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WELCOME NOTE



Dear participants, it is my pleasure to welcome you to the 10th Scientific Graduation Conference which has been organized by Bugando [CUHAS and BMC] in collaboration with Glasgow University and Weill Cornell Medical College. Furthermore, as the General Director of BMC, I am sincerely happy that my institution is at the hub of success of this event. Moreover, this event enhances the local collaboration between the Hospital and the University.

The theme for this Scientific Conference *“One Health Research at Bugando: Is our approach on the right track?”* offers an opportunity for us to reflect on the status of our research within the concept of one health. In Tanzania, the Prime Minister Office has released One Health Strategic Plan 2015 – 2020 but little attention has been given to its implementation. We all agree however on **a need of a collaborative, multisectoral, and trans-disciplinary approach at the local, regional, national, and global levels for the purpose of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment.**

Professionals in different sectors, such as Clinical Medicine, Biomedical Sciences, Public Health, Animal Health, Plant Health and the Environment, should join forces to support One Health approaches. In low-income countries, more advocacy and understanding are needed to clearly and effectively practice a One Health approach, thus this conference is timely and important for students and young scientists to ensure they are nurtured in the One Health Concept.

I believe the quality of scientific papers submitted for presentation to this conference is of international standard. The papers have contributors from varieties of institutions and cover a wide range of topics.

On behalf of BMC, I wish to thank the Organizing Committee members who have worked extremely hard to establish the conference programs and social activities. I hope that you will enjoy this 10th Graduation Scientific Conference and that your interaction with your colleagues from many different countries will stimulate a creative exchange of ideas and will be personally rewarding.

Yours sincerely,

Prof. Abel Makubi

Director General, Bugando Medical Centre

FOREWORD



I am thrilled to write a foreword for this abstract book of the 10th Scientific Graduation conference 2018. This symposium has been jointly organized by Bugando [CUHAS and BMC] and Glasgow, Cornell and Würzburg Universities. This surely reflects a growing trend of coordinated collaboration and harmonized research of these Institutions. For two days, we are going to witness a variety of research papers, being presented by students, residents, as well as both young and senior faculty members, focusing on the theme "*One Health Research at Bugando: Is our approach on the right track?*". In addition, we are going to witness the Launch of SNAP-AMR project which is aiming to support the Government of Tanzania to implement some of the components of the National Antimicrobial Resistance Action Plan. The SNAP-AMR project is Medical Research Council (MRC) funded project led by Glasgow University in collaboration with the Catholic University of Health and Allied Sciences (CUHAS) and Kilimanjaro Christian Medical University College (KCMCo). I believe the problem of antimicrobial resistance requires one health approach to address it effectively.

Scanning through the abstract book, one realizes that there are 98 abstracts. Neglected Tropical Diseases (5), Anti-Microbial Resistance (22), Maternal and Child Health infections (20), HIV and other infections (13), Non-communicable Diseases (19) and Health Systems and Delivery (19). Thus, the quality of research from the presented abstracts may provide an insight on strategies leading to addressing the health and health-related challenges we face.

I wish to take this opportunity to thank the Organizing Committee, the Collaborators, the Sponsors, the Presenters, and all those who have participated in one way or another to facilitate this event, without forgetting you, Participants, for coming to this Conference. Last, but not least, for the visitors to Mwanza, take time to socialize responsibly and explore the natural beauties of this Rock City.

Prof. Paschalis G. Rugarabamu

Vice Chancellor, Catholic University of Health and Allied Sciences

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NEGLECTED TROPICAL DISEASES



CU01ND: High Seropositivity of *Leptospiral* spp. and *Brucella* spp. Antibodies Among Dogs and Dog Keepers in Mwanza City, Tanzania: The Need of One Health Approach Control Measures

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Background: Leptospirosis and Brucellosis are neglected tropical zoonotic diseases of public health importance affecting humans, domestic animals and wildlife in both developed and developing countries including Tanzania. Despite being common in Tanzania, there is limited information on the magnitude of these infections among populations with close proximity to animals. This study investigated the seroprevalence and associated factors of *Leptospira* spp. and *Brucella* spp. among dog keepers in Mwanza city Tanzania.

Methods: A cross-sectional community-based study involving 202 dog keepers and 216 dogs was conducted between May and July 2018 in the city of Mwanza, Tanzania. Sociodemographic and other relevant information were collected using structured data collection tool. Detection of *Leptospira* antibodies was done by using Microscopic agglutination test (MAT) for Serovars Grippotyphosa, Sokoine, Pomona, Kenya and Hebdomadis while *Brucella* spp. antibodies were detected by slide agglutination test. Data was analysed using STATA-12 software as per objectives of the study.

Results: The median age of the study participants was 26 (IQR 17- 40) years. Overall seroprevalence of leptospiral antibodies was found to be 62/202 (30.6%, 95%CI: 24.2-36.6). The serovars detected were Sokoine (n=29), Pomona (n=22), Kenya (n=7), Grippotyphosa (n=4) and Hebdomadis (n=0). In dogs the overall seroprevalence was 18/216 (8.3%, 95% CI: 4.6-11.9) with predominant serovars detected being Sokoine (n=16) and Pomona (n=2). Overall, the seroprevalence of brucella antibodies was 30 (14.6%, 95% CI:9.7-19.4). The seroprevalence of *B. abortus* was 26 (12.7%, 95%CI: 8.0-17.1) while that of *B. melitensis* was 6 (2.9%, 95% CI:0.6-5.2). Washing hands after attending animals (OR:0.37, 95% CI:0.1-0.9, p=0.039) significantly protected dog keepers from being *Brucella* spp. seropositive.

Conclusion: About one third of dog keepers in the city of Mwanza has Leptospiral antibodies with predominant serovar being Sokoine in both human and dogs. This calls for the need of One Health strategies to control these diseases in Tanzania.

Keywords: *Leptospiral* spp; Serovar Sokoine; *Brucella* spp; Dog keepers; One Health; Mwanza

CU02ND: Declining Trends in Malaria: The Need to Consider Other Etiologies of Fever in Routine Diagnosis

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Background: Fever is a common reason for seeking healthcare in most of resource-limited countries where malaria burden is heavy. Improved malaria diagnosis after changes in malaria treatment guidelines has pinpointed the problem of malaria over-diagnosis among febrile patients. The decline in malaria prevalence for the past decade suggests the possibility of other possible causes of fever in many settings with limited diagnostic facilities. This study investigated other aetiologies of fever among febrile patients in Mwanza, Tanzania

Methods: A cross-sectional hospital-based study involving 392 febrile patients was conducted from May to July 2018 in different health facilities in Mwanza. *Brucella* spp. antibodies were detected using slide agglutination test. Malaria species and *Borrelia* spp. were detected by using Giemsa stain while Chikungunya, Dengue and Zika viruses were detected by using multiplex polymerase chain reaction. Data was analysed by using STATA version 13.0.

Results: The median age of the enrolled patients was 35.1 (IQR: 24-43) years and median

body temperature was 37.8 (IQR: 37.6-37.9) °C. The overall seroprevalence of *Brucella* spp. was found to be 276 (70.4%, 95% CI: 65-70). Seroprevalence of *Brucella abortus* was 274 (69.9%, 95% CI: 65-70) while that of *Brucella melitensis* was 29 (7.4% 95% CI: 4-9). Only 1 (0.26%, 95% CI: 0.2-0.7) patient was found to be Dengue positive while none of the patients were found to be Zika, Chikungunya, Malaria spp. and *Borrelia* spp. positive. By multivariable logistic regression analysis only washing hands (OR: 0.43, 95%CI: 0.27-0.70, p=0.001) after attending animals or touching animal products was found to protect individuals from having *Brucella* spp. antibodies.

Conclusion: Seroprevalence of *Brucella* spp. antibodies among febrile patients in Mwanza is alarmingly high and washing hands after touching animal or animal products protected individuals from being seropositive. Further studies to establish acute *Brucella* spp. infections among febrile adults using advanced diagnostics techniques such as real time PCR are warranted. With a decrease trend in malaria fever, other causes of fever like *Brucella* spp. should be considered in the routine work up of patients with fever.

Keywords: *Malaria; Brucella; Chikungunya; Dengue; Mwanza; Tanzania*

CU03ND: Prevalence and Intensity of Schistosoma Infection in Ijinga Island, Magu District, North-Western Tanzania, After an Intensified Treatment Protocol with Praziquantel

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Background: Schistosomiasis is a major public health problem in Tanzania, with a prevalence up to 80% in some areas. Populations living around Lake Victoria have a high risk of infection. Annual rounds of praziquantel treatment for the population at risk, particularly school-age children, are the mainstay of control programs. In many endemic settings this has been successful but in areas of intense transmission, more frequent interventions could ensure a greater impact on infection levels. In addition, praziquantel cannot protect humans from re-infection.

Methods: The study was carried out on Ijinga Island near the southern shoreline of Lake Victoria, located in Magu district, Mwanza region, north-western Tanzania. At baseline, 930 participants (43% adults, 46% school-aged children (SAC) and 11% preschool-aged children (PSAC)) were included in the study and submitted a single stool and urine sample. The KK technique and the OC-CCA test were used to diagnose *S. mansoni* infections. An intensified treatment protocol of the entire island population was carried out as follows: The first three treatments with praziquantel 40mg/kg of bodyweight were administered at intervals of five to six weeks, the fourth and fifth treatment rounds half and one year after the first treatment, respectively. A sentinel group of 223 SAC was examined 6 weeks after each

treatment round by Kato-Katz and POC-CCA test.

Results: Before treatment, the prevalence of infection was 63% for PSAC, 84% for SAC and 54% for adults determined by Kato-Katz. POC-CCA results showed a prevalence of 95% for PSAC, 98% for SAC, and 91% for adults. The follow-up prevalence decreased after the first 3 rounds of treatment given 5-6 weeks apart to 12,6% (POC-CCA)/3,6% (KK). After the 4th round of treatment, 3 months later, an increase in the prevalence to 32,7% (POC-CCA) /19,3% (KK) was found. After the 5th round of treatment a further increase to 85,7% (POC-CCA) /22% (KK) was noted. The intensity of infection of the cohort was medium before treatment giving a mean egg count of 182 EPG for PSAC, 248 EPG for SAC and 113 epg for adults. After treatment the intensity of infection was reduced to 78 (\pm 202) epg for SAC.

Conclusion: The community on Ijinga Island mainly living on fishing and subsistence farming was heavily exposed to infections with *S. mansoni*. A high prevalence of infection was found among the PSAC with medium infection intensities. The data demonstrated that praziquantel treatment alone, even intensified, did not allow to interrupt transmission of schistosomiasis in a high transmission setting. Additional interventions focussing on WASH and a change in the defecation practices need to be implemented.

Keywords: *Schistosomiasis; S. mansoni; Intensified treatment; Praziquantel; Kato-Kats; POC-CCA; Ijinga Island*

CU04ND: Reduction of *Schistosoma Mansoni* Infection in *Biomphalaria Sudanica* After Four Rounds of Mass Drug Administration Using Praziquantel Drug in Human Population Within the Schisto Control Program at Ijinga Island, Magu District, North-Western Tanzania

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Background: Through malacological surveys, it is possible to identify and locate hotspot areas for the transmission of schistosomiasis before and after mass drug administration (MDA) with praziquantel drug. In 2016, 16 water points regularly visited by the population were examined at Ijinga Island, the site of a SchistoControl project. Overall, 34.4 % of *Biomphalaria* species and 1.2 % of *Bulinus* species were infected with *S. mansoni* and *S. haematobium* group, respectively. The objective of the current study was to re-examine the snail intermediate hosts of human schistosomiasis in the study area after four rounds of treatment.

Methods: One year after four rounds of treatment, snails were collected at the same 16 sites visited during the baseline survey along the lakeshore of the entire community. Species of snails were identified. The number of snails, which were infected with schistosomes was determined using species specific real-time Polymerase chain Reactions (PCR).

Results: Out of 875 snails collected, 639 (73%) were putatively identified as *Biomphalaria sudanica*, 227 (26%) as *Bulinus globosus* and 9

(1%) as *Bulinus nasutus*. A random sample of 595 snails (359 *Biomphalaria* and 236 *Bulinus*) underwent molecular analyses for *Schistosoma* cercaria infection. Overall, 59 (16.4%) of *Biomphalaria* and 0 (0%) of *Bulinus* were infected with *Schistosoma* cercaria in real-time PCR for *S. mansoni* and *S. haematobium* group, respectively.

Conclusion: In 2016, the prevalence of *S. mansoni* cercaria was very high with most of collection points having high abundance (three among them had a prevalence of >90%). After four rounds of praziquantel the infection rate decreases by half. None of the examined sites has an infection rate >42%. The three sites, which had the highest infection rates (94%) in 2016, show a snail infection rate of 7.4% in the recent study. These results nicely show that mass treatment with praziquantel results in reducing the infection rate of the intermediate hosts. Nevertheless, there are 2 sites, which are still hotspots. Reinfection with *S. mansoni* can still occur. Improvements in local sanitation and hygiene as well as public health awareness is advocated to complement chemotherapy in reducing transmission and re-infection in such rural settings.

Keywords: *Schistosomiasis; Schistosoma mansoni; Biomphalaria sudanica; Real-time PCR; Tanzania*

CU05ND: Knowledge, Attitude and Practices of Intermittent Deworming of Preschool Children Among Mothers Attending Selected Under-Fives Clinics in Mwanza City

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Background: STHs are intestinal nematodes which spend part of their development in the soil. Included are roundworm, whipworm and the hookworms. These infect about two billion people worldwide with higher endemicity being in Sub-Saharan Africa (WHO). Though not associated with high mortality rates, geo-helminths can lead to serious morbidities. Intermittent deworming is helpful in reducing morbidities.

