively. A good linear relationship was established within the concentration range of 2.2ng/μl to 26.4 ng/μl with good correlation coefficient ( $r^2 = 0.9984$ ). The accuracy was  $98.89 \pm 3.89\%$ . **Conclusion:** The omeprazole tablets can be formulated using SDS as a solubiliser. This will enable the local manufacturers to produce tablet at minimum cost. We recommend further studies on development of an acid stable coating formulation.

432. Njau, P. F. Effect of sexual health education intervention (prepare) on proximal determinants of sexual debut and condom use among primary school children in Dar es salaam a randomised trial. Masters of Science (Applied Epidemiology) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.

**Background;** Sub-Saharan Africa still bear 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 promote safer sexual and reproductive health behaviors among primary school adolescents in Dar es Salaam Tanzania. This innovative best practice intervention included classroom teaching and peer led education sessions **Objective;** This study sought to evaluate the effect of PREPARE intervention on sexual debut, condom use and proximal determinants of these sexual behaviors among primary school children aged 12-14 in Dar Es Salaam. **Material and 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. All analyses were carried using STATA 12 statistical software. Factor analysis was performed and scales created. Difference in difference model was used to determine intervention effect. Clustering was assumed at school level. All analyses were two tailed and type-1 error was set at 5% level. **Results;** A total of 5099 students were involved in the study at baseline. Six months after the baseline a follow-up survey was conducted where 4661 (91.4%) among those who participated in the baseline survey were interviewed. Baseline characteristics of participants were comparable where no statistically significant differences between the groups were noted. 487 (10.8% SE 0.6%, 95% CI; 9.5%, 12.2%) participants report to have ever had sex; 274 (Chisquare 9.12,  $p=0.03$ ) were in the intervention schools. Among those who report to have ever had sex; 152 (34.2%, SE 2.6%, 95% CI 28.9%, 39.4%) reported to have ever used condom. At follow-up, 352 (8.6% SE, 0.6% CI 7.3%, 9.8%) of the respondents who had no sexual experience at baseline report to have had sex, 265 (74.3%) were males (Chi-square; 127.99, 2 df; 2  $p<0.01$ ). The incidence of 86 per 1000 pupils transitioned into sex over the period of six months since baseline. PREPARE intervention was found to significantly improve HIV transmission knowledge among females and protection knowledge for both males and females ( $p<0.01$ ) and reduced HIV and condom myths among female pupils. It was also found to improve attitudes among female students (positive attitude for sex delay and positive attitude for condom; 0.205, and 0.160,  $p<0.05$  and  $p<0.01$  respectively) and reduced negative attitude towards sex delay among males. The adjusted mean scores on perception of norms supportive of delayed sex and condom use significantly increased among females. The intervention also showed effect on self-efficacy for sex delay (0.128,  $p<0.05$ ) and improved communication with parents (0.094,  $p<0.05$ ) and friends (0.213,  $p<0.01$ ) among females. Intention to use condom was noted to improve among females (0.211,  $p$ -value  $<0.01$ ). No intervention effect was noted on sexual debut and condom use between the groups. Overall more intervention

effect was observed among females than males. **Conclusion;** In this study we were able to explore sexual debut, condom use and proximal determinants of these sexual behaviors as purported in the theory of planned behavior. PEPRARE intervention was found to have significant effect by improving proximal determinants of sexual debut and condom use but not on actual behaviors this is likely due to the timing of our follow-up. Actual behavior changes are likely to occur after a considerable lapse of time. Overall the intervention seems to have more effect among female pupils as compared to male pupil.

433. Nkya, G.M., Sindato, C., Mcharo, J., Kibona, S.N. **Community knowledge on HIV/AIDS and its relationship with sexual practices in Tabora and Igunga Districts, western Tanzania. Tanzania.** *Tanzania health research bulletin* 2013 ;8(3): pp173-176.

HIV/AIDS represents one of the critical challenges to human development in sub Saharan Africa. This study was carried out to assess the knowledge of HIV/AIDS and its relationship with sexual practices among communities in Tabora and Igunga Districts in western Tanzania. The study employed both qualitative and quantitative methods, which included interviews and group discussions. A total of 568 participants (female=49%; males= 51%) were involved in the study. Two hundred and eighty-four of the respondents were adults (>25 years) and 284 were youths of 12 – 25 years. The results showed although the knowledge of the disease and its prevention was high (90%) among the community, some gaps regarding the knowledge on modes of transmission were observed. About 17.2% of the respondents reported to have multiple sexual partners and only about half of the respondents reported the use of condoms. The level of education correlated significantly with the individual knowledge on HIV/AIDS (P=0.003). There was no significant difference between urban and rural communities on their knowledge on HIV/AIDS (P>0.05). Health education on HIV/AIDS prevention needs to be strengthened and improved to include cognitive behavioural interventions that emphasize attitude changes, negotiation skills and decisionmaking skills that could be effective in changing and maintaining safe sexual behavior

434. Nollet, K. E., Saito, S., Ono, T., Ngoma, A., Ohto, H. **Microparticle formation in apheresis platelets is not affected by three leukoreduction filters.** *Transfusion*, 2013; 53(10), 2293-2298.

**Background:** Microparticles in blood components might contribute to transfusion-related immunomodulation or other side effects. To elucidate the role of leukofiltration, we compared three commercially available filters for their effect on platelet (PLT)-derived (PDMP), leukocyte-derived (LDMP), and red blood cell-derived (RDMP) microparticle formation in apheresis PLTs. **Study Design and Methods.** Apheresis PLTs from pairs of ABO-identical male donors were pooled and divided into four volumes. One volume was stored without filtration, whereas the other three were filtered with different devices. PDMPs, LDMPs, and RDMPs were measured by flow cytometry during 2 weeks of controlled-temperature (22°C) agitated storage. **Results.** On average, PDMPs doubled over 5 days of storage, followed by a much steeper increase by which PDMPs on Day 14 were nearly 20 times higher than on Day 0. LDMP and RDMP counts were relatively stable over 14 days. Significant differences among filtered and nonfiltered products did not emerge. **Conclusion.** Although the conditions of this study

showed no favorable or unfavorable effects of three different filters on microparticle formation, surveillance and investigation of unanticipated outcomes in other experimental and clinical circumstances should continue.

435. Norbert, G.L., Lwoga, E.T. **Information seeking behaviour of physicians in Tanzania.** *Information Development*, 2013, 29 (2), pp. 172-182.

The study investigated the information seeking behaviour of physicians at the Muhimbili National Hospital (MNH) in Tanzania. Questionnaires were personally distributed to all physicians (n = 259) at MNH. The rate of response was 83 percent (n = 215). Based on the literature review, a Wilson (1996) model was used to systematically guide the assessment of the physicians' information seeking behaviour at MNH. The study found that physicians needed specific medical information to enhance their knowledge on a daily basis, particularly they needed information on patient care, rather than information for research and further education purposes. In order to fulfil their information needs, physicians preferred to seek information from formal sources, which included printed textbooks, electronic resources and printed journals. However, there was low use of the Internet for prescribing various drugs and diagnosis. Factors such as poor ICT infrastructure, lack of access to a computer, frequent power cuts and lack of time were the major barriers that inhibited physicians to seek information. It is thus important for the MNH management to promote information literacy (IL) issues, improve ICT infrastructure, establish a resource centre, and integrate use of the Internet and e-resources for patient care within clinicians working hours; and for the government to improve the supply of reliable electricity at MNH for effective medical practices.

436. Nsimba, S. E., Kayombo, E. J., Masele, A. Y., Laurent, Y., Lusajo, M. **Characteristics of drug abusers in an urban community of Tanzania.** *American Journal of Research Communication*, 2013;1(7), 87-99.

**Objective:** Problem of drug abuse in Tanzania is serious and growing one. The thrust of this study was to identify core characteristics of drug abusers in Dar es Salaam, the biggest commercial city of the United Republic of Tanzania. **Study design:** Descriptive, cross sectional. **Place and duration of study:** The study was undertaken from July-September 2007 at three municipal councils of the city of Dar es Salaam namely Kinondoni, Ilala and Temeke each with a population of about 3.5 million inhabitants. **Subjects & Methods:** It was a descriptive cross sectional study; interviewing 1198 adolescents male and female aged between 20-40 years recruited on random sampling method. **Statistical Analysis and Results:** Descriptive statistical analysis was used. In this study, the highest percentage of drug abusers was found within age group of 21-30 years for males while in the females the highest user age group was less than 20 years. Employment status was 33.6%. Labourers with primary education were among the highest users (63.9%). Amazingly among literates the abuse was very low (7.4%). Regarding the marital status of respondents 57% were not married. Smoking was the commonest route of administered drugs accounting for 90.5% of respondents

**Conclusion:** The study was a problem identifier of the magnitude of the problem in one of the biggest cities of Tanzania, which can be prevented if tackled prudently.

437. Ntomoka, C. G. **Prevalence of primary open angle glaucoma among patients with diabetes mellitus attending the diabetic clinic at Muhimbili National Hospital, Dar es salaam. 2012. Master of Medicine (Ophthalmology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Numerous large population based studies have shown diabetes mellitus to be a risk factor for the development of open angle glaucoma<sup>12-16, 19, 30, 54, 62</sup>. However the prevalence of POAG in patients with DM is unknown in most developing countries including Tanzania. With the reported increase of burden of DM, diabetic retinopathy and glaucoma diagnoses are expected to increase<sup>8</sup>. Glaucoma as a disease of public health importance contributes to blindness burden worldwide. It is the second leading cause of blindness after cataract and the first cause of irreversible visual loss<sup>9</sup>. **Objective;** To determine the prevalence of primary open angle glaucoma among patients with diabetes mellitus attending the diabetic clinic at Muhimbili National Hospital, Dar es Salaam in 2012. **Methodology;** This was a hospital based descriptive cross sectional study. The 369 study subjects were systematically selected from diabetic clinic and underwent standardized ophthalmological evaluation at the eye clinic. They were diagnosed to have POAG if they had in one or both eyes at least IOP above 21 mmHg with CDR above 0.5 with or without glaucomatous VF defect; if they had CDR above 0.5 with glaucomatous RNFL loss in the presence of normal IOP or had high IOP with NFL loss in the absence of significant vertical CDR changes. **Results;** Overall prevalence of POAG in this study was 23 (6.8%). Eighteen (5.3%) had raised CDR and high IOP in one or both eyes (p value 0.01) and 4 (1.2%) had normal IOP with raised CDR and glaucomatous RNFL loss. One patient, 0.3% had normal CDR with raised IOP and glaucomatous RNFL loss (p value 0.33). Twenty five patients, (7.3%) had IOP above 21 mmHg in one or both eyes. Ocular hypertension was reported in 6 (1.7%) of all. Thirteen patients (72.2%) out of 18 had glaucomatous VF defects. Out of 23 patients found to have POAG, 5 (22.7 %) had impaired BCVA. None of the patients was blind. ; Participation rate was 93% with mean age 54 +/- 9.6 years. Age range 35-84, mean 54 +/- 9.6 years, females 59.6%. **Conclusion;** The prevalence of POAG among patients with diabetes mellitus is high in this study. RNFL loss seems to happen at a lower IOP manifesting as optic disc changes with/without visual field defects. **Recommendations:** Screening for glaucoma should be included in the comprehensive management of patients with DM. Further case control and incidence studies are required to elucidate more evidence of vulnerability of diabetic patients to POAG.

438. Nyamhagatta, M. **The incidence of facility based deliveries and their predictors among HIV positive and HIV negative pregnant women in Mara Region, Tanzania. Master of Medicine (Community Health) Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction and Background:** If an HIV positive mother delivers in a health facility, interventions can be effected to ensure the safety of both mother and her newborn baby including reducing the risk of transmission of HIV to the baby. In Tanzania, only about half (51 percent) of births are assisted by health professionals. Barriers to the use of skilled delivery attendants in developing countries include cost, long distances to health facilities, fears and experiences of HIV-related stigma and discrimination. Studies done to determine the incidence of facility based deliveries and their predictors among HIV positive and HIV negative pregnant women are few and in Tanzania little information is available. **Study objective:** This study aimed at determining the incidence of facility based deliveries and their predictors among HIV positive and HIV negative pregnant women from April to May, 2012. **Materials and Methods:** A retrospective cohort study was conducted in Mara region. A structured questionnaire was used for data collection by an interviewer. Data for sero-status of sampled participants was obtained from ANC registers after which study participants were traced from the community using contact addresses left at the facility and postnatal clinics where they bring their infants for immunization and asked to self report place of their last child birth and associated predictors. Then data was entered into SPSS where incidence of institutional delivery for both groups, relative risk, p-values, confidence intervals, chi-square, logistic regression and associated predictors were calculated and analysed. **Results:** A total of 326 postnatal women, 50% (n= 163) from Butiama and 50%(n= 163) from Bunda districts, were involved in the study. Of these 49.3%(n=162) were HIV positive while 50.3%(n= 164) were HIV negative. The two groups were sociodemographically similar except for age and marital status. Only 44.4%(n= 72) of the HIV positive women and 45.7%(n=75) of the HIV negative women had their last childbirth in a health facility respectively. There was no significant difference in the incidence of facility based delivery between HIV positive women and HIV negative women in Mara region ( $p= 0.847$ ,  $X^2 = 0.332$ ) even after adjusting for confounders. After adjusting for confounders, low maternal age, positive experience of facility based delivery, good knowledge of facility based delivery advantages and onset of labour during day time were significantly associated with facility based deliveries among HIV positive women ( $p= 0.016$ ,  $0.002$ ,  $0.042$  and  $<0.001$  respectively) while fewer numbers of living children and short distance from nearby health facility were significantly associated with facility based deliveries among HIV negative women ( $p= 0.012$  and  $0.023$  respectively). **Conclusion and Recommendations:** This study showed that 44.4% of the HIV positive women and 45.7% of the HIV negative women in Mara region give their childbirth in health facilities respectively. There was no significant difference in the incidence of facility based deliveries between HIV positive and HIV negative women in the region. However, maternal age, experience of facility based delivery, knowledge of facility based delivery advantages and timing of onset of labour were predictors of facility based deliveries among HIV positive women while number of living children and distance from nearby health facility were predictors of facility based deliveries among HIV negative women. This study recommends increased community awareness creation activities on utilization of RCH services and revival of community health workers cadre.



439. Nyamhanga, T. M., Muhondwa, E. P., Shayo, R. Masculine attitudes of superiority deter men from accessing antiretroviral therapy in Dar es Salaam, Tanzania. *Global health action*, 2013, 6.

**Background:** This article presents part of the findings from a larger study that sought to assess the role that gender relations play in influencing equity regarding access and adherence to antiretroviral therapy (ART). Review of the literature has indicated that, in Southern and Eastern Africa, fewer men than women have been accessing ART, and the former start using ART late, after HIV has already been allowed to advance. The main causes for this gender gap have not yet been fully explained. **Objective:** To explore how masculinity norms limit men's access to ART in Dar es Salaam. **Design:** This article is based on a qualitative study that involved the use of focus group discussions (FGDs). The study employed a stratified purposive sampling technique to recruit respondents. The study also employed a thematic analysis approach. **Results:** Overall, the study's findings revealed that men's hesitation to visit the care and treatment clinics signifies the superiority norm of masculinity that requires men to avoid displaying weakness. Since men are the heads of families and have higher social status, they reported feeling embarrassed at having to visit the care and treatment clinics. Specifically, male respondents indicated that going to a care and treatment clinic may raise suspicion about their status of living with HIV, which in turn may compromise their leadership position and cause family instability. Because of this tendency towards 'hiding', the few men who register at the public care and treatment clinics do so late, when HIV-related signs and symptoms are already far advanced. **Conclusion:** This study suggests that the superiority norm of masculinity affects men's access to ART. Societal expectations of a 'real man' to be fearless, resilient, and emotionally stable are in direct conflict with expectations of the treatment programme that one has to demonstrate health-promoting behaviour, such as promptness in attending the care and treatment clinic, agreeing to take HIV tests, and disclosing one's status of living with HIV to at least one's spouse or partner. Hence, there is a need for HIV control agencies to design community-based programmes that will stimulate dialogue on the deconstruction of masculinity notions.

440. Nyamhanga, T.M., Muhondwa, E.P., Shayo, R. Masculine attitudes of superiority deter men from accessing antiretroviral therapy in Dar es Salaam, Tanzania. *Global health action*, 2013; 6, pp. 21812.

This article presents part of the findings from a larger study that sought to assess the role that gender relations play in influencing equity regarding access and adherence to antiretroviral therapy (ART). Review of the literature has indicated that, in Southern and Eastern Africa, fewer men than women have been accessing ART, and the former start using ART late, after HIV has already been allowed to advance. The main causes for this gender gap have not yet been fully explained. To explore how masculinity norms limit men's access to ART in Dar es Salaam. This article is based on a qualitative study that involved the use of focus group discussions (FGDs). The study employed a stratified purposive sampling technique to recruit respondents. The study also employed a thematic analysis approach. Overall, the study's findings revealed that men's hesitation to visit the care and treatment clinics signifies the superiority norm of masculinity that

requires men to avoid displaying weakness. Since men are the heads of families and have higher social status, they reported feeling embarrassed at having to visit the care and treatment clinics. Specifically, male respondents indicated that going to a care and treatment clinic may raise suspicion about their status of living with HIV, which in turn may compromise their leadership position and cause family instability. Because of this tendency towards 'hiding', the few men who register at the public care and treatment clinics do so late, when HIV-related signs and symptoms are already far advanced. This study suggests that the superiority norm of masculinity affects men's access to ART. Societal expectations of a 'real man' to be fearless, resilient, and emotionally stable are in direct conflict with expectations of the treatment programme that one has to demonstrate health-promoting behaviour, such as promptness in attending the care and treatment clinic, agreeing to take HIV tests, and disclosing one's status of living with HIV to at least one's spouse or partner. Hence, there is a need for HIV control agencies to design community-based programmes that will stimulate dialogue on the deconstruction of masculinity notions.

- 441. Nyamoita, M.G., Ester, I., Zakaria, M.H., Wilber, L., Ochola, B.J., Ahmed, H. Larvicidal and brine shrimp activities of *Vitex schiliebenii* extracts and isolated phytoecdysteroids on *Anopheles gambiae* Giles S.S Larvae. *Journal of Applied Pharmaceutical Science*, 2013; 3 (5), pp. 91-95.**

Acetone, methanol and aqueous extracts of the leaves, stem bark and root bark of *Vitex schiliebenii* belonging to the family Verbenaceae were evaluated for their larvicidal activity against late 3rd/early 4th *Anopheles gambiae* Giles s.s. larvae (Diptera: Culicidae). The extracts of the acetone leaves and stem bark were active with LC50 values of 14.6 and 17.4 ppm respectively at 24 hrs. These extracts exhibited low toxicity to brine shrimps with LC50 values of 180.9 and 154.4 ppm respectively. The constituents in these extracts were isolated and evaluated and the phytoecdysteroids 20-hydroxyecdysone (1) and stigmasterol (2) were identified as the active principles in the acetone stem bark while  $\gamma$ -sitosterol (3) was the active principle of the acetone leaf extract. The methanol leaf extract, the stem bark aqueous extract and the acetone root bark also showed potency against the mosquito species.

- 442. Nyamoita, M.G., Ester, I., Zakaria, M.H., Wilber, L., Bwire, O.J., Ahmed, H. Comparison of the effects of extracts from three *Vitex* plant species on *Anopheles gambiae* s.s. (Diptera: Culicidae) larvae. *Acta Tropica*, 2013; 127 (3), pp. 199-203.**

Acetone and methanol extracts of different parts of three *Vitex* species (leaves and stem bark of *Vitex trifolia*, leaves, stem bark and root bark of *Vitex schiliebenii* and stem and root bark of *Vitex payos*) were evaluated for their potential to control *Anopheles gambiae* Giles s.s. larvae (Diptera: Culicidae). The extracts gave different levels and rate of mortality of the larvae. Some (methanol extract of *V. trifolia* leaves, acetone extracts of stem bark and leaves of *V. schiliebenii*, acetone extract of root bark of *V. payos*) caused 100% mortality at 100ppm in 72h, with those of *V. schiliebenii* and *V. payos*

showing faster rate of mortality (LT50=8h) than that of *V. trifolia* (LT50=14h). At lower doses of these extracts ( $\leq 50$ ppm), most of the larvae failed to transform to normal pupae but gave larval-pupal intermediates between 4 and 14 days of exposure. Some pupated normally but the adults that emerged appeared to be weak and died within 48h. Extracts of the stem bark of *V. payos* showed interesting effects on the larvae. Initially, the larvae were relatively hyperactive compared to those in control treatments. Later, the ones that did not transform to larval-pupal intermediates became stretched and inactive and 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. Polar constituents of *Kotschya uguenensis* Verdc. (Fabaceae) do not exhibit acute toxicity but cause growth disruption of *Anopheles gambiae* s.s. Gile (Diptera: Culicidae) larvae with eventual death. Time-course larvicidal effects of powders of root and stem barks and their crude methanol extracts in form of emulsions were compared in the laboratory and in artificial semi-field ponds. *Kotschya uguenensis* powders of root and stem barks and emulsions of their crude methanol extracts were assayed against *An. gambiae* s.s according to protocols of WHO 1996 & 2005. All formulations were equally effective under laboratory conditions giving 100% larval mortality within three days at a dose of 50  $\mu\text{g/ml}$  of the extracts or concentrations of powders corresponding to the same level of extractable material. Under semi-field conditions, suspensions of the powder materials appeared to perform better than emulsions of methanol extracts. Time taken to give 80% mortality (LT80) of larvae and pupa at 0.1% w/v was 6.06 days for powders of root bark and 5.60 days for powders of stem bark. The LT80 for the root bark extract at 200  $\mu\text{g/ml}$  was 8.28 days while that for the stem bark methanol extract was 12.47 days. No residual effects of the test materials on the larvae or pupae were evident in semi-field ponds 14 days after the reintroduction of the test materials. Our results suggest that, for the control of anophelines in the field, a weekly application of appropriate amounts of powders of *K. uguenensis* may be effective.

443. Nyamweru, B, Kaale, E., Manyanga, V., Chambuso, M., Layloff, T. **Development and validation of a thin-layer chromatographic-densitometric method for the analysis of ciprofloxacin hydrochloride tablets, *Journal of Planar Chromatography - Modern TLC*, 2013; 26 (4), pp. 370-374.**

444. Nyamweru, B., Kaale, E., Mugoyela, V., Chambuso, M. **Development and validation of an HPTLC-densitometric method for simultaneous analysis of lamivudine, tenofovir disoproxil fumarate, and efavirenz (LTE) in tablets. *Journal of Planar Chromatography - Modern TLC*, 2013; 26 (3), pp. 226-231.**

Analysis of fixed dose combination products can present daunting challenges to the analytical chemist. This paper presents a validated analytical method for simultaneous analysis of lamivudine, tenofovir disoproxil fumarate, and efavirenz using high-performance thin-layer liquid chromatography (HPTLC)-densitometric method. Separation was achieved by use of HPTLC pre coated plate with silica gel 60F254 using mobile phase containing toluene-methanol (27:6 v/v). RF values were  $0.18 \pm 0.02$  for lamivudine,  $0.33 \pm 0.05$  for tenofovir disoproxil fumarate, and  $0.48 \pm 0.02$  for efavirenz,

respectively. The regression line had best fit using second order polynomial function for all the three APIs (active pharmaceutical ingredients) with  $r^2$  0.98 at the concentrations of 375-900 ng spot-1 for lamivudine, tenofovir disoproxil fumarate and 750-1800 ng spot-1 for efavirenz, respectively. Repeatability and intermediate precision had % RSD  $\hat{\leq}$  2. The method had acceptable level of accuracy for all three APIs with mean recoveries in the range of 98 to 103% with a good selectivity for the APIs. The validated method was tested for cleaning validation with limit of detection and quantitation being 1.03 ng  $\mu\text{L}^{-1}$  and 3.22 ng  $\mu\text{L}^{-1}$ , respectively. The method is thus suitable for use as an analytical method to support efavirenz cleaning validation, routine drug screening, and analysis in resource constrained countries.

445. Nyawawa, E. T. M., Ussiri, E., Njelekela, M. A., Mpoki, U., Nyangassa, B. J., Wandwi, W. B. C., Lugazia, E. **Surgical Experience with Closure of an Isolated PDA at Muhimbili Cardiothoracic Unit in Dar es Salaam, Tanzania.** *East and Central African Journal of Surgery*, 2013; 18(2), 127-136.

**Background:** This study describes our experience in the management of isolated patent ductus arteriosus; complications and mortality rate. Further it describes the innovative technique for the closure of the duct. **Methods:** We retrospectively recruited all patients' files that underwent PDA closure from May 2008 to July 2011 in all these patients clinical evaluation and confirmation of diagnosis was made by echocardiography. There were two-treatment group. The first group underwent a standard surgical closure and these were 26 patients this group was obtained from the usual and routinely done PDA ligation. The second group also comprised 26 patients who had undergone a modified closure technique as illustrated by Kirklin<sup>1</sup>. Patients' age, sex duration of illness, stage of the disease as classified by New York Heart Association, ventricular function as depicted by left ventricular ejection fraction, any associated lesion were noted. During operation, confirmation of the PDA was done and the total operation time (TOT), total duration of ventilation (VT), and any complication were noted. The total duration of intensive care stay and the postoperative period stay in the ward were noted. Patients had been followed at six months interval for two years; in which during follow up evaluation for their cardiac status to exclude congestive heart failure, presence of residual PDA had been done. All data were entered in a structured data sheet and analyses using Spss window 17 statistical program. **Results:** A total of 52 patients with clinical diagnosis of PDA, 26 patients in each treatment group of either standard closure or new closure technique. Female patients had outnumbered male patients by 5.5 folds. A total of 46.1% of patients were under five years old. A relatively younger population of patients was seen with the new closure technique as compared to patients in the standard closure technique ( $p=0.02$ ). Similarly a correspondingly less heavier weight was noted in patients who underwent new closure technique as compared to those who had standard closure technique ( $p=0.03$ ). Long-term follow up of patients with their treatment modalities it was found that 3 patients and 2 patients had residue lesion and congestive cardiac failure respectively who were exclusively in the standard closure technique, none of such complications were seen with the new closure technique ( $p=0.04$ ). With such evidence, the practice to date has been the new closure technique for definitive surgical treatment for PDA. **Conclusion** Open surgery for PDA closure remains the

procedure of choice for facility and technically deprived countries. The approach and the technique of closure that minimize the postoperative complications is a challenge from centre to centre. However this study with a new closure in which a purse string on the ampulla of the PDA followed by a silk ligature has proved to be efficient and reliable technique that leaves no residual lesion with no long term complications.

446. Nyongole, O. V., Akoko, L. O., Mwanga, A. H., Mkony, C. A. **Urethral Stricture as seen in Dar es Salaam, Tanzania. *East and Central African Journal of Surgery*, 2013; 18(1), 84-89.**

**Background:** Urethral stricture is a common condition in both developed and developing countries, but the pattern of causes in the two situations are different. Urethral Stricture can occur in female as well as in male, but it is far commoner in the male urethra for various anatomical and pathological reasons. **Methods:** This was a ten months, hospital based descriptive, prospective study which involved all patients presenting at urology clinics confirmed to have urethral stricture. Patient characteristics were analyzed using SPSS version 18. **Results:** A total of 111 patients with urethral strictures were recruited into the study. All were male aged 10 - 97 years with a mean of 52.7 years. Trauma was the commonest cause of urethral stricture among our patients in age group below 45 years 64.2% ( $p=0.000$ ). Urethral catheterization was the commonest cause of urethral stricture among patients in age group above 45 years 80.9% [ $p= 0.026$ ]. Most strictures occurred in the bulbar urethra which accounted for 63.2% of all strictures. **Conclusion:** Urethral stricture disease remains a predominantly male disease covering a wide age range of patients with social implications. Urethral catheterization and road traffic accident related trauma are the commonest causes of urethral strictures cutting across all the age groups. The bulbar urethra remains the commonest site of urethral stricture.

447. Nyongole, O. V., Akoko, L. O., Njile, I. E., Mwanga, A. H., Lema, L. E. **The Pattern of Abdominal Trauma as Seen at Muhimbili National Hospital Dar es Salaam, Tanzania. *East and Central African Journal of Surgery*, 2013; 18(1), 40-47.**

**Background:** Abdominal trauma is among the leading causes of morbidity and mortality in all age groups in the world. However, identifying serious intra-abdominal pathology due to trauma can be a challenge. Mechanisms of injury often result in other associated injuries that may divert the physician's attention from potentially life-threatening intra-abdominal pathology. So this study aimed at showing the pattern of abdominal trauma at our hospital. **Methodologies:** We recruited patients presenting at the EMD with abdominal injury and used a structured questionnaire to collect patient information. **Results:** A total of 92 patients with abdominal trauma were surgically managed with male to female ratio of 7.4:1. The age range was 7 to 55 years with a mean of 29.43. The majority (67.4%) of the patients were aged between 21 -40 years. Petty traders made up 42.3% of all cases. Motor Traffic Injuries accounted for 55.4%, with blunt trauma contributing 65.3% of the study population. Substance abuse was also reported in a number of cases. The overall mortality of 7.6% was observed. **Conclusion:**

Most causes of abdominal trauma were preventable, with substance abuse having influence. Non therapeutic laparotomy was high probably due to deficiencies in investigation modalities in our set up.

- 448. Nzalawahe, J.; Komba, E. V. G. Occurrence and seasonal predisposition of fasciolosis in cattle and goats slaughtered in Kasulu District abattoir, Western Tanzania. *Research Opinions in Animal and Veterinary Sciences*, 2013; 3.(11): pp 395-400.**

A 3 year study was conducted to estimate the prevalence of fasciolosis in cattle and goats slaughtered at Kasulu district abattoir. It involved 33 months (July, 2010 to March, 2013) retrospective data collected as abattoir records and three months (April, 2013 to June, 2013) prospective meat inspection by researchers, during which adult worm and egg samples were collected for morphometric identification. During the study period, a total of 8410 cattle and 8424 goats were slaughtered and inspected; out of which 6376 (76%) and 2295 (26%) were found to be infected with fasciolosis respectively. The study observed significant seasonal pattern of fasciolosis in cattle with higher prevalence observed during the dry season. Worm and egg identification suggested that *F. gigantica* was responsible for the infections in slaughtered cattle and goats. This is the first study to report the occurrence of fasciolosis in domesticated ruminants in western Tanzania and has established that fasciolosis is highly prevalent in cattle and goats. Effective control strategies need to be put in place focusing on both the parasite and the snail intermediate hosts.

- 449. Nzingana, A.W. Implementation of occupational health and safety policy in artisanal and small scale mining in Chunya district. Master of Arts (Health Policy and Management) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dares Salaam.**

**Introduction:** Effective implementation of a policy is a challenging process, understanding why policies work or do not work is important and mostly is the result of, assessment of implementation process and the factors that contribute to policy success or failure; therefore the objective of the study is to explore the implementation of occupational health and safety policy in artisanal and small scale mining in Chunya district. **Methods:** A cross sectional descriptive study was conducted in Chunya District Council among owners and workers in artisanal and small scale mining also Government officials through in depth interviews and focus group discussion using an interview guide. The participants were purposively selected and a total of 41 people were enrolled in the study. Data was analysed using Thematic analysis framework which include becoming familiar with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and report. **Results:** This study revealed that occupational health and safety policy is not implemented as expected as artisanal, small scale miners and mining officials are not aware of it. Results also indicated that artisan and small scale miners rely on knowledge passed down from their parents, and use outdated technology. The Government and other stakeholders have not done enough

to educate miners especially artisan miners on OHS. **Conclusion:**Lack of communication between policy makers and implementers has been identified as the reason why stakeholders are not aware of OHS policy, but on the other hand there are ongoing activities trying to achieve the policy objective. Based on the findings, the study recommended that more effort be put into informing and educating all stake holders on Occupational health and safety Policy.

**450. Nzinza, M.E. Mapping of medicines storage conditions in warehouses and retail outlets in Tanzania.Masters of Pharmacy (Quality Control and Quality Assurance) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** As global warming is now widely accepted as a reality, temperature and humidity are likely to become ever more of a problem in warehouses and outlets as far as storage conditions are concerned. Hence storage conditions mapping becomes of critical importance in order to ensure that the great debate among different stakeholders on whether the prescribed labelled storage conditions for medicines can be achieved in the real market supply chain facilities.**Study Objectives:** To assess temperature and relative humidity storage conditions in Tanzania for the Good Storage Practice of medicines according to the International Committee on Harmonization (ICH). The information obtained from this study will help to advice the regulatory Authority on the stability requirements and letting for Tanzania. **Methods:** The study involved selected warehouses and retail outlets. These were six public warehouses and six private medicine outlet facilities which include medical stores department warehouses, Government hospital warehouses/pharmacies and community warehouses/pharmacies. Data collection involved a site visit to mount digital temperature and humidity data loggers, which were programmed to automatically collect, and record twice per day i.e mid-day at 12:10 hrs and mid-night at 00:10 hrs conditions over a period of one year. In the current study, the storage conditions were determined through calculation of the mean kinetic temperature and the arithmetic mean relative humidity (RH) formula. The parameters were collected from daily point temperatures and humidity in six different geographic zones of Tanzania mainland. The data have been analyzed with the program prepared in the Microsoft Excel 2007 using the MKT formulae; and data presented in tables and graphs. The analysis for temperature and relative humidity data were calculated by using the mean kinetic temperature and arithmetic mean formula respectively.**Results:** A total of 8760 data reading each for temperature and relative humidity were collected for one year. The overall Mean Kinetic Temperature for Tanzania mainland calculated value was 25.63 °C and the arithmetic mean relative humidity calculated was 60.2%. The highest temperature value was recorded in the Coastal zone (34.1 °C) and lowest was in the Southern highland zone (12.05 °C). The highest relative humidity value was in the Coastal zone (89.0%) and lowest was in Southern highland zone (25.0%).**Conclusion:** Tanzania which covers a large area records a variation of climate, example in Northern zone and Southern highland zone the temperature is much lower compared to the Coastal zone. The storage facilities in Tanzania do comply with the Good Storage Practice of medicines according to the International Committee on Harmonization (ICH) with respect to temperature and

relative humidity. The data suggest Tanzania fits well in climatic zone IVb  $30\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}/75\% \text{ RH} \pm 5\% \text{ RH}$  and Zone II ( $25 \pm 2^{\circ}\text{C}/60 \pm 5\%$ ) according to ICH guidelines, in principle this argument holds only and only if the facility is fitted with air-conditioning. However, with the current requirement one puts low risk by considering the worst case scenario while on the other hand it would mean some good quality medicine are wasted as a consequence of underestimated shelf life. The economic loss resulting from this remains undetermined. **Recommendation:** The study recommends mapping of storage conditions from facilities not fitted with air-conditioning to see whether they will also comply with ICH conditions.

**451. Obadia. N., Dickson. M., Angwara. K. Private public partnership (PPP) on trial: training higher level human resources for health (HRH) in Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** A major emphasis in the ongoing health sector reforms in Tanzania is PPP in all aspects. Whether it has worked or not is a subject of speculation. This paper sets out to examine this subject matter with a focus on HRH training at a graduate level. **Objectives:** Examine to what extent PPP has worked at graduate HRH training in Tanzania. **Methods:** Analysis of reports from five health Universities in Tanzania with a focus on MDs, DDS and B.Pharm trained for the period 2001 to 2010 **Results:** Between 2001 and 2010 five institutions trained these graduate HRH. They included a public institution (MUHAS), Private faith based (KCMC and BUCHS) and private for profit (IMTU and HKMU). For the past ten years during which PPP was a major policy agenda MUHAS was the only institution training DDS and B.Pharm. It trained 332 (100%) B.Pharm and 188 (100%) DDS. It also trained 1,285 MDs or 64% of all MDs trained locally. If the three degrees are combined the total trained is 2,542. MUHAS-trained 1,805 (71%). KCMC trained 233 (9.16%); IMTU 218 (8.57%); HKMU 232 (9.12%); BUCHS (2.12%). The private for profit group trained 450 of the 2,542 (17.69%) or 25% those trained by MUHAS. This is a major challenge for the PPP. **Conclusion:** The PPP policy in Tanzania is under a serious trial. It has not worked at this level as expected. For every four graduates from the public institution only one graduated from the private for profit group. This has been the case despite government subvention. If the policy is to be consummated a closer reexamination is needed to nudge the PPP pundits for more definitive action plan.

**452. Ogweyo, M.O. Factors influencing job satisfaction among nurses in private hospitals in Dar esSalaam. Master of Arts (Health Policy and Management) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** The wide spread shortage of nurses is of concern not only in Tanzania but globally. Factors influencing increased mobility of the nursing workforce and their contribution to nurses' turnover merit attention. Understanding nurses' job satisfaction is



important as this is a key factor in the nurses' turnover. **Objectives:** The study aimed at exploring the factors that influence job satisfaction among nurses in private hospitals in Dar es Salaam. **Method:** A cross-sectional survey design was used and 200 nurses working in private hospitals in Dar es Salaam completed a self administered questionnaire. Data were analyzed using Statistical Package for Social Sciences (SPSS). **Results:** More than a half of the respondents 116(58%) were either very satisfied or satisfied with their jobs and 57(28.5%) felt dissatisfied or very dissatisfied with their jobs while 27 (13.5%) were neither satisfied nor dissatisfied. The majority of the respondents 152 (76%) reported high level of satisfaction with relation with co-workers, and 146(73%) showed satisfaction with working conditions and environment. A total of 70 (35%) participants expressed their satisfaction on benefits and compensation in their working facilities. However 65 % showed dissatisfaction with the benefit and compensation aspects of the job satisfaction and 54% demonstrated their intentions to leave their hospitals to public or different occupation from besides nursing. **Conclusion and Recommendation:** From the findings of this study it can be concluded that nurses were moderately satisfied with their jobs in private hospitals. The levels of satisfaction differed from one variable to another. The low levels of satisfaction were seen in benefits and compensation and career development. However there were high levels of satisfaction among nurses on factors such as relation with co-workers, working conditions and environment and relation with supervisors. Despite the facts that nurses were moderately satisfied with their jobs in private hospitals, still majority demonstrated their intention to leave their hospitals. This study recommends that, it is imperative that private hospitals create a work environment which fosters growth and development among nurses which can be done by creating and implementing career development programs in working places. Furthermore private hospitals should enhance nurses' retention by creating or revising their benefits and compensation scales. Lastly it is recommended that private hospitals should develop policies that could improve and maintain the way they manage the human resources especially on the issues pertaining to benefits, training opportunities and promotions. Although this study yielded important results about nurses' job satisfaction, there is a need for much more research to be done. One recommendation is to repeat this study using a much larger sample to improve the likelihood of achieving statistically significant results that could be generalized to a larger and more diverse population.

453. Okumu, F. O., Mbeyela, E., Lingamba, G., Moore, J., Ntamatungiro, A. J., Kavishe, D.R, Kenward, M.G., Turner, E., Lorenz, L.M., Moore, S.J., Comparative field evaluation of combinations of long-lasting insecticide treated nets and indoor residual spraying, relative to either method alone, for malaria prevention in an area where the main vector is *Anopheles arabinosus*. *Parasit Vectors*, 2013: 6, 46.

**Background:** Long-lasting insecticidal nets (LLINs) and indoor residual spraying (IRS) are commonly used together in the same households to improve malaria control despite inconsistent evidence on whether such combinations actually offer better protection than nets alone or IRS alone. **Methods:** Comparative tests were conducted using experimental huts fitted with LLINs, untreated nets, IRS plus untreated nets, or combinations of LLINs and IRS, in an area where *Anopheles arabiensis* is the

predominant malaria vector species. Three LLIN types, OlysetW, PermaNet 2.0W and Icon LifeW nets and three IRS treatments, pirimiphosmethyl, DDT, and lambda cyhalothrin, were used singly or in combinations. We compared, number of mosquitoes entering huts, proportion and number killed, proportions prevented from blood-feeding, time when mosquitoes exited the huts, and proportions caught exiting. The tests were done for four months in dry season and another six months in wet season, each time using new intact nets. **Results:** All the net types, used with or without IRS, prevented >99% of indoor mosquito bites. Adding PermaNet 2.0W and Icon LifeW, but not Oyster nets into huts with any IRS increased mortality of malaria vectors relative to IRS alone. However, of all IRS treatments, only pirimiphos-methyl significantly increased vector mortality relative to LLINs alone, though this increase was modest. Overall, median mortality of *An. arabiensis* caught in huts with any of the treatments did not exceed 29%. No treatment reduced entry of the vectors into huts, except for marginal reductions due to PermaNet 2.0W nets and DDT. More than 95% of all mosquitoes were caught in exit traps rather than inside huts.

**454. Olotu, R.T. Assessment of accessibility and use of a tuberculosis screening tool among health care workers in HIV care and treatment clinics in Dar es Salaam region. Master of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** The World Health Organization recommends countries to embark on intensified Tuberculosis case finding among People Living with HIV/AIDS (PLHA) by using a simplified clinical algorithm for Tuberculosis (TB) screening tool. Tanzania adopted the use of the screening tool in 2007. However, there is scant information on the extent of use and availability of the tool among health care workers who are using it to screen PLHA. **Objective:** To assess the extent of use and accessibility of Tuberculosis screening tool in health facilities in detecting Tuberculosis cases among People Living with HIV/AIDS in Care and Treatment Clinics in Dar-es-Salaam. **Methodology:** Explorative cross-sectional study was conducted among health care workers providing services to PLHA in Care and Treatment Clinics (CTCs). A total of 208 health care workers were enrolled in the study. A total of 200 patient's records files registered into HIV CTCs for the past 6 months prior the commencement of the study were assessed for correctness, completeness and consistency of filling TB screening tool, CTC2 card and patient clinical notes. Data was collected using structured face-to-face questionnaires; patients' files were also assessed using a check list. **Results:** There was no statistically significant association between the respondents level of education ( $p=0.62$ ), their professions ( $p=0.91$ ) and working experiences ( $p=0.88$ ) with the use of TB screening tool respectively. However training on the use of TB screening tool, those who are aware and respondents who were supervised all three yielded a strong relationship of using TB screening tool with statistical significant level of ( $p = 0.001$ ). Majority of respondents (87 percent) reported that the TB screening tool was always accessible when they wanted to use it. About (75 percent) of those who reported to have had missed the tool, had missed it more than once. About (43 percent) of the respondents were not aware of the existence of an ordering system in the health facility. More than 85 percent of respondents reported to have had been supervised at least once. Despite

the supervision, (72 percent) of the respondents reported to had received feedback on the gaps in filling the tool. However a significant number of TB screening tools were not filled at all (135 out of 200). **Conclusions and recommendations** :The tool has been used by the majority of the health care workers and in most cases has been accessible. Continual training to increase awareness and supportive supervision should be emphasized to improve the use of the TB screening tool to improve the detection rate of TB among PLHAs. More studies should be conducted to find a way of integrating the TB screening tool with the CTC2 cards, in order to reduce the amount of time spent on paper work.

**455. Oluwole, O., Noll, R., Makani, J., Novelli .E.M. Cognitive Function of Nigerian Children with Sickle Cell Disease. *Blood* ,2013 ;122(21) :pp 1008-1008.**

**Background** Sickle cell disease (SCD) -related neurological complications include overt stroke, silent infarctions and cognitive impairment (CI). CI significantly impacts developmental growth and quality of life. Despite the high prevalence of SCD in sub-Saharan Africa, there is limited information on the burden of neurological dysfunction. To address this gap, we conducted a study to elucidate the prevalence and correlates of CI in SCD-children in an urban tertiary care setting in Nigeria. **Method** This case-control, cross-sectional study was approved by the University of Pittsburgh IRB, Lagos University Teaching Hospital (LUTH) and Lagos State University Teaching Hospital (LASUTH) in Nigeria. Participants were recruited from the LUTH sickle cell clinic and the Sickle Cell Foundation-associated clinics, which included a transcranial Doppler (TCD) clinic. Participants were English-speaking children between the ages 6-16 with laboratory-diagnosed homozygous SCD (HbSS, sickle cell anemia). Children who had an on-going sickle cell crisis or who received a blood transfusion within 3 months were excluded from the study. HbAA siblings of the patients and unaffected age-matched children from the LASUTH pediatric primary care clinic were recruited as control subjects. For a comprehensive assessment of cognitive function, subtests of the Wechsler Intelligence Scale for Children (WISC IV) were administered to assess processing speed (Symbol Search, Coding subtests) and Working Memory (Digit Span, Symbol search subtests) indices. Baseline hemoglobin levels were obtained via a Stat-site hemoglobin analyzer, and oxygen saturation levels were obtained using a pulse oximeter. Baseline demographic data was obtained by surveying the parents/guardians. Lastly, children recruited from the Sickle Cell Foundation TCD clinic (n=24) were stratified by stroke risk levels (standard, conditional, high and indeterminate) based on the TCD velocity values. **Results** A total of 56 children diagnosed with sickle cell disease (M=29, mean age=9.2, SD: 2.76) and 42 unaffected children (M=24, mean age=9.41, SD: 2.75) participated in this study. We found a higher prevalence of cognitive deficits, especially in areas of processing speed (p=0.013) and short-term auditory memory (p=0.002) in SCD patients as compared to controls. There was also a close association with working memory deficits (p=0.07). Surprisingly, we did not find an association between the cognitive performance of SCD children and their levels of anemia, oxygen levels or body mass index. TCD high risk level was marginally associated with a lower hemoglobin and severe anemia (p=0.05) although there was no significant correlation with working memory and processing speed indices. **Conclusion**

Children with SCD in Nigeria suffer from cognitive deficits in the areas of memory and attention when evaluated with subtests of the Wechsler Intelligence Scale for Children. We found that, unlike other studies of cognitive function in SCD, our study did not find a correlation between cognitive function and hemoglobin level. It is, therefore, possible that other local environmental or disease-specific factors may be associated with CI in our SCD cohort, or that anemia may affect other cognitive domains not explored by our research. Larger, longitudinal studies should be performed to further elucidate the cognitive function of pediatric SCD patients in Nigeria so that appropriate, locally targeted, preventive interventions can be developed.

- 456. Omar, A.A., Leyna, G. & Mghamba, J. Magnitude of Cardiovascular Diseases and Risk Factors Among Salary Earners In Zanzibar. 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** Cardiovascular diseases (CVD) are a significant cause of global mortality. About 17.1 million people died from cardiovascular disease in 2005, representing 30% of all global deaths. An estimated 7.2 million deaths were due to heart attacks and 5.7 million from stroke. The increase in CVDs and other non-communicable diseases is overwhelming health systems in low and middle income countries; which also face existing Communicable Diseases. In Zanzibar, there is little information to aid prevention and control of NCDs including CVDs. **Objectives:** To assess the magnitude of CVDs and risk factors among salary earners in Zanzibar. **Methods:** A cross-sectional study was conducted with 333 participants. Sample frame was ministries which were randomly selected from government and private institutions. WHO STEPs survey methodology was used. Data entry and analysis were performed using EpiInfo3.5.1. **Results:** The study population consisted of 333 respondents, of which 51.7% were males and 48.3% were females. The prevalence of CVD was 45.3%. In the bivariate analysis, CVD was associated with sex, age, education levels, lifestyle factors and anthropometric and biochemical factors. In the final logistic regression model, males were twice more likely to have CVD compared to females (OR = 2.3, (95%CI: 1.34, 3.94); p=0.003). We also observed that older age (>45 years) had a higher odds of reporting CVD compared to participants who were younger. **Conclusion:** CVD is a common health problem among salary earners in Zanzibar that needs to be addressed. Being male, old age and having abdominal obesity appear to be the main risk factors for CVD in this population. More studies and preventive measures in the work places are urgently needed to address this problem.

- 457. Otieno, M. Obogo, V. Mlele, J.A. Bauch , T.A. Reynolds. Nurse-led educational campaign on blood borne pathogens and proper sharps disposal at an urban tertiary hospital in Dar Es Salaam, Tanzania. *African Journal of Emergency Medicine* ,2013; 3(4): S8.**

**Introduction:** In Africa, where the regional prevalence of HIV is the highest in the world, the rate of needlestick injuries in healthcare workers is also the highest, despite the fact that such injuries are vastly underreported. Needlestick injuries pose a significant risk to healthcare workers and are the most common source of occupational exposure to blood. Due to recurrent needlestick injuries in healthcare workers at the site, nurses from the Muhimbili National Hospital Emergency Medicine Department (MNH EMD) in Dar Es Salaam, Tanzania initiated a campaign to teach health assistants,

nurses, and medical doctors the hazards of needlestick injuries, and to enforce proper sharps disposal for prevention. **Methods:** We conducted a 2-week educational campaign on hazards and prevention of needlestick injury. To evaluate the acquisition and retention of lessons from this campaign, 61 participants underwent an immediate and delayed (at 2 months distance) post-training exam. To evaluate the impact of the campaign, we collected data on the rate of overfilled sharps boxes, before, during and after the campaign. **Results:** Scores on both immediate and delayed testing on bloodborne pathogen transmission and proper sharps disposal were very high. The number of overfilled safety boxes dramatically decreased during and immediately following the training phase of this campaign, but exceeded pre-intervention levels only 2 weeks after the completion of the campaign. **Conclusion:** The results of this study suggest that even with very high levels of immediate and delayed retention of educational content as measured by exam, the impact of an educational intervention on behavioural change may be much more short-lived. This has implications regarding the need for continuous education to support for workplace safety campaigns.

**458. Outwater A. H., Mgya, E., Campbell, J. C. Community violence in Dar es Salaam, Tanzania: A mixed methods study. *African Safety Promotion*, 2013; 11(1), 25.**

Most homicide deaths in Dar es Salaam, Tanzania (DSM) are a result of violence arising from within the community. This type of violence is commonly called, by perpetrators and victims, “mob justice”. Unilateral non-state collective violence can take four forms: lynching, vigilantism, rioting, and terrorism. The purpose of this paper is to report what leads to death by such violence in DSM. A cross-sectional mixed methods study design was used. Surveillance data were collected on all 206 victims of “mob justice” in DSM for the year 2005. Fifteen in-depth interviews were conducted with the relatives of deceased victims, a policeman, a journalist, community members, and youths who survived these types of community violence. A focus group discussion was conducted with eight youths at risk of such violence. The deceased were young adult males and differed significantly from assault victims as to age, occupation, weapon causing death, and injury site. Ninety percent were identified as: unemployed, thieves, unknowns, or street vendors. The immediate history of the deceased usually involved theft. The stated desire of community members was to live in peace; they acknowledged that murder is unlawful. Often the victims had been warned; if transgressions continued, male community members punished the individual, which led to death. Family reactions varied from relief, to confusion, and loss. Community level violence in DSM is defensive; the goal is to protect the community. It is focused on individuals, not groups; incidents can be classified along the continuum of lynching and vigilantism in which lynching is a spontaneous reaction to deviance and vigilantism is an organised activity. Decreasing the number of deviant social acts should theoretically decrease cases of lynching and vigilantism. The most humane way to decrease petty theft is through appropriate employment.

459. **Outwater, A. H., Ismail, H., Mgalilwa, L., Temu, M. J., Mbembati, N. A.** **Burns in Tanzania: morbidity and mortality, causes and risk factors: a review.** *International journal of burns and trauma*, 2013; 3(1), 18.

Burn injuries in low and middle income countries still remain a significant health problem, even though numbers of burn injuries in high income countries have decreased showing that such events are not “accidents” but are usually preventable. WHO states that the vast majority (over 95%) of fire-related burns occur in low and middle income countries. Burn injuries are a major cause of prolonged hospital stays, disfigurement, disability, and death in Africa Region. Evidence shows that prevention strategies can work. However prevention strategies need to be tailored to the specific environment taking into account local risk factors and available resources. An examination of the patterns and causes of burns should allow site specific recommendations for interventions. This literature review, specific to the United Republic of Tanzania, was conducted by researching PubMed, SafetyLit, and African Journals on Line data bases for primary sources using key words <Tanzania> plus <burns, suicide, homicide, injury mortality, injury morbidity>. Two sets of student data collected as part of Bachelor’s degree final dissertations at Muhimbili University of Health and Allied Sciences were used. In all, twenty two primary sources were found. Risk factors for burn morbidity in Tanzania are: 1/ a young age, especially years 1-3, 2/ home environment, especially around cooking fires, 3/ epilepsy, during seizures, and 4/ perceived inevitability of the incident. It was expected that ground level cooking fires would be found to be a risk factor, but several studies have shown non-significant results about raised cooking fires, types of fuel used, and cooking appliances. Risk factors for burn mortality are: being male, between 20-30 years of age, and being punished for alleged thieving by community mobs. An important factor in reducing burn morbidity, especially in children, is to educate people that burns are preventable in most cases and that most burns occur in the home around cooking fires. Children need to be kept away from fires. Epileptics should be monitored for medication and kept away from cooking fires as well. Community members need to be encouraged to bring wrong doers to the police.

460. **Patil, C.L., Abrams, E.T., Klima, C., Kaponda, C.P.N., Leshabari, S.C. Vonderheid, S.C., Kamanga, M., Norrand K.F.** **Centeringpregnancy-africa: A pilot of group antenatal care to address millennium development goals.** *Midwifery*, 2013; 29 (10), pp. 1190-1198.

**Background:** severe health worker shortages and resource limitations negatively affect quality of antenatal care (ANC) throughout sub-Saharan Africa. Group ANC, specifically CenteringPregnancy (CP), may offer an innovative approach to enable midwives to offer higher quality ANC. Objective: our overarching goal was to prepare to conduct a clinical trial of CenteringPregnancy-Africa (CP-Africa) in Malawi and Tanzania. In Phase 1, our goal was to determine the acceptability of CP as a model for ANC in both countries. In Phase 2, our objective was to develop CP-Africa session content consistent with the Essential Elements of CP model and with national standards in both Malawi and Tanzania. In Phase 3, our objective was to pilot CP-Africa in Malawi to determine whether sessions could be conducted with fidelity to the Centering

process. Setting: Phases 1 and 2 took place in Malawi and Tanzania. Phase 3, the piloting of two sessions of CP-Africa, occurred at two sites in Malawi: a district hospital and a small clinic. Design: we used an Action Research approach to promote partnerships among university researchers, the Centering Healthcare Institute, health care administrators, health professionals and women attending ANC to develop CP-Africa session content and pilot this model of group ANC. Participants: for Phases 1 and 2, members of the Ministries of Health, health professionals and pregnant women in Malawi and Tanzania were introduced to and interviewed about CP. In Phase 2, we finalised CP-Africa content and trained 13 health professionals in the Centering Healthcare model. In Phase 3, we conducted a small pilot with 24 pregnant women (12 at each site). Measurements and findings: participants enthusiastically embraced CP-Africa as an acceptable model of ANC health care delivery. The CP-Africa content met both CP and national standards. The pilot established that the CP model could be implemented with process fidelity to the 13 Essential Elements. Several implementation challenges and strategies to address these challenges were identified. Key conclusions: preliminary data suggest that CP-Africa is feasible in resource-constrained, low-literacy, high-HIV settings in sub-Saharan Africa. By improving the quality of ANC delivery, midwives have an opportunity to make a contribution towards Millennium Development Goals (MDG) targeting improvements in child, maternal and HIV-related health outcomes (MDGs 4, 5 and 6). A clinical trial is needed to establish efficacy. Implications for practice: CP-Africa also has the potential to reduce job-related stress and enhance job satisfaction for midwives in low income countries. If CP can be transferred with fidelity to process in sub-Saharan Africa and retain similar results to those reported in clinical trials, it has the potential to benefit pregnant women and their infants and could make a positive contribution to MGDs 4, 5 and 6.

**461. Paulo, C. Review of maternal deaths at Muhimbili national hospital, Tanzania – 2011. Master of Medicine (Obstetrics and Gynaecology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es salaam.**

**Background:** Maternal mortality in Tanzania continues to be unacceptably high. By Identifying the avoidable factors, as well as direct and indirect causes of maternal mortality from both obstetrics and gynaecology units and by determining the current MMR, will help to establish areas of improvement and this may help in fighting to reduce the maternal mortality in this institution . The objective of this study was to determine the maternal mortality ratio and identify causes and avoidable factors of maternal deaths at Muhimbili National Hospital. **Methods:** A retrospective review of all maternal death records of cases that occurred from 1<sup>st</sup> January to 31<sup>st</sup> December 2011 was done. Data entry was done using Epi info version 3.5.1 and was analyzed using SPSS version 15.0. **Results:** There were 10,057 live births, 155 maternal deaths and hence MMR of 1541 per 100,000 live births. Of direct causes eclampsia and pre eclampsia were major causes of deaths (19.9%), followed by post partum haemorrhage (14.9%), abortion complications (9.9%), sepsis (9.2%), ante partum hemorrhage (7.1%), ruptured uterus (5.0%) and obstructed labour (3.5%). Among the indirect causes anaemia was the leading cause (11.3%), followed by HIV/AIDS (9.9%), heart diseases (5.7%), malaria (2.8%) and tuberculosis (0.7%). Avoidable factors contributing to

deaths were identified in 83% of all reviewed maternal deaths. Personal avoidable factor was found in 33.8% while medical service factor was seen in 66.2% of the total factors identified. The common personal avoidable factors included delay in seeking care (73.3%) and completely lack of antenatal care (11.1%). Of the medical service factors inadequate blood transfusion (26.1%) completely no transfusion due to lack of blood (19.3%), delay in receiving treatment (18.3%) and poor or mismanagement (17%) were the common factors. **Conclusion:** There is a high maternal mortality ratio in Muhimbili National Hospital. Hypertensive disorders of pregnancy (eclampsia and pre eclampsia), post partum hemorrhage and anaemia are the leading causes of maternal deaths in this institution. There were multiple factors identified both at individual level and at facility level that contributed to maternal deaths which were avoidable. There is a need for increasing efforts in the fight to reduce maternal deaths in this institution.

462. **Perng, P., Perng, W., Ngoma, T., Kahesa, C., Mwaiselage, J., Merajver, S. D., Soliman, A. S. Promoters of and barriers to cervical cancer screening in a rural setting in Tanzania. *International Journal of Gynecology & Obstetrics*, 2013; 123(3), 221-225.**

**Objective.** To investigate promoters and barriers for cervical cancer screening in rural Tanzania. **Methods.** We interviewed 300 women of reproductive age living in Kiwangwa village, Tanzania. The odds of attending a free, 2-day screening service were compared with sociodemographic variables, lifestyle factors, and knowledge and attitudes surrounding cervical cancer using multivariable logistic regression. **Results.** Compared with women who did not attend the screening service (n = 195), women who attended (n = 105) were older (OR 4.29; 95% CI, 1.61–11.48, age 40–49 years versus 20–29 years), listened regularly to the radio (OR 24.76; 95% CI, 11.49–53.33, listened to radio 1–3 times per week versus not at all), had a poorer quality of life (OR 4.91; CI, 1.96–12.32, lowest versus highest score), had faced cost barriers to obtaining health care in the preceding year (OR 2.24; 95% CI, 1.11–4.53, yes versus no), and held a more positive attitude toward cervical cancer screening (OR 4.64; 95% CI, 1.39–15.55, least versus most averse). **Conclusion** Efforts aimed at improving screening rates in rural Tanzania need to address both structural and individual-level barriers, including knowledge and awareness of cervical cancer prevention, cost barriers to care, and access to health information.

463. **Peter, B. A comparative study of triterpenes and sterols content in *prunes Africana* growing in different geographical zones in Tanzania. Master of Science (Traditional Medicine Development) Dissertation 2013. *Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

*Prunus africana* (Hook. f) Kalm.), is a medicinal tree found in an African continent. The stem bark of this species is the major source of anti Benign Prostatic Hyperplasia (BPH). This plant has been long used for the treatment of BPH, blood cholesterol, hypertension and blood pressure. The aim of this study was to determine and compare the triterpenes and sterols contents of *P. africana* collected from different geographical zones of



Tanzania. **Materials and methods:** Extraction of plant materials was achieved through using maceration where by the weighed plant materials were soaked in methanol for 24 hours before being concentrated in *vacuo* using a rotary evaporator. The phytochemical screening of extracts was done to determine the types of secondary metabolites present in each collection.  $\beta$  - sitosterol (sterol), ursolic acid (triterpenes) and n-docosanol (standard reagents) were used as markers to determine their presence in *P. africana* leaves and stem barks extracts using a High Performance Thin Layer Chromatography (HPTLC) Camag machine, whereby stock solutions of standard reagents were prepared in separte flasks then diluted in different concentrations for calibration purposes to determine the their amounts in leaf and stem bark extracts. Chromatography was performed on Silica gel 60 F<sub>254</sub> TLC plates with chloroform: methanol 70:30 (v/v) as mobile phase. Densitometry analysis was done at  $\lambda=254$  nm after derivatization with vanillin-10% (v/v) sulphuric acid alcohol reagent. Results and discussion: The present experiment demonstrates a simple, rapid, precise and sensitive HPTLC protocol for qualitative and quantitative determination of (sterols)  $\beta$  -sitosterol, triterpenes (ursolic acid) contents in *P. africana* from different ecological zones. The calibration curves for area versus concentrations were found to be linear in the range of 500 – 7500 ng/spot. Good linearity ( $R^2>0.905$ ) was observed throughout the range of 500 - 7500 ng in 1 ml dichloromethane for  $\beta$ -sitosterol, ( $R^2>0.971$ ) throughout the range of 1000 - 7500 ng in 1ml dichloromethane for standard ursolic acid and ( $R^2>0.986$ ) observed throughout the range of 1000 – 7500 ng in 1 ml chloroform for n-docosanol. Results: demonstrated that both in the leaf and stem bark samples  $\beta$  - sitosterol was present at RF 0.67, ursolic acid at RF 0.12 and normal docosanol at RF 0.10. TLC analysis showed positive results for the extracts from Suji T-2, Monduli T-2 and Rombo T-2 which revealed that they are not *P. africana*, they are *Olinia rochetiana* from the family Oliniaceae. **Conclusion and Recommendations:** This investigation found that sterols, triterpenes and ferulic esters were in both stem barks and leaves of *P. africana*. Therefore, for the management of BPH, and for the sake of sustainable utilization of *P. africana*, leaves should further be investigated as an alternative to stem barks. The research should also be done on other parts of *P. africana* to observe if they can be used in BPH management. *O. rochetiana* should also be researched if it can be used in the treatment of BPH.

464. Petraro, P., Duggan, C., Urassa, W., Msamanga, G., Makubi, A., Spiegelman, D. , Fawzi, W .Determinants of anemia in postpartum HIV-negative women in Dar es Salaam, Tanzania. *European Journal of Clinical Nutrition*,2013; 67 (7): pp. 708-717.

**Objective:**The determinants of anemia during both pregnancy and postpartum recovery remain incompletely understood in sub-Saharan African women.**Subjects/methods:**In a prospective cohort study among pregnant women, we assessed dietary, biochemical, anthropometric, infectious and sociodemographic factors at baseline. In multivariate Cox proportional hazards models, we examined predictors of incident anemia (hemoglobin <11 g/dl) and iron deficiency anemia (anemia plus mean corpuscular volume <80fL), and recovery from anemia and iron deficiency anemia through 18 months postpartum at antenatal clinics in Dar es Salaam, Tanzania between 2001 and 2005. A total of 2364 non-anemic pregnant women and 4884 anemic women were

enrolled between 12 and 27 weeks of gestation. **Results:** In total, 292 women developed anemia during the postpartum period and 165 developed iron deficiency anemia, whereas 2982 recovered from baseline anemia and 2044 from iron deficiency anemia. Risk factors for postpartum anemia were delivery complications (RR 1.6, 95% confidence interval (CI) 1.13, 2.22) and low postpartum CD4 cell count (RR 1.73, 95% CI 0.96, 3.17). Iron/folate supplementation during pregnancy had a protective relationship with the incidence of iron deficiency anemia. Absence of delivery complications, education status and iron/folate supplementation were positively associated with time to recovery from iron deficiency. **Conclusion:** Maternal nutritional status during pregnancy, prenatal iron/folate supplementation, perinatal care, and prevention and management of infections, such as malaria, are modifiable risk factors for the occurrence of, and recovery from, anemia.

**465. Phillip, N. Factors influencing fertility desire among hivsero discordant couples in Mkuranga and Kisarawe districts, coast region. Master of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** HIV sero discordant couples have desires and intentions to have children in future. There is little information on factors that influence desire and intention to bear children among HIV sero discordant couples in Tanzania. The aim of the study was to assess factors associated with fertility desire among HIV sero discordant couples in Mkuranga and Kisarawe, Coast region. **Methods:** A cross sectional study was conducted in 11 health facilities. The study population included HIV positive men and women who were in a HIV sero discordant relationship attending care and treatment centers in the selected health facilities. Data were analyzed using SPSS computer software. Cross tabulations and logistic regression methods were used to assess factors associated with fertility desire. **Results:** A total of 170 men and women participated in this study. Of these, 116 (68.2%) were females. About half of the participants were aged between 35 and 44 years. Out of all participants, 61.2% desired to have children. Among those who desired to have children, 73 (70.2%) intended to have one child. Older age and unemployment were independently associated with fertility desire after adjusting for other variables. Participants who were not employed were less likely to desire for children compared to those who were employed (adjusted OR=0.07; 95% CI=0.02-0.24). Eighty seven percent of the participants used condom for contraception. **Conclusion:** Findings of the study show that a large proportion of men and women living in HIV sero discordance desire to have children. This calls for the need to have reproductive health counseling for this group for them to be able to make informed choices on having children at the right time a time when probability of HIV transmission is lowest.

**466. Pillai, G., Davies, G., Denti, P., Steimer, J.-L., McIlleron, H., Zvada, S., Chigutsa, E., Ngaimisi, E., Mirza, F., Tadmor, B., Holford, N.H.G. Pharmacometrics: Opportunity for reducing disease burden in the developing world: The case of Africa CPT: Pharmacometrics and Systems Pharmacology, 2013; 2 (8), e69.**

Pharmacometricians are virtually nonexistent in Africa and the developing world. The unrelenting burden of infectious diseases, which are often treated using medicines with narrow effectiveness and safety dose ranges, and the growing prevalence and recognition of non-communicable diseases represent significant threats for the patients, although affording an opportunity for advancing science. This article outlines the case for pharmacometricians to redirect their expertise to focus on the disease burden affecting the developing world.

467. Pius, A. **Assessment of drug costs for management of diabetes and its complications at Muhimbili National Hospital outpatient pharmacy. Master of Science (Pharmaceutical Management) Dissertation 2013. Muhimbili University of Health and Allied Science. Dar es salaam.**

**Introduction:** The estimated numbers of diabetes mellitus patients in Tanzania are most probably going to increase as a result of longer expected life expectancy, urbanization associated with a high prevalence of obesity and sedentary lifestyle. Drugs cost for the management of diabetes and its complications as a key factor for the determination of patients' affordability should be looked with critical eye for the better function of the health care system. **Study objective:** The objective of the study was to assess drug costs for management of diabetes and its complications at Muhimbili National Hospital (MNH) outpatient pharmacy. **Methodology:** This was cross sectional retrospective study. Data was collected through Retrieval and review of electronic data of all diabetes outpatients registered from 1<sup>st</sup> January 2012 to 31<sup>st</sup> December 2012 available in the MNH JEEVA Database. The drug cost – prices was obtained from the Public distributor of drugs (Medical Stores Department), price of the Hospital buying consortium and the retail price at the intramural practice pharmacy at MNH. **Results:** The most commonly prescribed medicines for diabetes, cardiovascular and elevated cholesterol were metformin, losartan and atorvastatin respectively. One third of Diabetes out patients at MNH had cardiovascular and elevated cholesterol complications. The mean cost per prescription for patients prescribed diabetes medicines only was Tshs. 17,191.3/=. Patients prescribed diabetes and cardiovascular medicines had a significantly higher mean prescriptions cost of 51.8 %, (P-value <0.01) as compared to patients prescribed diabetes medicines alone. Similarly diabetes patients prescribed both diabetes medicines and lipid lowering medicines drugs also had a significantly higher mean prescriptions cost of 121.9 %, (P value <0.01) as compared to patients prescribed diabetes medicines alone. However the most striking and significant mean prescription cost of 207.4 % (P value <0.01) was seen in patients prescribed Diabetic, Lipid lowering and cardiovascular medicines as compared to patients prescribed diabetes medicines alone. **Conclusion and recommendation:** About one third of Diabetes mellitus out patients attended at MNH for the study period were also suffering from cardiovascular or elevated cholesterol complications. The cost of treating these complications is significantly higher compared to the cost of treating patients with diabetes alone. The Government should improve efforts for timely diagnosis of diabetes by mandating community pharmacies to screen for diabetes and elevated cholesterol so as to reduce diabetes complications and reduce the cost of treating diabetes complications.