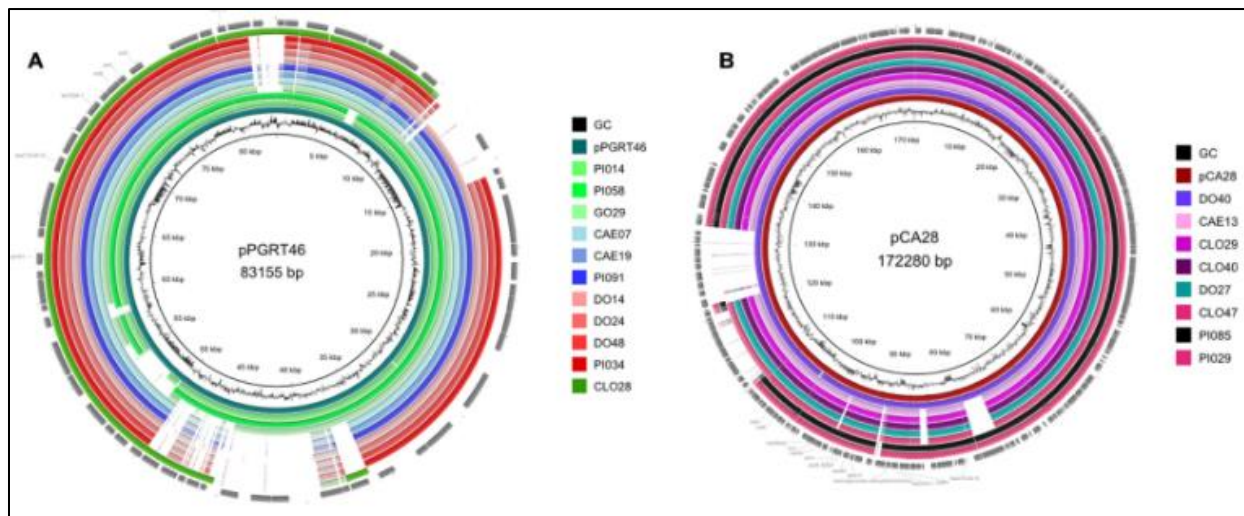
Methods: A cross-sectional study used questionnaires to interview 369 mothers each with at least one child aged between two and five years of age and who is yet to go to school. The study was conducted between December 2017 and August 2018 at two under-fives' clinics in Mwanza city. The collected data were analysed using the Statistics Package for Social Science (SPSS) version 20.0.

Results: Generally, 329 (89.2%) mothers had good knowledge with regard to STHIs. A total of 235 (63.7%) mothers had ever dewormed their preschool children with 51 (21.7%) mothers of them doing so quarterly, while most of them 162 (68.9%) not deworming their preschool children on a regular basis. All (369) interviewed mothers showed willingness to deworm their children when diagnosed with STHIs.

Conclusion: Despite mothers' satisfactory knowledge about STHIs, the practice of intermittent deworming of their preschool children among them is still not as satisfactory. This points out a need for sensitizing the community as well as devising programs to help the economically insufficient societies in implementing this.

Key words: *Knowledge; Attitude; Practices; Intermittent deworming; Pre-school children*

ANTIMICROBIAL RESISTANCE



CU01AR: Reducing Antimicrobial Resistance in Tanzania: The Importance of Tackling Bacterial Transmission as well as Improving Antibiotic Stewardship

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Background: Improved antimicrobial stewardship, sanitation and hygiene are WHO-inspired priorities for limiting the spread of antimicrobial resistance. Prioritization amongst these objectives is essential, particularly in resource-constrained countries, but factors contributing most to antimicrobial resistance are typically unknown and may vary considerably between communities.

Methods: We conducted a comprehensive analysis of biological and socio-economic risk factors for antimicrobial resistance among three culturally diverse ethnic groups in northern Tanzania. Over 11,000 *E. coli* isolates were typed against a panel of nine antimicrobials and matched with household-level data on education, hygiene practices, wealth, livestock husbandry, human and animal health, welfare and antibiotic use.

Results: Antimicrobial usage in people and livestock did not explain variation in resistance

to five commonly observed antimicrobial resistance phenotypes. Instead, the factors with the greatest predictive value involved exposure to bacteria and were intimately connected with fundamental cultural differences across our study groups. These factors included how different subsistence types (pastoralists versus farmers) access water sources and consumption of un-boiled milk, reflecting increased exposure to resistant bacteria in milk.

Conclusion: When cultural and ecological conditions favor bacterial transmission, there is a high likelihood people will harbor antimicrobial-resistant bacteria regardless of antimicrobial use practices. Public health interventions to limit antimicrobial resistance need to be tailored to local practices that impact bacterial transmission. Focusing only on antibiotic use practices *per se* is unlikely to be effective.

Key words: *Antimicrobial resistance; Stewardship; Bacterial transmission; Tanzania; Socio-economic analysis*

CU02AR: Prescribing Pattern of Antibiotics in Post Dental Procedure Patients at Bugando Medical Centre-Mwanza, Northern Tanzania

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Background: General dental practitioners (GDP) prescribe antibiotics for prophylactic and therapeutic purposes. Furthermore, antibiotics are exclusively prescribed in dental surgery of patient with reduced immunity, with risk of infections like people with heart valves problems and when the procedure is performed in the non-sterile part of the body. This study was done to determine the prescribing patterns of antibiotics in post dental procedure patients.

Methods: This study was retrospective hospital based by retrieving data from patient files attended at Bugando Medical Centre -Mwanza, Tanzania for dental procedure in 2016 January to December.

Results: Out of 355 participants who had dental procedure 183(51.55%) were female and

172(48.45%) were male. Most presented procedure in this study was tooth extraction 179(50.42%). Generally, prescription rate of antibiotics was found to be 247(69.58%). The most prescribed antibiotic was Ampiclox 165(67.0%). The prescription rate determined by our study was low compared to other studies done in South Africa (81%) and India (86%) but comparable to a study done in Nigeria (65.5%).

Conclusion: Ideally antibiotics should be prescribed after results of culture and sensitivity have been obtained. We recommend further studies to be done on the assessment of factors influencing antibiotic prescription in patients undergoing dental procedures in our setting.

Key words: *Antibiotics; Prescription; Dental procedure; Bugando medical Centre*

CU03AR: Prescribing Patterns of Antifungals in Oncology and Gynecology Departments at the Bugando Medical Centre, Mwanza Tanzania

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Background: Antifungal drugs are used for the empirical and prophylactic treatment of mycotic infection. Irrational prescription results to inappropriate drug use, consequently leading to emergence of drug resistance. Inappropriate use of antifungal agents is indicated in the global burden of antifungal resistance, causing persistent infections and high treatment cost. Therefore, this study was designed to determine the prescribing patterns of antifungal agents in oncology and gynecology departments at the Bugando Hospital in Mwanza, Tanzania.

Methods: This was a retrospective cross-sectional hospital-based study conducted from January to December 2017. The study involved patients attending or admitted in oncology and gynecology department of BMC. All files of patients were retrieved and files of patients with fungal infections were further analyzed. A checklist was used to collect information like clinical case, age, and name of antifungal, number of antifungals, dosage form, dose frequency, does administered, and sensitivity test. Irrational prescription was defined as either prescribing inappropriate medication,

wrong dose, wrong route or wrong interval for the right therapy.

Results: A total of 1070 files from both departments were retrieved, 860 (80.4%) were from Gynecology. Of these, 13.4 % (116/860) had cases of fungal infections with common fungal infection being vaginal candidiasis. Out of the 210 files retrieved from the Oncology department, 20% (42/210) had fungal infection with the common infection being oral candidiasis. Common antifungal prescribed were azoles and polyenes in gynecology and oncology departments, respectively. Of note only 1.9% were microbiological confirmed fungal infections in both departments. The prevalence of irrational prescription in oncology and gynecology departments was 52.38% (22/42) and 22.41% (26/116), respectively

Conclusion: There is irrational prescription of antifungal both in gynecology and oncology department of BMC. Vaginal candidiasis and oral candidiasis are the commonest infection in Gynecology and Oncology department while clotrimazole and Nystatin are the common prescribed antifungal, respectively.

Key words: *Antifungal prescribing; Gynecology and oncology department*

CU04AR: Extended Spectrum Beta-Lactamases producing *Enterobacteriaceae* Colonizing Patients Admitted Adult Intensive Care Unit of the Bugando Medical Centre, Mwanza, Tanzania

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Background: Extended spectrum Beta-Lactamase (ESBL) producing *Enterobacteriaceae* (ESBL-PE) have been increasingly detected at the Bugando Medical Centre (BMC) with limited data from adults Intensive Care Unit (ICU). This study investigated the magnitude and rate of ESBL-PE colonization among patients admitted to BMC-Intensive Care Unit (ICU) in Mwanza region.

Methods: A cross-sectional hospital-based study was conducted among patients admitted to BMC-ICU between May and July 2018. Rectal swab specimens were collected and transported to CUHAS-MPL in Stuart transport media (Armies, UK). Rectal swabs were inoculated onto MacConkey agar (MCA-C) supplemented with 2µg/ml cefotaxime to screen for ESBL-PE. Positive isolates were confirmed by ESBL-CHROMID (France). Data were analyzed using STATA-13 software.

Results: A total of 223 participants were enrolled with median age of 36 years (IQR: 24-57). Only 28 were successfully followed up to discharge. Out of 223 participants, 139 (62.3%) were colonized with ESBL-PE during admission of which the majority 54.7% (76/139) were referred from other healthcare settings. Out of 28 participants who were successfully followed up to discharge, only 11 (39.3%) developed ESBL-PE colonization. *E. coli* was frequently detected 73.4% (110/150) followed by *K. pneumoniae*, 17.3% (26/150). Estimated days of ESBL-PE acquisition was 8 days (IQR: 5-9). Increased days of hospitalization was significantly associated with ESBL-PE acquisition (p=0.0014).

Conclusion: ESBL-PE colonization is high among patients admitted Intensive Care Unit at BMC Mwanza Tanzania. There is a need to improve hospital infection control and review antibiotic prescription. Further investigation is needed to investigate possible external factors associated with colonization.

Keywords: Colonization; *Enterobacteriaceae*; Bugando Medical Centre; ESBL; Mwanza; Tanzania

CU05AR: Extended Spectrum Beta-Lactamase Producing Bacteria Isolated from Semen Culture Among Presumptive Infertile Men in Mwanza, Tanzania: A Cross Sectional Hospital-Based Study

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Background: Bacteriospermia lowers the quantity and quality of spermatozoa leading to secondary male infertility. There is limited information on extended spectrum beta lactamase (ESBL) producing gram negative bacteria (GNB) causing bacteriospermia and its association with male infertility. This study determined the magnitude of bacteriospermia, ESBL producing GNB and other factors in association with male infertility among presumptive infertile men attending reproductive health clinics in Mwanza, Tanzania.

Methods: This cross-sectional hospital-based study was conducted between May 2017 and July 2018 among 137 presumptive infertile men attending reproductive health clinics in Mwanza, Tanzania. Self-collected semen specimens collected using spermatozoa non-toxic sterile containers were processed according to Microbiology and Histopathology laboratory standard operating procedures (SOPs). Data analysis was done by using STATA 13.0.

Results: The mean age (\pm SD) of 33 (\pm 6.9) years and mean infertility duration from seeking medical intervention (\pm SD) of 2.7 (\pm 2) years was observed among study participants. Infertility and bacteriospermia was found among 48/137 (35.0%) and 44/137 (32.1%) participants, respectively. Gram negative bacteria were predominantly isolated, 38/44 (86.4%) of which 12 (31.6%) were ESBL producers. The *bla*_{CTX-M} gene was detected in 9/12 (75%) of phenotypically confirmed ESBL producers. Infertility was independently found to be associated with abnormal spermatozoa morphology (OR (95%CI): 14.48(3.17-66.05), $p=0.001$) and abnormal spermatozoa motility (OR (95%CI): 0.05(0.01-0.24), $p<0.001$).

Conclusion: About one third of bacteriospermia is due to ESBL-producers with history of antibiotic use being protective factor for infertility. Abnormal spermatozoa morphology and poor spermatozoa forward motility independently predicted infertility.

Keywords: *Bacteriospermia; Bla_{CTX-M}; Male Infertility; Extended Spectrum Beta Lactamase; Mwanza*

CU06AR: In Vitro Antifungal Activity of *Ocimum sanctum* Leaf Extracts on *Candida albicans* Clinical Isolates in Mwanza-Tanzania

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Background: Oral candidiasis is amongst the most common opportunistic fungal infections caused mainly by *Candida albicans*. Resistance of *C. albicans* to the most commonly prescribed antifungal agents such as azoles have been reported even in Tanzania. This imposes the need to explore alternative medicinal products. Plants such as *O. sanctum* L. are an important source of herbal medicine which have been shown to have effect on fungi pathogens. This study was conducted to determine the antifungal activity of *Ocimum sanctum* L. on oral *Candida* isolates in Mwanza, Tanzania.

Methods: Different concentrations of *O. sanctum* L. leaf extracts was made from pure powder of the leaf; (2.5mg/ml), (5mg/ml), (7.5mg/ml), (10mg/ml), (15mg/ml), (20mg/ml) were made and were tested against 20 *C. albicans* isolates. Agar dilution method using Muller Hinton Agar (MHA- Oxoid, UK) supplemented with the different concentrations

of the leaf extract was used to test for susceptibility against *C. albicans* isolates.