468. Protas, J. **Determinants of optimal utilization and protection time Conferred by insecticides treated nets and sulfadoxine – Pyrimethamine intermittent preventive therapy during Pregnancy in Bukoba Urban District. Master of Science Tropical Disease Control. Dissertation. 2013. Muhimbili University of Health and Allied Science. Dar es Salaam.**

**Background:** Insecticides Treated Nets (ITNs) and Intermittent Preventive Therapy with two doses of Sulfadoxine-Pyrimethamine (SP IPTp) are the cornerstone for malaria control in pregnancy. Although the coverage of these interventions is high, it is not known whether they confer optimal protection time against malaria in pregnancy. Optimal protection time to the baby against placental malaria only occurs when these interventions are used for the entire period when the baby is at the greatest risk to placental malaria. Placental malaria is known to peak in the 2nd trimester; thus for ITNs to confer optimal protection an ITN must be obtained in the 1st antenatal clinic visit between the 12th to 18th weeks of pregnancy while two SP doses must be received in the 2nd visit between the 16th to 24th weeks and in the 3rd visit between the 28th & 34th weeks of gestation. This study investigated the timing of SP & ITNs uptake during pregnancy, the determinants of timely uptake and pregnancy time protected. **Methods:** A facility based quantitative cross-sectional study was carried out in Bukoba urban district from 16th April to 29 May 2013. Pregnant women and post natal mothers attending in the Reproductive & Child Health (RCH) clinics of three health facilities were included in the study. Using questionnaire they were asked a series of closed questions about their socioeconomic background, pregnancy history and attendance to RCH clinics in the antenatal period. They were also interviewed on the receipt of a voucher and acquisition of an ITN as well as receipt of SP for IPTp; their responses were validated from the records of antenatal cards. **Results:** A total of 530 women were recruited into the study. The overall uptake of SP IPTp was 96%, uptake of two SP doses was 86%; only a small percentage (14%) received a single SP dose reasons being unavailability of SP and late antenatal booking. Out of 508 who received SP IPTp, 370 (72.8%) received 1st dose timely. Timely uptake of 1st dose was predicted by early antenatal booking, [OR.1.40 (1.23-1.69) P=0.001], and the availability of SP at the facility [OR.5.28 (2.78-10.008) P=0.000]. Uptake of 2nd dose was independent of any predictor factors. A total of 486 (91.6%) women received ITNs discount vouchers at different gestations; of these less than a quarter (21.4%) received the voucher timely. Timely receipt of discount voucher was highly predicted by early antenatal booking [OR.349 (116-512.86) P=0.000]. **Conclusion:** Although there is high coverage of SP IPTp & Discount vouchers for ITNs, timely uptake and therefore optimal protection time depended on early antenatal booking, the availability of (SP IPTp) and discount voucher at the facility.

469. Prytherch, H., Kagoné, M., Aninanya, G.A., Williams, J.E., Kakoko, D.C., Leshabari, M.T., Yé, M., Marx, M., Sauerborn, R. **Motivation and incentives of rural maternal and neonatal health care providers: A comparison of qualitative findings from Burkina Faso, Ghana and Tanzania.** *BMC Health Services Research*, 2013; 13 (1), 149.

**Background:** In Burkina Faso, Ghana and Tanzania strong efforts are being made to improve the quality of maternal and neonatal health (MNH) care. However, progress is impeded by challenges, especially in the area of human resources. All three countries are striving not only to scale up the number of available health staff, but also to improve performance by raising skill levels and enhancing provider motivation. **Methods.** In-depth interviews were used to explore MNH provider views about motivation and incentives at primary care level in rural Burkina Faso, Ghana and Tanzania. Interviews were held with 25 MNH providers, 8 facility and district managers, and 2 policy-makers in each country. **Results:** Across the three countries some differences were found in the reasons why people became health workers. Commitment to remaining a health worker was generally high. The readiness to remain at a rural facility was far less, although in all settings there were some providers that were willing to stay. In Burkina Faso it appeared to be particularly difficult to recruit female MNH providers to rural areas. There were indications that MNH providers in all the settings sometimes failed to treat their patients well. This was shown to be interlinked with differences in how the term 'motivation' was understood, and in the views held about remuneration and the status of rural health work. Job satisfaction was shown to be quite high, and was particularly linked to community appreciation. With some important exceptions, there was a strong level of agreement regarding the financial and non-financial incentives that were suggested by these providers, but there were clear country preferences as to whether incentives should be for individuals or teams. **Conclusions:** Understandings of the terms and concepts pertaining to motivation differed between the three countries. The findings from Burkina Faso underline the importance of gender-sensitive health workforce planning. The training that all levels of MNH providers receive in professional ethics, and the way this is reinforced in practice require closer attention. The differences in the findings across the three settings underscore the importance of in-depth country-level research to tailor the development of incentives schemes.

470. **Qin, D., Trenkwalder, T., Lee, S., Chillo, O., Deindl, E., Kupatt, C., Hinkel, R. Early vessel destabilization mediated by Angiopoietin-2 and subsequent vessel maturation via Angiopoietin-1 induce functional neovasculature after ischemia. *PLoS one*, 2013; 8(4), e61831.**

**Background:** We assessed whether Angiopoietin-2 (Ang2), a Tie2 ligand and partial antagonist of Angiopoietin-1 (Ang1), is required for early vessel destabilization during postischemic angiogenesis, when combined with vascular growth factors. **Methods:** In vitro, matrigel co-cultures assessed endothelial-cell tube formation and pericyte recruitment after stimulation of VEGF-A, Apelin (APLN), Ang1 with or without Ang2. In a murine hindlimb ischemia model, adeno-associated virus (rAAV, 361012 virusparticles) transduction of VEGF-A, APLN and Ang1 with or without Ang2 (continuous or early expression d0-3) was performed intramuscularly (d-14). Femoral artery ligation was performed at d0, followed by laser doppler perfusion measurements (LDI) 7 and 14. At d7 (early timepoint) and d14 (late timepoint), histological analysis of capillary/muscle fiber ratio (CMF-R, PECAM-1) and pericyte/capillary ratio (PC-R, NG2) was performed. **Results:** In vitro, VEGF-A, APLN and Ang1 induced ring formation, but only APLN and Ang1 recruited pericytes. Ang2 did not affect tube

formation by APLN, but reduced pericyte recruitment after APLN or Ang1 overexpression. In vivo, rAAV.VEGF-A did not alter LDI-perfusion at d14, consistent with an impaired PC-R despite a rise in CMF-R. rAAV.APLN improved perfusion at d14, with or without continuous Ang2, increasing CMF-R and PC-R. rAAV.Ang1 improved perfusion at d14, when combined with rAAV.Ang2 (d0-3), accompanied by an increased CMF-R and PC-R. **Conclusion:** The combination of early vessel destabilization (Ang2 d0-3) and continuous Ang1 overexpression improves hindlimb perfusion, pointing to the importance of early vessel destabilization and subsequent vessel maturation for enhanced therapeutic neovascularization.

471. **Rabiel, H., Mbembati, N.A.A., Mwakigonja, A.R., Lema, L. The pattern of prognostic indicators among women with breast cancer undergoing modified radical mastectomy. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Breast cancer represents the most common cancer in women in the world. It is the second most common malignancy among females in sub-Saharan African countries including Tanzania, the leading cancer being that of uterine cervix. In Tanzania, data on prognostic indicators is lacking. **Objectives:** To determine the pattern of prognostic indicators among women with breast cancer undergoing modified radical mastectomy at Muhimbili National Hospital and Tumaini Hospital, Dar es Salaam. **Methods:** All patients with clinical stage I-III disease between April 2011 and January 2012 were enrolled in the study after being scheduled for mastectomy. The surgical specimen consisting of mastectomy tissue and axillary lymphnodes was submitted to the histopathology laboratory to determine grade, type, nodal status and margins status. Data collection was done using a structured questionnaire and analyzed using SPSS software. **Results:** During 10months of study, 348 patients were admitted with breast cancer. Eighty six (86) patients met the inclusion criteria to the study. Most of our patients (61%) had T4b disease, 75.6% had positive axillary nodes where 42.7% had 4-9 (N2 disease). The commonest histological type was invasive ductal carcinoma (91.9%). Lobular carcinoma, modularly and mucinous carcinoma together accounted for only 8.1%. Eighty three percent (83.7%) of our patients presented with stage III, 16.3% with stage II disease, and none at stage I. The intermediate and high grade tumor accounted for 73.5%. Twenty five percent (25%) of our patients had positive surgical margins with 25% positive base following MRM. **Conclusion:** Most breast cancer patients treated surgically at MNH present with a stage III disease have been shown to have unfavorable prognostic indicators

472. **Rama, E.R. Factors affecting multisectoral collaboration response to rift valley fever outbreak in Kongwadistrict. Master of Arts (Health Policy and Management) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Rift Valley Fever (RVF) is a viral haemorrhagic, viral infection, with fatal effects to animals and human beings as well resulting to significant mortality and economic loss. A strategic approach for effective RVF outbreaks preparedness and response is through combined participatory approach in Multisectoral collaboration. **Objectives:** The aim to examine factors affecting multi-sectoral collaboration response to Rift Valley Fever outbreak among the District and Ward officials in Kongwa District. **Methods and materials:** A qualitative study that applied phenomenological approach was conducted among the representatives in the Disaster Management Unit in the Prime Minister's Office, the Emergency Preparedness and Response section in the Ministry of Health and Social Welfare and the Ministry of Livestock and Fisheries Development, the Dodoma region, district, ward and farmers' association representatives in Kongwa district in April, 2013. A total of 15 representatives were purposively recruited in the study, 13 male and 2 female key informants. An interview guide was used to collect data. Purposive sampling was used to select representatives with technical knowhow, knowledge and experience in relation with Rift Valley Fever outbreak. Interview transcripts were subjected to thematic content analysis. **Results:** This study examined several factors facilitating weak and uncoordinated multisectoral collaboration to include lack of emergency funds, inadequate resources, lack of awareness of health and veterinary departments on the existing plans and guidelines on Rift Valley Fever. Lack of sectoral recognition and poor preparedness and response infrastructure in Tanzania. **Conclusion:** The study findings indicate several challenges limiting multisectoral collaboration in Kongwa district. Nevertheless, the zoonotic nature of RVF calls for a multisectoral collaboration in disease surveillance, detection, reporting and timely response.

473. **Ratliff, E. A., McCurdy, S. A., Mbwambo, J. K., Lambdin, B. H., Voets, A., Pont, S., Kilonzo, G. P. An overview of HIV prevention interventions for people who inject drugs in Tanzania. *Advances in preventive medicine*, 2013.**

In the past decade, Tanzania has seen a rapid rise in the number of people who inject drugs (PWID), specifically heroin. While the overall HIV prevalence in Tanzania has declined recently to 5.6%, in 2009, the HIV prevalence among PWID remains alarmingly high at 35%. In this paper, we describe how the Tanzania AIDS Prevention Program (TAPP), Médecins du Monde France (MdMF), and other organisations have been at the forefront of addressing this public health issue in Africa, implementing a wide array of harm reduction interventions including medication-assisted treatment (MAT), needle and syringe programs (NSP), and "sober houses" for residential treatment in the capital, Dar es Salaam, and in Zanzibar. Looking toward the future, we discuss the need to (1) extend existing services and programs to reach more PWID and others at risk for HIV, (2) develop additional programs to strengthen existing programs, and (3) expand activities to include structural interventions to address vulnerabilities that increase HIV risk for all Tanzanians.

474. **Reynolds, T.A, Wallis, L.A. Addressing African acute care needs through consensus-building. *African Journal of Emergency Medicine*, 2013, 3 (1), pp. 1-2. Walker.R.K., Jusabani.A., Aris.E., Unwin.N., Swai.M., Alberti.G.,**

**Mugusi.F.,Stroke risk factors in an incident population in urban and rural Tanzania: a prospective, community-based, case-control study. *The Lancet Global Health*, 2013 ;1(5): e282-e288.**

**Background:** The burden of stroke on health systems in low-income and middle-income countries is increasing. However, high-quality data for modifiable stroke risk factors in sub-Saharan Africa are scarce, with no community-based, case-control studies previously published. We aimed to identify risk factors for stroke in an incident population from rural and urban Tanzania.**Methods:**Stroke cases from urban Dar-es-Salaam and the rural Hai district were recruited in a wider study of stroke incidence between June 15, 2003, and June 15, 2006. We included cases with first-ever and recurrent stroke. Community-acquired controls recruited from the background census populations of the two study regions were matched with cases for age and sex and were interviewed and assessed. Data relating to medical and social history were recorded and blood samples taken.**Findings** We included 200 stroke cases (69 from Dar-es-Salaam and 131 from Hai) and 398 controls (138 from Dar-es-Salaam and 260 from Hai). Risk factors were similar at both sites, with previous cardiac event (odds ratio [OR] 7.39, 95% CI 2.42–22.53;  $p < 0.0001$ ), HIV infection (5.61, 2.41–13.09;  $p < 0.0001$ ), a high ratio of total cholesterol to HDL cholesterol (4.54, 2.49–8.28;  $p < 0.0001$ ), smoking (2.72, 1.49–4.96;  $p = 0.001$ ), and hypertension (2.14, 1.09–4.17;  $p = 0.026$ ) identified as significant independent risk factors for stroke. In Hai, additional risk factors of diabetes (4.04, 1.29–12.64) and low HDL cholesterol (9.84, 4.06–23.84) were also significant.**Interpretation** We have identified many of the risk factors for stroke already reported for other world regions. HIV status was an independent risk factor for stroke within an antiretroviral-naive population. Clinicians should be aware of the increased risk of stroke in people with HIV, even in the absence of antiretroviral treatment.

475. **Richard, W.,Dewhurst, M ., Gray,W.K., Jusabani, A., Aris, E., Unwin, N., Swai, M., Adams,P.C., 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*. 2013; 23(2):315-20.**

**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 AFl (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.

- 476. Richter, L., Komárek, A., Desmond, C., Celentano, D., Morin, S., Sweat, M., Chariyalertsak, S., Chingono, A., Gray, G., Mbwambo, J., Coates, T. Reported Physical and Sexual Abuse in Childhood and Adult HIV Risk Behaviour in Three African Countries: Findings from Project Accept (HPTN-043). *AIDS and Behavior*, 18(2), 381-389.**

Childhood sexual and physical abuse have been linked to adolescent and adult risky sexual behaviors, including early sexual debut, an increased number of sexual partners, unprotected sex, alcohol and drug use during sex and sexual violence. This paper explores these relationships among both men and women who report histories of childhood abuse from representative samples of communities in three countries in southern and eastern Africa (South Africa, Zimbabwe and Tanzania). Data were collected as part of a 3-year randomized community trial to rapidly increase knowledge of HIV status and to promote community responses through mobilisation, mobile testing, provision of same-day HIV test results and post-test support for HIV. The results indicate that reported childhood sexual and physical abuse is high in all three settings, also among men, and shows strong relationships with a range of sexual risk behaviors, including age at first sex (OR -0.6 (CI: -0.9, -0.4,  $p < 0.003$ )-among men, OR -0.7 (CI: -0.9, -0.5,  $p < 0.001$ )-among women), alcohol (OR 1.43 (CI: 1.22, 1.68,  $p < 0.001$ )-men, OR 1.83 (CI: 1.50, 2.24,  $p < 0.001$ )-women) and drug use (OR 1.65 (CI: 1.38, 1.97,  $p < 0.001$ )-men, OR 3.14 (CI: 1.95, 5.05,  $p < 0.001$ )-women) and two forms of partner violence-recent forced sex (OR 2.22 (CI: 1.66, 2.95,  $p < 0.001$ )-men, OR 2.76 (CI: 2.09, 3.64,  $p < 0.001$ )-women) and ever being hurt by a partner (OR 3.88 (CI: 2.84, 5.29,  $p < 0.001$ )-men, OR 3.06 (CI: 2.48, 3.76,  $p < 0.001$ )-women). Individuals abused in childhood comprise between 6 and 29 % of young adult men and women living in these African settings and constitute a population at high risk of HIV infection.

- 477. Reuben, W.M., Malele. R.R. Prevalence and severity of ADRs among patients using default first line ARV combinations in Mbeya. 2013. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Human Immune Virus /Acquired Immune Deficiency Syndrome has emerged as a serious medical problem in the world. The Government of Tanzania responded by provision of free antiretroviral medicines to patients. The regimens used by then included stavudine, but nowadays no longer used in default first line due to high ADRs. Therefore, a new default combination is practiced (zidovudine, lamivudine and efavirenz). Similarly, regimen has its substitutes (nevirapine, tenofovir and emtricitabine) and the last two substitutes were yet not introduced during the previous study. This change in default first line demands for a follow up study. **Objectives:** To

assess prevalence and severity of adverse drug reactions among adult patients using new default first line and modified antiretroviral combinations in Mbeya region, Tanzania. **Methods:** The data for this study was collected retrospectively from Care and Treatment Clinic card (CTC 2) found in each patient's files receiving antiretroviral therapy in Mbeya referral, regional and three district hospitals in the region. ADRs that were reported by patients were documented in the form by clinicians. ADRs were considered as minor if the patient induced with ADR continued with the same medicines or serious when patient was switched to other medications. A study sample of 639 patients files were studied which comprised of; 280(AZT/3TC/EFV), 280(AZT/3TC/NVP) and 79(TDF/FTC/EFV). Analysis was done by SPSS, Chi-square and Fisher's exact tests. **Results:** The overall prevalence of ADRs from use of new default first line was: skin rashes (1.07%), peripheral neuropathy (2.14%) and liver toxicity (0.36%). Similarly , the severity was; 1 case of serious liver toxicity, 6 cases of mild peripheral neuropathy, 3cases of dry skin rash and 1 case of mild anaemia. **Conclusion:** The findings suggest that the new default first line combination is safer to the old one and therefore recommended.

**478. Ringo, F .H. Initial clinical presentation, diagnostic evaluation and emergency provider clinical impression of febrile children less than five years old presenting to the emergency medicine department at Muhimbili National Hospital in Dar es salaam, Tanzania. Master of Medicine (Emergency Medicine) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Fever is one of the most common reasons for paediatric emergency department visits, accounting for as many as 20% of all presentations. A variety of diagnostic tests, including blood, urine and CSF testing, as well as chest radiography and pathogen-specific rapid diagnostic tests (RDT) may be useful in the evaluation of the febrile child and appropriate diagnostic testing may vary based on age and clinical presentations. While there are many published recommendations for the evaluation of febrile children less than five years old in the acute care setting, little is known about the actual diagnostic management and ultimate emergency provider clinical impression of febrile children less than five years old in limited-resource settings. **Aim of study:** To describe the clinical presentations, diagnostic evaluation, treatment and emergency provider clinical impression of febrile children less than five years old at the MNH EMD in Dar Es Salaam, Tanzania. **Methods:** This was a observational descriptive study conducted from August through November 2012 at the MNH EMD, a tertiary care centre with approximately 36,000 EMD visits per year. We enrolled a convenience sample of children less than five years old who presented with fever or reported fever. Treating physicians prospectively completed a standardized data collection form. **Results:** We enrolled 105 febrile children less than five years old in the study with the median age of 14 months. Sixty-four percent were male. Since Muhimbili is a tertiary referral hospital, the majority of the patients (54.3%) were referred. The predominant symptoms from this cohort of febrile children less than five years old were xi poor feeding (47.6%) vomiting (42.9%), cough (34.3), difficulty in breathing (28.6%), diarrhea (22.9%), abdominal distension (14.3%), and convulsions (13.3%). Seventy-

eight percent had at least one vital sign abnormality, while 82% had an abnormal physical examination findings. Point-of care tests included random blood glucose on all children under 5 (100%), malaria RDT on 103 (98.1%), urine dipstick on 30 (28.6s%), rapid HIV test on 26 (24.80 %) and venous blood gases on 59 patients (56.19%). While in the EMD, most children less than five years old received at least one therapeutic treatment: 73 (70%) received at least one antibiotic, 13 (12%) received anti-malarial medication, 57 (54%) received intravenous fluids and 43 (41%) received an anti-pyretic. The top emergency physician clinical impressions are also reported. **Conclusion:** In MNH EMD, a range of diagnostic tests are used to determine cause of fever though testing results do not always correspond with reported clinical impressions. In referred patients, administration of antipyretics, antibiotics, and anti- malarial prior to ED arrival was common. Bacterial infections were very common among children under 5 years who were tested. **Recommendations:** We recommend the development of a symptom-based diagnostic testing protocol to rationalize our approach to diagnosis and management of febrile children under 5 years. We recommend execution of larger prospective study with definitive testing to further characterize the etiology of febrile illnesses in acute care settings in this region.

479. **Ringo, F. H., George, U., Glomb, N., Mwafongo, V., Runyon, M. S., & Reynolds, T.. Clinical presentation, diagnostic evaluation, treatment and diagnoses of febrile children presenting to the emergency department at Muhimbilinal hospital in Dar es Salaam, Tanzania. *African Journal of Emergency Medicine*, 2013; 3(4), S22-S23.**

**Introduction:** While there are many guidelines for the ED evaluation of febrile children, these are largely derived and validated in highresource settings. There is limited literature documenting recommended or actual management in resource-limited settings. We describe the presentation, diagnostic evaluation, treatment, and ED diagnoses of febrile children under 5 years old presenting to an urban emergency department in Dar es Salaam.**Methods:** This was a prospective observational study of children under 5 with fever or reported fever at Muhimbili National Hospital (MNH) ED. Treating physicians prospectively completed a standardized data form.**Results:** We enrolled 105 children, median age 14 months, with 80% >6 months, and 64% male. Presenting symptoms included poor feeding (47.6%) vomiting (42.9%), cough (34.3), difficulty breathing (28.6%), and diarrhoea (22.9%). 78% had vital sign abnormalities and 82% had abnormal physical examination. Among those undergoing point-of care testing, 11/105 tested (10.5%) had hypoglycaemia, 9/103 (8.7 %) were malaria positive, 17/30 (56.7%) had positive urine dipstick testing, and 5/26 tested (19.2%) were HIV positive. Laboratory-based tests included CBC and chemistry (each performed in 95.2%), VBG (56.2%), CSF (5.7%), blood culture (5.7%), urine culture (10.5%), CSF culture (1.9%), and CXR of chest (25.7%) and abdomen (3.8%). Interventions included antibiotics (70%), antimalarial (12%), IV fluids (54%), and antipyretics (41%). Top ED diagnoses included malaria (24.3%), pneumonia (15.2%), septicaemia (9.5%), urinary tract infections (7.6%), acute watery diarrhoea with dehydration (6.7%), meningitis (4.8%), anaemia (4.8%), skin and soft tissue infections (4.8%), bowel obstructions (3.8%), and pulmonary tuberculosis, sickle cell disease, and hepatitis (2.9% each).

Laboratory-based tests were often abnormal; culture results were often unavailable;**Conclusion:** A wide range of presentations and management were documented. There was a high rate of positive diagnostic test results. Malaria and pneumonia were top diagnoses, but a wide range of infections were diagnosed.

- 480. Ringo, V., Mwafongo, V., Francis, J., Lugazia, E. Role of Dexamethasone in Prevention of Post-operative Retching and Vomiting Among Children Undergoing Adeno-Tonsillectomy at Muhimbili National Hospital, Dar Es Salaam, Tanzania. *Tanzania Medical Journal*, 2013 ;26(1): PP 14-16.**

**Background:** Disease in adenoids and tonsils are among the most common problems in paediatrics. Adenotonsillectomy is usually accompanied by significant post operative retching and vomiting. **Objective:** The aim of the study was to evaluate the role of dexamethasone in prevention of postoperative retching and vomiting (PORV) among paediatric patients undergoing adenotonsillectomy. **Methods:** This was a single blinded clinical trial study to find out the extent and risk factors of postoperative nausea and vomiting at Muhimbili National Hospital, (MNH.) **Results:** A total of 94 patients were eligible for the study, the overall proportions of retching and vomiting were 31.91% and 12.77 respectively. More complications of retching and vomiting occurred at the recovery room compared to the ward, which were 30.85% and 8.51% vs. 9.57 and 4.26% respectively. **Conclusion:** In general patients who received dexamethasone had lower incidence of PORV compared to the controls, however this finding was not statistically significant and did not show to have any effect in the prevention of PORV.

- 481. Reuben, M. Prevalence of Erectile Dysfunction and associated factors among diabetic men attending diabetic clinic at MNH. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** There has been an increase in the prevalence of erectile dysfunction (ED) in the general population. This increase has been attributed to by several factors including Diabetes Mellitus (DM) **Objectives:** To determine the prevalence of ED and associated factors among diabetic men attending diabetic clinic at MNH **Methods:** This was prospective cross-sectional study, conducted among 312 consecutively recruited diabetic male (Mean age = 51.33 years) for the period of 8 months. Data were collected using a structured questionnaire consisting several demographic variables, clinical aspects variables and International Index of Erectile Function questionnaire. Descriptive statistics were calculated to describe the study population and check for initial associations at univariate level. Multivariate logistic regression was used to identify and quantify predictors of ED. Variables that were entered in the equation were duration of DM, type of DM, history of:- smoking, alcohol, stroke, and peripheral neuropathy; monofilament score, being hypertensive, lipid profile, fasting blood sugar, level of Glycosylated hemoglobin and Ankle Brachial Index score while controlling for other demographics. **Results:** The prevalence of ED was found to be 55.1%. Forty patients (12.8%) had mild dysfunction, 45 (11.5%) moderate and 87 (27.9%) severe dysfunction. Prevalence was higher (78%) in men  $\geq 60$  years (p filament test, and evidence of

peripheral vascular disease were highly significantly associated with ED. History of:- smoking, drinking alcohol, and stroke were also significantly associated with ED. On multivariate logistic regression the predictors of ED were found to be old age (odds ratio [OR] = 7.1, 95% CI 1.2-40.7), evidence of peripheral neuropathy ([OR] =5.9, 95% CI 1.6-21.3), and evidence of peripheral vascular disease ([OR] =2.5, 95% CI 1.2-5.3). This study also showed that ED was highly statistically significant associated with other sexual domains. **Conclusion:** Study showed prevalence of ED is high among DM patients. Interventions aimed at prevention, early diagnosis and detection of DM and its complications, and adherence to treatment to prevent complications should be implemented.

482. **Rose, M., Alfa, M., Marina, N., Amani, A., Omary, C., Sulende, K., Benjamin, L., Mwanamkuu, M., Davis, N. Overweight, obesity and perceptions about body weight among primary school children in Dar es Salaam, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The increasing prevalence of overweight and obesity among children has become public health concern. Body image perception is an important factor in weight control. **Objectives:** To determine the prevalence of overweight and obesity and assess perception about body weight among primary school children in Dar es Salaam. **Methods:** Sociodemographic characteristics and lifestyle information including perception about body weight were recorded through questionnaire. Height and weight were measured following standard procedures. **Results:** 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% than among their peer boys 6.3% and 3.8% (P=0.0314). One-third (33.3%) of the children perceived their body weight as overweight or obese. Among overweight and obese boys (n=21), majority (61.9%) correctly perceived their weight as overweight or obese while (28.6%) and (9.5%) perceived their body weight as normal and underweight respectively. As for overweight and obese girls (n=44), nearly three-quarter (65.9%) correctly perceived their weight as overweight or obese while (34.1%) perceived their body weight as normal and none perceived her weight as underweight. The differences between perceived and actual body weight by BMI were statistically significant for both boys and girls. **Conclusion:** Not all overweight and obese children have correct perception of their body weight. Target educational programs about overweight and obesity and associated health effects may be relevant among primary school children to decrease overweight and obesity in Tanzania.

483. **Rose, M., Alfa, M., Marina, N., Amani, A., Omary, C., Sulende, K., Benjamin, L., Mwanamkuu, M., Davis, N. Prevalence and determinants of overweight and obesity among primary school children in Dar es Salaam, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The prevalence of overweight and obesity has increased dramatically among children and has become public health concern. However, there is paucity of data

on overweight and obesity among school children in Tanzania. **Objectives:** To determine the prevalence and determinants of obesity among primary school children in public and private schools in Dar es Salaam. **Methods:** Anthropometric and blood pressure measurements of 446 children aged 6-17 years were taken using standard procedures and socio-demographic characteristics of children determined using a structured questionnaire. BMI and WHR were calculated from the data. Multivariate logistic regression was used to identify determinants of obesity among primary school children in Dar es Salaam. **Results:** The mean age of the participants was  $11.1 \pm 2.0$  years. The mean BMI, SBP and DBP was  $16.6 \pm 4.0$  kg/m<sup>2</sup>,  $103.9 \pm 10.3$  mmHg and  $65.6 \pm 8.2$  mmHg respectively. The prevalence of obesity in children (>95th percentile for age and sex) was 5.2%. Obese children had significantly higher mean age  $P=0.0416$ , systolic and diastolic blood pressures (all  $P$  **Conclusions:** Children from urban schools and girls were proportionately more obese compared to their counterparts. These findings suggest the need for preventive measures targeting children above 10 years in urban settings and address socioeconomic factors of parents.

484. **Rubino, F. M., Mandic-Rajcevic, S., Mrema, E. J., Colosio, C. Principles and Application of the Integrated Pest Management Approach. Biological Pesticides. In *Environmental Security Assessment and Management of Obsolete Pesticides in Southeast Europe 2013*; (pp. 413-432).**

Springer Netherlands. Protection of crops from pests and from ravenous animals was long accomplished with the use of 'natural' means, before the introduction of 'modern' synthetic chemicals as pesticides in the twentieth century. The widespread use of synthetic organic chemicals as pesticides in the last several decades has contributed to the 'background' contamination of all environmental and biological compartments with trace amounts of small organic compounds, the combined effect of which on the health of humans and on the general well-being of complex ecological systems is far from being understood. In particular, it is claimed that the presence of trace amounts of such compounds in human food may contribute to impair the health of sensitive individuals, especially in the developmental and early-age stages of life, although there is not a clear-cut consensus on this problem. The request from consumers, mainly in developed Western countries, of food produced under perceived healthier conditions than those of mass-production, has prompted a backlash of interest in traditional, lower-yield techniques such as 'organic farming' and thus the necessity to protect consumers from unsubstantiated claims of food quality through the issuing of voluntary codes by producers and of guidelines such as Codex Alimentarius at the level of international Organizations. Another driving force into a renaissance of 'traditional' farming techniques is understanding that they can be successfully merged to 'modern' ones to achieve better productions with lower environmental impact, lower consumption of

selective but expensive Plant Protection Products, lower contamination of food with residues. Another trigger to seek alternatives to F.M. Rubino.

**485. Rugwizangoga, B. Comparison and correlation of KI67 expression and gleason score in prediction of biological behaviour of prostatic adenocarcinoma in Tanzanian patients. Master of Medicine (Anatomical Pathology) Dissertation. 2013. Muhimbili University of Health and Allied. Dar es Salaam.**

**Background:** Prostate cancer is the second most commonly diagnosed and sixth most lethal cancer in men worldwide, affecting Blacks more than Whites and Asians, with geographical variations. Not all men diagnosed with prostate cancer will develop a progressive disease; some cancers remain indolent and usually need active surveillance, while others are aggressive thus needing treatment. Gleason score is the most recognized of progression-associated prognosticators, but it misses some cases. Development of prostate cancer progression marker is anxiously awaited, to detect prostate cancer progressive cases missed by Gleason score system. Proliferation markers have been shown to be involved in progression of some human tumours. Ki67 expression contribution in predicting prostate cancer biological behaviour needs to be determined, for use in a combination to Gleason score to offer better prognosis information. **Aim:** To compare and correlate Gleason score with Ki67 expression in predicting the biological behaviour of prostatic adenocarcinoma in Tanzanian patients, in regards to prostatic-specific antigen (PSA), stage, progression of the disease and survival duration. **Methods:** 256 cases of prostatic adenocarcinoma diagnosed at Muhimbili National Hospital (MNH) from January 2005 to December 2006 were retrieved; 214 were retained in the study. The types of specimens were 188 (87.9%) core biopsies, 24 (11.2%) transurethral resection of prostate (TURP) and 2 cases (0.9%) of bone biopsies. A retrospective follow-up of 48 patients was done over 60 months using patients' files; 42 excluded cases consisted of 29 cases missing tissue blocks and 13 cases without clinical data. Sections of archival tissue blocks were stained with Haematoxylin and Eosin (H&E) and MIB-1 to respectively determine Gleason score and Ki67 index by determining percent of positive cells among at least 500 cells in hotspots. Gleason score was correlated and compared to Ki67 index in terms of PSA, stage, disease progression and patient's survival among others. Data entry and analysis were done through computer software; P value and 95% confidence interval (CI) were used as measure of variable association. **Results:** Prostatic cancer was diagnosed in 34.73% (256/737) of prostate specimens; all cases were acinar adenocarcinoma. Mean age was 70.5 years, with the range of 42 to 96 years. Clinical data suffered poor documentation. Pre-treatment PSA levels were high, mean was 79.578 (2.32 to 500.00) ng/mL. 68.0% had advanced clinical disease, 26.1% had distant metastases. High grades predominated (Gleason score 8-10 in 34.6%, Gleason score 7 in 38.3% of cases). Median Ki67 index in prostatic adenocarcinoma was 10.39% (range 0.0% to 50.94%). 48 cases were followed up along 0.56 to 60 months (mean was 31.2 months); 2 of 15 patients were alive at last follow-up. The mean survival of fully followed-up cases was 24.50 months (95% CI=13.09 to 35.91 months). Gleason score correlated with age (P= 0.000, 95% CI=70.705 to 71.676 years), pre-treatment serum PSA level (P=0.001; 95% CI=75.45 to 84 ng/mL), average tumour extent in tissue (P= 0.000; 95% CI=66.26 to 69.49%),

tumour stage (P=0.009), survival duration (P=0.029) and patient's outcome (P=0.011). Ki67 index decreased with age (P=0.006), increased with Gleason score (P=0.001) and average tumour extent (P=0.032), correlated with disease progression (P=0.020; 95% CI= 1.163 to 6.885) and survival duration (P=0.21). Pre-treatment PSA level significantly correlated with Gleason score but not with Ki67 index; Gleason score rather than Ki67 index predicted tumour stage; both Gleason score and Ki67 index similarly predicted survival duration, but Ki67 index depicted progressive cancer disease cases missed by Gleason score system. **Conclusion:** A combination of Gleason score and Ki67 index offers better prognostic information than either alone. The challenge to Ki67 index use is its cost and time consumption. A multicentre prospective study is recommended to confirm these findings. Standard documentation and preventive education on prostate cancer should be implemented and monitored in Tanzania.

486. **Rugwizangoga, B., Vuhahula, E, Kitinya, N. J.** The prediction of biological behaviour of prostatic adenocarcinoma in Tanzanian patients: a Gleason score-based follow-up. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Prostate cancer is the most prevalent urological condition and second lethal cancer in men. It affects Blacks more than Whites and Asians. A number of prognostic markers have been established to assist in the prediction of the diseases progression. Nevertheless, the correlation between Gleason score and biological behaviours has not been investigated in Tanzania. **Objectives:** To determine the role of Gleason score in the prediction of the biological behaviour of prostate adenocarcinoma in Tanzanian patients, in order to improve patients' management. **Methods:** Study area and sampling: Muhimbili National Hospital (MNH) is the main diagnostic hospital in Tanzania. We retrieved cases of prostatic adenocarcinoma diagnosed at MNH from January 2005 to December 2006. Retrospective follow-up was done over 60 months using patients' files; 214 out of 256 cases were retained. **Laboratory methods:** wax-embedded tissue blocks retrieved in MNH Pathology Laboratory archives were sectioned and stained with Haematoxylin and Eosin (H&E) to determine Gleason score, without knowledge of clinical data. **Statistical methods:** Data entry and analysis were done through Statistical Package for Social Sciences (SPSS) 16.0. Statistical significance of variable association was assessed by P value. **Results:** Prostatic adenocarcinoma was found in 34.73% of prostate specimens. Mean age was 70.46 (42-96) years. There was poor documentation on clinical stage, patient follow-up and prostate cancer reporting standards. All cases in our study were acinar adenocarcinoma; advanced stage and higher grade prostatic adenocarcinoma predominated. Gleason score correlated with age, pre-treatment serum PSA levels, average tumour extent in tissue, tumour stage and survival. **Conclusion:** Gleason score accurately predicts the biological behaviour of prostatic adenocarcinoma in Tanzania and should serve a predictor of tumour stage, average extent in tissue and prognosis, thus playing a crucial role in prostate cancer management. Standard documentation and prophylactic education should be implemented.



487. Runyon, M.S., Sawe, H.R., Levine, A.C., Pousson, A., House, D.R., Agrawal, P., Osei-Ampofo, M., Weiner, S.G., Douglass, K. **Clinical and translational research in global health and emergency care: A research agenda***Academic Emergency Medicine*, 2013; 20 (12): pp. 1272-1277.

As policy-makers increasingly recognize emergency care to be a global health priority, the need for high-quality clinical and translational research in this area continues to grow. As part of the proceedings of the 2013 Academic Emergency Medicine consensus conference, this article discusses the importance of: 1) including clinical and translational research in the initial emergency care development plan, 2) defining the burden of acute disease and the barriers to conducting research in resource-limited settings, 3) assessing the appropriateness and effectiveness of local and global acute care guidelines within the local context, 4) studying the local research infrastructure needs to understand the best methods to build a sustainable research infrastructure, and 5) studying the long-term effects of clinical research programs on health care systems.

488. Runyoro, D. K., Srivastava, S. K., Darokar, M. P., Olipa, N. D., Joseph, C. C., Matee, M. I. **Anticandidiasis agents from a Tanzanian plant, *Combretum zeyheri***. *Medicinal Chemistry Research*, 2013; 22(3), 1258-1262.

*Combretum zeyheri* Sond (Combretaceae) has been reported to exhibit anticandida activity against *Candida kruzei*, *C. albicans*, and *C. parapsilosis*; however, the active constituents have not been isolated so far. A bioactivity-guided fractionation of MeOH extract of *C. zeyheri* resulted in the isolation of triterpenoids, ursolic acid (**1.1**), oleanolic acid (**1.2**), maslinic acid (**2.1**),  $2\alpha,3\beta$ -dihydroxyurs-12-en-28-oic acid (**2.2**),  $6\beta$ -hydroxymaslinic acid (**3**), and terminolic acid (**4**). These compounds were characterized on the basis of their 1D, 2D NMR, ESI-MS and FT-IR spectroscopic data. All the isolated compounds, **1.2**, **2.1**, **2.2**, **3**, and **4** except ursolic acid (**1.1**) are being reported for the first time from *C. zeyheri*. Later, the isolated triterpenoids (**1–4**) were evaluated for their anticandida activity against the three strains of *C. albicans* and all compounds showed anticandida activity of which terminolic acid (**4**) was most active. Furthermore, structure–activity relationship of isolated triterpenoids (**1–4**) was studied, which showed that triterpenoids of oleanane and ursane having  $2\alpha$ ,  $3\beta$ , 23-trihydroxyl group are more active.

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**490. Russa1. A.D., Mligiliche. N. L., Inspiring Medical Students into the Profession: Cadaveric Dissection Stress and Coping Strategies at MUHAS. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Experiences during learning influence mastery of the competencies during the training and in actual practice. The sight and the dissection of the human dead body (cadaver) in the subject of anatomy early in the medical training has been said to dissuade students to abhor the medical profession during training and in the future clinical practice career. **Objectives:** This study aimed appraising the Tanzanian first year medical students at MUHAS on emotional and physical stress during cadaver dissection and coping strategies. We also sought the students' experiences and attitude on the effective of the dissection sessions as compared with conventional teaching methods in the anatomy learning. **Methods:** 169 students completed a self-administered questionnaire that assessed emotional and physical symptoms encountered during cadaver dissection, it also asked for the coping strategies. The questionnaire Frequency Distributions were used to summarize demographic variables, symptoms and coping strategies. A p-value of  $\leq 0.05$  was considered significant. **Results:** Majority of students were males. 52.7% of the students had seen a dead body prior dissection. 78.7% were fearful and anxious at the beginning, but there was a significant decrease towards the end of dissection course (p-valuation exposure to a dead body significantly lowered the levels of stress. Curiosity, prior mental preparedness, pressure and help from the anatomy staff were the most common coping strategies. Only one in 4 students reported philosophy/religious convictions as a coping strategy. And about one in ten students reported that dissecting a human body interfered with their religious views (10.1%).

**Conclusion:** Cadaver dissection can be highly challenging and tiring; we encourage mentors to appropriately institute better coping strategies. Alternative teaching methods using ICT e.g. 3D imaging can reduce the cadaveric stress to students.

491. **Russa<sup>1</sup>, A.D., Suluba<sup>1</sup>, E.H., Mwakigonja, A.R., Satoh, Y. Cytoskeleton anomaly: implications in cancer pathogenesis. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The hallmark of cancer is an uncontrolled cell division process via various processes. The cytoskeletons are important structural proteins involved in the regulation of cellular functions including this crucial cell division machinery. The majority of cancer therapeutics act on the cytoskeletons. However the contribution of the anomalous cytoskeleton in the cancer pathogenesis is poorly understood—or at least fragmented. **Objectives:** To investigate the role of the cytoskeletons in  $Ca^{2+}$  influx into the cell and their impact on cell proliferation and growth derangements **Methods:** We used cytoskeleton-modifying drugs and immunofluorescence techniques to assess the contribution of the different cytoskeletal elements in  $Ca^{2+}$  signaling—a versatile pathway which is virtually inactivated during mitosis and in cells treated with anti-neoplastic drugs. Paclitaxel and nocodazole were used to disassemble the microtubule network of the cells. Calyculin A and acryl amide were used to disrupt the actin and intermediate filaments respectively. Microscopic examination was performed using the LSM 510 (Zeiss, Germany) laser scanning microscope. **Results:** Nocodazole and paclitaxel treatment completely obliterated the  $Ca^{2+}$  influx of the cells. The drugs also arrested the majority of the cells (about 90%) in the mitosis-like stage with many aneuploidic features. Actin fibers and the intermediate filaments disruption did not seem to influence the cell growth process. The versatile  $Ca^{2+}$  signaling pathway was neither affected by the actin nor the intermediate filament disruption. **Conclusion:** These findings indicate that cytoskeletal anomaly may account, to a great extent, for the neoplastic pathogenesis at sub cellular level. Therefore, anti-neoplastic drugs targeting the cytoskeletal machinery disruption should be emphasized.

492. **Rwebembera, A., Sudfeld, C.R., Manji, K.P., Duggan, C., Aboud, S., Fawzi, W.W. Prevalence and risk factors for vitamin d deficiency among tanzanian hiv-exposed uninfected infants. *Journal of Tropical Pediatrics*,2013; 59 (5): pp 426-429.**

Vitamin D is essential for bone development and may also play an integral role in control of intracellular pathogens. Serum 25-hydroxyvitamin D levels were assessed at 6 months of age for 191 HIV-exposed uninfected infants enrolled in a trial of multivitamins (not including vitamin D) in Tanzania. A total of 66 infants (34.6%) were classified as vitamin D deficient (<20 ng/ml), 93 (48.7%) as vitamin D insufficient (20-30 ng/ml) and 32 (16.8%) as vitamin D sufficient ( $\geq 30$  ng/ml). Independent risk factors for vitamin D deficiency were sampling during the rainy season and infant wasting. Infant breastfeeding, maternal CD4 T-cell count, maternal wasting status and maternal receipt of antiretroviral therapy were not associated with vitamin D deficiency. Low levels of vitamin D were highly prevalent among HIV-exposed uninfected infants in

Tanzania, and longitudinal studies and clinical trials of supplementation are needed to assess the impact on child health.

493. **Rweyemamu, I. K. Knowledge, sexual behaviours, pregnancy experiences and HIV prevention among adolescents living with HIV from early childhood in Dar es salaam, Tanzania. Master of Medicine (Paediatrics and Child Health) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Due to the widespread use of antiretroviral therapy, most children who have been living with HIV/AIDS from a young age are healthy and reach their adolescence and early adulthood. While most of these adolescents have started exploring their sexuality, their preventive practices are reported to be inadequate thus increasing the risk for onward transmission of the infection. In Tanzania not much has been done on this subject and hence there is no enough data to inform the intervention programmes targeting this population. **Objective:** This study aimed at assessing knowledge, sexual behaviours, pregnancy experiences and HIV preventive practices of adolescents who have been living with HIV from early childhood. The results that have been obtained will be channelled to programmes providing care to these adolescents in order to institute appropriate interventions. **Methodology:** This was a cross sectional study which was carried out at five Care and Treatment Centres (CTC) led by the Management and Development for Health (MDH) programme for a period of 9 months. The study population included adolescents of 10-19 years of age who have been living with HIV from early childhood. The study used both quantitative and qualitative methods. Quantitative data was collected using structured questionnaires while qualitative data was gathered through in depth interviews. Analysis of quantitative data was done using SPSS while that for qualitative data was done through content analysis. **Results:** The study enrolled 300 adolescents. Over 80% of them could correctly identify the means through which HIV can be transmitted and prevented. Thirty nine percent of these adolescents had had penetrative sex and 22% reported to have had unprotected sex at least once. The only significant risk factor for unprotected sex was having lost a mother. About 10 % of the female adolescents reported to have ever been pregnant with about a third of these having living children. The main findings from the qualitative data were that the poor preventive practices were a consequence of fear of disclosure of HIV status to sexual partners, fear of rejection by the partners and sense of powerlessness shown by the women in negotiating safer sex. **Conclusion:** Adolescents who have been living with HIV from early childhood have good knowledge on HIV transmission and prevention. Penetrative sex among them is common however their preventive practices are poor thus posing a risk for secondary transmission of HIV. **Recommendation:** There is a need for programmes dealing with HIV infected adolescents to concentrate their care on the issues regarding sexual and reproductive health especially on promotion of safer sex, disclosure of HIV status to sexual partners and women empowerment in order to prevent secondary transmission of HIV/AIDS.

494. **Rweyemamu, K.Y. Factors associated with cervical cancer among women attending referral hospitals in Dar esSalaam, Tanzania. Master of Science in**

**Background:** Cervical cancer is the third most common cancer in women, and fourth cause of cancer death in females worldwide. More than 85% of the global burden occurs in sub-Saharan Africa. In Tanzania 35.3% of cancer patients attending Ocean Road Cancer Institute have cervical cancer. HIV constitutes about 21% among cervical cancer patients at ORCI in 2007. **Objective:** To determine factors associated with cervical cancer among women attending referral hospitals in Dar es Salaam. **Methods:** This was a hospital based unmatched case control study with a case to control ratio of 1:1. A case was a woman attending Ocean Road Cancer Institute (ORCI) with a confirmed cervical cancer diagnosis in less than 6 months from the day of recruitment. A control was woman attending the Gynaecology clinic at Muhimbili National Hospital with non-cancer related diagnosis. A standardised structured questionnaire was used; data analysis was performed in Epi Info and STATA. Multiple logistic regression models were used to estimate adjusted odds ratios (AORs). **Results:** A total of 165 cases and 165 controls were included in the study. The mean age  $\pm$  standard deviation was 51 $\pm$ 12 years and 33  $\pm$  11 years among cases and controls respectively. 98 (59.4%) of cases were peasants while 91 (60.7%) of the controls were employed. The HIV prevalence was 42 (28.3%) among cases. Significant risk factors for cervical cancer in our study included lowest wealth quintile (AOR = 6.29; 95% CI: 2.12 – 18.13), peasant (AOR = 6.20; 95% CI: 1.58 – 25.00), occasional post coital genital wash (AOR= 2.8, 95% CI= 1.01 – 7.72) and oral contraceptive use (AOR= 2.29; 95% CI= 1.09 – 5.23). **Conclusion:** HIV prevalence among cases was quite high. These data provide further evidence that low socio-economic status, oral contraceptive use and poor genital hygiene conditions were the main risk factors for cervical cancer. **Recommendations:** Scaling up of cervical cancer prevention and control interventions should address socio-economic, behavioural and HIV infection among the risk population.

495. Rweyemamu, M. Kambarage, D. Karimuribo, E. Wambura, P. Matee, M. Kayembe, A. Mweene, J. Neves, L. Masumu, J. Kasanga, C. Hang'ombe, B. Kayunze, K. Misinzo, G. Simuunza, M. Paweska, J. T. Development of a One Health National Capacity in Africa. *The Human-Animal-Environment Interfaces in Emerging Infectious Diseases*, 2013: 73-91.

Among the many challenges to health, infectious diseases stand out for their ability to have a profound impact on humans and animals. The recent years have witnessed an increasing number of novel infectious diseases. The numerous examples of infections which originated from animals suggest that the zoonotic pool is an important and potentially rich source of emerging diseases. Since emergence and re-emergence of pathogens, and particularly zoonotic agents, occur at unpredictable rates in animal and human populations, infectious diseases will constitute a significant challenge for the public health and animal health communities in the twenty-first century. The African continent suffers from one of the highest burdens of infectious diseases of humans and animals in the world but has the least capacity for their detection, identification and monitoring. Lessons learnt from recent zoonotic epidemics in Africa and elsewhere

clearly indicate the need for coordinated research, interdisciplinary centres, response systems and infrastructures, integrated surveillance systems and workforce development strategies. More and stronger partnerships across national and international sectors (human health, animal health, environment) and disciplines (natural and social sciences) involving public, academic and private organisations and institutions will be required to meet the present and future challenges of infectious diseases. In order to strengthen the efficiency of early warning systems, monitoring trends and disease prediction and timely outbreak interventions for the benefit of the national and international community, it is essential that each nation improves its own capacity in disease recognition and laboratory competence. The SACIDS, a One Health African initiative linking southern African academic and research institutions in smart partnership with centres of science excellence in industrialised countries as well as international research centres, strives to strengthen Africa's capacity to detect, identify and monitor infectious diseases of humans and animals, to better manage health and socio-economic risks posed by them, and to improve research capacity in investigating the biologic, socio-economic, ecologic and anthropogenic factors responsible for emergence and re-emergence of infectious diseases.

496. **Sadru, G. Challenges facing local governance in the implementation of sanitation and hygiene promotion services: a case study of Rungwe district, Tanzania. Master of Arts ( Health Policy and Management) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** Overall, the current status of hygiene and sanitation in Tanzania is one of the areas suffering from chronic neglect. Sanitation and hygiene is still low on the agenda of political platforms and receives a low priority among the community members and public sector. Competing priorities such as education and health (especially curative) contribute significantly in making sanitation and hygiene, an area of low priority at the household and community level as well as at the local, district, regional and national levels. Employing the principles of good local governance will help in the improvement of implementing sanitation and hygiene promotion services. Local government authorities have been implementing various interventions pertaining to improvement of sanitation and hygiene practices but they have not achieved the results to the expectation of the community. This required the exploration of challenges of local governance that could be contributing to low up-take of improved sanitation and hygiene practices in the country. **Objective of the study:** The study aimed at exploring the challenges facing local governance in the implementation of sanitation and hygiene promotion services. The study intended to add knowledge and literature that will help the local government authorities to understand barriers to the implementation of sanitation and hygiene promotion services and possible solutions to overcoming them. **Methodology:** The study was conducted in Rungwe District, Mbeya region, Tanzania. A qualitative research method was employed whereby in-depth interviews were used to obtain information from 16 Key-Informants. All interviews were audio-recorded and transcribed verbatim; and also content analytical approach was employed to analyze the data. **Findings:** Results from this study show that there are several **Major Challenges** facing the implementation of sanitation and hygiene promotion services at the local

government authorities. These include fragmented coordination; unclear roles and responsibilities; weak collaboration with stakeholders to scale up promotion; low participation in planning processes among stakeholders and inadequate financial and human resources. **Conclusion and Recommendations:** The study concludes that there are a number of challenges that hinder an effective implementation of sanitation and hygiene services in the district. The local authorities cannot achieve sanitation and hygiene targets without putting in place good local governance mechanism that is capable of addressing the identified challenges. The District Authorities should, therefore, take local governance challenges identified by this study as opportunities to integrate well the sanitation and hygiene services as an integral part that plays a key-role to development activities.

497. Sakwari, G., Mamuya, S.H.D., Bråtveit, M., Larsson, L., Pehrson, C., Moen, B.E. **Personal exposure to dust and endotoxin in Robusta and Arabica coffee processing factories in Tanzania.** *Annals of Occupational Hygiene*, 2013; 57 (2), pp. 173-183.

**Introduction:** Endotoxin exposure associated with organic dust exposure has been studied in several industries. Coffee cherries that are dried directly after harvest may differ in dust and endotoxin emissions to those that are peeled and washed before drying. The aim of this study was to measure personal total dust and endotoxin levels and to evaluate their determinants of exposure in coffee processing factories. **Methods:** Using Sidekick Casella pumps at a flow rate of 2l/min, total dust levels were measured in the workers' breathing zone throughout the shift. Endotoxin was analyzed using the kinetic chromogenic Limulus amoebocyte lysate assay. Separate linear mixed-effects models were used to evaluate exposure determinants for dust and endotoxin. **Results:** Total dust and endotoxin exposure were significantly higher in Robusta than in Arabica coffee factories (geometric mean 3.41mg/m<sup>3</sup> and 10 800 EU/m<sup>3</sup> versus 2.10mg/m<sup>3</sup> and 1400 EU/m<sup>3</sup>, respectively). Dry pre-processed coffee and differences in work tasks explained 30% of the total variance for total dust and 71% of the variance for endotoxin exposure. High exposure in Robusta processing is associated with the dry pre-processing method used after harvest. **Conclusions:** Dust and endotoxin exposure is high, in particular when processing dry pre-processed coffee. Minimization of dust emissions and use of efficient dust exhaust systems are important to prevent the development of respiratory system impairment in workers.

498. Sakwari, G., Mamuya, S.H.D., Bråtveit, M., Moen, B.E. **Respiratory symptoms, exhaled nitric oxide, and lung function among workers in Tanzanian coffee factories.** *Journal of Occupational and Environmental Medicine*, 2013; 55 (5), pp. 544-551.

**Objective:** To compare chronic respiratory symptoms, fractional exhaled nitric oxide (FENO), and lung function between Robusta and Arabica coffee workers and a control group. **Methods:** Chronic respiratory symptoms were assessed by a questionnaire (n = 138 coffee workers and n = 120 controls). The FENO was measured by NIOX MINO

device (Aerocrine AB, Solna, Sweden). Lung function was examined by a portable spirometer. **Results:** Coffee workers had higher prevalence of chronic respiratory and asthma symptoms than controls. Robusta coffee workers were exposed to higher levels of endotoxin and had more asthma symptoms than Arabica coffee workers (38% vs 18%). Coffee workers had reduced lung function associated with cumulative exposure to total dust and endotoxin. **Conclusion:** Work in coffee factories is associated with small but significant lung function impairment. These changes were not associated with the level of FENO.

**499. Salum, B. Barriers to child vaccination uptake among women in Ngorongoro district - Arusha Tanzania, Masters of Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Introduction:** Low immunization coverage against preventable childhood illness constitutes a major public health concern world wide. Despite the fact that immunization is a cost-effective and life-saving childhood intervention, there are still children mostly in developing countries who are not immunized. In Arusha region of Tanzania, Ngorongoro district is among the areas with low child vaccination coverage. Studies have shown various factors for low vaccination uptake among the parents. Little was known as to why women in Ngorongoro district do not send their children for vaccination. **Objective:** The main objective of the study was to determine barriers to child vaccination among the women in Ngorongoro district. **Methodology:** A descriptive cross-sectional study which employed multistage cluster sampling procedure was conducted. A total of 449 mothers of under-five children participated in the study. Structured interviews were used in data generation. Data were analyzed electronically using a software SPSS version 15. **Results:** All the respondents were aware of the concept of childhood vaccinations. Knowledge of vaccine preventable diseases were limited as only 2.9% of the mothers were able to mention at least three diseases with majority (65.3%) being able to recognize only one disease. A perception that their children were susceptible to such diseases was high; in with 82% of mothers said the risk is high. Acceptability of the childhood vaccinations was not a problem; however vaccination uptake was still low (51.9%). Maternal barriers for child vaccination uptake included also gender dynamics (69.3%), time spent for the service (47%) and language (39.3%). **Conclusion:** Maternal barriers to childhood vaccinations exist, efforts need to be made to increase vaccination uptake among the mothers. **Recommendations:** Sufficient information about child vaccination and vaccine preventable diseases should be provided to mothers of under-fives for them to make an informed choice.

**500. Samwel, N.T. Knowledge of malaria symptoms, ant malarial drugs Stocked and dispensing practises in accredited drug Dispensing outlets, in Morogoro, Tanzania. Master of Science (Applied Epidemiology) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

The Accredited Drug Dispensing Outlets form the lowest level of health care delivery in Tanzania. Inspire of the course offered to dispensers in ADDOs by the Tanzania Food



and Drugs Authority; on detection and treatment of common infectious diseases; there has been a gap on patient's assessment, diagnosis, treatment and counselling tasks in accordance with the evidence based standards. This study assessed the dispensers' knowledge, drugs stocked and dispensing practises in ADDOs in Morogoro Region. A cross-sectional analytical study of 220 randomly selected dispensers from 220 ADDOs in the three Districts of Morogoro Region; conducted between October and December 2012. Questionnaire interview sessions conducted to assess knowledge of malaria symptoms and reported practises. A checklist was used to assess presence of anti-malarial drugs, treatment supplies and guidelines available. The actual practises were assessed using the "Simulated clients" method. Data analysis was done using SPSS software. Chi square test was used to compare proportions and a  $p$ -value of less than or equal to 0.05 was considered statistically significant. Of the total dispensers, Nurse Assistants 206 (94%), Nurse Officers 9 (4.1%); Clinical Officers 3 (1.4%) and Pharmaceutical Assistants 2 (0.9%). More than half (54%) of them attained secondary while the rest had primary education. 185 (84.1%) of the total, trained TFDA special course. Among dispensers, 90% had the knowledge to pick at least two symptoms of uncomplicated malaria in both children and adults. Likewise 67% of them could do the same for severe malaria in both groups. With TFDA training the likely hood of correctly identifying the symptoms of malaria was higher in those trained ( $P<0.05$ ), compared to those who did not. More than 90% of ADDOs stock and dispense ant malarial monotherapies at equal proportion with subsidized ALu. The results have shown that, dispensers have knowledge to at least make syndrome management of malaria in ADDOs. The TFDA training course to dispensers has been significant finding. Antimalarial monotherapies area still stocked and dispensed to patients in ADDOs.

**501. Sangey, E. D. Comparing the efficacy of subcutaneous intermittent soluble insulin versus intravenous continuous soluble insulin infusion in the treatment of diabetic Ketoacidosis in an Emergency Department setting. Master of Medicine (Emergency Medicine). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** As the prevalence of diabetes increases in both industrialized and developing countries, the incidence of diabetic ketoacidosis (DKA) is also increasing. DKA is a potentially fatal condition, but is highly treatable and has an excellent prognosis when timely intervention is available. Mainstay treatment for DKA includes intravenous fluids and low-dose fast-acting insulin regardless of the route of administration (IV infusion or intermittent IM/SC). Intravenous infusion of insulin, however, requires extra resources such as infusion pumps, monitored beds, and additional training for personnel, and may be associated with an increased rate of adverse events if not monitored. While many guidelines recommend treatment of DKA with continuous IV infusion, to date there is no definitive study establishing the superiority of either IV infusion or intermittent SC administration of insulin for the treatment of DKA. Current inpatient treatment at Muhimbili National Hospital (MNH) is

based on intramuscular administration of insulin, while current Emergency Medical Department (EMD) practice includes both continuous IV infusion and intermittent subcutaneous (SC) administration of insulin, based on equipment availability and provider preference. **Aim of the study:** To compare the efficacy of SC intermittent soluble insulin over IV continuous soluble insulin infusion in the treatment of DKA in a randomized open-label trial carried out at the MNH EMD. **Methodology:** This was a randomized controlled open-label clinical trial study that was carried out at the MNH Emergency Department in patients diagnosed with DKA. 30 patients were randomly assigned to one of two groups. One group had 14 patients who were treated with IV continuous regular soluble insulin and other group had 16 patients who were treated with SC intermittent regular soluble insulin. Data collected included vital signs, RBG every 1 hour, and VBG every 2 hours. All data were collected in EMD by the trained doctors and nurses till to the resolution of ketoacidosis using a guided DKA management protocol algorithm (see attached). The data was collected into a guided flow chart and analyzed in response to therapy by duration of treatment to resolution of DKA as a primary outcome. A difference of  $\geq 2$  hours between two groups of treatment was considered as clinically significant. Secondary outcomes included amount of insulin administered, and rate of glucose drop per hour until resolution of DKA, adverse events (hypoglycemia and/or hyperkalemia/hypokalemia), and precipitating factors for DKA with either group of insulin therapy. All data was expressed as means or proportions with Standard deviation (SD). **Results:** The demographic, clinical and biochemical parameters on presentation to the EMD were similar and not statistically significantly between the two groups of treatment. There was no statistical difference between patients treated with IV continuous infusion and SC intermittent of regular soluble insulin in mean time to resolution of DKA ( $14.9 \pm 7.9$  and  $16.4 \pm 5.0$  hours); total amount of insulin required for resolution of DKA ( $66.5 \pm 45.7$  and  $50.4 \pm 27.0$  units); rate of glucose drop per hour ( $1.3 \pm 1.2$  and  $1.3 \pm 1.0$  mmol/L), respectively. The hypoglycemic events were higher in IV infusion group than in SC group. The number of hypokalemic events was slightly higher in patients treated with SC intermittent regular soluble insulin than IV infusion. There were no statistical significant differences in either of the treatment group (IV or SC) for both precipitating factors (infection and poor compliance/out of medication) based on time to resolution of DKA, total amount of insulin used till resolution of DKA and rate of glucose drop per hour. **Conclusion and Recommendation:** This study suggests that even severe DKA can be managed using SC intermittent low dose regular soluble insulin therapy and this regimen is as effective as and possibly safer than IV infusion of regular soluble insulin. SC intermittent regular soluble insulin administration can be managed effectively even where infusion pumps and rapid acting insulin analogues are not available.

502. Saronga, H., Els, D., Maxwell, D., Germain, S., Pencho, T., Hengjin, D., Rainer, S., Svetla, L. **Maternal health cost and efficiency of services in selected health facilities in Lindi and Mtwara rural districts in Tanzania. 2013. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Cost studies are paramount in demonstrating how resources have been spent and identifying opportunities for more efficient use of resources. **Objectives:** The

objectives of this study are to assess the actual dimension and distribution of costs of providing maternal and newborn care (MNC) services and to analyze the determinant factors for efficient service provision in selected rural primary health care facilities in Tanzania in order to inform health policy and planning. **Methods:** This is a retrospective quantitative cross-sectional study conducted in 11 health facilities in Mtwara and Lindi rural districts. Cost analysis for 2009 was done using step down cost accounting technique. Unit costs, inputs divided by outputs, in this study reflect efficiency of service provision. Reported personnel workload is described. Multivariate regression analysis on the drivers of observed unit costs and determinant factors for efficient service provision was also conducted. **Results:** The study health facilities spent on average 7USD per capita in 2009. Fewer resources were spent for service provision at dispensaries than at health centers as expected. Personnel contributed highly to total costs, about 44%. Staff reported to have spent on average 8% and 10% of their time providing ANC and childbirth services respectively, with a wide variation between the facilities. ANC and normal childbirth consumed about 11% and 12% of total facility resources respectively. On average unit costs were rather high, 16 USD (range 2.8-59.4) per ANC visit and 79.4 USD (range 32.7-211.5) per childbirth. The unit costs show relative efficiency differences between the health facilities in providing MNC services. Efficiency in ANC is explained by number of staff, structural quality of care, process quality of care and perceived quality of care. Population- staff ratio and structural quality of basic emergency obstetric care services highly explain childbirth efficiency while perceived quality of care has no influence on childbirth efficiency. **Conclusions:** High variability in unit costs between and within these rural health facilities shows differences in efficiency of provision of services, thus opportunity for efficiency improvement. Taking into consideration client heterogeneity, quality improvements are possible and necessary. This will stimulate utilization of MNC services in the resources constrained health facilities.

503. Sattler, M. A., Mtasiwa, D., Kiama, M., Premji, Z., Tanner, M., Ngalame, P. M., Shears, K. H. **Habitat characterization and spatial distribution of *Anopheles sp.* mosquito larvae in Dar es Salaam (Tanzania) during an extended dry period.** *Malaria Journal*, 2013; 4(3), 15.

**Introduction:** By 2030, more than 50% of the African population will live in urban areas. Controlling malaria reduces the disease burden and further improves economic development. As a complement to treated nets and prompt access to treatment, measures targeted against the larval stage of *Anopheles sp.* mosquitoes are a promising strategy for urban areas. However, a precise knowledge of the geographic location and potentially of ecological characteristics of breeding sites is of major importance for such interventions. **Methods:** In total 151 km<sup>2</sup> of central Dar es Salaam, the biggest city of Tanzania, were systematically searched for open mosquito breeding sites. Ecologic parameters, mosquito larvae density and geographic location were recorded for each site. Logistic regression analysis was used to determine the key ecological factors explaining the different densities of mosquito larvae. **Results:** A total of 405 potential open breeding

sites were examined. Large drains, swamps and puddles were associated with no or low *Anopheles sp.* larvae density. The probability of *Anopheles sp.* larvae to be present was reduced when water was identified as "turbid". Small breeding sites were more commonly colonized by *Anopheles sp.* larvae. Further, *Anopheles gambiae s.l.* larvae were found in highly organically polluted habitats. **Conclusions:** Clear ecological characteristics of the breeding requirements of *Anopheles sp.* larvae could not be identified in this setting. Hence, every stagnant open water body, including very polluted ones, have to be considered as potential malaria vector breeding sites.