Results: A total of 20(100%), 13(65%) and 9(45%) *C. albicans* isolates were inhibited by *O. sanctum* L. extract at the concentration of 20mg/ml, 15mg/ml and 10mg/ml, respectively. Our results show the Minimum Inhibitory Concentration of *O. sanctum* L. leaves extract is 20mg/ml. The fungicidal activity is said to be due to the action of secondary metabolites which are present in the leaf.

Conclusion: The study results revealed that the effectiveness of *O. sanctum* L. leaf extracts on *C. albicans* increases with the increased concentrations. Further experimental studies to determine the chemical compositions of the leaf extract and to determine the active component in the plant with antifungal activities are warranted. Toxological studies should be performed to identify the efficacy and toxicity of this plant extract for human use.

Key words: *Antifungal resistance; Candida albicans; Ocimum sanctum* L; *Herbal medicine*

CU07AR: Antimicrobial Use and Veterinary Care Among Agropastoralists in East Africa

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Background: Antimicrobial use in veterinary care among small-holders in low-income and middle-income countries is an understudied behavior and one with potential consequences for the emergence and spread of antimicrobial resistance. In Africa, use of antimicrobials (AMs) appears widespread but ethnographic studies of AM-related behaviors in veterinary care are rare.

Methods: We present a cultural-ecological mixed-methods analysis to explore sectors of veterinary care, loosely regulated AM use, and human exposure to AMs through meat and milk consumption across three rural to peri-urban Tanzanian ethnic groups (N=415 households).

Results: Reported use of self-administered AMs varied by ethnic group (Maasai: 74%, Arusha: 21%, Chagga: 1%) as did consultation with professional veterinarians (Maasai: 36%, Arusha: 45%, Chagga: 96%) and observation of withdrawal of meat and milk from consumption during and following AM treatment (Maasai: 7%, Arusha: 72%, Chagga: 96%). The antibiotic oxytetracycline was by far the most common AM in this sample. Within

ethnic groups, herd composition differences, particularly size of small-stock and cattle herds, were most strongly associated with differences in lay AM use. Among the Arusha, proxies for urbanization, including owning transportation and reliance on “zero-grazing” herds had the strongest positive associations with veterinarian consultation, while distance to urban centers was negatively associated. For Maasai, consultation was negatively associated with use of traditional healers or veterinary drug-shops. Observation of withdrawal was most strongly associated with owning technology among Maasai while Arusha observance displayed seasonal differences

Conclusion: This One-Health analysis suggests that livelihood and cultural niche factors, through their association with practices in smallholder populations, provide insight into the selection pressures that may contribute to the evolution and dissemination of antimicrobial resistance. Identification of these factors, as well as other behavioral risk factors associated with AMR (e.g., hygiene practices) will provide targets for the development of behavioral change interventions to limit AMR.

Keywords: *Antimicrobial use; Veterinary care; Cross-cultural analysis; East Africa*

CU08AR: Prevalence and Factors Associated with Bacterial Infections Among Cancer Patients on Baseline Chemotherapy at the Bugando Medical Centre, Mwanza

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Background: Bacterial infections are common complications which increase mortality rate among cancer patients worldwide. This study determined the prevalence and factors associated with BSI and UTI among cancer patients on baseline chemotherapy attending Oncology unit at BMC, Mwanza.

Methods: This cross-sectional hospital-based study was conducted between May and August 2018 among 111 cancer patients on baseline chemotherapy. From each participant, blood and mid-stream urine specimens were collected and processed according standard operating procedures (SOPs). Data were analyzed using STATA version 13

Results: The median age of study participants was 50 years inter quartile range 39 to 61 years. The majority of participants were females, 71.2% (79/111). Six (5.4%) out of 111

participants had positive blood culture while 13 (11.7%) out of 111 participants had significant bacteriuria. Two (1.8%) out of 111 participants had simultaneous BSI and UTI. Gram negative bacteria were predominantly isolated from urine culture, 69.2% (9/13) and gram- positive bacteria were predominantly isolated from blood culture, 66.7% (4/6). Generally, isolated bacteria were sensitive to nitrofurantoin (94.7%) and ciprofloxacin (94.7%). None of the factors studied was found to be associated with bacterial infections among cancer patients on baseline chemotherapy.

Conclusion: Prevalence of bacterial infections is low among cancer patients on baseline chemotherapy. Nitrofurantoin and ciprofloxacin may be used empirically for treatment of bacterial infections among cancer patients on baseline chemotherapy.

Keywords: *Extended Spectrum Beta-Lactamase; Cancer; Chemotherapy; BM C; Mwanza; Tanzania*

CU09AR: Microbiological Patterns of Bacteria Causing Sepsis Among Patients Admitted to the Adult Intensive Care Unit of the Bugando Medical Centre, Mwanza-Tanzania

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Background: Sepsis is a common cause of admission and death in Adult Intensive Care Units (AICU) in the world. Clinical diagnosis of sepsis, microbiological culture and sensitivity, and prompt antibiotic treatment are essential early interventions known to reduce mortality. Here, we report incidence, microbiological patterns and factors associated with sepsis among adult patients admitted to the adult intensive care unit of the Bugando Medical Centre (BMC), Mwanza-Tanzania.

Methods: All patients above 18 years of age with a clinical diagnosis of sepsis admitted to the AICU of BMC were included. Microbiological assessment included blood, urine, cerebrospinal fluid, and wound swab cultures. Data was analyzed using STATA version 13.

Results: Of 357 patients admitted in the intensive care unit within 10 months of the study, 116 (32.5%) were clinically diagnosed to be septic. The median age of the septic patients was 40(28-57) years with the three top common reasons for admissions being shock 16(13.8%), low GCS 11(9.5%) and post-operative

complications 7(6.1%). A total of 59(50.90%) patients were microbiologically confirmed to be septic. *K. pneumoniae* was the commonest bacteria detected in 7/20, 8/20, 9/32 and 6/15 of positive blood, urine, wound swab and CSF culture, respectively. Other predominant bacteria detected from blood culture were *S. aureus* 4/20, *Pseudomonas* spp. 3/20 and *Acinetobacter* spp. 3/20. ESBL production was detected in 100% of the *K. pneumoniae* and *E. coli* from CSF and blood, and in 87.5% and 83.3% of *K. pneumoniae* and *E. coli* from urine, respectively. The mortality of septic patients was 54.3% (63/116).

Conclusion: More than one third of the adult intensive care unit admission at BMC is clinically septic. The mortality of septic patients admitted ICU of BMC is unacceptably high. In every two AICU admitted patient with sepsis one is infected with aerobic bacteria, most likely multi-drug resistant *K. pneumoniae*, *Acinetobacter* spp. and/or *E. coli*. Sample for culture and sensitivity among ICU admitted patients should be priority before initiations of antibiotics therapy.

Key words: *Adult intensive care unit; K. pneumoniae; Extended Spectrum Beta Lactamase; Sepsis*

CU10AR: Faecal Carriage of Extended Spectrum Beta-Lactamase Producing *Enterobacteriaceae* Among Marabou Stork Birds in The City of Mwanza and Bunda Town Council, Tanzania

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Background: Community and healthcare associated infections due to extended spectrum beta-lactamase (ESBL) producing *Enterobacteriaceae* (PE) is the global public health concern. However, in developing countries little is known about the relationship of ESBL producing *Enterobacteriaceae* in humans and wild birds. Therefore, we studied the fecal carriage of ESBL-producing *Enterobacteriaceae* among Marabou stork birds, these birds are significantly contributing to environmental contamination in the study settings.

Methods: This cross-sectional study was conducted between May and July 2018 among Marabou stork birds in Mwanza City and Bunda Town Council, Tanzania. A total of 361 Marabou stork birds' feces specimens were collected from different dumping sites. Fecal specimens were inoculated on MacConkey agar

(MCA-C) supplemented with 2µg/ml cefotaxime and plain MCA. ESBL producing *Enterobacteriaceae* were confirmed using CHROMID ESBL and disk approximation method. Data was analyzed using STATA 13.0.

Results: The majority of specimens (83.1%, n=300) were from Mwanza city. Out of 361 fecal specimens, 338 (93.6%) had positive culture and *E. coli* (91.9%, n=332) were frequently isolated. Of 338 isolates, 102 (30.2%) were found to be ESBL-PE of which 96 (94.1%) were *E. coli*. ESBL-PE were 100%, 100%, 83.3%, 33.3% and 17.7% resistant to tetracycline, trimethoprim-sulfamethoxazole, ciprofloxacin, gentamicin and meropenem, respectively.

Conclusion: The carriage of ESBL-PE is high among Marabou stork birds. Further genomic study to investigate relatedness of these isolates to those of human origin is warranted.

Keywords: *Extended spectrum beta-lactamase; Enterobacteriaceae; Marabou stork; Mwanza; Bunda; Tanzania*

CU11AR: Antifungal Prescribing Patterns of the Dermatology Department at the Bugando Medical Centre, Mwanza – Tanzania

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Background: Antifungal agents are drugs that selectively eliminate fungal pathogens from a host with minimal toxicity to the host. Inappropriate uses of anti-fungal agents due to irrational prescription can lead to resistance development. Limited data are available on prescribing patterns of antifungals in hospital settings. Therefore, this study aimed at assessing the prescription patterns of antifungal agents in the dermatology department at BMC.

Methods: A hospital based retrospective study was carried out in the dermatology department of the BMC from January 2017 to June 2017. The study included 105 patient files which were selected basing on having mycological infection from 1260 files in dermatology department of BMC. Information from files were recorded and assessed based on the checklist which included prescription indicators, diagnosis, antifungal

prescribed, frequency, dosage form, generic prescribing and culture sensitivity. Data were filled and analysed by STATA version 13.

Results: A total of 1260 patients' files were retrospectively reviewed, and 105 files were found with mycotic infections. Prevalence of irrational prescription was 24.76%. The most common antifungals prescribed were terbinafine 61.9%, itraconazole 5.71% and the combination of miconazole and fluconazole 4.76%. Common fungal diseases were Tinea corporis (31.42%), Tinea pedis (17.13%) and Tinea capitis (15.23%).

Conclusion: There is an irrational antifungal prescription at the dermatology department and this could lead to resistance development.

Key words: *Antifungal; Prescribing pattern; Dermatology*

CU12AR: ESBL Producing *Escherichia coli* and *Salmonella* spp. in Retailed Meat and Among Humans Working in Abattoirs and Meat Shops in Mwanza City, Tanzania

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Background: Extended spectrum beta-lactamases (ESBL) producing *Escherichia coli* are prevalent in animals and humans in Mwanza, Tanzania. Limited information is available regarding the presence of ESBL producing bacteria in retail meat products. The present study aimed at investigating the presence of ESBL producing bacteria in the retail meat samples and in the stool of the humans working in various retail meat shops in Mwanza city.

Methods: About four samples of 250g meat stake each were randomly collected from a single retail meat shop, in addition stool samples were taken from all humans working in the shop. Meat and stool samples were processed to detect ESBL producing *Escherichia coli* (*E. coli*) and *Salmonella* spp., following standard operating procedures. Standardized data collection tool was used to collect socio-demographic and other related factors. Disc susceptibility testing was done to all *E. coli* isolates from meat and ESBL producing *E. coli* from humans following the guidelines laid by Clinical laboratory standard Institute.

Results: A total of 105 retail meat shops were sampled; 420 meat samples and 210 non-repetitive stool samples were obtained from these shops. Out of 210 human stool samples, 30(14.2%) were positive for ESBL-producing *E. coli*. Whereas, of 420 meat samples, 322(76.7%) and 33 (7.8%) were contaminated with *E. coli* and *Salmonella* spp., respectively. ESBL producing *E. coli* were detected in 90(27.9%, 95%CI: 23.0-32.8) of 322 *E. coli* isolates from meat samples and none of *Salmonella* spp., was found to produce ESBL. ESBL producing *E. coli* were significantly more resistant to trimethoprim/sulphamethoxazole, tetracycline, gentamicin and ciprofloxacin ($P<0.001$). *Salmonella* spp. were significantly more resistant to ampicillin than *E. coli* isolates (84.8% vs. 63.6%, $P=0.015$).

Conclusions: A significant proportion of retail meat samples are contaminated with ESBL-producing *E. coli*. The observation highlights on the need of 'One Health' approach in combating the spread and the emergence of antimicrobial resistance especially in low-income countries.

Keywords: ESBL; *E. coli*; Meat; Humans

CU13AR: High Diversity of *Candida glabrata* Sequence Types from Clinical Samples in A Tertiary Hospital-Mwanza, Tanzania

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Background: *C. glabrata* is documented as the second most *Candida* spp. causing blood stream candidiasis in Europe and North America with 10-30% of isolates being resistant to fluconazole. In addition, variations of predominant genotypes of *C. glabrata* isolates causing different infection have been observed worldwide. In this study for the first time in Africa, we are reporting multi locus sequence typing (MSLT) genotypes of *C. glabrata* isolates from various clinical specimens.

Methods: A total of 47 non-duplicate isolates of *C. glabrata* from different clinical samples in different hospitals in the city of Mwanza between 2015 and 2017 were selected based on their antifungal susceptibility to fluconazole, voriconazole or posaconazole. The MLST developed by Dodgson et al., for *C. glabrata* using six loci coding for 1,3-Beta-glucan synthase, 3-Isopropylmalate dehydrogenase, Myristoyl-CoA, protein N-myristoyltransferase, Phosphoribosyl-anthranilate isomerase, UTP-glucose-1-phosphate uridylyltransferase and Orotidine-5'-phosphate decarboxylase was used. The

dendrogram was constructed from the matrix of the pairwise similarities of 3,345-bp concatenated DNA sequences using iTOL vol3.