504. Sando, D., Machumi, L., Kilewo, C., Mwanyika-Sando, M., Bärnighausen, T., Siril, H., Andrew, I., Naburi, H., Mujinja, P., Sando, D., Mungure, E., Magesa, L., Geldsetzer, P., Li, N., Spiegelman, D., Chalamilla, G., **Cluster-randomized controlled trial of the World Health Organization's Option A versus Option B for the prevention of mother-to-child transmission of HIV in Dar es Salaam. 2013. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Vertical transmission of HIV remains an important public health problem in Sub-Saharan Africa. The two treatment regimens that are recommended by the WHO for the prevention of MTCT, option A (antenatal AZT for all pregnant women plus Nevirapine for the infant until 6 weeks after cessation of breastfeeding, the current standard of care) and option B (triple antiretroviral therapy during pregnancy and breastfeeding plus Nevirapine for the infant for six weeks after birth) show similar efficacy based on existing evidence. **Objectives:** To compare the feasibility, acceptability and costs of the two treatment regimes. **Methods:** This study engaged a quantitative and nested qualitative performance evaluation of a cluster-randomized controlled trial in two districts of Dar es Salaam. Together, both districts comprised of 60 wards. 32 wards were randomly allocated to Option B (Zidovudine plus Lamivudine plus Efavirenz) and the remaining wards to Option A, which is the current standard of care in Tanzania. **Results:** During the first 7 months of the study, we have enrolled 842 HIV-positive pregnant women on Option B, which represents 55% of all HIV-positive pregnant women enrolled in PMTCT in the intervention areas. Thus far, both PMTCT options are well accepted by patients as well as the different cadres of healthcare worker engaged in PMTCT. Yet, there are nuanced differences in feasibility and costs. **Conclusion:** The WHO's selection of two PMTCT options is based largely on efficacy considerations. The findings of this study can help guide policymakers in sub-Saharan Africa selecting an option based on cost-effectiveness and feasibility criteria.

505. Sawe, H.R. **Ultrasound measurement of the inferior vena cava diameter to evaluate volume status in patients requiring fluid resuscitation at Emergency Department, Muhimbili National Hospital. Master of Medicine (Emergency**

**Medicine). Dissertation. 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Hypotension in the emergency department is an independent predictor of in-hospital mortality. Monitoring fluid responsiveness is key for better prognosis of critically ill patients with hypotension and/or shock. Central venous pressure (CVP) is currently used as a standard measure of volume status, but monitoring of CVP is expensive, invasive, has complications and there is evidence in recent literature that CVP is unreliable predictor of volume status. Beside ultrasound of the inferior vena cava (IVC) has been proposed as a safe, non-invasive, and potentially more reliable, measure of volume status. It is not known whether bedside ultrasound measurement of volume status will predict fluid responsiveness with more clinically relevant parameters. **Aim of the study:** To determine if ultrasound measurement of IVC diameter can predict fluid responsiveness in patients requiring fluid resuscitation at Emergency Medicine Department, MNH. **Methods:** Prospective observational study of adult patients presenting at EMD-MNH with hypovolemia and requiring fluid resuscitation. A structured physician data sheet was used to record serial vital signs, measured IVC during initial fluid bolus, and the treating clinician's impression of patient volume status and suspected cause of hypotension. Subjects were stratified by presenting Caval Index (CI) and clinical estimation of volume status. A T-test was used to compare the mean change in mean arterial pressure (MAP) per unit volume. **Results:** A total of 364 patients were enrolled, 52.2% male and 48.8% female, the average age of (36.8 ±10.7) years and (35.9 ±14.0 )years respectively. 48.6% patients had a CI <50% and 51.4% patients had a CI ≥ 50%. Patients in a group with CI ≥ 50% had a 2.8 (p<0.0001) fold greater fluid responsiveness than patients with CI<50%. Caval Index (CI) was lower and volume responsiveness higher in patients who clinicians rated as moderate and severely dehydrated as compared with those rated mild, though there was a substantial overlap of CI and fluid responsiveness values in these clinical categories. **Conclusion and recommendation:** Ultrasound measurement of the inferior vena cava diameter can predict fluid responsiveness in patients requiring intravenous fluids and may be useful to identify patients who will benefit from early and aggressive volume resuscitation. Ultrasound of the IVC is more effective for this purpose than clinical estimation of volume status. We recommend a feasibility study to assess if bedside ultrasound can be used consistently by a range of clinical providers as an adjunct tool to guide fluid resuscitation.

506. Sawe, H.R., Mfinanga1, J.A., Reynolds, T.A., LoBue, N. Mwafongo, V., **Diagnostic pattern of 60,000 adult and pediatric patients seen in the new full capacity emergency department at Muhimbili National Hospital, Dar salaam Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** The first dedicated Emergency Department in Tanzania was established in 2010 at Muhimbili National Hospital (MNH) which is primarily a National referral hospital. Since there are no pre-facility emergency medical services in the area, acutely ill and injured patients are often brought to the ED by family, police, and good Samaritans. **Objectives:** To describe the most common diagnoses and basic

demographics of patients seen during the first two years of the first full-capacity emergency department in Tanzania **Methods:** Handwritten patient logbooks containing basic demographics and primary diagnoses for patients seen at the emergency department from February 2010 through December 2011 were retrieved. Clinical Classifications Software (CCS) multi-level was used for diagnostic categorizations. **Results:** During the 23 months period, the total number of patients seen in the emergency department was 58887 with male to female ratio of 1.5. The under fives represented 13% and adults were 69%. The top five disease categories for all age groups were trauma 25%, infectious 17%, mental health 7%, Neoplasm 5% and pregnancy related 2%. In under five patients, infection was the most common disease category at 37%, In all patients below 18, infectious disease (28%) and trauma (23%) were common, while in adult patients the most frequent diagnosis was trauma (25%) and infectious disease was less common (14%). **Conclusion:** A dedicated emergency department in an urban setting in Tanzania sees a high volume of patients, including a substantial proportion of children and very young children. Injuries and infectious diseases were very common in all age groups, and mental health disorders were common in adults. Infectious disease is the most frequent broad category of disease in children, and traumatic disease is the most frequent in adults.

**507. Semali, I., Mmbaga, E., Kessy, A. Determinants of place of delivery among pregnant mothers in Kongwa district. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Globally maternal mortality has declined to 287,000 but remains unproportionally high in Sub-Saharan Africa. Giving birth in a health facility and or assisted by a trained personnel is an important intervention to reduce maternal mortality. Access to a skilled health care provider during delivery is influenced by household and community factors including social capital. Aim of this study was to determine association of individual and community factors including social capital with place of delivery in Kongwa district. **Objectives:** This was a baseline cross-sectional study in Kongwa district among households with children less than one year. **Methods:** A total of 702 households with children less than two years from these were randomly selected and both the head of the household and mother were interviewed using different questionnaires. The questionnaires elicited information on community level social capital, place of delivery of the index child, social demographic characteristics, distance to health facility, time to water sources and quality of housing. Using STATA 12 , multilevel multiple logistic regression was done to account for mother and village factors associated with place of delivery. **Results:** Factors associated with higher likelihood of delivery assisted by a skilled health care provider were short distance to health facility (OR 1.8; 95% CI=1.1-2.9), mother age less than 30 (OR 1.8, 95%CI 1.1-3.2), mothers high education (OR 1.9; 95%CI 1.2-3.1), high mutual support (OR 3.9,95%CI 1.4-11.3) and high communal action(OR1.9; 95%CI 1.1-3.4). On the other hand, long distance to water source decreased the likelihood (OR 0.4, 95%CI 0.2-0.7). **Conclusion:** Delivery assisted by a skilled person was influenced by high education of mother, young age, short distance to facility and village characteristics. Hence,

intervention should not only focus on individuals but also on harmonizing village differences which might include promotion of social capital.

**508. Seushi, A. Factors associated with adherence to methadone treatment among heroin users attending a methadone assisted treatment program at Muhimbili National Hospital. Master of Science (Clinical Psychology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Introduction:** Injecting drug use has resulted in major international public health problems. Estimates suggest that there are between 11-21 million individuals who inject drugs worldwide. Methadone Assisted Treatment (MAT) is becoming a more common approach to addressing the health, social, and financial ramifications of addiction. Tanzania now has an estimated 25,000 drug injectors, 40 percent of them infected with H.I.V. The main question is what factors influence one to adhere to methadone treatment. A number of previous Western studies have found evidence for a number of possible factors that may be associated with methadone treatment adherence such as age, gender, occupation, education, social relationship and support. The current study explores the extent to which these factors may be associated with adherence in a low income country with an IDU evolution and profile remarkably different from many Western countries **Objectives:** To identify factors associated with adherence to methadone treatment among IDU attending MAT at MNH **Study Design** This was a retrospective cross sectional study retrieved data from clinical records. **Methods** This study collected data from both male and female clients who were enrolled to the methadone clinic from February 2011 to February 2013. The study analyzed data from 609 client's files. The sample size allowed for comparison between participants who have adhered and those who had not adhered. A checklist aimed at retrieving information from clinical records (files) was developed. Questions on the checklist match with information found in the files (MAT program questionnaire) and included sociodemographics, health status (physical and mental) and psychosocial/behavioural characteristics). Data was analyzed using the SPSS version 18 **Results:** Data from total of 632 files of clients enrolled at MNH MAT clinic was collected. Final analysis included data from 609 participant's files with mean age (SD) of 34.28 years (6.41). The proportion of participants adhering to methadone treatment among IDUs attending MAT clinic at MNH was 75% (460) and 25% (149) did not adhere to the treatment. *Bivariate analysis:* There was a significant association between adherence and employment as source of income ( $p=0.031$ ), results show that participants whose source of income is from employment compared to not employment are 1.5 times more likely to adhere to methadone treatment (OR, 1.50, 95% CI: 1.00-2.23). Hospitalization was another factor that showed a significant association with adherence to methadone treatment ( $p=0.027$ ). Crudes odds ratio suggest that participants with a low number of hospitalization compared to no hospitalization were 49% less likely to adhere (OR, 0.51, 95% CI: 0.29-0.86) and those who had high number of hospitalization compared to no hospitalization were also less likely to adhere to methadone treatment (OR, 0.50, 95% CI: 0.29-0.87). Furthermore, incarceration showed a significant relationship with adherence ( $p=0.017$ )

with crudes OR of 1.71 (95% CI: 1.08-2.72). There was also a significant relationship between quality of life and adherence (p=0.028). *Multivariate Analysis:* Gender was the only factor that was found to show a significant association with adherence. Male participants compare to female were 0.24 less likely to adhere to treatment (OR, 0.24, 95% CI: 0.07-0.85). **Conclusion and Recommendations:** This is the first MAT in sub sahara Africa and this is the first study exploring factors that may be associated with adherence in this cultural context. It is evident from the relatively low drop out rate (25% at two year follow up) that factors that are associated with non adherence are being addressed to a great extent in the MAT programme.

**509. Shann, M. H., Bryant, M. H., Brooks, M. I., Bukuluki, P., Muhangi, D., Lugalla, J., Kwesigabo, G. The Effectiveness of Educational Support to Orphans and Vulnerable Children in Tanzania and Uganda. *ISRN Public Health*, 2013.**

Little evidence is available to assist policy makers and donors in deciding what kinds of programs in developing countries are more likely to be effective in supporting the entry and continuation of OVC in secondary schools. is is particularly important for females whose education has direct bearing on child mortality in the next generation. is study gathered four kinds of educational outcome measures in two East African countries ravaged by the AIDS/HIV pandemic. e goal was to determine whether direct scholarship aid to individual students versus various forms of block grants would be more effective in promoting lower rates of absenteeism, lower dropout rates, higher national examination scores, and higher pass rates for OVC of both genders. Insufficient evidence was available for recipients of scholarships, but OVC with block grant support performed as well or better than their non-OVC counterparts, and significantly better than OVC without support. Contrary to popular belief, girls had lower rates of absenteeism there were no gender differences in dropout. However, boys consistently outperformed girls on academic tests. Insufficient data systems continue to impede more detailed analysis.

**510. Shariff, M., Kaale, E. Rapid and Simple Detection of Fake Cialis Tablets by Physical inspection, Visible-Near Infrared Spectroscopy and Thin Layer Chromatography Technologies. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Fake medicines from illegal distribution channels area serious problem in developing countries. Different high profile medicines, such as erectile dysfunction drugs, frequently are faked **Objectives:** The aim of the study was to explore high throughput screening methods for qualitative detection of fake Cialis tablets, and determine whether they contained the correct drug. **Methods:** We investigated the feasibility of information rich visible-NIR reflectance measurements with multivariate calibration for mathematical data processing combined with physical inspection and TLC for consistency assessment of Cialis® 20 mg tablets as tools for fake detection **Results:** Differences in Cialis tablets packing material were noted between registered genuine Cialis and suspected fake products. Differences in size shape and colour was



paramount. Discriminant analysis (DA) based on Mahalanobis distance (MD) has been applied successfully for spectral discrimination, with 5/9 failing batches. Further investigation with TLC failed Mererani, Buguruni and Manzese samples. The Mererani Cialis did not contain a trace of Tadalafil, the active ingredient in Cialis tablets. Further TLC evaluation revealed Mererani Cialis sample to contain very high concentrations of Sildenafil, the active ingredient in Viagra. The Buguruni Cialis sample contained Tadalafil but also had significant amounts of other unknown impurity which calls for further investigation. In addition to the official medicine outlets, the study revealed that guest houses, night clubs and bars are potential outlets for fake medicines. **Conclusion:** In a resource challenged settings, fake products can be conclusively determined by a combination of simple assessment technologies namely, physical inspection, Visible-Near Infrared reflectance spectroscopy, and Thin Layer Chromatography; techniques and technologies which are more robust and sustainable. Authorities should consider extending post marketing surveillance to non-conventional medicine outlets on ad hoc basis.

511. Shayo, G., Moshiro, C., Msamanga, G., Mugusi, F., Chalamilla, G., Spiegelman, D., Hawkins, C., Fawzi, W. **Prevalence and risk factors for skin diseases among ARV naïve HIV infected pregnant women. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Reduced cell mediated immunity associated with pregnancy may cause a flaring or exacerbation of some skin conditions. Little is known about the magnitude of and risk factors for skin diseases among Human Immunodeficiency Virus (HIV) infected antiretroviral therapy (ARV) naïve pregnant women. **Objectives:** We aimed at investigating the magnitude of and the risks for skin conditions in HIV infected antiretroviral therapy (ARV) naïve pregnant women. **Methods:** Cross sectional study of 1078 HIV infected ARV-naïve pregnant women was conducted in Dar es Salaam, Tanzania. Skin diagnoses were mainly clinical. Blood was drawn for CD4 count, hemoglobin, plasma vitamin A and E levels. Log-binomial regression models were used to explore factors associated with the outcomes. **Results:** About 81% of the women were in World Health Organization (WHO) HIV stage I. Median CD4 count was 405 x10<sup>6</sup> cells /L. The prevalence of any skin disease was 18%. Fungal (11%) and viral infections of any type (5 %) were the most common skin conditions. Skin infections were nearly 3 fold more common in HIV stage III, (95% CI 1.51-4.63) compared to stage I. Fungal infections were nearly 2 fold common among single, divorced and widowed women than among married women; (95% CI 1.16-2.68), nearly 3 fold common among women in HIV stage III (95% CI 1.19 – 6.67) compared to stage I. Genital ulcers were significantly more common among women whose source of income was their own and among those in WHO HIV stage III. **Conclusion:** The burden of skin diseases was relatively low. Advanced HIV stage was associated with a range of skin conditions. CD4 cell count was not related to skin prevalence.

512. Shewiyo, D.H., Kaale, E., Risha, P.G., Dejaegher, B., De Beer, J., Smeyers-Verbeke, J., Vander Heyden, Y. Accuracy profiles assessing the validity for routine use of high-performance thin-layer chromatographic assays for drug formulations. *Journal of Chromatography A*, 2013; 1293, pp. 159-169.

Drug assays in formulations by HPTLC methods. Method validation using accuracy profiles. Accuracy profile is based on total error. Total error integrates several validation parameters. The accuracy profile, based on total error, integrates several validation parameters, such as trueness, precision and linearity, providing one statistic which enables decision on the suitability of a method for its intended purpose. Two assay methods for formulations are validated using accuracy profiles as an alternative approach to classic method validation. It concerns high-performance thin-layer chromatography (HPTLC) methods, which initially were validated using the classic approach. The first method assayed sulfamethoxazole and trimethoprim, and the second lamivudine, stavudine and nevirapine. Both formulations are fixed-dose combination tablets. The resulting accuracy profiles showed that the 95%  $\beta$ -expectation tolerance limits for all compounds fell well within the bias acceptance limits set at  $\pm 5\%$ . This means that the two analytical thin-layer chromatographic methods are capable of making accurate results at the studied concentration ranges of each compound. Measurement uncertainties of every compound at each concentration level could also be determined from the accuracy profile data.

513. Shija, K. C. Health Related Quality of Life in Children Aged 2-18 Years With Congenital Heart Disease at Muhimbili National Hospital In Dar es Salaam, Tanzania. Master of medicine ( Pediatrics and Child Health) Dissertation 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Background:** Congenital Heart disease (CHD) is a prevalent condition worldwide. In Tanzania approximately 7/1000 live births are born with CHD and are among the top ten chronic diseases. Due to its chronicity it affects the quality of life in various ways. The health related quality of life (HRQL) of children with CHD has not been explored in Tanzania. This study is going to demonstrate the HRQL in children with different CHD lesions. It is also going to explore the difference in quality of life among children who had cardiac surgery and compare with those not yet have had cardiac surgery. **Objective:** To determine the health related quality of life of children aged 2-18 years with congenital heart diseases attending cardiac clinic at Muhimbili National Hospital in Dar es salaam, Tanzania. **Methodology:** Descriptive cross sectional study was done to determine the health related quality of life in children 2-18 years with CHD. Disease specific pedsQL cardiac module was used to collect the health related quality of life. Parents' and childrens' socio demographic features were obtained by using a specifically designed questionnaire. Data entry was done by using Epi Info and transferred to SPSS version 17 for analysis. A p- value of  $<0.05$  in the ANOVA test when more than three groups were compared on the pedsQL<sup>TM</sup> 3.0 cardiac module mean scores and a student T test for two groups. For statistical significant difference in ANOVA test a further Bonferroni alpha post hoc test with adjusted p- value of 0.0167 was applied to detect the difference among groups. **Results:** A total of 107 children aged 2-18 years with CHD

were recruited by convenient sampling of which fifty seven (53.3%) were female. VSD 34.6% was the commonest CHD. Eight percent of children were found to have co morbid conditions including; Down syndrome, epilepsy and speech disorder. The overall mean scores in all the risk factors assessed were below the cut off score 69.7 of HRQL meaning poor HRQL. There was a significant difference in physical functioning domain of HRQL in the parent report stratified by disease severity (group 1,2 and 3). Multiple comparison test (Bonferroni adjustment) revealed significant difference between group 1 and 3 (mean score of  $72 \pm 14$  against  $59 \pm 18$  and p value 0.0008). Moreover significant difference was also noted in the cognitive domain between group 1 and 2 in the child report (mean scores and standard deviation of  $86 \pm 15$  against  $46 \pm 4$  with a p value of 0.00126) Children with cardiac surgery had better physical functioning compared to those without cardiac surgery with mean scores of  $71 \pm 15$  against  $64 \pm 18$  and a p value of 0.03. Poor physical appearance was noted in children who had cardiac surgery compared to those not yet have had cardiac surgery, their mean scores and standard deviations being  $82 \pm 20$  against  $98 \pm 4$  with a p value of 0.011. In the multivariate analysis both cardiac surgery and CHD lesion were the predictors of poor physical functioning, beta coefficient of -0.29 with p value 0.00 and -0.42, p value of 0.00 respectively. **Conclusion:** From the findings of this study it may be concluded that children with CHD lesion had poor HRQL. The impact of CHD on the HRQL of the children is significant particularly in the domain of physical functioning and cognitive development. With increased access to cardiac surgery in this country more children will survive into adulthood, however CHD will take its toll on quality of life particularly in the areas of cognitive development and physical functioning. **Recommendation.** A prospective cohort study is needed to explore the HRQL before cardiac surgery and after surgery, more emphasis on cognitive development in order to establish a temporal relationship.

**514. Shirima, G.V. Factors associated with cognitive developmental delay among infants attending reproductive and child health clinics in dares salaam, Tanzania. Masters of Medicine (Paediatrics and Child Health) Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Early child cognitive development is important throughout one's life span. It is estimated that more than 200 million children under five years of age fail to achieve full cognitive development in the world and 80% of them are in South Asia and Sub-Saharan Africa. Genetic and environmental factors play a role in early child development (ECD). Most of the ECD occurs in the first 2 years of life, but largely during infancy. Malnutrition, poverty and poor health care to children have been found to have association with poor cognitive development and create a vicious cycle of poverty. This study gives the proportion and factors that are associated with infants' cognitive developmental delay in our setting. Knowing these factors enhance early intervention to break the vicious cycle of poverty. **Objectives:** To determine the proportion and factors associated with cognitive developmental delay among infants attending RCH clinics in Dar es Salaam. **Methodology:** This was a health facility based descriptive cross-sectional study which was done in three health centers in Dar es Salaam from July to December 2012. A two- stage sampling technique was used.

Lottery was used to get the health centers and all infants registered at RCH clinic with odd numbers on data collection day were assessed for cognitive development. A structured questionnaire was used to collect data and analysis was done using SPSS version 16 by Pearson's chi-square, Fisher exact test and logistic regressions. **Results:** A total of 350 infants were assessed for cognitive development and 50.6% were males. Participants were aged 1 to 12 months with a mean (SD) of 7.26 (3.43) months and birth weight ranging from 1.3 to 4.6kg with mean (SD) of 3.11(0.50) kg. Proportion of infant who were found to have cognitive developmental delay was 12.3%. Young age of the child, caretakers other than the mother, and wasting were significantly associated with cognitive developmental delays even after adjusting for confounders. Infants aged less than 6 months were 14 times more likely to have cognitive developmental delay compared to those aged six months and above (aOR=14; 95%CI 5.3-38.3, P<0.001). Absence of the mother, and therefore the use of assistant caretakers especially during day-time, was 12 times more likely for the infant to have cognitive developmental delay compared to infants who stayed with their mothers (aOR=12.1; 95%CI 3.0-53, P=0.001). Wasted infants were 4 times more likely to have cognitive developmental delay (aOR=3.9; 95%CI 1.1-13.3, P=0.032) compared to infants without wasting. **Conclusion and recommendations:** The proportion of cognitive developmental delay among infant attending RCH clinics in Dar es Salaam was 12.3%. Young age of the child, use of other caretakers in absence of the mother, and wasting were associated with cognitive developmental delays. Parents whose infants' are taken care by the assistant caretakers should try as much as possible to spend quality time with them. All infants should be assessed on cognitive development during their visits to the RCH clinics. A longitudinal study is needed to measure the magnitude of cognitive developmental delays and look at the causal relationship of the associated factors and for better interventions.

**515. Shoo, J. G. Concurrent urinary tract infection among neonates admitted with clinical features of sepsis at Muhimbili national hospital Dar es salaam, Tanzania. Master of Science (Nephrology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Urinary tract infection (UTI) is the most common serious bacterial infection found in febrile infants and young children who present without any obvious source of infection. Although urine culture is indicated in neonates evaluated for sepsis, the magnitude of UTI in neonates with sepsis admitted at MNH is not known. **Objective:** The objective of this study was to determine the prevalence, and aetiological agents among neonates admitted with symptoms or signs of sepsis at MNH Dar es salaam, Tanzania. **Methodology:** This was a cross sectional hospital based study. Neonates admitted to our neonatal ward were consecutively recruited into the study. Demographic and clinical information were collected using a structured questionnaire. Urine specimens were collected by suprapubic aspiration and sent for urinalysis, microscopy, culture and antimicrobial susceptibility testing. Blood samples were taken for white cell count and C-reactive protein. Renal and bladder ultrasound was done to all neonates with UTI to identify genitourinary abnormalities. **Results:** Among the 251 studied neonates 8.4% had urinary tract infection. Males and females were similarly

affected. Significantly UTI was noted more in neonates older than 7 days of age (19.3%) versus (5.2%) in those of aged 7 days old or younger. Most neonates with UTI presented with fever, .Sensitivity of pyuria (61.9%), C- reactive protein (28.6%) and total white cell count (33.3%) in identifying neonates with UTI was low. *Escherichia coli* was the most common isolated organism (42.9%), *Klebsiella spp* (33.3%) and *coagulase negative Staphylococci* (23.8%). Both Gram positive and negative bacteria showed high rate of resistance (81%) towards ampicillin, with *Klebsiella spp.* showing highest resistance (100%). Moderate resistance was shown to cefotaxime (14%) and gentamicin (19%) respectively. None of the organism were resistant to ceftriaxone and amikacin. None of the neonates with UTI was detected with GU tract anomalies on radiological evaluation. **Conclusion:** UTI is prevalent among neonates admitted sepsis at MNH. It is more so in those above one week of age. Pyuria and C reactive protein does not exclude UTI in neonates, therefore a culture of urine should be used to exclude UTI. The study found a high resistance to ampicillin, is high. The co-existence of UTI and genitourinary malformation was not appreciated in this study most likely due highly selected sample size. **Recommendations:** Urine culture should be included in evaluation of older neonates with suspected sepsis. Where culture and sensitivity can be done, definitive management of UTI should be guided by the antimicrobial sensitivity pattern.

**516. Siegler, A.J, Mbwambo, J.K., DiClemente, R.J. Applying the Dynamic Social Systems Model to HIV Prevention in a Rural African Context: The Maasai and the Esoto Dance. *Health Education and Behavior*, 2013; 40 (6): pp. 683-693.**

This study applied the Dynamic Social Systems Model (DSSM) to the issue of HIV risk among the Maasai tribe of Tanzania, using data from a cross-sectional, cluster survey among 370 randomly selected participants from Ngorongoro and Siha Districts. A culturally appropriate survey instrument was developed to explore traditions reportedly coadunate with sexual partnership, including "wife sharing", fertility rituals, and various traditional dances. One dance, esoto, accounted for more than two thirds of participants' lifetime sexual partners (n = 10.5). The DSSM, combining structural and systems theories, was applied to systematize complex multilevel factors regarding esoto practice. Participants reported multifaceted beliefs regarding esoto; a majority viewed the dance as exciting and essential, yet most men feared social stigma and three quarters of women had experienced physical punishment for nonattendance. In multivariate logistic regression, esoto attendance was predicted by female gender (adjusted odds ratio [AOR] = 4.67, 95% confidence interval [CI] = 1.6-13.2), higher positive beliefs regarding esoto (AOR = 2.84, 95% CI = 1.9-4.2), and Maasai life cycle events (AOR = 0.06, 95% CI = 0.01-0.47). The DSSM proved useful for characterizing esoto and for revealing feedback loops that maintain esoto, thus indicating avenues for future interventions.

**517. Sifael, M. Management of patients with non traumatic hypotension presenting at Emergency Department Muhimbili National Hospital. Master of Medicine (Emergency Medicine). Dissertation. 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.***

**Background:** Hypotension is associated with high morbidity and mortality among emergency department patients. The diagnostic workup and management of hypotensive patients may vary greatly based on suspected etiology and regional burden of disease. Unfortunately, little is known about the emergency department (ED) diagnostic evaluation, treatment, and discharge diagnoses of patients with non-traumatic hypotension in sub-Saharan Africa. **Objectives:** This study aims to characterize the diagnostic test utilization, treatment, and final EMD diagnosis for patients presenting to the MNH ED with non-traumatic hypotension. **Methodology:** This was a prospective descriptive cohort study carried out from April to November 2012 at the MNH ED. A total of 65 adult patients with non-traumatic hypotension were enrolled. Data collected at presentation included history, physical examination findings, diagnostic testing, and final EMD diagnosis. Follow-up data collected included hospital length of stay, discharge diagnosis, and 24-hour and in-hospital mortality. Descriptive statistics were used to report the type and frequency of laboratory tests used in the evaluation of study patients. **Results:** Out of 65 patients, 53 (88%) were referred from other hospitals, and 12 (18%) were self-referred. The mean systolic blood pressure at arrival was 84mmHg and diastolic of 50mmHg. At MNH ED, 54 (83%) patients had ECGs done which were abnormal in 32 patients (59%). Bedside USS done to all 65 and 45 (69%) had abnormal findings. Fifteen (23%) of the patients received X rays and 11(73%) had abnormal findings. All patients underwent laboratory work up. Amongst the 53 patients referred from an outside hospital only 20 (38%) patients received fluids prior to arrival. While at the EMD 63 patients x (97%) received fluids. Mean systolic blood pressure after intervention was 91mmHg (median90 mmHg), while diastolic was 60mmHg (median 6).For patients who survived to discharge the mean systolic was 92mmhg and diastolic of 56mmHg. The mean hospital length of stay was 2 days in those who died and 4 days for those who survived till discharge. In 78% patients, the EMD diagnosis matched hospital discharge diagnosis. Overall mortality in this study was 26% (17) patients, with 7 (48%) of these deaths occurring in the first 24hours. **Conclusion** The most common diagnostic tests performed in the ED were: USS, ECG, plain X RAYS, RBG, RDTFBP, ABG and rapid for HIV. Seventy eight percent of EMD diagnoses were the same as final discharge diagnosis. There was a high overall mortality in patients presenting with hypotension and many of these patients died within the first 24hours of admission.

518. Silas, R., Mtei, C., Munuo, N., Nyange, S, Shuma, A., Kitera, W., Iddi, T., Lyimo, R., Chazi, M., Patel, S., Kangaroo mother care: A six month experience at Muhimbili National Hospital. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** Kangaroo Mother Care (KMC) is one of the evidence-based and cost-effective child health interventions that contribute to reduction in neonatal mortality; it serves as an alternative to conventional (incubator) care for Low birth weight (LBW) infants. In 2002, the KMC services were introduced in 10 developing countries such as Ethiopia, Ghana, India, Malawi, Mali, Nepal, Nigeria, Rwanda, Tanzania and Uganda. In Tanzania, currently there are approximately 27 KMC units all around the country and 5 of these are in Dar es Salaam, located at CCBRT, MNH, Mwanamala hospital, Amana hospital and Mlandizi health center, MNH, KMC unit is the youngest, it was

started in August 2012. **Objectives:** To share 6 months experience of KMC at MNH. **Methods:** Using excel sheet, a summary of KMC data was retrieved from the KMC hard copy records, covering a period from August 2012 to February 2013. Data included number of admission for each month for babies with birth weight 1000grams. Other information included length of hospital stay, age and weight at discharge. **Results:** Total of 153 low birth weight babies were admitted to KMC between August 2012 and February 2013. Majority (83%) had birth weight >1000grams. Average weight gain during stay in KMC was between 41 grams to 990 grams per month. Average age at discharge is 2-3 months, with the average weight ranging from 1570 to 2100grams. Only 8 (5.2%) of LBW in KMC unit became sick and readmitted to the newborn unit, and no death has been reported in KMC unit since its inception. **Conclusion:** Early findings shows that kangaroo mother care is a safe practice and can be used as a step down unit for low birth weight neonates who need to achieve recommended weight as criteria for discharge from the hospital

**519. Simba, D. Do Universities in East and Central Africa have Capacity for Health Systems Research? Tanzania. 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013**

**Background:** Background: Despite its importance in providing evidence for policy and decision making very few health systems research (HSR) are conducted in low income countries. Schools of Public Health (SOPH) are the target for HSR funding hence the need to strengthen capacity for conducting HSR. **Objectives:** This study aimed to determine if SOPH have adequate numbers and qualified staff for HSR; and explore the existence of conducive human resource and financial policies and support for HSR. **Methods:** Method: Seven SOPH from six countries in East and Central African countries conducted capacity assessment for HSR in their respective schools in 2011. An adapted self-assessment questionnaire was used, key informant interviews (KII) with HSR stakeholders and document review conducted. Questionnaire was administered to academic staff with interest and or published on health systems. Questions focused on academic members' opinions on capacity of SOPH to engage in HSR, access funding and support HSR. KII involved Deans of respective SOPH and stakeholders from outside the Universities interested in HSR. An interview guide was used focusing on HSR funding and sources of data for the respective organization. **Results:** Findings: Questionnaire was administered to 123 academic staff and KII conducted with 88 respondents. Respondents expressed confidence on SOPH adequacy in staffing and skills for conducting HSR. However, staff-output ratios, including technical and consultancy reports, in SOPH were low; ranging from **Conclusion:** Conclusion: This study underscores the need for researchers in SOPH in low income countries to form effective multidisciplinary HSR teams to attract local funding. This will foster conducting and disseminating research of local relevance using appropriate media.

**520. Simon, E. N. M., Merckx, M. A. W., Kalyanyama, B. M., Shubi, F. M., Stoelinga, P. J. W. Immediate reconstruction of the mandible after resection for aggressive odontogenic tumours: a cohort study. *International journal of oral and maxillofacial surgery*, 2013; 42(1), 106-112.**

The results are reported of a clinical follow-up study on 32 selected but consecutive patients with mandibular ameloblastoma. They were all treated by a segmental resection and reconstructed, using two 2.3 mm reconstruction plates and an autogenous particulate bone graft, taken from the anterior iliac crest, and platelet rich plasma. Follow-up ranged from 12 to 39 months, with an average of 27.9 months. Undisturbed healing occurred in 29 patients, while three had postoperative infections, but in only one case did that result in failure of the graft. The patients' appreciation was measured using an adapted quality of life questionnaire. The results were compared with a similar group who did not undergo reconstruction. The eating of solid food, appearance and speech were considerably better in the reconstructed group. The conclusion is that this means of reconstruction is appropriate for patients with benign but aggressive odontogenic tumours of the mandible, particularly in developing countries, since the expenses seem to be affordable.

**521. Simon, K. Seroprevalence of HIV, HBV, HCV and SYPHILIS and associated risk factors in the fishing community in Mwanza Region, Tanzania-2012. Master of Science (Epidemiology and Laboratory Management) Dissertation 2013. Muhimbili University of Health and Allied Sciences. Dar es salaam.**

**Background:** Fishing communities have been identified among the vulnerable groups at high risk for acquiring sexually transmitted infections. This vulnerability is mainly due to their mobility, time away from home, access to cash income and commercial sex at landing sites. Data on prevalence and associated factors for sexually transmitted infections in fishing communities is limited. **Objective:** To determine the seroprevalence of human immunodeficiency virus infection (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV) infections and syphilis and the associated risk factors in the fishing communities. **Methodology:** This was a cross sectional community-based study conducted at Mwaloni landing site along the shores of Lake Victoria basin in Mwanza region conducted between October 2012 and March 2013. Information on socio-demographic characteristics and factors associated with acquisition of HIV, HBV, HCV and syphilis were obtained using a structured questionnaire. Blood samples were collected and screened for HIV, HBV, HCV and syphilis. Multivariate logistic regression was performed to determine the risk factors for acquisition of infections. A p-value of  $\leq 0.05$  was considered statistically significant. **Results:** A total of 448 individuals were included in the study. The mean age was 33.5 years (range 18-70 years). Many participants (61.2%) were males and (70.5%) had primary education. Of participants 235 (52.5%) were fish traders. The prevalence of HIV, HBV, HCV and syphilis were found to be 9.8%, 9.2%, 5.6% and 14.3%, respectively. Regular alcohol consumption was found to be a risk factor for acquiring HIV infection (OR=4.4, 95%CI=1.7-11.8) in the fishing community. Study participants who had used the health services in the past one year were more likely to have HIV infection (OR=3.8, 95%CI=1.9-7.4) Health services were accessible within a distance of five kilometres and 29.5% of the study respondents had used these services in the past twelve months. **Conclusions:** The prevalence of STIs in the fishing community was found to be higher compared to the prevalence figures of STIs in Tanzania for the general population. Regular alcohol consumption was found to be a risk factor for acquiring HIV in the



fishing community. Utilization of health services in the fishing community was found to be low. **Recommendations:** Health education targeting reduction of alcohol consumption in fishing communities should be emphasized. Mobile health services focusing on prevention and treatment of STIs in fishing communities are needed to prevent transmission of STIs in these communities.

522. Simon, R., Gilyoma, J.M., Dass, R.M., Mchembe, M.D., Chalya, P.L. Paediatric injuries at Bugando Medical Centre in Northwestern Tanzania: A prospective review of 150 cases. *Journal of Trauma Management and Outcomes*, 2013; 7 (1): 10.

**Background:** Injuries continue to be the leading cause of death and disability for children. There is a paucity of published data on paediatric injuries in our local environment. This study describes the etiological spectrum, injury characteristics and treatment outcome of paediatric injuries in our local setting and provides baseline data for establishment of prevention strategies as well as treatment guidelines. **Methods:** This was a descriptive cross-sectional study involving paediatric injury patients admitted to Bugando Medical Centre from August 2011 to April 2012. Statistical data analysis was done using SPSS version 17.0 and STATA version 12.0. **Results:** A total of 150 patients were studied. The age of patients ranged from 1 month to 10 years with a median age of 5 years. The male to female ratio was 2.3:1. Road traffic accident was the most common cause of injury (39.3%) and motorcycle (71.2%) was responsible for the majority of road traffic accidents. Only 11 (7.3%) patients received pre-hospital care. The head/neck (32.7%) and musculoskeletal (28.0%) were the most frequent body region injured. Open wounds (51.4%), foreign bodies (31.3%) and fractures (17.3%) were the most common type of injuries sustained. The majority of patients 84 (56.0%) were treated surgically. Complication rate was 3.9%. The mean duration of hospitalization was  $9.7 \pm 13.1$  days. Mortality rate was 12.7%. Age of the patient (< 5 years), late presentation and presence of complications were the main predictors of length of hospital stay ( $P < 0.001$ ), whereas burn injuries, severe head injuries and severity of injury (Paediatric trauma score = 0-5) significantly predicted mortality ( $P < 0.0001$ ). **Conclusion:** Paediatric injuries resulting from road traffic accidents (RTAs) remain a major public health problem in this part of Tanzania. Urgent preventive measures targeting at reducing the occurrence of RTAs is necessary to reduce the incidence of paediatric injuries in this region.

523. Simon, T., Kida, I. & Mandari, G. Dental appearance and quality of life among Muhimbili University Students. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.

**Background:** Dental esthetics has not been seen to be important in most developing countries and research in this regard is meager. Due to rapid increase in global network the effect of a pleasant appearance is now recognized to be very important, hence may lead to changes in person's esthetics needs and may affect dental treatment priority. **Objectives:** To determine satisfaction with dental appearance and its association with

oral health related quality of life among students at Muhimbili University of Health and Allied Sciences. **Methods:** Cross-sectional study was conducted in December 2010, using a self administered questionnaire, with information on socio-demographic and satisfaction with dental appearance. Oral health related quality of life was assessed using Oral Impact on Daily Performance (OIDP) inventory. **Results:** In this study, 492 participants were involved. Age ranged from 18 – 57 years old, mean age was 22.9, sd = 3.9. Dissatisfaction with dental appearance was present in 21.5% of the subjects. Female showed higher prevalence 28.5% of dissatisfaction with their dental appearance compared to males (P=0.01). The main factor contributed to dissatisfaction was teeth discoloration. Prevalence of OIDP was 60.6%. The most affected performance was eating (46.1%) and the least being speaking (11.4%). Those who reported impacts on performances were more likely to be females (OR - 1.5, CI: 1 – 2), and those who were not satisfied with their dental appearance (OR: 3.1, CI: 1.9 - 5.2). **Conclusion:** A high percentage of the university students perceived to have good dental appearance and were satisfied with their dental appearance. However the impacts of oral conditions to their dental appearance were substantial.

**524. Simon, E. Morbidity after anterior iliac crest harvest for reconstruction of the mandible after ablative surgery for treatment of aggressive odontogenic tumours. Tanzania 1ST Scientific MUHAS Conference, . Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Patients with aggressive odontogenic tumours of the mandible report late for treatment with massive tumours that necessitate resection of portion of the bone to avoid recurrences. This leaves the patient with a compromised life both functionally and psychologically. To minimize the impact autogenous bone is often used for primary reconstruction of the mandible to restore function and aesthetics. Anterior iliac crest of the pelvic bone considered as one of the available donor sites. **Objective:** To determine the post operative morbidity after anterior iliac crest harvest for the primary reconstruction of mandibular defects following resection for the treatment of aggressive odontogenic tumours. **Material and methods:** Over a ten years period (January 2001 to December 2011) 33 selected patients (11 males and 22 females) who were diagnosed with ameloblastoma (an aggressive odontogenic tumour) at the Oral and maxillofacial firm, MNH, were surgically treated by resection of the tumour and primary reconstruction of the mandible. After clinical, radiological and histological diagnosis of ameloblastoma the patients were counseled and asked to sign a written consent. All necessary parameters were assessed for fitness for surgery under general anaesthesia. Two operations; resection of the tumour with a safe margin of 1.5 to 2 cm of the mandible and harvesting bone from the anterior iliac were performed simultaneously by two teams of maxillofacial surgeons. The resultant gap after resection of the tumour would determine the size of bone to be harvested. Where the tumour was big and in patients with small pelvis the harvest was done bilaterally. The patient was positioned in supine position and after exposure of the iliac crest an electric saw was used to make a horizontal cut on the iliac crest for a length of about 6 cm starting from the anterior superior iliac spine. Two vertical cuts were made on each end, the length of which depended on the amount of bone needed for the reconstruction. At the bottom another

horizontal cut was made using a curved chisel to join the two vertical ones. Chisel and curates were then used to harvest the cortico-cancellous block of bone. After haemostasis was achieved soft tissues were opposed and wound closed by interrupted suturing. The patient was assessed physically and by interview 48 hrs after the operation, after three days, after one week after 2 weeks and after one month. After discharge the patients were assessed again six months post operatively. **Results:** Twenty patients (60.6%) complained of moderate pain 48 hrs post operative, 7 patients (21.2%) expressed feeling severe pain while 6 (18.1%) experienced mild pain only. Regarding function 24 hours after the operation all 32 patients had difficulty on walking upright, which gradually improved in the majority after two weeks and six months later none had complaint regarding gait. The scar was assessed after six months and in two (%) patients keloids were observed. The rest of the patients were satisfied with the scars. Other complaints related to the harvest during the first six months were minor and none of the patients presented any complaints after six months. **Conclusion:** Anterior iliac crest harvest when properly done seemed to be a safe operation with minor complaints which were temporary. There were no permanent or long term complaints in this group of patients. The resulting

525. **Sohal, K. S., Owibingire, S. S. Dental Radiographs Ordered by Dental Professionals: an Experience from a Resource Limited Tertiary Public Health Facility Setting at Muhimbili National Hospital in Tanzania. *East and Central African Journal of Surgery*, 2013; 17(3), 70-75.**

**Background:** Radiographs remain fundamental tool in diagnosis of dental diseases, their availability and social-economic status of the patient dictates the choice made by professionals. This study was done to determine the indications and types of dental radiographs ordered by dental professionals in a resource limited setting. **Methods:** This was a cross sectional study involving 520 patients who underwent dental radiographic investigation. Patients were examined and interviewed. Type of radiographs taken and indications were recorded. **Results:** Out of 520 patients, 189 were male, and the mean age of the participants was 31.7 +/- 13.9 years. Most of the patients were aged 20-49 years. The frequent indication was dental caries followed by periapical infection and impacted teeth. Periapical X-rays were taken for 748 teeth of which majority were upper central incisors followed by mandibular molars. **Conclusions:** Even in resource limited settings dental caries is still the regular indication for taking dental radiographs, and periapical views are the most frequent type of radiograph ordered. Maxillary central incisors and mandibular molars were types of teeth commonly x-rayed mainly due to the aesthetic importance of the former and the preponderance of dental caries in the later group of teeth.

526. **Sommer, M., Likindikoki, S., Kaaya, S. Parents, Sons, and Globalization in Tanzania: Implications for Adolescent Health. *Thymos: Journal of Boyhood Studies*, 2013; 7(1), 43-63.**

As the global youth population grows exponentially across Africa, there is increasing recognition of the risky health behaviors impeding boys' healthy transitions through puberty. This study in Tanzania sought to capture boys' voiced experiences of transitioning through adolescence, and the masculinity norms shaping boys' engagement in risky behaviors. A critical finding was the gap in parent-son communication around pubertal body changes and avoidance of risk behaviors. Findings also suggest influences from globalization and modernization are changing boys' pubertal experiences and introducing new challenges for parents attempting to provide guidance. Given evidence from high-income countries indicating parents can serve as protective factors for young people during the transition through adolescence, additional research is needed to understand current parent-son dynamics and potential interventions.

- 527. Sommer, M., Likindikoki, S., Kaaya, S. Boys' and young men's perspectives on violence in Northern Tanzania. *Culture, Health and Sexuality*, 2013; 15 (6): pp. 695-709.**

The challenge of violence for youth in low-income countries includes a range of experiences from witnessing, to experiencing, to participating in violence. Although boys and young men are often the perpetrators of such violence, they may also be its victims. Yet little evidence exists from the voiced experiences of boys themselves on perceptions and interpretations of the violence around them. Given the numerous negative health implications of violence for boys, for the girls and other boys with whom they interact, and for the health of their future partners and families, we conducted an in-depth study in rural and urban Tanzania with adolescent boys on the masculinity norms shaping their transitions through puberty that might be contributing to high-risk behaviours, including engagement in violence. The findings identified underlying societal gendered norms influencing the enactment of violence, and recommendations from the boys on how to diminish the violence around them. Additional research is needed with boys on the social norms and structural factors influencing their engagement in violence.

- 528. Strøm, G.E., Tellevik, M.G., Fataki, M., Langeland, N., Blomberg, B. No asymptomatic malaria parasitaemia found among 108 young children at one health facility in Dar es Salaam, Tanzania. *Malaria Journal*, 2013; 12 (1): 417.**

**Background:** Asymptomatic malaria parasitaemia has been reported in areas with high malaria transmission. It may serve as a reservoir for continued transmission, and furthermore complicates diagnostics, as not all individuals with a positive malaria test are necessarily ill due to malaria, although they may present with malaria-like symptoms. Asymptomatic malaria increases with age as immunity to malaria gradually develops. As mortality and morbidity of malaria is higher among younger children it is important to know the prevalence of asymptomatic malaria parasitaemia in this population in order to interpret laboratory results for malaria correctly. **Methods:** A total of 108 children that had neither been treated for malaria nor had a fever the previous four weeks were recruited consecutively at a maternal and child health clinic (MCHC) in

Dar es Salaam, Tanzania. A rapid diagnostic test (RDT) for malaria and dried blood spot (DBS) on filter paper were taken from each child. Social and clinical data were recorded. DNA was extracted from the DBS of study participants by a method using InstaGene™ matrix. PCR targeting the Plasmodium mitochondrial genome was performed on all samples. **Results:** Median age was 4.6 months (range 0.5-38). All the RDTs were negative. PCR was negative for all study subjects. **Conclusion:** The study suggests that asymptomatic malaria may not be present in apparently healthy children up to the age of three years in Dar es Salaam, Tanzania. However, because of the small sample size and low median age of the study population, the findings cannot be generalized. Larger studies, including higher age groups, need to be done to clarify whether asymptomatic malaria parasitaemia is present in the general population in the Dar es Salaam area.

**529. Strøm, G.E.A., Haanshuus, C.G., Fataki, M., Langeland, N., Blomberg, B. Challenges in diagnosing paediatric malaria in Dar es Salaam, Tanzania. *Malaria Journal*, 2013; 12 (1): 228.**

**Background:** Malaria is a major cause of paediatric morbidity and mortality. As no clinical features clearly differentiate malaria from other febrile illnesses, and malaria diagnosis is challenged by often lacking laboratory equipment and expertise, overdiagnosis and overtreatment is common. **Methods.** Children admitted with fever at the general paediatric wards at Muhimbili National Hospital (MNH), Dar es Salaam, Tanzania from January to June 2009 were recruited consecutively and prospectively. Demographic and clinical features were registered. Routine thick blood smear microscopy at MNH was compared to results of subsequent thin blood smear microscopy, and rapid diagnostics tests (RDTs). Genus-specific PCR of Plasmodium mitochondrial DNA was performed on DNA extracted from whole blood and species-specific PCR was done on positive samples. **Results:** Among 304 included children, 62.6% had received anti-malarials during the last four weeks prior to admission and 65.1% during the hospital stay. Routine thick blood smears, research blood smears, PCR and RDT detected malaria in 13.2%, 6.6%, 25.0% and 13.5%, respectively. Positive routine microscopy was confirmed in only 43% (17/40), 45% (18/40) and 53% (21/40), by research microscopy, RDTs and PCR, respectively. Eighteen percent (56/304) had positive PCR but negative research microscopy. Reported low parasitaemia on routine microscopy was associated with negative research blood slide and PCR. RDT-positive cases were associated with signs of severe malaria. Palmar pallor, low haemoglobin and low platelet count were significantly associated with positive PCR, research microscopy and RDT. **Conclusions:** The true morbidity attributable to malaria in the study population remains uncertain due to the discrepancies in results among the diagnostic methods. The current routine microscopy appears to result in overdiagnosis of malaria and, consequently, overuse of anti-malarials. Conversely, children with a false positive malaria diagnosis may die because they do not receive treatment for the true cause of their illness. RDTs appear to have the potential to improve routine diagnostics, but the clinical implication of the many RDT-negatives, PCR-positive samples needs to be elucidated.

530. Sudfeld, C. R., Isanaka, S., Aboud, S., Mugusi, F. M., Wang, M., Chalamilla, G. E., Fawzi, W. W. Association of serum albumin concentration with mortality, morbidity, CD4 T-cell reconstitution among Tanzanians initiating antiretroviral therapy. *Journal of Infectious Diseases*, 2013; 207(9), 1370-1378.

**Background:** Prospective studies of serum albumin concentration measurement as a low-cost predictor of human immunodeficiency virus (HIV) disease progression are needed for individuals initiating antiretroviral therapy (ART) in resource-limited settings. **Methods.** Serum albumin concentration was measured at ART initiation for 2145 adults in Tanzania who were enrolled in a trial examining the effect of multivitamins on HIV disease progression. Participants were prospectively followed for mortality, morbidity, and anthropometric outcomes at monthly visits (median follow-up duration, 21.2 months). Proportional hazard models were used to analyze mortality, morbidity, and nutritional outcomes, while generalized estimating equations were used to analyze CD4<sup>+</sup> T-cell counts. **Results.** Individuals with hypoalbuminemia (defined as a serum albumin concentration of <35 g/L) at ART initiation had a hazard of death that was 4.52 times (95% confidence interval, 3.37–6.07;  $P < .001$ ) that of individuals with serum albumin concentrations of  $\geq 35$  g/L, after multivariate adjustment. Hypoalbuminemia was also independently associated with the incidence of pulmonary tuberculosis ( $P < .001$ ), severe anemia ( $P < .001$ ), wasting ( $P = .002$ ), and >10% weight loss ( $P = .012$ ). Secondary analyses suggested that serum albumin concentrations of <38 g/L were associated with increased mortality and incident pulmonary tuberculosis. There was no association between serum albumin concentration and changes in CD4<sup>+</sup> T-cell counts ( $P = .121$ ). **Conclusions.** Serum albumin concentrations can identify adults initiating ART who are at high risk for mortality and selected morbidities. Future research is needed to identify and manage conditions that reduce the serum albumin concentration.

531. Sudfeld, C. R., Isanaka, S., Mugusi, F. M., Aboud, S., Wang, M., Chalamilla, G. E., Fawzi, W. W. Weight change at 1 mo of antiretroviral therapy and its association with subsequent mortality, morbidity, and CD4 T cell reconstitution in a Tanzanian HIV-infected adult cohort. *The American journal of clinical nutrition*, 2013; 97(6), 1278-1287.

**Background:** The development of low-cost point-of-care technologies to improve HIV treatment is a major focus of current research in resource-limited settings. **Objective:** We assessed associations of body mass index (BMI; in kg/m<sup>2</sup>) at antiretroviral therapy (ART) initiation and weight change after 1 mo of treatment with mortality, morbidity, and CD4 T cell reconstitution. **Design:** A prospective cohort of 3389 Tanzanian adults initiating ART enrolled in a multivitamin trial was followed at monthly clinic visits (median: 19.7 mo). Proportional hazard models were used to analyze mortality and morbidity associations, whereas generalized estimating equations were used for CD4 T cell counts. **Results:** The median weight change at 1 mo of ART was +2.0% (IQR: -0.4% to +4.6%). The association of weight loss at 1 mo with subsequent mortality varied significantly by baseline BMI ( $P = 0.011$ ). Participants with  $\geq 2.5\%$  weight loss had 6.43 times (95% CI: 3.78, 10.93 times) the hazard of mortality compared with that

of participants with weight gains  $\geq 2.5\%$ , if their baseline BMI was  $< 18.5$  but only 2.73 times (95% CI: 1.49, 5.00 times) the hazard of mortality if their baseline BMI was  $\geq 18.5$  and  $< 25.0$ . Weight loss at 1 mo was also associated with incident pneumonia ( $P = 0.002$ ), oral thrush ( $P = 0.007$ ), and pulmonary tuberculosis ( $P < 0.001$ ) but not change in CD4 T cell counts ( $P > 0.05$ ). **Conclusions:** Weight loss as early as 1 mo after ART initiation can identify adults at high risk of adverse outcomes. Studies identifying reasons for and managing early weight loss are needed to improve HIV treatment, with particular urgency for malnourished adults initiating ART.

532. **Sudfeld, C.R., Duggan, C., Histed, A., Manji, K.P., Meydani, S.N., Aboud, S., Wang, M., Giovannucci, E.L., Fawzi, W.W. Effect of multivitamin supplementation on measles vaccine response among HIV-exposed uninfected Tanzanian infants.***Clinical and Vaccine Immunology*,2013; 207 (8): pp. 1123-1132.

Immunization and nutritional interventions are mainstays of child health programs in sub-Saharan Africa, yet few published data exist on their interactions. HIV-exposed (but uninfected) infants enrolled in a randomized placebo-controlled trial of multivitamin supplements (vitamins B complex, C, and E) conducted in Tanzania were sampled for an assessment of measles IgG quantity and avidity at 15 to 18 months. Infants were vaccinated between 8.5 and 12 months of age, and all mothers received high-dose multivitamins as the standard of care. Of 201 HIV-exposed infants who were enrolled, 138 (68.7%) were seropositive for measles. There were no effects of infant multivitamin supplementation on measles seroconversion proportions, IgG concentrations, or IgG avidity ( $P > 0.05$ ). The measles seroconversion proportion was greater for HIV-exposed infants vaccinated at 10 to 11 months of age than for those vaccinated at 8.5 to 10 months ( $P = 0.032$ ) and greater for infants whose mothers had a CD4 T-cell count of  $< 200$  cells/ $\mu\text{l}$  than for infants whose mothers had a CD4 T-cell count of  $> 350$  cells/ $\mu\text{l}$  ( $P = 0.039$ ). Stunted infants had a significantly decreased IgG quantity compared to nonstunted infants ( $P = 0.012$ ). As for measles avidity, HIV-exposed infants vaccinated at 10 to 11 months had increased antibody avidity compared to those vaccinated at 8.5 to 10 months ( $P = 0.031$ ). Maternal CD4 T-cell counts of  $< 200$  cells/ $\mu\text{l}$  were associated with decreased avidity compared to counts of  $> 350$  cells/ $\mu\text{l}$  ( $P = 0.047$ ), as were lower infant height-for-age z-scores ( $P = 0.016$ ). Supplementation with multivitamins containing B complex, C, and E does not appear to improve measles vaccine responses for HIV-exposed infants. Studies are needed to better characterize the impact of maternal HIV disease severity on the immune system development of HIV-exposed infants and the effect of malnutrition interventions on vaccine responses.

533. **Sudfeld, C.R., Giovannucci, E.L., Isanaka, S., Aboud, S., Mugusi, F.M., Wang, M., Chalamilla, G., Fawzi, W.W. Vitamin D status and incidence of pulmonary tuberculosis, opportunistic infections, and wasting among HIV-infected tanzanian adults initiating antiretroviral therapy.***Journal of Infectious Diseases*,2013; 207 (3): pp. 378-385.

**Background:** Maintaining vitamin D sufficiency may decrease the incidence of pulmonary tuberculosis and other infectious diseases. We present the first prospective study of vitamin D among human immunodeficiency virus (HIV)-infected adults receiving antiretrovirals in sub-Saharan Africa. **Methods:** Serum 25-hydroxyvitamin D (25(OH)D) level was assessed at antiretroviral therapy (ART) initiation for 1103 HIV-infected adults enrolled in a trial of multivitamins (not including vitamin D) in Tanzania. Participants were prospectively followed at monthly visits at which trained physicians performed a clinical examination and nurses took anthropometric measurements and assessed self-reported symptoms. Cox proportional hazards models estimated hazard ratios (HRs) of morbidity outcomes. **Results:** After multivariate adjustment, vitamin D deficiency (defined as a concentration of <20 ng/mL) had a significantly greater association with incident pulmonary tuberculosis, compared with vitamin D sufficiency (HR, 2.89; 95% confidence interval [CI], 1.31-7.41; P = .027), but no association was found for vitamin D insufficiency (defined as a concentration of 20-30 ng/mL; P = .687). Deficiency was also significantly associated with incident oral thrush (HR, 1.96; 95% CI, 1.01-3.81; P = .046), wasting (HR, 3.10; 95% CI, 1.33-7.24; P = .009), and >10% weight loss (HR, 2.10; 95% CI, 1.13-3.91; P = .019). Wasting results were robust to exclusion of individuals experiencing pulmonary tuberculosis. Vitamin D status was not associated with incident malaria, pneumonia, or anemia. **Conclusions:** Vitamin D supplementation trials for adults receiving ART appear to be warranted.

**534. Sudfeld, C.R., Isanaka, S., Aboud, S., Mugusi, F.M., Wang, M., Chalamilla, G.E., Fawzi, W.W. Association of serum albumin concentration with mortality, morbidity, CD4 T-cell reconstitution among tanzanians initiating antiretroviral therapy. *Journal of Infectious Diseases*, 2013; 207 (9): pp. 1370-1378.**

**Background:** Prospective studies of serum albumin concentration measurement as a low-cost predictor of human immunodeficiency virus (HIV) disease progression are needed for individuals initiating antiretroviral therapy (ART) in resource-limited settings. **Methods.** Serum albumin concentration was measured at ART initiation for 2145 adults in Tanzania who were enrolled in a trial examining the effect of multivitamins on HIV disease progression. Participants were prospectively followed for mortality, morbidity, and anthropometric outcomes at monthly visits (median follow-up duration, 21.2 months). Proportional hazard models were used to analyze mortality, morbidity, and nutritional outcomes, while generalized estimating equations were used to analyze CD4+ T-cell counts. **Results.** Individuals with hypoalbuminemia (defined as a serum albumin concentration of <35 g/L) at ART initiation had a hazard of death that was 4.52 times (95% confidence interval, 3.37-6.07; P < .001) that of individuals with serum albumin concentrations of ≥35 g/L, after multivariate adjustment. Hypoalbuminemia was also independently associated with the incidence of pulmonary tuberculosis (P < .001), severe anemia (P < .001), wasting (P = .002), and >10% weight loss (P = .012). Secondary analyses suggested that serum albumin concentrations of <38 g/L were associated with increased mortality and incident pulmonary tuberculosis. There was no association between serum albumin concentration and changes in CD4 + T-cell counts (P = .121). **Conclusions.** Serum albumin concentrations can identify adults initiating ART who are at high risk for mortality and selected



morbidities. Future research is needed to identify and manage conditions that reduce the serum albumin concentration.

535. **Sukums, F., Mensah, N. Blank, A. Kaltschmidt, J. & Haefeli, W. Health workers' knowledge and attitudes towards computer applications in rural African health facilities. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** QUALMAT project has introduced an electronic clinical decision support system (CDSS) for antenatal and delivery care in rural primary health facilities in Burkina Faso, Ghana, and Tanzania. **Objectives:** This study aimed to understand providers' computer knowledge, experience, and attitudes prior to the implementation of the system, which are prerequisite for its successful adoption. **Methods:** A cross-sectional study with pre-post assessment in intervention and non-intervention sites is being conducted in 24 QUALMAT sites. All providers involved in antenatal care and delivery were invited. A questionnaire with demographic, professional characteristics, previous computer training, computer knowledge/experience, and a five-point Likert statement on computer attitudes was used. Chi-squared statistics for categorical variables was used to examine the relationships between the computer knowledge level and selected variables. One-way analysis of variance (ANOVA) was used to identify relationship of providers' computer attitudes with selected variables. **Results:** Of 108 participants 63% were from Tanzania while 37% from Ghana. Mean age was 37.6years and 79% were female. The providers who had some form of computer training were 29% while only 40% indicated to have ever used computers. About 80% were computer illiterate and beginners. Younger nurses had limited basic computer training or exposure during their studies. Educational level, age, and years of work experience were significantly associated to computer knowledge level. **Conclusion:** The providers had low computer knowledge hence intensive computer training and support would be required prior any implementation of an electronic system. The positive attitudes expressed by the providers are promising, strategies such as regular follow-up to identify and address challenges are required through the implementation for successful uptake.

536. **Sunguya, B.F. , Poudel, K.C. , Mlunde, L.B. , Urassa, D.P. , Jimba, M. , Yasuoka, J.Efficacy of in-service nutrition training for mid-level providers to improve feeding practices among HIV-positive children in Tanga, Tanzania: Study protocol for a cluster randomized controlled trial. *Trials*, 2013; 14 (1), 352.**

**Background:** Feeding practices and child undernutrition can be improved when trained health workers provide proper nutrition counseling to caregivers. However, this important management component is difficult to achieve in countries where trained health workers are limited; Tanzania is no exception. In rural and semi-urban areas, mid-

level providers (MLPs) are left to manage diseases such as HIV/AIDS. Training health workers in nutrition has been shown to be an effective intervention among HIV-negative children elsewhere, but no studies have been conducted among HIV-positive children. Furthermore, in Tanzania and other countries with MLPs, no evidence currently exists demonstrating an improvement in nutrition among children who receive health services given by MLPs. This study thus aims to examine the efficacy of nutrition training of MLPs on feeding practices and the nutrition status of HIV-positive children in Tanga, Tanzania. **Methods/Design:** We will conduct a cluster randomized controlled trial in care and treatment centers (CTCs) in Tanga, Tanzania. The CTCs will be the unit of randomization. We will select 16 CTCs out of 32 for this study, of which we will randomly assign 8 to the intervention arm and 8 to the control arm by coin flipping. From the selected CTCs we will attempt to recruit a total of 800 HIV-positive children aged 6 months to 14 years, half of whom will be receiving care and/or treatment in the CTCs of the intervention arm, and the other half of whom will be receiving care and/or treatment in the CTCs of the control arm (400 children in each condition). We will provide nutrition training to MLPs of the CTCs selected for the intervention arm. In this intervention, we will use the World Health Organization guidelines on nutrition training of health workers for HIV-positive children aged 6 months to 14 years. The trained MLPs will then provide tailored nutrition counseling to caregivers of children being treated at the 8 CTCs of the intervention arm. We will measure nutrition status and child feeding practices monthly for a total of six months. **Conclusions:** Results of this trial will help expanding undernutrition interventions among HIV-positive children in Tanzania and other countries. **Trial registration:** Current Controlled Trials: ISRCTN65346364.

537. **Sunguya, B.F., Poudel, K.C., Mlunde, L.B., Shakya, P., Urassa, D.P., Jimba, M., Yasuoka, J.** Effectiveness of nutrition training of health workers toward improving caregivers' feeding practices for children aged six months to two years: A systematic review. *Nutrition Journal*, 2013; 2013, 12:66.

**Background:** Nutrition training of health workers can help to reduce child undernutrition. Specifically, trained health workers might contribute to this end through frequent nutrition counseling of caregivers. This may improve child-feeding practices and thus reduce the risk of undernutrition among children of counseled caregivers. Although studies have shown varied impacts of health workers' nutrition training on child feeding practices, no systematic review of the effectiveness of such intervention has yet been reported. Therefore, we conducted this study to examine the effectiveness of nutrition training for health workers on child feeding practices including feeding frequency, energy intake, and dietary diversity among children aged six months to two years. **Methods.** We searched the literature for published randomized controlled trials (RCTs) and cluster RCTs using medical databases including PubMed/MEDLINE, CINAHL, EMBASE, and ISI Web of Knowledge, and through WHO regional databases. Our intervention of interest was nutrition training of health workers. We pooled the results of the selected trials, evaluated them using the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) criteria, and calculated the overall effect size of the intervention in meta-analyses. **Results:** Ten

RCTs and cluster RCTs out of 4757 retrieved articles were eligible for final analyses. Overall, health workers' nutrition training improved daily energy intake of children between six months and two years of age. The pooled evidence from the three studies reporting mean energy intake per day revealed a standardized mean difference (SMD) of 0.76, 95% CI (0.63-0.88). For the two studies with median energy intake SMD was 1.06 (95% CI 0.87-1.24). Health workers' nutrition training also improved feeding frequency among children aged six months to two years. The pooled evidence from the three studies reporting mean feeding frequency showed an SMD of 0.48 (95% CI 0.38-0.58). Regarding dietary diversity, children in intervention groups were more likely to consume more diverse diets compared to their counterparts. **Conclusion** and recommendations. Nutrition training for health workers can improve feeding frequency, energy intake, and dietary diversity of children aged six months to two years. Scaling up of nutrition training for health workers presents a potential entry point to improve nutrition status among children.

**538. Swai, E.C. Knowledge and perception on infant feeding options among PMTCT program nurses counselors in Dar es Salaam, Tanzania. Masters of Public Health Dissertation , 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Counseling is a professional guidance in solving personal conflicts and emotional problems, also counseling is an act of exchanging opinions and ideas. Quality counseling is the central to successful infant feeding practices, the HIV infant feeding guidelines emphasize that the counseling should be based on the principle of informed choice. HIV-positive women should be given the best available information on the risk and benefits of each infant feeding method with the specific guidance in selecting the option most likely to be suitable for women's situation. Nurse counselors being the major group counseling women at the PMTCT programs in Tanzania carry the heavy burden of informing women about HIV status and about the precaution on the prevention of HIV transmission. **Objectives:** The main objective was to assess the knowledge and perception on recommended infant feeding options among nurse counselors working in PMTCT program in Dar es salaam, Tanzania. **Methods** Descriptive, cross-sectional study using both quantitative and qualitative method was used in assessing knowledge and perception of Nurses counselors in PMTCT program in Dar es Salaam on recommended infant feeding options. Self-administered, structured questionnaires and Focused Group Discussion were used. Study sample consisted of eighty five Nurse Counselors working from public and private PMTCT clinics in Dar es salaam City. **Results:** Study findings showed that there are few nurse counselors are trained in Infant feeding options for HIV-positive women; meanwhile up-to-date counseling training for that purpose is non-existing. Nurse counselors have limited knowledge on infant feeding options hence insufficient information is shared to HIV positive women on how best way to feed infants. Despite that, nurse counselors rated themselves as competent in Infant feeding options with low perception in their competence and performance as PMTCT counselors. Employers do not provide enough support in job aids to enable counselors perform their job well. Consequently, the quality of infant feeding counseling to HIV positive women is jeopardized. Furthermore,

nurse counselors have negative perception on suitability for some of WHO recommended infant feeding methods for infants born with HIV positive women in particular Wet nursing and Heat treated expressed Breast milk. **Conclusion:** This study clearly shows that, few nurse counselors are trained in Infant feeding Options for HIV positive women. Also the health care system does not provide the guideline on up to date training on such counseling services. Ministry of health should collaborate with PMTCT partners to develop the on job training on infant feeding counseling and distribute job aid in order to improve the quality services to HIV positive mothers as per WHO recommended infant feeding options. **Recommendations.** Dar es salaam based health care facilities owners should train nurse counselors regularly on infant feeding options in order to improve the quality of service delivery on PMTC related services. Employers should provide nurse counselors with enough job Aids and other form of support needed as well as learning and teaching materials that will enable them to stay abreast with up-to-date knowledge on HIV and AIDS .Workloads due to chronic shortage of human resources for health services provision is a serious problem resulting in poor quality of health services. Increase in human resources for health services provision (both number and skill) is an urgent priority for improved quality and scale up of health services (including PMTCT program) in Dar essalaam. Information and education on recommended infant feeding option as well as ways of alleviating stigma related to some of those options must be given priority in PMTCT programs to address issues of negative perception of nurse counselors on WHO recommended infant feeding options.