Results: Out of 47 *C. glabrata* isolates, 12 unique sequence types were observed making a 25% genetic population differences, with 14 (29.8%) assigned to new sequence types; ST87(6), ST84(5), ST85 (2), and ST86 (1). The number of isolates per sequence type ranged from 1 to 17. ST18 (5) and ST87 (5) were frequently detected *C. glabrata* genotypes from urine. We observed that out of 17 *C. glabrata* isolates which were typed as ST18, 9(52.9%) had reduced susceptibility to fluconazole (i.e. MIC 8ug/ml) compared to only 5(16.7%) of *C. glabrata* typed as non- ST18, p=0.018.

Conclusion: Our results suggest that *C. glabrata* ST18 to be the most predominant genotype. ST18 and ST87 were frequently detected from urine samples. Detection of ST3 and ST7 which have predominantly been observed in other continents might suggests the possibility of these genotypes to be globally distributed.

Key words: *C. glabrata*; ST18; Reduced susceptibility; Fluconazole; Mwanza

CU14AR: High Diversity of Circulating Genotypes of *Candida albicans* from Clinical Samples in Mwanza, Tanzania

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Background: *Candida albicans* accounts for the majority of candidiasis cases worldwide. Geographical variations in term of susceptibility patterns and genotypes of *Candida albicans* causing different candidiasis have been reported. There are no studies from Tanzania which have been done to genotype *Candida albicans* using multi locus sequence typing (MLST) and ABC typing. This study for the first time in Tanzania has reported the diversity of *C. albicans* genotypes from various clinical samples.

Methods: The MLST schemes developed by Bougnoux et al. for *C. albicans* were employed followed by ABC typing as described by Clemons et al. The PCR products were sequenced and analyzed using Geneious® research software (Biomatters Ltd, Auckland, NZ) and isolates were assigned to their respective sequence types according to <https://pubmlst.org/calbicans/>.

Results: Of the 67 *C. albicans* genotyped, 30(44.8%), 11(16.4%), 11(16.4%), 12(17.9%) and 3(4.5%) were from urine, high vaginal swab, oral swab, esophageal brushes and blood,

respectively. Out of 67 *C. albicans* isolates, 47 sequence types were detected, making 70.1% genetic population structure differences. A total of 32 *C. albicans* isolates had unknown ST and these were assigned to 28 new ST. Five *C. albicans* isolates which were resistant to fluconazole were typed as ST69(2), ST124(1), ST1867(1) and new ST (1) while one triazoles resistant isolate was ST124. Ribotyping of 67 *C. albicans* isolates revealed three ribotypes namely, A (35, 52.2%), C (18, 26.8%) and B (14, 20.9%). Out of 35 A ribotype *C. albicans*, 28(80%) STs were observed, similarly out of 18 C ribotypes, 16 (88%) STs were observed and out 14 B ribotypes 13(93%) STs were also observed.

Conclusion: MLST typing is more discriminatory than ABC typing. The observation of high population structure diversity of *C. albicans* with observation of number of new STs in Tanzania points to geographical variations of *Candida albicans*. There is a need to collect more isolates from invasive candidiasis in order to compare the *C. albicans* genotypes distribution in relation to clinical outcome.

Keywords: Multi Locus Sequence Typing; ABC typing; *C. albicans*; ST69; ST124

CU15AR: Self-Medication with Antibiotics Among Medical Students at the Catholic University of Health and Allied Sciences

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Background: Self-medication is defined as the use of medicines by a person for self-treatment without any medical consultation. The study aimed at determining the prevalence of self-medication with antibiotics among medical students and the factors associated with self-medication amongst medical students.

Methods: A cross-sectional study was conducted. The study enrolled 275 undergraduate students. Data analysis was done by SPSS software.

Results: Out of 275 participants, 53.1% were male and 46.9% were female. The prevalence of self-medication was found to be 84%. The study revealed that the most common antibiotics used for self-medication were amoxicillin 24.3%, followed by metronidazole 15.1%, ampicillin

9.8% and ciprofloxacin 9.5%. According to the study, females significantly engaged more in the practice of self-medication than the males. Other contributing factors were 'insufficient knowledge on antibiotics' 34.9%, followed by 'cost saving' 31.9% and 'convenience' 31.5%. The study also revealed that only 32.45% of the respondents completed their doses and the main reason for discontinuing the course of self-medication was found to be the disappearance of the symptoms 34.6%.

Conclusion: The practice of self-medication with antibiotics was found to be high among medical students. It is important to timely introduce the antibiotic stewardship [programmes among medical students.

Keywords: *Self-medication; Antibiotics; Medical students*

CU16AR: Improving Antibiotic Stewardship in Low-income Countries is Unlikely to Convey Reductions in Antibiotic Resistance if Bacterial Transmission is not Addressed: A Biological and Socio-Economic Analysis of Resistant *E. coli* in Three Cultural Settings

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Background: Improved antimicrobial stewardship, sanitation and hygiene are WHO-inspired priorities for limiting the spread of antimicrobial resistance. Prioritization amongst these objectives is essential, particularly in resource-constrained countries, but factors contributing most to antimicrobial resistance are typically unknown and may vary considerably between communities.

Methods: We conducted a comprehensive analysis of biological and socio-economic risk factors for antimicrobial resistance among three culturally diverse ethnic groups in northern Tanzania. Over 11,000 *E. coli* isolates were typed against a panel of nine antimicrobials and matched with household-level data on education, hygiene practices, wealth, livestock husbandry, human and animal health, welfare and antibiotic use.

Results: Antimicrobial usage in people and livestock did not explain variation in resistance

to five commonly observed antimicrobial resistance phenotypes. Instead, the factors with the greatest predictive value involved exposure to bacteria and were intimately connected with fundamental cultural differences across our study groups. These factors included how different subsistence types (pastoralists versus farmers) access water sources and consumption of unboiled milk, reflecting increased exposure to resistant bacteria in milk.

Conclusion: When cultural and ecological conditions favor bacterial transmission, there is a high likelihood people will harbor antimicrobial-resistant bacteria regardless of antimicrobial use practices. Public health interventions to limit antimicrobial resistance need to be tailored to local practices that impact bacterial transmission. Focusing only on antibiotic use practices *per se* is unlikely to be effective.

Key words: *Antimicrobial resistance; Stewardship; Bacterial transmission; Tanzania; Socio-economic analysis*

CU17AR: Deciphering Risk Factors for Blood Stream Infections, Bacteria Species and Antimicrobial Resistance Profiles Among Children Under Five Years of Age in North-Western Tanzania: A Multicentre Study in a Cascade of Referral Health Care System

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Background: Blood stream infections (BSIs) is a complex cascade of inflammatory events, resulting into significant morbidity and mortality in children. In Tanzania, previous studies largely involved neonates in the tertiary health care facilities in contrast to the lower level health care facilities; limiting comprehensive BSIs management.

Methods: A cross sectional analytical study was conducted between March 2016 and October 2017 involving 950 children less than five years of age in North-western Tanzania. Demographic, clinical and laboratory information (culture and antimicrobial susceptibility) was collected from children.

Results: The prevalence of BSIs among children was 14.2% (95%CI: 12.1%-16.6%), with district hospitals, a regional hospital and a tertiary hospital accounting for 8.3%, 6.4% and 20.0%, respectively. The most common bacterial pathogens isolated from 135 culture-positive children were *Klebsiella pneumoniae* (55, 40.4%), *Staphylococcus aureus* (23, 17.0%), and *Escherichia*

coli (17, 12.6%). Strikingly, 79.5% (75/95) of Enterobacteriaceae were resistant to third generation cephalosporin (3rd gen. ceph-R). The 3rd gen. ceph-R was significantly higher in strains from a tertiary hospital [4.95(1.15-21.32), p-value=0.032] compared to strains from lower health care facilities. All 3rd gen. ceph-R *K. pneumoniae* and *E. coli* strains were extended spectrum beta lactamases producers. Risk factors for BSIs were neonatal period [OR (95% CI): 1.93 (1.07-3.48); p-value=0.003] and admission at the tertiary hospital [OR (95% CI): 2.01 (1.08-3.74); p-value=0.028]. Approximately 6.6% (61/932) of children died, with three quarters of these being neonates [OR (95% CI): 2.25 (1.02-5.00; p-value=0.045], compared to other age groups.

Conclusion: The prevalence of BSIs (14.2%) in this multi-centre study is high and predominantly caused by the multi-drug resistant *K. pneumoniae*. Priority interventional measures to combat BSIs and mortality, specifically among neonates at the tertiary hospital are urgently recommended.

Keywords: *Blood stream infections; Children; Tanzania*

CU18AR: Molecular Characterization of Extraintestinal Pathogenic *Escherichia coli* from Patients in Cascade of Referral Health Care System in North-Western Tanzania: Circulating Sequence Types, ST131 Clades and Antimicrobial Resistance Profiles

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Background: Limited information is available regarding the extraintestinal pathogenic *Escherichia coli* (ExPEC) sequence types, and especially ST131 in Africa. Delineation of ExPEC clones among patients in Tanzania is pivotal in guiding antimicrobial therapies and infection preventive measures.

Methods: A total of 226 ExPEC strains (128 from pregnant women, 15 from children and 83 from other patients) were collected between March 2016 and October 2017 in seven health care facilities in North-western Tanzania. Characterization of these strains into ST-*fimH* clones (by the 7SNP-qPCR and gene sequencing), and ST131 clades (by multiplex PCR) were performed.

Results: Approximately 64.2% (n=145) of ExPEC strains were typeable using the 7SNP-qPCR and gene sequencing, with predominance of CC10 (33.1%), and ST131-*fimH*30/41 (17.9%). The 7-SNP qPCR correctly typed all dominant global clones in this Tanzanian ExPEC collection (i.e. ST131-*fimH*30/41, ST95-*fimH*41,

ST73-*fimH*9/10 and ST69-*fimH*27). The commonest ST131 clades were C1 (9, 34.6%) and C2 (10, 38.5%), and were associated with fluoroquinolone and extended spectrum beta lactamases (ESBL) production, respectively. The overall ESBL production among 226 ExPEC strains was 21.7% (n=49) and was specifically due to the *bla*_{CTX-M-15} (88.0%, n=44), *bla*_{CTX-M-27} (n=2), *bla*_{CTX-M-24} (n=1), *bla*_{CTX-M-14} (n=1) and unknown ESBL allele (n=1). The pulsed field gel electrophoresis displayed heterogeneity among non-typeable strains.

Conclusion: The 7-SNP qPCR and multiplex clone PCR are feasible, cost effective and simple molecular tools that can be utilized in surveillance programs to track dominant ExPEC clones, especially in low- and middle-income countries. The predominance of the *bla*_{CTX-M-15} allele in Tanzania is reiterated in our findings. To the best of our knowledge, this is the first in report in Tanzania showing ST131 strains with *bla*_{CTX-M-27} allele.

Keywords: *Escherichia coli*; Sequence types; ST131 clades; North-western Tanzania

CU19AR: A Multi-Centre Evaluation of Urinary Tract Infections Among Pregnant Women in The Cascade of Referral Health Care System in North-Western Tanzania: Bacterial Pathogens, Antimicrobial Resistance Profiles and Predictors of Infections

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Background: Urinary tract infections (UTIs) complicated by multidrug resistant bacteria confer antimicrobial therapeutic challenges resulting into adverse maternal-fetal and neonatal outcomes. Available information in Tanzania is largely from single-centre studies in tertiary hospitals, limiting their generalizability to the lower level health care facilities. This study aimed at evaluating the magnitude of UTIs, implicated bacterial pathogens, antimicrobial resistance (AMR) profiles and risk factors among pregnant women attending different levels of health care facilities so as to guide specific antimicrobial therapies and preventive measures.

Methods: Socio-demographic and clinical information was collected from 1,828 pregnant women between March 2016 and October 2017 in North-western Tanzania. Mid-stream urine samples were analyzed by culture and antimicrobial susceptibility testing.

Results: The prevalence of UTIs among pregnant women was 17.7% (95% CI: 16.0% - 19.5%), with predominance of *Escherichia coli*,

(164, 50.8%), *Klebsiella* spp. (55, 17.0%) and *Staphylococcus aureus* (28, 8.7%). Third generation cephalosporin resistance (3rd gen. Ceph-R) in *E. coli*, *Klebsiella* spp, and other Enterobacteriaceae was 13.4%, 21.8% and 27.5%, respectively. The 3rd gen. ceph-R among all Enterobacteriaceae was 16.6% (43/259), and was higher in strains from a tertiary hospital [OR (95% CI): 3.27 (1.02 - 10.49), p-value=0.046] compared to lower health care facilities. All 3rd gen. Ceph-R *E. coli* and *Klebsiella* spp were extended spectrum beta lactamases producers. The proportion of Methicillin resistant *Staphylococcus aureus* strains was 28.6%. Predictors of UTIs among pregnant women were lack of formal occupation, current hospital admission and presence of co-morbidities.

Conclusion: The prevalence of UTIs among pregnant women is high and within the same range reported ten years ago in a single-centre baseline study. However, there is an increase in AMR in the cascade of the referral health care system, underscoring the need to have level-specific antimicrobial stewardship.