**539. Swai, M.P. Men's Knowledge on Danger Signs of Obstetric Complications: The Case of Musoma District, Mara region- Tanzania. Master of Public Health Dissertation , 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

Studies have contributed to determine the status of women's knowledge over the dangersigns of obstetrics complications. But this study aimed at determining the status of knowledge and awareness of the danger signs of obstetric complications amongst men and to identify associated factors. A cross sectional study conducted in Musoma district in Mara region, where a total of 306 adult men whose female partners delivered a baby in the preceding year of the study were interviewed. Consecutive house to house survey was done to achieve study sample size. Logistic regression model was fitted to determine the association between knowledge of danger signs of obstetric complications against a set of possible determinants while controlling for confounding and clustering effect. This study revealed that 32% of men were found to have knowledge of danger signs of obstetric complications. In addition 45% of men who attending ANC clinic and received health talk were found to be knowledgeable than those who do not (p- value 0.044). The likelihood of knowledge of danger signs of obstetric complications increased two folds higher for men who accompanied their spouses to the post-natal clinics (OR 1.88, p- value 0.054). Men who were able to write and read were 50% higher the likelihood of having knowledge on danger signs of obstetric complications than those who were illiterate (OR 1.49, 95%, CI, p-value 0.004). There were no observed relations when knowledge of danger signs was compared with age of respondents, level

of education, ability to read and write duration and types of relationship and preparations prior delivery. Thus there is need to expand investment in educating men, so that more men are informed of the correct information regarding danger signs of obstetric complications. That will improve on informed decisions which positively impact to reduce maternal mortality and morbidity. However, this study recommends the use of media and particularly radio to expedite dissemination of educative messages to reach more men.

- 540. Kaaya, S.F., Blander, J., Antelman, G., Cyprian, F., Emmons, K.M., Matsumoto, K., Chopyak, E., Levine, M., Fawzi, M.C.S., Randomized controlled trial evaluating the effect of an interactive group counseling intervention for HIV-positive women on prenatal depression and disclosure of HIV status. 2013; *AIDS care*, 25(7), 854-862.**

The objective of the study was to assess the effectiveness of group counseling, using a problem-solving therapy approach, on reducing depressive symptoms and increasing prenatal disclosure rates of HIV status among HIV-positive pregnant women living in Dar es Salaam, Tanzania. A randomized controlled trial was performed comparing a six-week structured nurse-midwife facilitated psychosocial support group with the standard of care. Sixty percent of women in the intervention group were depressed post-intervention, versus 73% in the control group [Relative Risk (RR) = 0.82, 95% confidence interval (CI): 0.67–1.01,  $p=0.066$ ]. HIV disclosure rates did not differ across the two study arms. However, among those women who disclosed, there was a significantly higher level of overall personal satisfaction with the response to disclosure from family and friends among women in the treatment (88%) compared to the control group (62%;  $p=0.004$ ). The results indicate reductions in the level of depressive symptoms comparable with major depressive disorder (MDD) for HIV-positive pregnant women participating in a group counseling intervention. Although the psychosocial group counseling did not significantly increase disclosure rates, an improvement in the level of personal satisfaction resulting from disclosure was associated with the intervention. This suggests that the counseling sessions have likely reduced the burden of depression and helped clients better manage partner reactions to disclosure. Public agencies and non-governmental organizations working in Tanzania and similar settings should consider offering structured psychosocial support groups to HIV-positive pregnant women to prevent poor mental health outcomes, promote early childhood development, and potentially impact HIV-related disease outcomes in the long term.

- 541. Talukdar, A. The pelvic ultrasound findings among patients presenting with lower abdominal pain at gynaecology clinics at Muhimbili National Hospital Master of Medicine (Radiology) Dissertation 2013. *Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

**Background:** In women of reproductive age group pain in the lower abdomen can be due to various reasons and can be attributed to a number of underlying illnesses. Lower abdominal pain is not only caused by simple problems like normal menstrual period;

however, it could be a sign of another more serious illness. Acute and chronic pelvic pain accounts for almost 50% of all gynaecologic outpatient visits around the world. Chronic pelvic pain is a common and disabling condition that is defined as non-menstrual pain of at least 6 months duration. The prevalence of chronic pelvic pain is 15% in women between the ages of 18 and 50 years. Chronic pelvic pain accounts for 10%–40% of all gynaecologic outpatient visits. In the United States, 35% of diagnostic laparoscopies and 15% of all hysterectomies are performed because of chronic pelvic pain. Ultrasound is an important tool of investigation where clinician suspects there is a pathology causing lower abdominal pain or to rule out other several differential diagnosis. An early detection of the pathology can take an important role in the management of the disease. **Objectives:** To determine the pelvic ultrasound findings in the patients presenting with lower abdominal pain at GOPD, MNH, from July – December 2012. **Methodology:** This was a hospital based descriptive cross sectional study whereby a convenient sample of 300 patients was obtained from those patients between 14 – 49 years of age with lower abdominal pain who were referred to undergo ultrasound examination by the gynaecologist from GOPD, MNH, Dar es salaam, Tanzania from July to October 2012. The choice of investigation was pelvic ultrasound. The collected data was analyzed using SPSS version 16. Result: A total of 300 patients participated in this study. The most frequent ultrasound findings were uterine fibroid, ovarian cyst, pelvic inflammatory disease, carcinoma of cervix and tubo-ovarian mass etc. **Conclusion:** In conclusion, abdominal ultrasound in patients with lower abdominal pain attending GOPD at MNH revealed a significant prevalence (85.7%) of abnormalities like uterine fibroid, ovarian cyst, pelvic inflammatory disease, carcinoma of cervix, tubo-ovarian mass. **Recommendations:** A mandatory ultrasonography examination should be done for all the patients presenting with lower abdominal pain attending the first day of gynecology clinic at MNH. Similar studies should be done to correlate ultrasonography findings with post laparotomy or laparoscopy findings. Community based similar studies should be done on all women with even larger sample size.

**542. Tarimo, A.N. Factors influencing uptake of antiretroviral therapy among TB/HIV co-infected patients attending tb and HIV clinics in Temeke municipality Dar esSalaam, Tanzania. Master in Public Health Dissertation, 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** HIV/AIDS and Tuberculosis diseases are disturbing each other, while TB is the most common opportunistic infection among PLHIV meanwhile HIV/AIDS is the most risk factor for the progression from latent TB into active or recurrent TB. The two diseases have accounted for the increased morbidity and mortality in the community. The ARVs uptake among TB/HIV patients in the country is 35% as compared to WHO target of above 80%. The MOHSW in collaboration with stakeholders since 2007 have launched several strategies to mitigate this problem in the country however no substantial outcome has been achieved so far in terms of ARVs uptake among co-infected patients. **Objective:** The study was aimed at describing individual factors that influence the ARVs uptake among patients with Tuberculosis and HIV/AIDS co – infections, particularly on characteristics such as socio- economic, Accessibility and

availability of ARVs services and Patient's awareness and perceptions on ARVs for TB/HIV clinics in Temeke Municipality. **Material and methods:** This cross sectional study was done in high burden TB and HIV area in Temeke, Three health facilities in Mbagala, Kigamboni and Temeke were purposely selected based on patients load and accessibility of ARVs Services. A sample size of 183 TB/HIV co-infected patients were enrolled in this study, data were collected through semi-structured questionnaires, while SPSS version 17 were deployed for data entry, cleaning and analysis. **Results:** A total of 183 TB/HIV co-infected patients in which 50% were from Mbagala hospital were interviewed with the mean age of 40.5 years (ranging from 13 to 67 years). Out of these 165(90.2%) had reported to take ARV and TB medications concomitantly. There was no significant relationship between level of education and ARVs uptake [OR=0.4]. Majority 163 (98.8%) out of 165 patients were satisfied with health care services provided particularly flexibility at clinic (89.3%), availability of health care providers (91%). The study also found among 165 patients who took ARVs, 81.2% had good awareness on the importance of ARVs and by regression analysis patients who had knowledge on ARVs were 4 times likely to adhere to ARVs than those who had no knowledge (OR=3.9, P=0.02), further study found 171(93.3%) out of 183 patients held a perceptions that integrating of TB and HIV services under one unit is of major importance, particular reducing waiting time(43%) and improve privacy(26%) .On the general patient view on ARVs medications 106 (61%) out of 169 respondents understand that ARVs prolong life and reduce possibilities of acquiring opportunistic infections **Conclusion:** Anti-retro viral uptake among TB/HIV co-infected patients is high and is extensively associated with high awareness and perceptions on ARV medication indeed also the provision of health care provided at the clinic. There is need for further search to explore more on how institution or management factors influence utilization of ARV services among TB/HIV co-infected.

543. Tarimo, E.A.M., Kohi, T.W., Bakari, M., Kulane, A. A qualitative study of perceived risk for HIV transmission among police officers in Dar es Salaam, Tanzania. *BMC Public Health*, 2013; 13 (1): pp 1-9 .

**Background:** Understanding people's views about HIV transmission by investigating a specific population may help to design effective HIV prevention strategies. In addition, knowing the inherent sexual practices of such a population, as well as the risky circumstances that may facilitate HIV transmission, is crucial for the said strategies to become effective. In this article, we report how police officers in Dar es Salaam, Tanzania, perceived the problem of HIV and AIDS in their local context, particularly in relation to unsafe sexual practices. The study was done with the view to recommending ways by which HIV transmission could be minimised within the police force. **Methods.** The study was conducted among members of the police force in Dar es Salaam, Tanzania. Eight focus group discussions (FGDs) were conducted, with a total of 66 participants who were mixed in terms of age, gender, and marital status. Some of these were caregivers to patients with AIDS. Data were analysed using the interpretive description approach. **Results:** The participants believed that both individual sexual behaviour and work-related circumstances were sources of HIV infection. They also admitted that they were being tempted to engage in risky sexual practices because of the

institutional rules that prohibit officers from getting married during their training and for three years after. Nevertheless, as members of the Police Force, they stressed the fact that the risky sexual behaviour that exposes them to HIV is not limited to the force; it is rather a common problem that is faced by the general population. However, they complained, the nature of their job exposes them to road accident victims, subjecting them further to possible infection, especially when they have to handle these road accident casualties without proper protective gear. **Conclusion:** Individual sexual behaviour and job-related circumstances are worth investigating if proper advice is to be given to the police regarding HIV prevention strategies. In order to improve the lives of these police officers, there is a need to review the existing institutional rules and practices to accommodate individual sexual needs. In addition, improving their working environment may minimize the risk of HIV transmission from handling casualties in emergency situations.

**544. Tarimo, R B. Phytochemical and pharmacological studies of *Mammea Usambarensis*. Master of Science in Traditional Medicine Development Dissertation. 2013 . Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

This study focused on the investigation of antimicrobial, antioxidant and cytotoxicity properties of constituents of *M. usambarensis* Verdc. The study involved extraction, bioassays, isolation and identification of compounds obtained from stem and root barks. All extracts exhibited antimicrobial activity to at least one microorganism among the tested microbes. In the disc diffusion test, the activity was shown only to *B. anthracis*, *S. typhi*, *V. cholerae*, *P. aeruginosa*, *B. cereus*, *S. pyrogens* and *S. aureus* with inhibition zone values range 13.7-21.7 mm while minimum inhibitory concentration (MIC) values ranged 0.04 - 5.0 mg/ml. The MIC values of the crude extracts of both root bark and stem bark ranged 0.63-2.5 mg/ml against the tested organisms. VLC fractions of the root bark and stem bark ethanol extracts showed a significant increase in activity. The dichloromethane VLC fractions (root and stem barks) and the petroleum ether VLC fractions (stem bark) were the most active with the lowest MIC value of 0.04 mg/ml against *Staphylococcus aureus*. Furthermore, results from the above VLC fractions have shown strong activity against *E. coli*, *B. cereus*, *S. pyrogens* (MIC values of 0.31 mg/ml) and *V. cholerae* (MIC value of 0.06 mg/ml). However, all crude extracts and their VLC fractions showed weak activity against *Candida albicans* and *Cryptococcus neoformans* with MICs value 2.50 mg/ml. In the antioxidant assay using DPPH scavenging radicals, the results showed that the 80% ethanol crude extract of the stem bark to have strong scavenging activity of  $6,241 \pm 114 \mu\text{mol TE/g}$  while the standard (chlorogenic acid) was  $2992 \pm 56 \mu\text{mol TE/g}$ . In the brine shrimp lethality test using *Artemisia salina*, the crude extracts of both stem and root barks as well as the corresponding VLC fractions were found to be very toxic with their  $\text{LC}_{50}$  values being below that of the anticancer drug, cyclophosphamide (16.37  $\mu\text{g/ml}$ ) whereas the methanol root extract had a mild toxicity (62.82  $\mu\text{g/ml}$ ). In particular, the VLC fractions of the stem bark of dichloromethane and petroleum ether indicated  $\text{LC}_{50}$  values of 0.57 and 0.56  $\mu\text{g/ml}$  respectively. The phytochemical analysis of the VLC fractions of both dichloromethane and petroleum ether from the stem bark of *M. usambarensis* led to the isolation of three pure



compounds. Following spectroscopic analysis and structure elucidation led to the identification of three mammea-type coumarins, namely mammea B/BB (**I**), mammea E/BB (**II**) and mammea B/BD (**III**). From the dichloromethane VLC fractions of the root bark only compound **I** was isolated. Compound **I** showed a moderate antimicrobial activity against the tested microbes with MIC value of 0.63 mg/ml while other compounds **II** and **III** were not tested due to the small amount isolated. In the antioxidant test, compounds **I** and **II** indicated the DPPH scavenging activity at  $1339 \pm 164 \mu\text{mol TE/g}$  and  $1409 \pm 84 \mu\text{mol TE/g}$  respectively. In conclusion, The antimicrobial results were significant, suggesting possibility of getting a very promising antimicrobial drug or lead compounds. Also the BST results were observed to be highly toxic suggesting the extracts to have potential to yield cytotoxic compounds and possibly anticancer drugs. Additionally, Formulation of an active antioxidant herbal product through mixing pure compounds and active extracts in standardized ratios is recommended. Thus, further study using *in vivo* models for the extracts is needed to confirm their significance in the treatment of many diseases.

**545. Temba, H. Attrition and its associated factors among clients not on antiretroviral treatment registered in Care and Treatment Centres in Morogoro Region. Master of Science (Applied Epidemiology). Dissertation . 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Despite significant success in scaling up care and treatment programmes in Tanzania, still the majority of people living with HIV (PLHIV) do not access HIV care and treatment. Successfully enrolled PLHIV in care and treatment are lost at every step along the continuum of care, particularly in the period between HIV diagnosis and initiation of ART. This study aims at determining factors associated with attrition among Pre Art adults in HIV/AIDS care and treatment centres (CTC). **Methods :** We conducted a clinic based retrospective cohort study that involves review of data from Pre ART adult clients ( $\geq 15$ years) register and client treatment card number 2 (CTC 2 card) at three CTCs in Morogoro from July, 2010 to July 2011. Client baseline characteristics and clinic attendance status at three months interval for a period of 1 year were abstracted using semi structured questionnaire. Pre ART clients who were not in care at their original sites at 1 year of follow up were traced through home based care volunteers and phone calls. Correlates of loss to care were evaluated using logistic regression analysis. Epi info statistical software was used for analysis. **Results:** A total of 369 clients were enrolled in CTC in July 2010 of whom 351 were enrolled in the study. Majority 190(54.1%) of study participants were not ART eligible at enrolment to CTC and only 92(57.1%) of the 161 (45.9%) ART eligible clients were initiated on ART. Only 67(28.7%) of the 234 Pre ART clients were still in care at 1 year of follow up. Overall Pre ART attrition from mortality, opted out of care clients and lost to follow up was 87 (37.2%). Controlling for age and sex referral to CTC by health care provider (AOR = 2.5, 95%CI: 1.26 – 5.02) and self stigma (AOR = 5.9, 95%CI; 2.82 – 12.7] were independent risk factors for Pre ART attrition while Client CD4 count check as scheduled on last visit was protective against Pre ART attrition. Other factors were not statistically significant in multivariate analysis. **Conclusion:** Attrition due to mortality and opt out of care is high among CTC enrolled clients. Majority of death were among

ART eligible clients who were not initiated treatment. Self stigma and patients referred to CTC by health care providers were risk for attrition among Pre ART adults enrolled at participated CTCs. Strengthening of CD4 count check to monitor clients as they become eligible for ART as well as prioritizing ART initiation for those clients who are ART eligible in order to minimise Pre ART attrition from mortality and drop out is recommended. Also improvement in linkage between CTC to reduce silent transfers and counselling to PLHIV to disclose their HIV status as this will reduce self stigma is also recommended.

**546. Tesha, J.O. Assessment of alcohol drinking pattern and knowledge of its effects on sexual behaviour among secondary school students in Kinondoni municipality. Master of Public Health Dissertation , 2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Alcohol drinking is gaining prominence among young people in Tanzania. However, one wonders whether these young people are knowledgeable of the effects of alcohol drinking on their sexual behaviour. Little is known on alcohol drinking pattern and the level of knowledge of secondary school students on effects of alcohol use on their sexual behaviour. **Objectives:** This study aimed to find out the alcohol drinking pattern and knowledge of its effects on sexual behaviour among secondary school students in Kinondoni Municipality and the objectives of the study were: (1). To determine the alcohol drinking patterns among students (2). To determine the pattern of sexual behaviour among students (3). To determine the level of knowledge on the effects of alcohol drinking on sexual behaviour among students and (4) To establish the relationship between level of knowledge on the effects of alcohol drinking and risky sexual behaviours among students. **Methodology:** A cross sectional study was carried out on a sample of 315 students. Selection of the sample was by random sampling of students from Forms one to three in eight (8) registered secondary schools in Kinondoni Municipality. The schools were selected by random sampling from a list of registered government and private secondary schools in the Department of Secondary Education. The data was collected using self-administered structured questionnaires. **Results:** A total of 315 secondary school students participated in this study. Furthermore, 150 (47.6%) students were girls, and boys were 165 (52.4%). The majority 26 (39.4%) indicated that they had their first drink of alcohol at the age between 10 – 11 years, of whom boys were 18 (69.2%) as compared to girls who were 8 (12.1%). Findings show that 237 (75.2%) of respondents had high knowledge on the effects of alcohol drinking on sexual behaviour as compared to and 78 (24.8%) who had low knowledge. In terms of patterns of sexual behavior, 37 (11.7%) of respondents admitted that they had engaged in sexual intercourse whereby 31 (18.8%) were boys, and 7 (4.0) were girls and as compared to 88.3% who had not engaged in sexual intercourse. In terms of the relationship between level of knowledge on effects of alcohol drinking on sexual behaviour and socio-demographic variables, findings show that slightly more than half of the respondents, 119 ( 51%), who were aged between 15 – 16 years had high knowledge. The findings also highlight that the majority of Form 3 students 99 (41.8%) had high knowledge. There was statistical evidence to conclude that the level of knowledge on the effects of alcohol drinking on sexual behaviour is related to the

class/grade level of the students ( $p = 0.018$ ). Moreover, there was statistical evidence to conclude that the level of knowledge on the effects of alcohol drinking on sexual behaviour is related to whether the students stayed with both parents, one parent or guardians. ( $p = 0.042$ ). **Conclusions:** The study revealed that the level of knowledge on effects of alcohol drinking on sexual behaviour increased with advancing classes in secondary education. **Recommendations:** Young people should be provided with alcohol prevention information, education and communication interventions. The interventions are critical in enabling them not to become engaged in underage alcohol drinking. Emphasis should be placed both in knowledge acquisition and behavior change.

**547. Tibalinda, P., Kaale, E., Haefele-Abah, C., Schumacher, F. & Hamacher, H. Formulation of a pediatric Lamivudine, Abacavir and Nevirapine Individualized combination suspension. Tanzania 1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.**

**Background:** The Lamivudine, Abacavir and Nevirapine (LAN) liquid formulations have been individually used in the current regimens for the management of HIV/AIDS in pediatric patients. According to the current WHO algorithm for the management of HIV/AIDS, a full regimen should consist of three drugs with different mode of actions taken concurrently as for LAN. **Objectives:** Pediatric preparations present a big formulation challenge to the Pharmaceutical industries especially for LAN Combination as Nevirapine is prescribed per body surface area whereas Lamivudine and Abacavir per body weight. Because of insufficient data, hospitals cannot compound a triple combined antiretroviral suspension. A study was undertaken, in which the challenges of the compounding of LAN, stability and compatibility were scientifically reviewed. **Methods:** Three registered tablet formulations were used as starting materials. The composites were prepared from which the aliquots were drawn for the chemical compatibility at 50 °C / 75% relative humidity and in-use stability studies at 30 °C / 75% relative humidity. The analysis was conducted using an in-house developed and validated stability indicating analytical method. **Results:** The extemporaneous formulation prepared revealed adequate stability and compatibility for a period of 42 days. **Conclusion:** LAN is stable in suspension. These findings will help the hospitals to compound LAN for the children of 3 – 24 Kg, reduce the number of bottles to one per month, increase adherence to the medication and chances to compound other drugs in combination form.

**548. Todd, J., Riedner, G., Maboko, L., Hoelscher, M., Weiss, H.A., Lyamuya, E., Mabey, D., Rusizoka, M., Belec, L., Hayes, R. Effect of Genital Herpes on Cervicovaginal HIV Shedding in Women Co-Infected with HIV AND HSV-2 in Tanzania *PLoS ONE*, 2013; 8 (3): e59037.**

**Objectives:** To compare the presence and quantity of cervicovaginal HIV among HIV seropositive women with clinical herpes, subclinical HSV-2 infection and without HSV-

2 infection respectively; to evaluate the association between cervicovaginal HIV and HSV shedding; and identify factors associated with quantity of cervicovaginal HIV. Design: Four groups of HIV seropositive adult female barworkers were identified and examined at three-monthly intervals between October 2000 and March 2003 in Mbeya, Tanzania: (1) 57 women at 70 clinic visits with clinical genital herpes; (2) 39 of the same women at 46 clinic visits when asymptomatic; (3) 55 HSV-2 seropositive women at 60 clinic visits who were never observed with herpetic lesions; (4) 18 HSV-2 seronegative women at 45 clinic visits. Associations of genital HIV shedding with HIV plasma viral load (PVL), herpetic lesions, HSV shedding and other factors were examined. **Results:** Prevalence of detectable genital HIV RNA varied from 73% in HSV-2 seronegative women to 94% in women with herpetic lesions (geometric means 1634 vs 3339 copies/ml,  $p = 0.03$ ). In paired specimens from HSV-2 positive women, genital HIV viral shedding was similar during symptomatic and asymptomatic visits. On multivariate regression, genital HIV RNA (log<sub>10</sub> copies/mL) was closely associated with HIV PVL ( $\beta = 0.51$  per log<sub>10</sub> copies/ml increase, 95%CI:0.41-0.60,  $p < 0.001$ ) and HSV shedding ( $\beta = 0.24$  per log<sub>10</sub> copies/ml increase, 95% CI:0.16-0.32,  $p < 0.001$ ) but not the presence of herpetic lesions ( $\beta = -0.10$ , 95%CI:-0.28-0.08,  $p = 0.27$ ). **Conclusions:** HIV PVL and HSV shedding were more important determinants of genital HIV than the presence of herpetic lesions. These data support a role of HSV-2 infection in enhancing HIV transmissibility

- 549. Tomori, C., Francisco, L.V., Kennedy, C.E., Kajula-Maonga, L., Likindikoki, S., Babalola, S.OBeckham, S.W., Mbwambo, J.K., Kerrigan, D.L.**The changing cultural and economic dynamics of polygyny and concurrent sexual partnerships in Iringa, Tanzania. *Global Public Health*, 2013; 8 (7): pp. 857-870.

Polygyny has been identified both as a 'benign' form of concurrency and as the cultural basis of concurrent partnerships that are considered important drivers of the HIV epidemic in sub-Saharan Africa. This paper investigates the changing cultural and economic dynamics of polygyny in concurrency in Iringa, Tanzania, a region with traditions of polygyny and high prevalence of HIV. Our analysis of focus group discussions, in-depth interviews and key informant interviews indicate that contemporary concurrent partnerships differ from regional traditions of polygyny. Whereas in the past, polygyny reflected men's and their kin group's wealth and garnered additional prestige, polygyny today is increasingly seen as a threat to health, and as leading to poverty. Nevertheless, participants evoked the social prestige of polygyny to explain men's present-day concurrency, even outside the bounds of marriage, and despite continued social prohibitions against extramarital affairs. Difficult economic conditions, combined with this prestige, made it easier for men to engage in concurrency without the considerable obligations to wives and children in polygyny. Local economic conditions also compelled women to seek concurrent partners to meet basic needs and to access consumer goods, but risked greater moral judgement than men, especially if deemed to have excessive 'desire' for money.

- 550. Tomori, C., Kennedy, C.E., Brahmhatt, H., Wagman, J.A., Mbwambo, J.K., Likindikoki, S., Kerrigan, D.L.**Barriers and facilitators of retention in HIV care

**and treatment services in Iringa, Tanzania: the importance of socioeconomic and sociocultural factors.***AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV*, 2013. 1-7.

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.

**551. Tumaini, N., Gasto, F., Mwangu, M., Hurting, A. Achievements and Challenges of Resource Allocation for Health in a Decentralized System in Tanzania: Perspectives of National and District Level Officers. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Currently most countries worldwide distribute resources on the basis of relative needs of care, that is – they follow the principle of population health approach to resource allocation. The basic principle of such formulae is that public sector health care resources should be apportioned between districts according to the relative need for health services in each district. **Objectives:** The goal of this study was to identify achievements and challenges of resource allocation process in decentralized health system in Tanzania as perceived by national and district level officers. **Methods:** Data were collected through in-depth interviews with 25 key persons involved in policy, planning and management aspects for allocation of financial resources from the central government to local government districts. Data were analyzed manually using a

qualitative content analysis. **Results:** The study has identified achievements and challenges of resources allocation in a decentralized health system of Tanzania. The achievements include: the design and use of 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. Identified challenges include: disbursed funds fall far short of centrally determined budget ceilings, and the funds are sent late; Council Health Management Teams develop budget but restricted on percentage allocated to different levels – including severe under-funding of disease prevention and health promotion initiatives at the community level. **Conclusion:** This study has identified achievements that should further be nurtured and challenges that should be worked on for improvement of the decentralized health system. we recommended that equitable allocation of resources should go beyond recurrent costs for delivery of health services.

**552. Tumaini, N. Gender context of sexual violence and HIV sexual risk behaviors amongst married persons in Iringa region, Tanzania. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**

**Background:** Previous studies in Tanzania (WHO, 2005 and McCloskey, 2005) have exposed the existence of physical and sexual violence against women. However, little is known about the gender context of sexual violence and whether it is associated with high risk sexual behavior which may be contributing to the transmission of HIV – particularly so in marriage. **Objectives:** This study sought to examine the relationship between gender attitudes on one hand and sexual violence and associated high risk sexual behavior on the other, among married/ cohabiting persons. **Methods:** This study was carried out using both quantitative and qualitative approaches of data collection. Qualitative and quantitative data were collected using FGD guide and a structured questionnaire respectively. Predictor variable was sexual violence and outcome variable is high risk sexual behavior (non-use of condom during penile vaginal / penile anal sex, having sex while drunk, sex with non-regular/ marital partner). **Results:** The findings have revealed that men consider their wives as sexual objects. And consequently, women in marriage are forced to have sex even when they do not want to. One hundred and six (26.7%) of the women study sample, pointed out that they were sexually abused, i.e. they were made to have sex when they did not want to in the twelve months preceding the study. Furthermore, more than half (52.8%) of the female respondents who were made to have sex when they did not want to also admitted that their spouses did engage in sexual intercourse with extramarital partners (p < 0.05). **Conclusion:** In conclusion, this study has demonstrated that a substantial proportion of women experience physical and sexual violence. And their HIV risk is high because their husbands engage in unprotected intra- and extra marital sex. Further that this ugly scenario is attributed to deeply rooted masculinity attitudes that view a married woman as her husband's property and sexual object. It is recommended that there is need to have couple counseling program for healthy sexual relationships in marriage

553. **Tungu, A.M., Bråtveit, M., Mamuya, S.D., Moen, B.E** Fractional exhaled nitric oxide among cement factory workers: A cross sectional study. *Occupational and Environmental Medicine*, 2013; 70 (5), pp. 289-295.

**Background:** It has been suggested that dust exposure causes airway inflammation among cement factory workers. However, there is limited information on the mechanisms of this effect. We explored any associations between total dust exposure and fractional exhaled nitric oxide (FENO) as a marker of airway eosinophilic inflammation among cement production workers in Tanzania. We also examined possible differences in FENO concentration between workers in different parts of the production line. **Methodology:** We examined 127 cement workers and 28 controls from a mineral water factory. An electrochemistry-based NIOX MINO device was used to examine FENO concentration. Personal total dust was collected from the breathing zone of the study participants using 37 mm cellulose acetate filters placed in three-piece plastic cassettes. Interviews on workers' background information were conducted in the Swahili language. **Results:** We found equal concentrations of FENO among exposed workers and controls (geometric mean (GM)=16 ppb). The GM for total dust among the exposed workers and controls was 5.0 and 0.6 mg/m<sup>3</sup>, respectively. The FENO concentrations did not differ between the exposed workers with high (GM≥5 mg/m<sup>3</sup>) and low (GM<5 mg/m<sup>3</sup>) total dust exposure. There was no significant difference in FENO concentration between workers in the two main stages of the cement production process. **Conclusions:** We did not find any difference in FENO concentration between dust-exposed cement workers and controls, and there were similar FENO concentrations among workers in the two main stages of cement production.

554. **Ubuguyu O.** Quality of life among people who inject drugs attending Methadone Clinic In Dar es Salaam, Tanzania. Master of Medicine (Psychiatry and Mental Health). Dissertation. 2013. *Muhimbili University of Health and Allied Sciences. Dar es Salaam.*

**Introduction:** Injecting drug use is one of the emerging public health challenges that Sub-Saharan Africa is facing today. Most people who injecting drug (PWIDs) succumb to poor health conditions, including physical health, mental health and other social disadvantages. This is mostly due to dependency and other risky health behaviours which may include trading sex for drugs or money to buy drugs, sharing needles, injecting equipments or blood itself through “flash blood” or “vijipointi” injecting practises. Methadone Assisted Therapy (MAT) reduces dependency to opioid and therefore establishment of methadone clinic established at Muhimbili National hospital (MNH) two years ago with other interventions aim at reducing these risks and hence improves quality of life in this subpopulation. **Objectives:** This study was designed to examine the Health Related Quality of Life (HRQOL) of people who inject drugs (PWIDs) attending Methadone clinic at Muhimbili National Hospital. Understanding clients' own perspective of what changes have occurred and what those changes mean to their wellbeing was another important aspect of this study so as client centred approach should be applied when addressing their needs. **Methods:** This was a pre-post longitudinal study and qualitative data collection method. Archived clients records were

retrieved to obtain assessment information from electronic and paper database systems. Out of 385 clients records utilized at the baseline, 293 were compared to assess the change on HRQOL. A total of 21 participants were recruited for in depth interviews and focus group discussions. SF 12 MOS quality of life survey version 1 was used for assessment of HRQOL. Paired Student t – Test and Independent t – Test were used to compare the mean of HRQOL of participants before and after methadone treatment and to compare the mean HRQOL score of participants and known Normative HRQOL of standard Dar es Salaam population. Multiple linear regression analysis was conducted to examine the associations between HRQOL and socio–demographic factors, physiological and addiction related function factors. **Results** A total of 385 of clients' record were reviewed of which 348 (90.4%) were male. Only 293 (76.1%) of those records were re-evaluated after initiation of methadone treatment due to various reason related to loss to follow up or poor quality of data. Male participants were older with the mean age of 34.12 years as compared to that of female of 30.43 years ( $p < 0.001$ ). Overall HIV prevalence was 47.7% and that of female and male participants being 67.6%, 31.9% respectively, this difference between the two prevalence was statistically significant ( $p < 0.001$ ). There was statistically significant lower prevalence of hepatitis B (18.9% vs. 22.1%,  $p = 0.012$ ) and C (24.3% vs. 43.4%,  $p = 0.012$ ) for female participants as compared to their male counterparts. The mean scale score for all domains of HRQOL for PWIDs after methadone treatment were higher than before initiation of treatment. These were also higher than those of general population for Dar es Salaam except for social function scale where there was no difference and for general health scale in which the general population had a higher score. Increase in number of working days improved both Physical and Mental Composite Scale score by 0.132 and 0.131 standard units respectively. In addition, an increase in number of cognitive deficits impaired Physical Composite Scale score by 0.146 standard units while an increase in number of psychotic experiences impaired Mental Composite Scale score by 0.133 standard units. Moreover, participants appreciated the changes in various aspects of their lives such as health, safety, housing and majority of them associated poor health outcome in various areas of function with inability to control symptoms of heroin dependence. **Conclusion:** Methadone assisted therapy improves Health Related Quality of Life of people who inject drugs. Clients appreciated the impact methadone therapy has on many areas of their lives, not limited to physical and mental health. Having a job improves both physical and mental components of quality of life whereas experiencing psychotic symptoms affect mental component and having cognitive impairment affect physical component of Quality of Life. **Recommendation:** Scaling up of Methadone assisted therapy is needed to improve HRQOL of people who inject drugs. Thorough mental state examination and feasible occupational or income generating scheme needs to be designed to ensure the comprehensive nature of the intervention for better outcome of PWIDs. Further and bigger evaluation studies using extensive tools and large numbers of participants are required to exploring the dynamics of heroin addiction in this virgin community.