Keywords: *Urinary tract infections; Pregnant women; Referral health care system; Tanzania*

CU20AR: Hand Hygiene Across Health Care Facilities in Dodoma Region in Tanzania: A baseline Assessment using WHO Multimodal Hand Hygiene Improvement Strategy

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Background: Health-care associated infections (HCAIs) are associated with significant morbidity, mortality and costs. Compliance with guidelines on hand hygiene is pivotal in prevention and control of HCAIs. Despite existing evidence on HCAI in hospitals Tanzania there is limited information on hand hygiene practice, a critical component of infection prevention and control (IPC). This study assessed hand hygiene levels in health care facilities in Dodoma region to guide required interventions.

Methods: The assessment involved 261 in-charges of units from 7 hospitals, 27 health centres and 165 dispensaries of Dodoma region in March 2018. Data were collected using *WHO Hand Hygiene Self-Assessment Framework Tool* (2010) with five indicators, each counting 100 points: system change (SC), training and education (TE), evaluation and feedback (EF), reminders in the work place (RW), and institutional safety climate (ISC); the overall maximum hand hygiene score being 500.

Results: A total of 195 (74.7%) labour wards, 34 (13.0%) outpatient units and 32 (12.3%) other units were assessed. The overall hand hygiene

level in Dodoma region was inadequate, with the median hand hygiene score (interquartile range) of 80 (60 – 145). The median hand hygiene score was significantly higher in hospitals [107 (80 – 182.5)], compared to health centres [76.3 (60 – 125)] and dispensary [75 (55 – 145)]; $\chi^2 = 7.765$; $p\text{-value} = 0.021$. The overall hand hygiene level by health facility unit in Dodoma region was basic in laboratories [142 (80 – 175)], whereas, all other units had variable median scores at inadequate hand hygiene level. The indicator SC had the highest median score of 40/100, followed by EF with 15/100, while TE, RW and ISC had the lowest median score of each 5/100. Continuous supply of water was higher than alcohol-based hand rub [82.8% (216/261) and 23.4% (61/261), $p\text{-value} < 0.001$], respectively. Of the 56 (21.5%) of health workers who had participated in hand hygiene compliance monitoring, only 2 (3.7%) reported a compliance rate above 81%.

Conclusion: The overall hand hygiene level in health facilities of Dodoma region was inadequate. Individual, institutional and governmental policy key gaps in hand hygiene compliance need to be addressed with targeted interventional measures to avoid HCAIs.

Keywords: *Hand hygiene; WHO hand hygiene assessment tool; Health facilities; Dodoma; Tanzania*

CU21AR: Prevalence of Blood Stream and Urinary Tract Infections and Associated Factors Among Symptomatic Children with Sick Cell Anemia Attending at the Bugando Medical Centre, Mwanza, Tanzania

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Background: Sick cell anaemia (SCA) is a common genetic disorder, which is distributed worldwide and estimated to affect a total of 275,000 children worldwide. SCA is a significant problem in Africa whereby 50-80% of children die before their fifth birthday. Blood stream infections (BSI) and Urinary tract infections significantly contribute to the morbidity and mortality in children with SCA. This study was designed to determine the prevalence of BSI and UTI and associated factors among symptomatic children with SCA attending at the Bugando Medical Centre, Mwanza-Tanzania.

Methods: This was the hospital-based cross-sectional study. Demographic information and clinical presentation were collected using pre-tested questionnaires. Blood and urine culture were done following standard operative procedures. Data were analyzed using STATA version 13.

Results: A total of 320 children were enrolled. The median age was 48 [Interquartile range (IQR: 30 – 84.5)] months. Male formed slightly majority 174(54.4%) of study participants. Most

of the children 130(40.6%) enrolled were aged between 2 and 5 years. Out of the 320 participants, 28(8.8%, 95% CI: 6.1-12.4) had BSI and 62(19.4% 95%CI: 15.4-24.1) had UTI. *Escherichia coli* and other gram-negative bacterial isolates were predominant isolates from urine and blood, respectively. *E. coli* isolates from urine were 90.9%, 75.6%, 66.7% 42.4%, 39%, 21.2%, 12.1%, 3% and 0% resistant to ampicillin, trimethoprim/sulphamethoxazole, amoxicillin/clavulanic acid, gentamicin, ceftriaxone, amikacin, nitrofurantoin and meropenem, respectively. Factors found independently to predict UTI were female sex (OR; 2.4, 95% CI 1.3-4.7, p=0.005), age below 2 years (OR; 6.6; 95% CI 2.8-16; p<0.001), age between 2 -5 years (OR; 3; 95% CI 1.3 - 6.5; p=0.005) and living in rural areas (OR; 2.6, 95% CI 1.4-4.9, p=0.002).

Conclusion: BSI and UTI among children with SCA attending BMC are due to multi-resistant gram-negative bacteria. Routine investigation followed by specific treatment for BSI and UTI should be emphasized among children with SCA.

Keywords: Sick Cell Anemia; Blood stream infections; Urinary tract infection; Tanzania

CU22AR: Association Between Triazole Antifungal Susceptibility Profiles and *Candida albicans* Genotypes Associated with Human Candidiasis in Mwanza, Tanzania

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Background: *Candida albicans* is the most frequently identified *Candida* species associated with human candidiasis. Azoles are the most commonly prescribed antifungals in Africa. *Candida albicans* genotypes differ in their susceptibility patterns to antifungal agents including azoles. This study was carried out to determine the association between circulating *C. albicans* genotypes and triazole antifungal susceptibility profiles in Mwanza, North-Western Tanzania so as to inform future azole-based human candidiasis chemotherapy.

Methods: Microdilution susceptibility testing and 25S ribosomal gene-based PCR were employed to determine the triazole susceptibility profiles and genotypes of 312 archived clinical *C. albicans* isolates from patients in Mwanza, North-Western Tanzania respectively. STATA version 13 was used to analyze the data.

Results: This study has shown that *C. albicans* type A is the most prevalent, 53.3% (167/312).

Key words: *Candida albicans*; Genotypes; Triazoles; Susceptibility

Other *C. albicans* detected were C and B at prevalence rates of 23.4% (73/312) and 23.1% (72/312) respectively. Majority, 97.4% (304/312), of the *C. albicans* isolates were sensitive to fluconazole. Some 5.1% of all the 312 screened *C. albicans* isolates were resistant to both posaconazole and voriconazole. *C. albicans* genotypes C and B were significantly ($p = 0.005$ and $p=0.009$ respectively) associated with triazole resistance compared to genotype A.

Conclusion: The most predominant genotype of the *C. albicans* isolates from clinical specimens in Mwanza, is A, followed by C and B. Fluconazole remains the best triazole option for treating human candidiasis since all the three *C. albicans* genotypes [A, B and C] were largely susceptible to these antifungal agents. However, being infected with genotype C and B is more likely to be a poor indication of responding to treatment with some triazoles.

MATERNAL AND CHILD HEALTH



CU01MC: Rotavirus Vaccine Implementation Has Reversed the Trend of Hospitalization Among Children Below Five Years of Age in Mwanza, Tanzania

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Background: Rotavirus infection is a leading cause of severe diarrhoea culminating with dehydration and prolonged hospitalization among children under five years of age. The World Health Organization (WHO) has recommended immunization for Rotavirus infection to prevent severe infection among children in countries where diarrheal diseases cause more than 10% of deaths among the under-fives. This study was carried out to determine the prevalence and duration of hospital stay of children with Rotavirus infection among vaccinated children aged 6 weeks to 2 years admitted with acute diarrhoea in Mwanza city hospitals.

Methods: A cross-sectional hospital-based study involving vaccinated children aged 6 weeks to 24 months was conducted from July 2017 to January 2018 in Nyamagana District Hospital, Sekou-Toure Regional Referral Hospital and Bugando Medical Centre. Socio-demographic data and clinical characteristics were collected using a structured pre-tested questionnaire adopted from the WHO Rotavirus Surveillance tool. Stool specimens were collected from each child for the detection

of Rotavirus infection using an enzyme immunoassay (ProSpecT Rotavirus Microplate Assay, Oxoid Ltd, UK). Hospital stay of each child was documented. Data were analysed using STATA software version 13.

Results: A total of 301 vaccinated children with acute diarrhoea admitted in three hospitals were recruited in the study. The median age was 12 [IQR: 8 – 17] months. Nine (3.0%) and 292 (97.0%) children had received one dose and two doses of Rotavirus vaccine, respectively. The prevalence of Rotavirus infection was 74/301 (24.6%) [95% CI: 20.0 – 29.8]. Children with Rotavirus infection had a significant shorter hospital stay than those without Rotavirus infection (3 [2 – 4] days versus 3 [3 – 5] days; p=0.0297).

Conclusion: Rotavirus vaccine has significantly reduced the duration hospital stay among children with acute diarrhoea. These findings support the ongoing immunization programme among children in Tanzania and other low-income countries where the virus is endemic.

Keywords: *Rotavirus; Mwanza; Hospitalization; Diarrhoea; Children*

CU02MC: Pattern and factors Associated with Vaginal Candida Colonization among Women Attending Cervical Cancer Mass Screening at Ushetu District in Shinyanga Tanzania

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Background: *Candida* spp. are associated with inflammatory responses which facilitate oncogenesis. Cervical cancer ranks as the first most frequent cancer among women in Tanzania. There is scarcity of epidemiological data for *Candida* spp. colonizing women at community level. This study investigated patterns of *Candida* spp. and associated factors among women screened for cervical cancer at Ushetu district in Shinyanga, Tanzania.

Methods: A community-based cross-sectional study screened 372 women for cervical cancer. The study was conducted between May and July 2018 in Ushetu District. High vaginal swabs were cultured on Sabourauds Dextrose Agar (SDA) and incubated at 37°C for 24 hours. A single colony was picked and inoculated onto a CHROMagar and incubated at 37°C for 24 hours to identify and differentiate *Candida* spp.

Results: A total of 372 participants were enrolled with median (IQR) age of 35 (26-45) years. The prevalence of vaginal *Candida* spp. colonization was 18.5% (69/372). *Candida albicans* was predominant 61% (42/69) followed by *C. krusei* 23% (16/69), *C. glabrata* 10% (7/69) and *C. tropicalis* 4% (3/69). It was found that, being illiterate (χ^2 2.436, $p= 0.027$) and having a history of antibiotic use in the two weeks prior to the screening (χ^2 4.871, $p= 0.03$) were significantly associated with vaginal *Candida* spp. colonization.

Conclusion: Nearly a twentieth of 100 women screened for cervical cancer at Ushetu district were vaginally colonized by *Candida* spp. with *Candida albicans* as a predominant species. Vaginal colonization was associated with illiteracy and having a history of antibiotic use. The link of *Candida* spp. colonization and oncogenesis needs to be further investigated.

Keywords: *Candida vagina* colonization; *C. albicans*; Antibiotic use

CU03MC: Seroprevalence of *Treponema pallidum* and *Brucella* spp. Among Women with Macerated Stillbirth in Mwanza Tanzania

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Background: *Treponema pallidum* and *Brucella* spp. infection have been reported as one of the most common causes of stillbirths world-wide. Despite the burden of these infections in low income countries, little is known concerning the association of these infections with stillbirth. This study was conducted to establish the seroprevalence and factors associated with *T. pallidum* and *Brucella* spp. among women with macerated stillbirth in urban and rural Mwanza, Tanzania

Methods: An analytical cross-sectional hospital-based study involving 301 women with macerated stillbirths attending selected health facilities was conducted between October 2017 and March 2018. Sociodemographic, obstetrics and other relevant information was collected by using pre-tested structured data collection tool. *Brucella* spp. antibodies were detected by the slide agglutination test, while *T. pallidum* was detected by using venereal diseases research laboratory (VDRL) and *T. pallidum* hemagglutination test (TPHA) as per manufacturer's instructions. Data were analysed by STATA version 13 as per study objectives.

Results: The median age of the study participants was 27 (IQR: 22 - 34) years. Out of 301 women with stillbirths enrolled, 18(6.0%, 95% CI: 3.0-8.0) and 87(29.0%, 95% CI: 23-34) were found to be seropositive for *T. pallidum* and *Brucella* spp., respectively. Seroprevalence of *T. pallidum* was significantly higher among women who were residing in rural areas than urban areas ($p=0.010$), and in HIV positive than HIV negative ($p=0.036$). None of the factors tested was found to be associated with *Brucella* spp. seropositivity among women with macerated still birth. By multivariable logistic regression analysis positive HIV serostatus (OR: 3.9, 95% CI: 1.2-14.1, $p=0.036$) and residing in rural areas (OR: 5.6, 95% CI: 1.5-20.3, $p=0.010$) were found to predict *T. pallidum* positivity among women with stillbirth in Mwanza.

Conclusion: The seroprevalence of *T. pallidum* and *Brucella* spp. infections are significantly higher in women with MSB than in women with normal pregnant and in general population. The independent factors associated with *T. pallidum* among women with MSB were residing in rural areas and HIV infection.