555. **Urio L. J.E., valuation of hiv antigen and antibody combination elisas for diagnosis of hiv infection in dar es salaam, tanzania, 2012. 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.**



**Background:** Fourth generation HIV screening assays permit simultaneous detection of HIV antigens and antibodies and reduce the diagnostic period on average by seven days. New antigen/antibody combination ELISAs have been introduced for screening of blood donors and clinical samples and are commercially available. A new antigen/antibody combination HIV ELISA, Enzygnost HIV Integra II, has been introduced in the market since 2009, and has never been evaluated. Currently, there is validated national HIV ELISA testing algorithm in place. **Objectives:** To evaluate performance and operational characteristics of HIV-antigen/antibody combination ELISAs as well as to formulate HIV ELISA testing algorithms that could be used as an alternative HIV testing strategy for laboratory diagnosis of HIV infection in Tanzania. **Methods:** Laboratory-based evaluation of Enzygnost HIV Integral II Ag/Ab, Murex HIV Ag/Ab and Vironostika HIV Uniform II Ag/Ab was conducted using blood samples from blood donors, VCT, ANC and HIV care and treatment centre. INNO-LIA HIV I/II immunoblot was used as a confirmatory test. Seroconversion activity was evaluated by Panel AU PRB945. **Results:** Of 596 serum samples 209(35.1%) were confirmed HIV positive. Sensitivity was 100%(95%CI;98.3-100%) for all the three HIV ELISAs. The specificity for Enzygnost HIV Integral II and Murex was 100%(95%CI;99.1-100%). Vironostika had initial specificity of 99.2%(97.4-99.7) and 99.5%(95%CI;98.2-99.9%) after repeat testing.. Enzygnost HIV Integral II detected HIV infection seven days since first bleed whereas Murex detected first bleed in day 13 and Vironostika detected first bled in day 15. Mean OD/CO values of HIV positive samples on all the combination assays were above 10 by 13.7(5.3-31.0), 12.2(5.2-16.0), 15.5(12.1-29.0) for Enzygnost, Murex and Vironostika respectively. Samples which gave false positive reactions on Vironostika had mean ratio of 5.7(1.3-16.5). **Conclusion:** All the three antigen/antibody ELISA assays had highest sensitivities and specificities. Combination of two HIV antigen/antibody based ELISA assays can be used as an alternative confirmatory testing strategy with an advantage of reduced diagnostic window period for screening of donated blood at National, Zonal blood transfusion centres and in HIV diagnosis

556. Uys, L., Chipps, J., Kohi, T., Makoka, D., Libetwa, M. Role analysis of the nurse/midwives in the health services in sub-saharan Africa. *Journal of Advanced Nursing*, 2013; 69 (10), pp. 2207-2217.

**Aim:** To describe the tasks and the roles of nurses and midwives in Sub-Saharan African health services. **Background:** The current roles of nurses and midwives in the African region of the World Health Organization have not been empirically established, with only studies from two countries found (South Africa and Mozambique). This makes it difficult to establish whether current nursing/midwifery education programmes and regulations adequately address the needs in the health services. **Design:** A descriptive quantitative study. **Methods:** A survey questionnaire was administered to ambulatory and hospital services. Data were collected between June-December 2010, with

completed responses from 734 nurses from nine African countries (five Anglophone and four Francophone). **Results:** The highest reported role functioning in both settings was for 'General Care and Treatment'. The lowest role functioning reported in both settings was in the role 'Maternal and Child Health' and in 'The Provision of Mental Health Care'. The reported role performance in Anglophone countries was significantly greater than in Francophone countries. **Conclusion:** The development of competency in nursing/midwifery roles other than medical surgical roles (general assessment and care) should receive more attention in curricula. Special attention needs to be given to Francophone countries, where the professions of nursing and midwifery are poorly developed.

557. Våga, B. B., Moland, K. M., Evjen-Olsen, B., Leshabari, S. C., Blystad, A. **Rethinking nursing care: An ethnographic approach to nurse–patient interaction in the context of a HIV prevention programme in rural Tanzania. *International journal of nursing studies*, 2013; 50(8), 1045-1053.**

**Background:** While care has been described as the essence of nursing, it is generally agreed that care is a complex phenomenon that remains elusive. Literature reviews highlight the centrality of nurse–patient interactions in shaping care. In sub-Saharan Africa, where there is a critical shortage of health workers, nurses remain the core of the health workforce, but the quality of the patient care they provide has been questioned. **Objective:** The study explored how care is shaped, expressed and experienced in nurses' everyday communication among HIV positive women in Tanzania. **Study context:** Data were collected through a prevention of mother-to-child transmission of HIV programme with a comprehensive community component conducted by a church-run hospital in rural Tanzania. The population is largely agro-pastoral, the formal educational level is low and poverty is rampant. **Methods:** An ethnographic approach was employed. Nurses and women enrolled in the prevention of mother-to-child transmission of HIV programme were followed closely over a period of nine months in order to explore their encounters and interactions. **Findings and discussion:** The way care is shaped, expressed and experienced is not globally uniform, and the expectations of what quality care involves differ between settings. In this study the expectations of nurses' instructions and authority, combined with nurses' personal engagement were experienced as caring interactions. The findings from this study demonstrate that the quality of nursing care needs to be explored within the specific historical, socio-cultural context in which it is practised.

558. Van Beekhuizen, H. J., Tarimo, V., Pembe, A. B., Fauteck, H., Lotgering, F. K. **A randomized controlled trial on the value of misoprostol for the treatment of retained placenta in a low-resource setting. *International Journal of Gynecology & Obstetrics*, 2013; 122(3), 234-237.**

**Objective.** To evaluate the efficacy and safety of misoprostol among patients with retained placenta in a low-resource setting. **Methods.** A prospective, multicenter, randomized, double-blind, placebo-controlled trial was carried out in Tanzania between

April 2008 and November 2011. It included patients who delivered at a gestational age of 28 weeks or more and had blood loss of 750 mL or less at 30 minutes after delivery. Sublingual misoprostol (800 µg) was compared with placebo as the primary treatment. Power analysis showed that 117 patients would be required to observe a reduction of 40% in the incidence of manual removal of the placenta (MRP;  $P = 0.05$ , 80% power), the primary outcome. The secondary outcomes were blood loss and number of blood transfusions. Results. Interim analysis after recruitment of 95 patients showed that incidence of MRP, total blood loss, and incidence of blood transfusions were similar in the misoprostol (MRP, 40%; blood loss, 803 mL; blood transfusion, 15%) and placebo (MRP, 33%, blood loss 787 mL, blood transfusion, 23%) groups. The trial was stopped because continuation would not alter the interim **conclusion** that misoprostol was ineffective. Conclusion. Treatment with misoprostol was found to have no clinically significant beneficial effect among women with retained placenta.

- 559. Villamor E.; Msamanga G.; Aboud, S. Urassa W.; Hunter D. J.; Fawzi W. Adverse perinatal outcomes of HIV-1-infected women in relation to malaria parasitemia in maternal and umbilical cord blood. American Journal of Tropical Medicine and Hygiene, 2013;73(4):PP 694-697.**

Department of Nutrition, Harvard School of Public Health, Boston, Massachusetts, ETATS UNIS Departments of Community Health and Microbiology and Immunology, Muhimbili University College of Health Sciences, Dar es Salaam, TANZANIE, REPUBLIQUE-UNIE DE Department of Epidemiology, Harvard School of Public Health, Boston, Massachusetts, ETATS-UNIS Malaria infection during pregnancy increases the risk of adverse birth outcomes among HIV-infected women. The role of umbilical cord parasitemia is not well characterized. We examined the risk of adverse perinatal outcomes in relation to maternal or umbilical cord Plasmodium falciparum parasitemia among 275 HIV-infected women from Tanzania, who participated in a randomized trial of zinc supplementation during pregnancy. Maternal parasitemia ( $\geq 1/\mu\text{L}$ ) at the first antenatal visit was associated with increased risk of low birth weight  $< 2.500$  g (adjusted relative risk [ARR] = 2.66;  $P = 0.01$ ) and preterm delivery  $< 37$  weeks (ARR = 1.87;  $P = 0.06$ ). Maternal parasitemia at delivery was associated with preterm delivery (ARR = 2.27;  $P = 0.008$ ), intrauterine growth retardation (ARR = 1.92;  $P = 0.03$ ). and neonatal death (ARR = 3.22;  $P = 0.07$ ). Cord parasitemia was associated with a large and significant increase in the risk of neonatal death (ARR = 8.75;  $P = 0.003$ ). Maternal parasitemia at the first antenatal visit was strongly related to parasitemia at delivery, and the latter was associated with cord blood parasitemia. CD4 cell counts, parity, or assignment to the zinc arm (25 mg daily) were not associated with parasitemia in maternal or cord blood at delivery. Successful treatment of HIV-infected women who present to the first prenatal visit with malaria parasitemia and avoidance of reinfection are likely to decrease the risk of adverse outcomes during pregnancy and the early postpartum period. Cord blood parasitemia is a strong predictor of neonatal death. The potential effect of zinc supplementation on clinical malaria outcomes deserves future investigation.

560. Walker, R.W., Jusabani, A., Aris, E., Gray, W.K., Mugusi, F., Swai, M., Alberti, K.G., Unwin, N. **Correlates of short- and long-term case fatality within an incident stroke population in Tanzania.** *South African Medical Journal*, 2013; 103(2), 107-112.

**Background.** This study aimed to identify correlates of case fatality within an incident stroke population in rural Tanzania. **Methods.** Stroke patients, identified by the Tanzanian Stroke Incidence Project, underwent a full examination and assessment around the time of incident stroke. Records were made of demographic data, blood pressure, pulse rate and rhythm, physical function (Barthel index), neurological status (communication, swallowing, vision, muscle activity, sensation), echocardiogram, chest X-ray and computed tomography (CT) head scan. Cases were followed up over the next 3 - 6 years. **Results.** In 130 incident cases included in this study, speech, language and swallowing problems, reduced muscle power, and reduced physical function were all significantly correlated with case fatality at 28 days and 3 years. Age was significantly correlated with case fatality at 3 years, but not at 28 days post-stroke. Smoking history was the only significant correlate of case fatality at 28 days that pre-dated the incident stroke. All other significant correlates were measures of neurological recovery from stroke. **Conclusions.** This is the first published study of the correlates of post-stroke case fatality in sub-Saharan Africa (SSA) from an incident stroke population. Case fatality was correlated with the various motor impairments resulting from the incident stroke. Improving poststroke care may help to reduce stroke case fatality in SSA.

561. Wangwe, P.J.T., Massawe, S.N., Leshabari, M.T., Mpembeni, R., Saronga, H., Sukums, F. & Kakoko, D.C.V. **Utilization and Contents of Antenatal Care (ANC) in Southern Tanzania.** Tanzania.1ST Scientific MUHAS Conference, . Dar es Salaam, Tanzania, May 2-4, 2013.

**Background:** Adequacy of the contents and timing of Antenatal care in the primary health facilities determines the quality of ANC care and health facility utilization. **Objectives:** To determine the baseline utilization pattern of antenatal care in primary health facilities in Tanzania and factors associated with amount and content of antenatal care. **Methods:** A cross-sectional study was conducted in Lindi and Mtwara rural districts between August and November 2010. A total of 417 pregnant women were observed while receiving antenatal care (ANC) services. Their ANC cards were cross checked to determine the timing and contents of care provided. The category of service providers available in each health facility was determined by interviewing them using semi-structured in-depth interview and data was analyzed quantitatively using SPSS version 17. **Results:** Results: Timing of ANC at first trimester was 7.2% while majority made their visit during the second trimester (59.2%). Only 9.8% made adequate amount of visit while the content of care was found to be adequate, intermediate and inadequate at 44.8%, 48.0% and 7.2% respectively. Majority of the service providers (69.8%) were experienced with more than 6 years in the field, however 30% of the service providers were nurse assistant with less skill in Maternal and Newborn Health. **Conclusion:** The Focus Antenatal Care guideline provides a detailed assessment of the adequacy of antenatal care in the primary health facilities. The cadre providing antenatal care, their duration of practice seems to affect the contents of quality of care while

timing of ANC is more in the second trimester. **Recommendation:** In order to improve quality of care knowledge gap between the cadres has to be bridged especially for those with short duration of practice together with community sensitization on timing of ANC visit.

562. Ware, N.C., Wyatt, M.A., Geng, E.H., Kaaya, S.F., Agbaji, O.O., Muyindike, W.R., Chalamilla, G., **Toward an Understanding of Disengagement from HIV Treatment and Care in Sub-Saharan Africa: A Qualitative Study.***PLoS Medicine*,2013; 10 (1): e1001369.

**Background:** The rollout of antiretroviral therapy in sub-Saharan Africa has brought lifesaving treatment to millions of HIV-infected individuals. Treatment is lifelong, however, and to continue to benefit, patients must remain in care. Despite this, systematic investigations of retention have repeatedly documented high rates of loss to follow-up from HIV treatment programs. This paper introduces an explanation for missed clinic visits and subsequent disengagement among patients enrolled in HIV treatment and care programs in Africa. **Methods and Findings:** Eight-hundred-ninety patients enrolled in HIV treatment programs in Jos, Nigeria; Dar es Salaam, Tanzania; and Mbarara, Uganda who had extended absences from care were tracked for qualitative research interviews. Two-hundred-eighty-seven were located, and 91 took part in the study. Interview data were inductively analyzed to identify reasons for missed visits and to assemble them into a broader explanation of how missed visits may develop into disengagement. Findings reveal unintentional and intentional reasons for missing, along with reluctance to return to care following an absence. Disengagement is interpreted as a process through which missed visits and ensuing reluctance to return over time erode patients' subjective sense of connectedness to care. **Conclusions:** Missed visits are inevitable over a lifelong course of HIV care. Efforts to prevent missed clinic visits combined with moves to minimize barriers to re-entry into care are more likely than either approach alone to keep missed visits from turning into long-term disengagement. Please see later in the article for the Editors' Summary.

563. KO, W., Rajan, P., Gomez, F., Scheinfeldt, L., An,P., Winkler, C.A., Froment, A., Nyambo, T.B., Omar, S.A., Wambebe, C., Ranciaro, A., Hirbo, J.B., and Tishkoff, S.A., **Identifying Darwinian Selection Acting on Different Human APOL1 Variants among Diverse African Populations.***The American Journal of Human Genetics* 2013; 93:PP 54–66.

Malaria is one of the strongest selective pressures in recent human evolution. African populations have been and continue to be at risk for malarial infections. However, few studies have re-sequenced malaria susceptibility loci across geographically and genetically diverse groups in Africa. We examined nucleotide diversity at Intercellular adhesion molecule-1 (ICAM-1), a malaria susceptibility candidate locus, in a number of human populations with a specific focus on diverse African ethnic groups. We used tests

of neutrality to assess whether natural selection has impacted this locus and tested whether SNP variation at ICAM-1 is correlated with malaria endemicity. We observe differing patterns of nucleotide and haplotype variation in global populations and higher levels of diversity in Africa. Although we do not observe a deviation from neutrality based on the allele frequency distribution, we do observe several alleles at ICAM-1, including the ICAM-1 Kilifi allele that is correlated with malaria endemicity. We show that the ICAM-1 Kilifi allele, which is common in Africa and Asia, exists on distinct haplotype backgrounds and is likely to have arisen more recently in Asia. Our results suggest that correlation analyses of allele frequencies and malaria endemicity may be useful for identifying candidate functional variants that play a role in malaria resistance and susceptibility.

- 564. Wilunda, C., Massawe, S., Jackson, C. Determinants of moderate-to-severe anaemia among women of reproductive age in Tanzania: Analysis of data from the 2010 Tanzania demographic and health survey. *Tropical Medicine and International Health*, 2013, 18 (12): pp. 1488-1497.**

**Objective:** To identify determinants of moderate-to-severe anaemia among women of reproductive age in Tanzania. **Methods:** We included participants from the 2010 Tanzania Demographic and Health Survey, which collected data on socio-demographic and maternal health and determined haemoglobin levels from blood samples. We performed logistic regression to calculate adjusted odds ratios for associations between socio-demographic, contextual, reproductive and lifestyle factors, and moderate-to-severe anaemia and investigated interactions between certain risk factors. **Results:** Of 9477 women, 20.1% were anaemic. Pregnancy was significantly associated with anaemia (adjusted OR 1.75, 95% CI 1.43-2.15), but the effect varied significantly by urban/rural residence, wealth and education. The effect of pregnancy was stronger in women without education and those who were in lower wealth groups, with significant interactions observed for each of these factors. Education was associated with a lower anaemia risk, particularly in the poorest group (OR 0.58, 95% CI 0.43-0.80), and in pregnant women. The risk of anaemia fell with rising iron supplementation coverage. Lack of toilet facilities increased anaemia risk (OR 1.26, 95% CI 1.00-1.60), whereas using hormonal contraception reduced it. There was no association with age, urban/rural residence, wealth or type of cooking fuel in adjusted analysis. **Conclusion:** Pregnant women in Tanzania are particularly at risk of moderate-to-severe anaemia, with the effect modified by urban/rural residence, education and wealth. Prevention interventions should target women with lower education or without proper sanitation facilities, and women who are pregnant, particularly if they are uneducated or in lower wealth groups.

- 565. Winkler, A.S., Friedrich, K., Velicheti, S., Dharsee, J., König, R., Nassri, A., Meindl, M., Kidunda, A., Müller, T.H., Jilek-Aall, L., Matuja, W., Gotwald, T., Schmutzhard, E. MRI findings in people with epilepsy and nodding syndrome in an area endemic for onchocerciasis: An observational study. *African Health Sciences*, 2013; 13 (2): pp. 529-540.**

**Background:** Onchocerciasis has been implicated in the pathogenesis of epilepsy. The debate on a potential causal relationship between *Onchocerca volvulus* and epilepsy has taken a new direction in the light of the most recent epidemic of nodding syndrome. **Objective:** To document MRI changes in people with different types of epilepsy and investigate whether there is an association with *O. volvulus* infection. **Methods:** In a prospective study in southern Tanzania, an area endemic for *O. volvulus* with a high prevalence of epilepsy and nodding syndrome, we performed MRI on 32 people with epilepsy, 12 of which suffered from nodding syndrome. Polymerase chain reaction (PCR) of *O. volvulus* was performed in skin and CSF. **Results:** The most frequent abnormalities seen on MRI was atrophy (twelve patients (37.5%)) followed by intraparenchymal pathologies such as changes in the hippocampus (nine patients (28.1%)), gliotic lesions (six patients (18.8%)) and subcortical signal abnormalities (three patients (9.4%)). There was an overall trend towards an association of intraparenchymal cerebral pathologies and infection with *O. volvulus* based on skin PCR (Fisher's Exact Test  $p=0.067$ ) which was most pronounced in children and adolescents with nodding syndrome compared to those with other types of epilepsy (Fisher's Exact Test,  $p=0.083$ ). Contrary to skin PCR results, PCR of CSF was negative in all patients. **Conclusion:** The observed trend towards an association of intraparenchymal cerebral pathological results on MRI and a positive skin PCR for *O. volvulus* despite negative PCR of CSF is intriguing and deserves further attention.

566. Winkler, A. S., Friedrich, K., Konig, R., Meindl, M., Helbok, R., Unterberger, I., Gotwald, T., Dharsee, J., Velicheti, S., Kidunda, A., Jilek – Aall, L., Matuja, W., Schmutzhard, E. **The head nodding syndrome – Clinical classification and possible causes.** 1ST Scientific MUHAS Conference, Dar es salaam, Tanzania, May 2-4, 2013.

**Background:** In the 1960s in Tanzania, L. Jilek-Aall observed a seizure disorder characterized by head nodding (HN). Decades later, “nodding disease” reminiscent of what was seen in Tanzania, was reported from Sudan. **Objectives:** To date this seizure disorder has not been classified and possible causes still re-main obscure. **Methods:** In a prospective study in southern Tanzania, we evaluated 62 patients with HN. Selected patients underwent blood ( $n = 51$ ) and cerebrospinal fluid (CSF) ( $n = 48$ ) analyses. Others were chosen for MRI ( $n = 12$ ) and EEG ( $n = 10$ ). **Results:** Seizure type was classified as “head nodding only” and “head nodding plus,” the later being combined with other types of seizure ( $n = 34$ ). During HN, consciousness was impaired in 11 patients (17.7%) and supportive signs of epileptic seizures were described by 15 (24.2%) patients. Precipitating factors were confirmed by 11 (17.7%) patients. Fifty-six (90.3%) patients had at least one relative with epilepsy. EEG confirmed interictal epileptic activity in two patients and unspecific changes in four patients. MRI showed hippocampus pathologies ( $n = 5$ ) and gliotic changes ( $n = 5$ ). Skin polymerase chain reaction (PCR) positivity for *Onchocerca volvulus* was significantly associated with lesions on MRS. However, PCR of the CSF was negative in all cases. **Conclusion:** We present a comprehensive clinical description of the “UN syndrome,” possibly a new epilepsy disorder in sub-Saharan Africa. MRI lesions and their association with positive skin PCR for *O. volvulus* despite negative PCR of the CSF is intriguing and deserves

attention. Furthermore, the high prevalence of hippocampus sclerosis and familial clustering of epilepsy may point toward other potential pathogenetic mechanisms.

- 567. Woodmansey, K., Severine, A., Lembariti, B.S. Giant calculus: Review and report of a case. *General Dentistry*, 2013. 61 (3), pp. e14-e16.**

Dental calculus is a common oral finding. The term giant calculus is used to describe unusually large deposits of dental calculus. Several extreme cases have been reported in the dental literature. The specific etiology of these cases remains uncertain. This article reviews previously reported cases and presents another extreme example of giant calculus.

- 568. Woog, V., Pembe, A. B. Unsafe abortion in Tanzania: a review of the evidence. *Issues in brief (Alan Guttmacher Institute)*, 2013; (1), 1-4.**

Find all citations by this author (default). Or filter your current search Although pregnancy termination is restricted by law in Tanzania, it is widely practiced and almost always unsafe, and contributes to the country's high maternal morbidity and mortality. Yet the majority of abortion-related deaths are preventable, as are the unintended pregnancies associated with abortion. Better access to contraceptives, more comprehensive post abortion care and greater availability of safe abortion services within the current legal framework are critical to achieving the Millennium Development Goal 5 of reducing maternal mortality and ensuring universal access to reproductive health care by **2015**.

- 569. Yamanis, T.J., Doherty, I.A., Weir, S.S., Bowling, J.M., Kajula, L.J., Mbwambo, J.K., Maman, S. From coitus to concurrency: Sexual partnership characteristics and risk behaviors of 15-19 year old men recruited from urban venues in Tanzania. *AIDS and Behavior*, 2013; 17 (7) :pp. 2405-2415.**

Understanding the uptake and patterns of sexual partnerships of adolescent males reveals their risky behaviors that could persist into adulthood. Using venue-based sampling, we surveyed 671 male youth ages 15-19 from an urban Tanzanian neighborhood about their sexual partnerships during the past 6 months. The proportion of males who had ever had sex increased with age (21 % at age 15; 70 % at age 17; 94 % at age 19), as did the proportion who engaged in concurrency (5 % at age 15; 28 % at age 17; 44 % at age 19). Attendance at  $\geq 2$  social venues per day and meeting a sexual partner at a venue was associated with concurrency. Concurrency was associated with alcohol consumption before sex among 18-19 year olds and with not being in school among 15-17 year olds. We find that concurrency becomes normative over male adolescence. Venue-based sampling may reach youth vulnerable to developing risky sexual partnership patterns.



570. Yengu, S. **Prevalence of Social phobia among secondary school students in Iringa Municipality. Master of Sciences (Clinical psychology) Dissertation 2013. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

**Background:** Social phobia is among the most common anxiety disorders. Regardless of its early onset, chronic course, disability and co-morbidity there is virtually no information about this disorder among young people in sub-Saharan Africa specifically Tanzania. Studies on social phobia in Sub-Saharan countries are very limited. **Objective:** The study aimed to determine the prevalence of the social phobia among secondary school students in Iringa Municipality. **Methods:** This was a descriptive cross-sectional study, using quantitative data collection methods. The instrument used for data collection was the Liebowitz's Social Anxiety Scale (LSAS). Data was collected over a period of two months, September 2012 through October 2012. Data entry, cleaning and analysis were done by using software named Software (SPSS) version 18. **Results:** Approximately 47.9% out of 430 secondary school students reported marked to severe social phobia. Higher percentages were found in females and in form two, than in males and other classes respectively. **Discussion:** Prevalence of social phobia found in this study was average as compared to that found by different studies. Some studies show prevalence that is higher while other studies show lower than the current study's prevalence. The prevalence in females was higher as compared to that in males as also supported by other previous studies. **Conclusion and recommendations:** This study indicates that social phobia is highly prevalent among secondary school students, leaving them potentially vulnerable to other mental health related problems. The Government, through the Ministry of Health should include counselling skills training in school curriculum and make sure that each school has a counsellor who can help in prevention of social phobia. More studies are required to assess the association between social anxiety and academic performance hence a more culturally appropriate instrument may need to be developed to screen for social phobia.

571. Young, S., Leshabari, S., Arkfeld, C., Singler, J., Dantzer, E., Israel-Ballard, K., Mashio, C., Maternowska, C., Chantry, C. **Barriers and promoters of home-based pasteurization of breastmilk among HIV-infected mothers in greater Dar es salaam, Tanzania. Breastfeeding Medicine, 2013; 8 (3), pp. 321-326.**

**Background:** For the past decade, heat-treating breastmilk has been an infant feeding option recommended by the World Health Organization as a strategy to reduce vertical transmission. However, little is known about field experiences with it. Our primary objective was to explore the barriers and promoters of the implementation of breastmilk pasteurization, "flash-heating" (FH), in the real-world setting of Dar es Salaam, Tanzania. **Subjects and Methods:** Nineteen in-depth interviews were conducted with participants in a home-based infant feeding counseling intervention in which FH was promoted after 6 months of exclusive breastfeeding. Additionally, three focus group discussions were conducted with peer counselors. Interviews were transcribed, translated, and coded independently using NVivo 8 software (QSR International). Data were analyzed using the socioecological framework. **Results:** Information and support provided by peer counselors were the most important promoters of initiation and

continuation of FH; this impacted individual-, interpersonal-, and institutional-level promoters of success. Other promoters included perceived successful breastmilk expression, infant health after initiation of FH, and the inability to pay for replacement milks. Stigma was the most important barrier and cut across all levels of the framework. Other barriers included doubt about the safety or importance of pasteurized breastmilk, difficulties with expressing milk (often attributed to poor diet), and competing responsibilities. The most common suggestion for improving the uptake and duration of FH was community education. **Conclusions:** Given the acknowledged role of breastmilk pasteurization in the prevention of vertical transmission, further implementation research is needed. A multilevel intervention addressing barriers to FH would likely improve uptake.

**572. Yusuf, S. G. Medical evaluation abnormalities in acute psychotic patients seen at the Emergency Department, Muhimbili National Hospital, Dar es Salaam, Tanzania. Master of Medicine (Emergency Medicine).Dissertation.2013. Muhimbili University of Health and Allied Sciences. Dar es Salaam.**

**Background:** Psychosis is defined as a thought disorder characterized by false beliefs (delusions) or perception (hallucinations) that significantly hinder the person's ability to function. Because there are many life threatening conditions that may manifest with psychosis, it is essential to evaluate these patients for medical conditions. Prior studies have shown varied rates of medical pathology in patients presenting to acute care settings with psychosis. **Problem Statement:** The rate and range of medical pathology in patients presenting with psychosis in our region is unknown and this hinders attempts to develop a systematic diagnostic approach to these patients. **Aim of study:** To determine the proportion of patients presenting to the MNH EMD with acute psychosis who have abnormal findings on a standardized medical screening evaluation. **Methods:** This was a prospective observational study of adult patients presenting to the EMD at MNH with acute psychosis. A standardized evaluation form was used to collect data on demographics, history and physical examination. The study data were entered into an Excel database (Microsoft Corporation, Redmond, WA, USA) and analyzed with SAS (SAS Institute Inc., Cary, NC, USA). **Results:** A total of 252 participants were enrolled; 69% were male and the mean age was 30. Our study showed that history and physical examination findings were not sufficient to rule out serious medical conditions. Laboratory investigations were taken for 206 patients of whom 19% had abnormal lab findings, and two-thirds of these abnormal labs were clinically significant. Overall, 11% of patients tested had clinically significant abnormal lab findings. **Conclusion and recommendation:** The overall rate of underlying laboratory abnormality was 19%, which is higher than previously published rates from high-resource settings(1), and these included a small but significant percentage of patients with potentially life-threatening medical conditions, including hypoglycemia and newly-diagnosed HIV and DKA. Based on our findings, patients presenting with psychosis to an acute care facility in this region should be evaluated with physical examination and laboratory studies to rule out underlying medical illness.

573. Yusuf, S.G.,Runyon, M.S.,Mwafongo, V., Reynolds, T.A., Medical evaluation abnormalities in acute psychotic patients seen at the emergency department of Muhimbili national hospital in Dar es Salaam,Tanzania. *African Journal of Emergency Medicine*, 2013; 3(4): pp25.

**Introduction:** Prior studies have shown varied rates of medical pathology in patients presenting to acute care settings with psychotic symptoms, and there is almost no literature from the sub-Saharan Africa region. We investigated the yield of physical examination and laboratory testing among patients presenting with acute psychosis to an urban ED in Dar es Salaam.**Methods:** This was a prospective observational study of patients presenting to the ED at Muhimbili National Hospital with acute psychosis. A standardized data form was used to prospectively collect demographics, history, physical examination, and diagnostic test results. Data were entered into Excel (Microsoft Corporation, Redmond, WA, USA) and analysed with SAS (SAS Institute Inc., Cary, NC, USA).**Results:** We enrolled 252 participants from August to October 2012, mean age 32 ( $\pm 11$ ) years, and 69% male. Overall, 161 (64%) had a history of psychiatric illness and 137 (54%) were on psychiatric medication. Comorbidities included dementia (6), HIV (5), recent trauma (5), diabetes (2), CVA (1), and other chronic medical conditions (21).The most common physical examination findings were skin abnormalities (11% of patients), including infections, bruises, cuts, lacerations and rashes. Of patients undergoing laboratory investigations, 39/206 (19%) had abnormal lab findings and 27/39 (69%) were clinically significant, including positive HIV tests (9), abnormal blood chemistries (7), positive malaria tests (5), abnormal full blood picture (4), and abnormal blood glucose levels (3).**Conclusions:** In our cohort, history and physical examination findings were not sufficient to rule out serious medical conditions among patients presenting with acute psychosis. The observed rate of laboratory abnormalities was higher than previously published rates from high-resource settings. Based on our findings, patients presenting with psychosis to an acute care facility in this region should be evaluated with physical examination and laboratory studies to rule out serious underlying medical pathology.

574. Zinga, I., Chiroleu .F., Legg .J., Lefeuvre, F., Komba, A.K., Semballa, S. Yandia, S.P, Mandakombo, B., Reynaud, B., Lett, J .Epidemiological assessment of cassava mosaic disease in central african republic reveals the importance of mixed viral infection and poor health of plant cuttings.Cassava is a vital crop in Africa and represents the main food crop in Central African Republic (CAR). *Crop Protection* 2013; 44:pp 6-12.

CAR has recently faced large reductions in cassava yields that have led to a surge in market prices. To better understand the causes of the reduction in yield, we identified biotic constraints to cassava production by means of a large-scale plant epidemiological survey conducted in 2007 and 2008. Standard protocols were used for the assessment of the major cassava pests and diseases. Cassava mosaic disease (CMD) was shown to be the most serious constraint to cassava in CAR, with symptoms observed at all localities surveyed. CMD is distributed throughout the country, with an average incidence of 85%.

Importantly, 94% of diseased plants had cutting-derived CMD infection suggesting that farmers mostly use virus-infected cuttings for planting. PCR amplification and direct sequencing of partial fragments of the Rep ORF revealed that the causal agents of CMD in CAR are *African cassava mosaic virus* (ACMV) and the Uganda strain of *East African cassava mosaic virus* (EACMV-UG). We also demonstrated that 58% of CMD samples present mixed infections (ACMV and EACMV-UG) and that these samples had significantly higher symptom severities. Our results suggest that mixed infection and synergism between CMGs, could be an important feature in the yield reduction of cassava plants in CAR, similar to the other severe CMD epidemics reported in East Africa.

- 575. Ziwa, M.H., Matee, M.I., Hang'Ombe, B.M., Lyamuya, E.F., Kilonzo, B.S. Plague in Tanzania: An overview. *Tanzania Journal of Health Research*, 2013; 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.

- 576. Ziwa, M.H., Matee, M.I., Kilonzo, B.S., Hang'Ombe, B.M. Evidence of *Yersinia pestis* DNA in rodents in plague outbreak foci in Mbulu and Karatu districts, northern Tanzania. *Tanzania Journal of Health Research*, 2013, 15 (3).**

Human plague remains a public health concern in Tanzania despite its quiescence in most foci for years, considering the recurrence nature of the disease. Appreciable researches have involved serological screening of rodents, fleas and humans but none has involved molecular detection and hence proving the presence of *Yersinia pestis* in rodents in the most recent affected foci, Mbulu and Karatu districts in northern Tanzania. The objective of the current study was to employ a simple PCR to detect

*Yersinia pestis* plasminogen activator (pla) gene in various potential mammalian hosts/reservoirs. The study was conducted in five villages in Mbulu and one in Karatu districts during the period of no disease outbreak. Rodents and small wild carnivores were captured, anaesthetized, identified, sexed and autopsied. Liver, spleen, heart and lung specimens were collected and DNA extracted after which PCR was used to detect the *Y. pestis* pla gene. A total of 517 small mammals were captured; of which, 493 (95.4%) were from Mbulu and 24 (4.6%) from Karatu. Two *Mastomys natalensis* (one from each district) and one *Gerbilliscus* sp. in Mbulu district were positive for *Y. pestis* pla gene. In conclusion, our results have provided a proof on the presence of *Y. pestis* in the two rodent species (*Mastomys natalensis* and *Gerbilliscus* sp.) and thus providing indicative evidence that the two are potential reservoirs of the pathogen and hence may be responsible for maintaining the same during periods of no disease outbreaks.

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