Keywords: *Treponema pallidum*; *Brucella* spp; Macerated stillbirth; Mwanza; Tanzania

CU04MC: Syphilis Diagnosis in Tanzania: The Need to Ensure Availability of Specific Treponemal Test

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Background: *Treponema pallidum* infection is endemic in many resource-limited countries including Tanzania and infection in HIV seropositive individuals and pregnant women has been associated with adverse outcomes. Despite this pathogen being endemic in these countries, the diagnosis of *T. pallidum* in the majority of hospitals in Tanzania is based on the use of treponemal tests only, Venereal Disease Research Laboratory (VDRL) or Rapid Plasma Reagin (RPR), without confirmation by treponemal tests such as *T. pallidum* Particle Agglutination test (TPPA) or *T. pallidum* Hemagglutination test (TPHA). This practice is associated with mistreatment and does not establish those with past infections or poorly treated cases. This study analysed the results of *T. pallidum* diagnosis based on forward and reverse algorithms as recommended by the world health organization (WHO)

Methods: Two sets of achieved sera from 450 HIV seropositive individuals and 301 women with macerated stillbirth were used. Sera from women with stillbirth were tested by forward algorithm (VDRL followed by TPHA) whereas HIV infected sera were tested by using reverse algorithm (TPHA followed by VDRL) as per WHO. Data were analysed by STATA version 13.

Results: Among 301 sera from women with macerated stillbirth, 30/301 (10%, 95% CI: 7.0 - 14.0) were seropositive for *T. pallidum* by using VDRL and 18/301 (6.0%, 95% CI: 3.0-8.0) were seropositive by TPHA indicating that only 6 % were truly having acute infection while among HIV infected sera, 45/450 (10.0% 95% CI: 7.2-12.7) were TPHA positive and 63/450 (14.0 %, 95% CI: 10.7-17.2) were VDRL positive; only 21 (4.7%) were both VDRL and TPHA positive indicating acute infection. Past *T. pallidum* infection was observed in 24/450 (5.3%) of HIV infected individuals. By using VDRL alone about 4% HIV infected individuals and women with stillbirth would be falsely labelled as syphilis cases.

Conclusion: A significant proportion of patients are wrongly considered as syphilis cases leading to unnecessary antibiotic prescription while detection of patients with past syphilis is not possible by using VDRL alone or forward algorithm. This calls for the need to revise the syphilis algorithm and consider reverse algorithm in Tanzania and other developing countries for the betterment of patients care.

Keywords: *Treponema pallidum*; Syphilis; Algorithm; Treponemal tests; Tanzania

CU05MC: Upper Respiratory Tract Infections Among Children Under Five Years of Age in the City of Mwanza, Tanzania, are Predominantly Caused by Rhinoviruses and Adenoviruses

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Background: Upper respiratory tract infections (URTI) are one of the major leading causes of childhood morbidity worldwide among children under five years of age. They are among the leading reasons for school absences and causes of frequent visits to primary health care. Therefore, this study was undertaken to provide basic information regarding the viral aetiologies of upper respiratory tract infections among children under five years of age in Mwanza city.

Methods: This was a cross sectional hospital study conducted from October 2017 to February 2018 involving children under five years of age attending various clinics in the city of Mwanza, Tanzania. The nasal pharyngeal swabs were collected and processed using multiplex polymerase chain reaction that detects 19 respiratory. Data were analysed by STATA version 13.

Results: A total of 339 children with URTI in the City of Mwanza were recruited. Of these, 200 (59%) were seen at Buzuruga and 139 (41%) at

Nyamagana. The slightly majority 139(58.4%) of children were below two years of age. Fever and nasal congestions were present in 82.3% and 65.5% of children, respectively. Of 339 children enrolled, 156 (46%) had viral pathogens detected from nasopharyngeal specimens. Viruses detected were: Rhinovirus (23.9%), Adenovirus (7.4%), Parainfluenza 3 (6.7%), Bocavirus (5.6%), Coronavirus (5.3%), Enterovirus (5.3%), Metapneumovirus (3%), Influenza B (2.1%), Influenza A (1.2%), Parainfluenza 4(0.9%) and Respiratory syncytial virus (0.6%). One child was positive for *Bordetella parapertussis*.

Conclusion: Varieties of viruses are responsible for URTI among children under five years of age in the city of Mwanza. Rapid diagnostic assays for viral pathogens causing URTI are urgently needed in developing countries to reduce unnecessary antibiotic prescriptions which is associated with increased antibiotic resistance.

Keywords: *Rhinovirus; Adenovirus; Children; Mwanza*

CU06MC: Rubella, Zika and Dengue Virus Seropositivity among Symptomatic Pregnant Women Attending Antenatal Clinics in Rural and Urban areas of Mwanza Tanzania

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Background: Rubella, Zika and Dengue viruses have been associated with adverse pregnancy outcomes such as stillbirth, miscarriage, low birth weight, pre-term birth, and congenital malformations. There is scarcity of information regarding the magnitude of those viruses' infection in most African countries. This study aimed at determining seropositivity and factors associated with Rubella, Zika and Dengue viruses seropositivity among symptomatic pregnant women attending antenatal clinics in rural and urban areas of Mwanza, Tanzania.

Methods: A cross-sectional hospital-based study was conducted between July 2017 and April 2018 in Mwanza. Pregnant women with signs and symptoms of Zika/Dengue infections in the current pregnancy were enrolled. Sera were collected and Zika IgM and IgG as well as Dengue IgM and IgG antibodies were tested using enzyme immunoassay (TELL ME FAST, Canada) followed by multiplex PCR. Rubella IgM seropositivity was determined by μ capture enzyme linked immunosorbent assay (ELISA). Data was analysed by STATA version 13

Results: A total of 171 pregnant women were enrolled in the study with median age of 24 [IQR: 21-30] years and the median gestation age

of 25[IQR 20-32] weeks. Most women 154 (90.1%) were married, had attained primary education 139 (81.3%) and were from rural areas 116 (67.8%). Out of 171 participants, only one was found to be positive for Zika virus IgM antibodies 1(0.6%) while 5 (2.9%) were Zika IgG antibodies seropositive. Regarding Dengue virus seropositivity, 9/171 (5.3%) were positive for IgM antibodies and 3 (1.8%) for IgG antibodies. Out of 171 pregnant women, 16(9.4%) were seropositive for either Zika or Dengue virus. All patients were PCR negative for Zika or Dengue viruses. Only 2(1.2%, 95% CI: 0.4-2.8) were Rubella IgM seropositive. Residing in rural areas (OR: 5.03, 95%CI: 1.04-24.29, p=0.044) and advanced age (OR: 1.16, 95%CI: 1.02-1.32, p=0.024) independently predicted Zika or Dengue virus seropositivity.

Conclusion: About one tenth of pregnant women with signs and symptoms during pregnancy were seropositive for Zika or Dengue virus. There is a need of introducing routine screening of these viruses and monitor pregnancy outcomes of positive cases in order to establish the relationship between these viruses and pregnancy outcomes in endemic areas.

Keywords: *Rubella; Zika; Dengue; Pregnant women; Mwanza; Tanzania*

CU07MC: Virulence and Genotype Distribution of Candida Albicans Colonizing Vagina of Pregnant Women with and without Premature Rapture of Membrane

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Background: Vulvovaginal candidiasis is a common gynaecological disease among women and occurs more frequently among pre-colonized pregnant women. Productions of proteases and phospholipases by bacteria during pregnancy have been associated with a premature rupture of membrane (PROM). Here, we report the virulence activities and genotypes distribution of *Candida albicans* colonizing the vagina of pregnant women with and without PROM.

Methods: Isolates of *Candida albicans*, originally from pregnant women with and without PROM, were sub-cultured. Virulence factors including proteases, phospholipases, coagulase and haemolytic activities were assayed. DNA from pure colonies was extracted and 25s rDNA PCR was conducted.

Results: A total of 42 isolates from pregnant women with (25) and without (17) PROM were included. All 42(100%) *C. albicans* isolates had haemolytic activities while phospholipases, proteases and coagulases activities were detected in 28 (66.7%), 21 (50%) and 14 (33.3%), respectively. Genotype A was predominantly detected; 28 (66.7%) followed by genotype B; 8 (19%) and C; 6 (14.3%). The genotype B was detected more in women with PROM than in women without PROM (6 (75%) vs. 2 (25%), $p=0.0228$).

Conclusion: Virulent *C. albicans* isolates are colonizing pregnant women. *C. albicans* genotype B are colonizing pregnant women with PROM more frequently than those without PROM. More studies on association of genotype B *Candida albicans* and the premature rupture of membrane are needed.

Keywords: *Vaginal Candida colonization; Candida albicans; Premature rapture of membrane*

CU08MC: Predictors of *Toxoplasma gondii* IgG Seropositivity and Cranial Ultrasound Patterns Among Children with Hydrocephalus in A Tertiary Hospital Mwanza, Tanzania

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Background: *Toxoplasma gondii* infection during pregnancy is associated with serious neonatal complications including hydrocephalus. In many high-income countries, *T. gondii* screening and treatment during antenatal period is routinely done to prevent associated complications, whereas, in most of low-income countries, there is no routine screening of *T. gondii* during pregnancy. Despite being common in Tanzania, there is paucity of information on the prevalence *T. gondii* and cranial ultrasound patterns among children with hydrocephalus.

Methods: A cross-sectional hospital-based study involving 125 infants with hydrocephalus attending Bugando Medical Centre (BMC) was conducted between May 2017 and February 2018. Socio-demographic and other relevant information were collected using a pre-tested data collection tool. Venous blood samples were collected, and sera were used for detection of specific *T. gondii* antibodies by indirect enzyme linked immunosorbent assay (ELISA) as per manufacturer's instructions. Data were analysed using STATA version 13 software.

Results: The mean age of enrolled children was 4.8 ± 3.5 months. Out of 125 infants with

hydrocephalus, 29(23.2%, 95% CI: 21-36) were seropositive for *T. gondii*-specific IgG antibodies. By multivariate logistic regression analysis being male (OR=3.3, 95% CI: 1.1 - 9.9, $p=0.035$), higher birth order (OR=6.4, 95% CI: 1.7 - 24.7, $p=0.007$), consumption of fish meat (OR=20.1, 95% CI: 2.0 - 201.9, $p=0.011$) and using other methods of cooking meat than boiling (OR=21.6, 95% CI: 1.5-312.8, $p=0.024$) independently predicted *T. gondii* IgG seropositivity. Obstructive hydrocephalus was significantly more common among *T. gondii* seronegative infants compared to IgG seropositive infants (31.3% [30/96] vs.13.8% [4/29]; $p=0.049$).

Conclusion: A significant proportion of infants with non-obstructive hydrocephalus are *T. gondii* IgG seropositive and is predicted by male gender, increase in birth order, consuming fish and using other methods of cooking meat than boiling. These facts highlight the importance of continuing health education for pregnant women regarding *T. gondii* transmission and the need to follow-up their infants so that appropriate counselling and management can be provided.

Keywords: *Toxoplasma gondii*; Mwanza; Tanzania; Hydrocephalus; Cranial ultrasound patterns

CU09MC: Prevalence of Sexually Transmitted Viral Infections (Hepatitis B Virus, Hepatitis C Virus, Herpes Simplex Virus-2, and Human Immunodeficiency Virus) Among Pregnant Women from Rural Areas of Mwanza Region, Tanzania

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Background: Sexually-transmitted infections (STIs) are a global health problem. Pregnant women are at an increased risk of STIs and maternal viral infections often leading to intrauterine infections and, consequently, adverse pregnancy outcomes. This study investigated the magnitude of viral STIs among pregnant women from the rural areas of Mwanza region, Tanzania.

Methods: A cross-sectional hospital-based study involving 499 pregnant women attending antenatal clinics in rural areas of Mwanza region was conducted between February and May 2018. Blood was collected from each participants and Human immunodeficiency virus (HIV), Herpes simplex virus-2 (HSV-2), Hepatitis B (HBV) and Hepatitis C (HCV) were detected using rapid immunochromatographic tests. Data was analysed using STATA version 12.

Results: The median age of the enrolled women was 25 (IQR: 22-31) years. Seventy-eight (15.63%, 95% CI: 12-18) women had at least one viral STIs. The odds of having a viral infection were significantly higher among women with positive *T. pallidum* serostatus (OR:3.24, 95% CI: 1.25- 8.40, p=0.016). Seroprevalence of HSV-2 IgG antibodies was found to be 188/499 (37.7%,

95% CI: 33-41) while that of IgM was 24/499 (4.8% 95% CI: 2-6). By multivariable logistic regression analysis, a history of STIs (OR: 1.50, 95%CI: 1.02-2.19, p=0.036) predicted HSV-2 IgG seropositivity as well as IgM seropositivity (OR: 3.40, 95% CI: 1.26-9.18, p= 0.016). Prevalence of HIV, HBV and HCV was found to be 25(5.01% 95% CI: 3.0-6.9), 29(5.8% 95% CI: 3.7-7.6) and 2(0.04% 95% CI: 0.02-0.05) respectively. By multivariable logistic regression analysis; advanced age (OR: 1.0, 95% CI: 1.0- 1.1, p=0.032) predicted HBV infection and HIV infection (OR:8.0, 95% CI:2.7-27.8, p<0.001) while none of the factors was found to predict HCV seropositivity.

Conclusion: A significant proportion of pregnant women in rural areas of Mwanza region has at least one sexually-transmitted viral infection which is independently predicted by positive *T. pallidum* serostatus. Advanced maternal age was found to predict HIV and HBV infection while history of STIs predicted HSV-2 seropositivity. This calls for the need to consider a policy of screening these infections during antenatal visits including appropriate counselling and care to avoid possible associated complications.

Keywords: *Herpes simplex-2; Hepatitis B; Hepatitis C; Mwanza Rural*

CU10MC: Seroprevalence of Mumps Virus Antibodies Among School Aged Children in the City of Mwanza Tanzania: Should it be Considered in The National Immunization Programme?

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Background: Mumps is a viral infection of humans, primarily affecting the salivary glands and with a worldwide distribution. The incidence of mumps ranged from 100–1000 cases/100 000 populations, with epidemic peaks every 2–5 years in the absence of immunizations. The introduction of mumps vaccination has reduced the infection by almost 99 % of mumps cases and associated complications in many middle- and high-income countries. Despite being common in many countries and causing associated complications, information on its epidemiology in Tanzania is scarce. This study aimed at determining the seroprevalence and associated factors of the Mumps virus among children in Mwanza City, Tanzania.

Methods: A community-based cross-sectional study, involving 440 school children aged 6-12 years, was carried out from July 2018 to August 2018 in Mwanza City. Data was collected using a pre-tested structured data collection tool.

Blood samples were collected, and sera were used for the detection of Mump virus antibodies by indirect Enzyme linked immune-sorbent Assay (ELISA). Data was analysed using STATA version 13 as per study objectives.

Results: The median age of enrolled children was 9(IQR, 8-11) years. The seroprevalence of mumps IgG antibodies was found to be 94(21.4%, 95% CI: 17.5-25.1) while that of IgM was 1 (0.23%, 95% CI: 0.02-0.6). By multivariable logistic regression analysis, only residing in urban areas (OR: 0.45, 95%CL: 0.28-0.71, P=0.001) protected children from being Mumps IgG seropositive.

Conclusion: A significant proportion of children in rural areas of Mwanza City has Mumps IgG antibodies which calls for the need to generate more data across the country so as to institute appropriate control measures including vaccination.

Keywords: *Mumps virus; School children; Mwanza; Tanzania*

CU11MC: High Seropositivity of Herpes Simplex-2 and Human Cytomegalovirus Antibodies Among Women with Macerated Stillbirth in Mwanza: The Need for Antenatal Screening in Tanzania

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Background: Stillbirth is a common problem in low- and middle-income countries with more than 55% of cases occurring in Sub-Saharan Africa. Herpes simplex virus -2 (HSV-2) has been implicated as one of the pathogens causing stillbirth. There is limited information on HSV 2 prevalence among women with macerated stillbirth in Tanzania. The aim of this study was to assess the seroprevalence of HSV2 and associated factors among women with macerated still birth in Mwanza, Tanzania.

Methods: A cross-sectional hospital-based study involving 279 women with macerated stillbirth was conducted in Mwanza region from June to July 2018. Socio-demographic, obstetric and other relevant information were collected by pre-tested structured data collection tool. Sera were tested for HSV-2 specific IgG and IgM antibodies using rapid immunochromatographic test while HCMV antibodies were detected by indirect enzyme linked Immunosorbent assay as per manufacturer's instructions. Data analysis was done using STATA version13

Results: The median age of the enrolled women was 27, IQR:22-34 years with median gestation age of 37, IQR: 34-38 weeks. Out of 279 women, 28 (10.04%, 95% CI: 6.8-13.9) were HSV-2 IgG seropositive with only 4(1.43%, 95% CI: 0.03-2.8) being IgM seropositive. Out of 168 women tested for HCMV IgG antibodies, 131 (77.98%, 95% CI:71-84) were seropositive with 21 (30.9%) of women having low IgG avidity index indicating recent infection. By multivariable logistic regression analysis only increase in age (OR:0.93 95% CI: 0.87-0.99 P<0.003) was found to predict HSV-2 IgG seropositivity. Regarding HCMV only residing in urban areas (RRR; 4.43, 95% CI 1.53-12.80 P< 0.001) was found to predict HCMV IgG seropositivity

Conclusion: The IgG seroprevalence of HSV-2 and HCMV among women with macerated stillbirth in Mwanza is high. There is a paramount need of introducing routine screening of these infections in the Tanzanian ante-natal package in order to establish clear epidemiology of these pathogens.

Keywords: *HSV-2, HCMV; Macerated still birth; Mwanza; Tanzania*

CU12MC: Rubella Seroprevalence And Associated Factors Among Infants with Features of the Congenital Rubella Syndrome Attending at the Bugando Medical Centre Mwanza, Tanzania

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Background: Congenital Rubella Syndrome (CRS) affects millions of children globally and is one of the causes of infant mortality and lifelong disability due to severe birth defects. Global health experts recommend rubella vaccination, with the primary goal of preventing CRS. The clinical features suggestive of CRS have received little attention among clinicians. This study investigated rubella serological markers among infants with clinical features of CRS.

Methods: A cross-sectional hospital-based study involving 174 infants aged ≤ 12 months with clinical features of CRS was conducted between September 2017 and March 2018 at the Bugando Medical Centre. Sociodemographic and other relevant information were gathered using structured questionnaire. Screening for clinical signs and symptoms suggestive of CRS was performed as per World Health Organization criteria. Blood samples were collected, and sera were used for detection of specific Rubella IgM and IgG antibodies using enzyme immunoassay

Results: The median age of enrolled children was 5.5 [1 – 24] weeks with about 83 (47.7%)

being neonates; only 13.2% had received MR vaccine. Out of 174 infants, 111 (63.8%, 95%CI: 56.6-70.9) were Rubella IgG seropositive while none was Rubella IgM seropositive. Twenty-six (14.9%) had probable CRS. Using stringent criteria that considers PDA, only 15 (8.6%) were classified having probable CRS. On univariate logistic regression analysis, being neonate (OR 2.3; 95% CI: 1.2 – 4.3; $p=0.012$) was significantly associated with Rubella IgG seropositivity, whereas history of abortion had borderline significance (OR 2.5; 95%CI 0.9–6.5: $p=0.063$). By multivariate logistic regression analysis only being neonate independently predicted rubella IgG seropositivity (OR 2.3; 95% CI 1.2 – 4.4; $p=0.012$). Furthermore, out of 111 IgG positive infants, 18(16.2%) died compared to 4(6.3%) of 63 infants who were IgG seronegative, ($P=0.046$).

Conclusion: A significant proportion of children (<12 months) with suspected CRS are IgG seropositive which was predicted by being a neonate (0-4 weeks); this indicates a high maternal seroprevalence. In addition, a significant proportion of infants with suspected CRS can be grouped as probable CRS which are more likely to be Rubella IgG seropositive

Keywords: *IgG; Rubella; CRS; Infant; Vaccination*

CU13MC: High Prevalence of Sexually Transmitted Infections and Associated Factors Among Asymptomatic Women Opting for the Intrauterine Contraceptive Device Use in the City of Mwanza, Tanzania

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Background: Sexually-transmitted infections (STIs) are a global health problem particularly among reproductive age groups. The World Health Organisation (WHO) estimates approximately 500 million new infections annually, with the world highest incidence reported in the Sub-Sahara Africa. About 160 million women worldwide use an intrauterine contraceptive device (IUCD), making it the most popular contraceptive method after sterilization. This study investigated the prevalence and associated factors of STIs among women opting for IUCD use in the city of Mwanza, Tanzania.

Methods: A cross-sectional hospital-based study involving 150 asymptomatic women who had opted for IUCD method was conducted in Mwanza City from August 2017 to December 2017. Detection of *Chlamydia trachomatis* was done from Endocervical swabs using rapid Chlamydia antigen test kit while sera were used for the detection of *Treponema pallidum*, the Human Immunodeficiency Virus (HIV) and *Herpes simplex virus Type2* (HSV-2) antibodies.

Data were analysed by using STATA version 12.

Results: The median age of the enrolled women was 26 [IQR 23 – 32] years. The overall prevalence of STIs was 45/150 (30%, 95% CI: 22-37). Individual active infection of *C. trachomatis*, *T. pallidum*, and HSV-2 was detected in 27.3%, 5.3%, and 2.6%, respectively. By multivariable logistic regression analysis: history of dysuria (OR 6.6; 95% CI 2.3 – 18.8; p<0.001) and history of partner STI (OR 4.7; 95% CI 1.3-16.8; p=0.019) predicted presence of active STIs among asymptomatic women opted for IUCD use in the city of Mwanza.

Conclusion: The overall prevalence of STIs among women opted for IUCD use in Mwanza city is alarmingly high and is predicted by a past history of dysuria and history of partner's STIs. This calls for the need of a policy of screening STI's among women who opted for IUCD use to avoid possible complications.

Keywords: STIs; IUCD; Mwanza; Asymptomatic women; Tanzania

CU14MC: Low Prevalence of Hepatitis B Virus Among Children with Sickle Cell Disease in Mwanza, Tanzania

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Background: Hepatitis B virus (HBV) infection is of public health importance worldwide. Due to the frequent blood transfusions, children with Sickle Cell Disease (SCD) are at risk of acquiring blood-borne infections, including HBV. Despite SCD and HBV being common in the Lake Victoria zone, there is scarcity of information on the prevalence of HBV among SCD children in this area. This study investigated the prevalence of HBsAg among children with sickle cell disease at the Bugando Medical Centre (BMC), Mwanza, Tanzania.

Methods: This was a cross-sectional hospital-based study that involved a total of 115 children with SCD aged between 0- and 12-years attending BMC from June to August 2018.

Sociodemographic and other relevant information were collected by pre-tested data collection tool. The blood sample was collected and used to detect HBsAg by immunochromatographic test. Data was analysed by STATA version 13.0 as per study objectives

Results: The mean age of enrolled children was 7.1± 3.9 years and the majority 73 (63.5%) presented with fever. Out of 115 children only 1 (0.87%, 95% CI: 0.08-2.42) was HBsAg positive.

Conclusion: The prevalence of HBV among children with sickle cell disease is low which supports the ongoing intervention of provision safe blood across the country.

Keywords: *Hepatitis B; Sickle cell disease; Mwanza; Tanzania*

CU15MC: Bacteremia Among Febrile Children Below Five Years: Prevalence, Aetiology, Antibiotic Susceptibility and Factors Associated with Antibiotic Prescriptions in Dodoma, Tanzania

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Background: In developing countries, febrile illnesses are the major cause of morbidity and mortality among children and is the most common reason for hospitalization. Viral infections, bacteremia, and malaria are among the commonest causes of fever in the developing countries. Understanding epidemiology of bacteremia in Dodoma Municipality will help to prepare local treatment guidelines for management of bacteremia. The study was intended to find prevalence of bacteremia among febrile children.

Methods: The study was analytical cross-sectional, conducted at Makole Health Centre. 130 children below five years of age with the body temperature above 37.5°C were enrolled. Thorough history taking, physical examinations, and blood for culture and sensitivity were done. Factors associated with

antibiotics prescription were assessed using logistic regression model.

Results: Prevalence of bacteremia was 10.8%, *S. aureus* was mostly isolated. MRDT results and medicine use before hospital visits were associated with antibiotics prescription. Most of bacteria isolated showed high sensitivity to chloramphenicol and ceftriaxone however, they resistant to commonly prescribed drugs (Ampicillin and Penicillin).

Conclusions: There is a low prevalence of bacteremia among febrile children below five years of age in Dodoma Municipality. The majority of children with fever were prescribed antibiotics without confirmatory investigation and there was an alarming sign of increasing drug resistance to the commonly used drugs.

Key words: *Bacteremia; febrile children; Under-five children; Dodoma*

CU16MC: Assessment of Parental Food Preference and Other Related Factors for Malnutrition among Under-Five Children in Ukerewe District Mwanza, Tanzania

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Background: In the world, more than 462 million people are underweight. By 2018, there were 155 million children under five years of age who were stunted and 17 million wasted. Food preference has been observed to have an impact on food choices and the nutrition status of children together with various social economic factors which are also responsible for this burden of malnutrition. This study aimed at assessing parental food preference and other related factors for malnutrition among under-five children in Ukerewe district, Mwanza, Tanzania.

Methods: This was a descriptive cross-sectional study. A multi-stage random sampling technique was used to recruit 2164 participants' households. Data were collected using a semi-structured pre-tested questionnaire.

Results: The majority (81.5 %) of the under-fives were reported to be eating the same kind of food as other family members, whereby 80.1% of the stunted children were also eating

the same food as the other family members. It was also observed that the preferred food by the family, over a duration of three days (food preference), was ugali 29.6% followed by fish, sweet potatoes, porridge and rice at 16.7%, 13.5%, 8.9% and 6.4%, respectively. About 81.9% of the children were weaned after six months, with porridge and potatoes being the commonest weaning foods at a proportion of 33.7% and 26.1%, respectively. The mean frequency of child feeding per day was 1.18 whereby 74.4% of the under-fives in Ukerewe, ate at least three times per day. Furthermore, 8.6% of the participants were stunted.

Conclusion: There was no significant association between stunting and parental food preference. However, the majority of children who were stunted had a history of eating with other family members. It is therefore recommended that emphasis should be put on children feeding practices in order to ensure that children get served adequate food.

Keywords: *Food preference; Malnutrition; Nutrition survey; Ukerewe*

CU17MC: Assessment of Factors Associated with Malnutrition Among Children Under-Five Years of Aged Children in Ukerewe District Mwanza

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Background: Child malnutrition is quoted by the World Health Organization (WHO) as one of the measures of health status. Various studies show that children and women are the primary victims of malnutrition and suffer lasting consequences. Malnutrition among under-fives is a leading factor underlying child morbidity and mortality in Africa and contributes to 2.2 million of deaths and a fifth of all disability adjusted-life-years lost worldwide for children under-five years. Thirty-one districts of Tanzania are reported having nearly a third of children affected by malnutrition. The high prevalence of malnutrition among the children may reflect inadequate health services, poor water and sanitation, poor maternal and child care practices and insufficient access to food. Hence, this study aimed to assess factors that are associated with malnutrition among under-five years children in Ukerewe district.

Methods: This was a descriptive cross-sectional study; stratified sampling and simple random

were used to obtain a sample of 2164 participants. Data were collected from all 2164 participants using questionnaires.

Results: The study revealed that the majority of children (80.3%) had wasting. However, only 7.34% children had stunted growth. Moreover, 2.2% and 15.67% of the stunting and wasting children, respectively, had a history of childhood diseases. The majority (78.9%) of respondents were illiterate. Most of illiterate mothers were unaware of nutritional practices, which could improve the development of their child's health.

Conclusion: The prevalence of malnutrition among under-five is high in Ukerewe. Illiteracy, and early weaning (before 6 months) contribute to malnutrition. It is therefore recommended to strengthen the provision of pre-natal education about the importance of exclusive breast feeding for 6 months.

Keywords: *Malnutrition; Nutritional status; Diet survey; Ukerewe*

CU18MC: Assessment of Determinants of Nutritional Status Among Under-Five Children in Ukerewe District

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Background: Proper nutrition is a fundamental right of every child. Child malnutrition is a serious problem in Tanzania and contributes up to 50% of under-five mortality. In 2011 East Africa was one of the United Nations sub-regions with the highest prevalence of stunting. According to WHO, one of the most detrimental effects of malnutrition is the inability to resist disease. Subsequently, this research aimed at assessing the determinants of nutritional status among under-five children in Ukerewe district.

Methods: This was a community-based cross-sectional study carried out in September 2018. A multi-stage random sampling technique was used to recruit 2164 participants (the age of the respondents ranged from 1 month to 60 months, the mean age was 28.9 months with the mother's mean age being 29 years). Data was collected using a semi-structured pre-tested questionnaire.

Results: From our study, there was no association between economic status of parents and stunting (p-value is 0.518). The main

occupation among the parents of the study population was crop cultivation (mothers 79.9% and fathers 76.7%). Moreover, there was no association between early breastfeeding and stunting (p-value is 0.436). Nevertheless, there was no association between availability of sanitation facilities in the household and stunting (p-value is 0.512). The highest level of education attained among the mothers and fathers was primary education which was 78.9% and 76.3%, respectively. However, the education level attained did not have any association with stunting.

Conclusion: Most of the factors studied, such as education level of the mother, economic status of parents and early breastfeeding, did not have a direct association with the nutritional status of children. These results may have occurred because the only anthropometric measure used was stunting (height/age) and only 8.6% of the population appeared to be stunted. A study using biochemical indicators and or other anthropometric measures is recommended.

Keywords: *Nutritional status; Determinants; Nutritional survey*

CU19MC: Food Security and its Effect on Nutritional Status of Under five Children in Ukerewe District in Mwanza Tanzania

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Background: Around 963 million people worldwide live in food-insecure conditions due to adverse climatic conditions, political instability or economic slowdown. The problem is exacerbated in developing countries, including Tanzania, due to unpredictable climatic events, instability in conflict-ridden regions and economic difficulties even in peaceful regions. The lack of adequate technology to cope with shocks resulting from natural disasters and climate variability remains a major source of vulnerability for the future of Tanzania's food security. Since food security determines the nutrition status of the people, this study aimed at assessing the association between household food security and the nutritional status of under five children in Ukerewe district in Mwanza.

Methods: This was a cross-sectional study carried out in September 2018 in Ukerewe district. A multistage random sampling technique was used to recruit 2164 participants.

Households' data were collected using a semi-structured pre-tested questionnaire.

Results: About 50.1% (1084/2164) of the participants had experienced a lack of food in the previous six months, whereby 56.5% (1223/2164) was due to insufficiency of money to buy food in the thirty days prior to the study. The study showed that 99/122 (8%), who were worried about a shortage of money for purchasing food, were stunted. Moreover, about 8.6% (186/2164) of the children were stunted and 60.5% (1309/2164) of the under-five children were wasted. In addition, 4.5% (98/2164) of the mothers had their BMI below normal.

Conclusion: About half of the respondents in the study faced food insecurity. Most of these respondents lacked money to buy food. As the majority of the respondents practiced small scale farming, there is a need to develop better farming practices or encourage other economic activities.

Keywords: *Food security; Nutrients requirements; Community food security*

CU20MC: Laboratory Confirmed Puerperal Sepsis and Associated factors among Post Delivery Women Admitted at in Mwanza, Tanzania

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Background: Puerperal sepsis is one of the leading causes of preventable maternal morbidity and mortality. It accounts for about 11 % of maternal death worldwide, with highest prevalence being reported from low income countries. However, in Mwanza data on the proportion of post-delivery women with laboratory confirmed puerperal sepsis, bacterial patterns and associated factors are still limited.

Methods: A cross-sectional analytical hospital-based study involving 340 post-delivery women admitted at BMC (152), SRRH (108) and SDDH (80) was conducted between October 2017 and April 2018. The endocervical swab and venous blood were aseptically taken for culture and antimicrobial susceptibility testing as per standard operating procedures. Data were analysed using STATA version 13 according to objectives of the study.

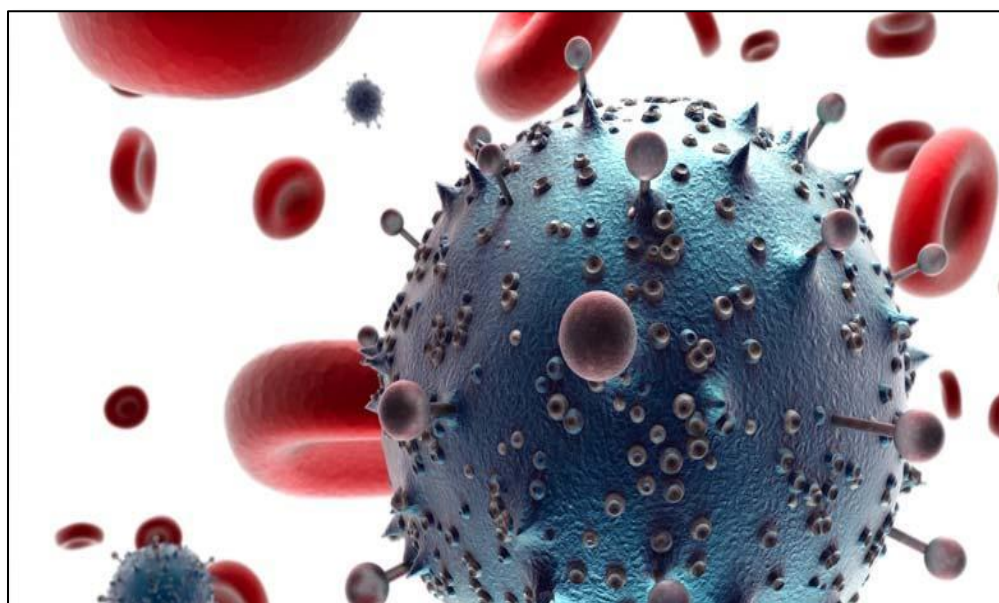
Results: The mean age of the study participant was 26.2 ± 6.5 years. The proportion of laboratory confirmed puerperal sepsis was 58.8% (200/340). Of these, 164 (82%) had positive culture for endocervical swabs, 17 (8.5%) were blood culture positive and 19 (9.5%) had positive culture results from both blood and endocervical swabs. *Staphylococcus aureus* 13 (36.1%) were the most predominant bacteria

isolate from blood culture, while *Escherichia coli* 52 (26.0%) were the most predominant bacteria isolated from the endocervical swabs. All *Staphylococcus aureus* (except one strain) were sensitive to gentamicin and vancomycin. Over three quarter of *E. coli* isolates were resistant to ampicillin, trimethoprim-sulfamethoxazole, amoxicillin-clavulanate and ceftriaxone; and none of these were resistant to meropenem. *Acinetobacter* spp. were mostly multidrug resistant, with variable resistance to meropenem (0% to 20%). On multivariable logistic regression analysis, primipara (P<0.001), grand multipara (P=0.004), premature rupture of membrane (P=0.003), pre/eclampsia (P=0.025), anaemia (P=0.018) and prolonged labour duration (P=<0.001) were found to independently predict laboratory confirmed puerperal sepsis

Conclusion: Approximately 60% of women with clinical features of puerperal sepsis had laboratory confirmed puerperal sepsis, with *Staphylococcus aureus* and *E. coli* being predominant bacteria species. The majority of puerperal sepsis cases are due to multi drug resistant gram-negative bacteria. Early culture and susceptibility testing should be done to all high-risk patients to prevent associated morbidity and mortality.

Keywords: *Puerperal sepsis; Premature rupture of membrane; Primipara; Post-delivery women; Mwanza*

HIV AND OTHER INFECTIONS



CU01HO: Prevalence of Hepatitis B Surface Antigen and Hepatitis C Antibodies Among Human Immunodeficiency Virus Positive Patients Attending Geita Regional Hospital, Tanzania

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Background: Human immunodeficiency virus (HIV) patients infected with Hepatitis B (HBV) and Hepatitis C (HCV) are at increased risk of liver diseases progression leading to increased mortality. Despite being common in Tanzania and the fact that they share the same transmission routes with HIV, there is paucity of data on the magnitude of HBV and HCV among HIV infected individuals. This study aimed at determining the prevalence of HBsAg and HCV antibodies among HIV infected adults at Geita regional hospital, Tanzania.

Methods: A cross-sectional hospital-based study involving 161 HIV seropositive adult patients was conducted between May and July 2018. Socio-demographic and other relevant information were collected using pre-tested questionnaires. Detection of HBsAg and HCV antibodies was done by commercial rapid

immuno-chromatographic test. Data was analyzed by using STATA version 13.

Results: The median age of the enrolled patients was 41 (IQR: 32-46) years. The prevalence of hepatitis B surface antigen (HBsAg) among HIV seropositive patients was found to be 11(6.83%, 95% CI: 2.9-10.7) while that of HCV was 2 (0.97%, 95% CI: 0.3- 0.23). None of the factors tested was found to be associated with HBsAg and HCV positivity among adult HIV infected patients at Geita regional hospital.

Conclusion: About 7 out of a hundred HIV seropositive patients have acute Hepatitis B and 1 out of hundred is HCV seropositive in Geita. This calls for the need to put more emphasis on the control interventions currently in place

Keywords: *Hepatitis B; Hepatitis C; Human Immunodeficiency Virus; Geita*

CU02HO: A 0.85% Saline as Alternative Detection Buffer for SD Bioline HIV Immunochromatographic Test in Resource Limited Settings

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Background: Accuracy in the diagnosis is a key step to identify HIV infected individuals for appropriate management. Insufficient supply of manufacture's buffers in relation to the number of strips per kit has negative impact on patients' results. In resource limited settings most of the laboratory personnel uses different substitute buffers which has never been studied on its reliability. This study aimed at comparing the performance of 0.85% saline and SD-BIOLINE manufacture's buffer in detection of HIV antibodies.

Methods: This experimental study was conducted at BMC, Mwanza from May to July 2018 involving whole blood samples (110 known HIV positive and 110 known HIV negative samples). Each sample was tested by SD -BIOLINE by using manufacturer buffer

and 0.85% saline separately. Data and laboratory results were recorded into laboratory log book, sorted and recorded in Microsoft excel sheet followed by analysis using STATA version 13

Results: For all tested samples, the level of agreement between 0.85% saline and manufacturer's buffer was 98.6% ($\kappa=0.986$).

Conclusion: The value of kappa indicates very good agreement between 0.85% saline and manufacturer's buffer. In incidents where manufacturer's buffer is not sufficient 0.85% saline can give reliable results. Further studies to evaluate the suitable buffer for other rapid tests for HIV and other diseases are recommended especially in resource limited settings

Keywords: 0.85% saline; SD Bioline; HIV; Detection buffer; Immunochromatographic test

CU03HO: High Prevalence of *Helicobacter pylori* Infection Among Human Immunodeficiency Virus Seropositive Patients with Gastrointestinal Symptoms in Mwanza Tanzania

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Background: Human immunodeficiency virus (HIV) seropositive patients frequently experience upper gastrointestinal tract (GIT) symptoms that cause considerable morbidities. However, there is scarcity of information on the common etiologies of upper GIT symptoms among these patients. This study investigated the prevalence and factors associated with *H. pylori* infection among HIV infected adults with upper GIT symptoms attending care and treatment centre (CTC) at the Bugando Medical Centre (BMC), Mwanza.

Methods: A cross-sectional hospital-based study involving 100 HIV seropositive patients with upper GIT symptoms was conducted at BMC, Mwanza from May to July 2018. Sociodemographic and other relevant information were collected using pre-tested data collection tool. Stool specimens were

collected, and detection of *H. pylori* antigens was done by immunochromatographic assay. Data were analyzed by using STATA version 13

Results: The median age of the study participants was 40 (IQR: 33.5-47.0) years. The most common presented symptom was abdominal pain and loss of appetite which was reported in 88% and 66% of patients, respectively. The prevalence of *H. pylori* was 33 (33% 95% CI: 23-42). History of antibiotic use was significantly associated with *H. pylori* infection ($p=0.043$)

Conclusion: About one third of HIV seropositive patients with history of antibiotic use are infected with *H. pylori* which calls for the need to put much consideration on control strategies in this group.

Keywords: *H. pylori*; HIV; Mwanza; Human immunodeficiency virus; Tanzania

CU04HO: Low Prevalence of *Helicobacter pylori* Among Children in Rural Areas of Mwanza Tanzania

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Background: *Helicobacter pylori* is one of the commonest infections in pediatric population and its acquisition is related with poor hygienic conditions and low socioeconomic levels. Prevalence of *H. pylori* varies in different populations and has been fairly studied among adult population. At present, there is limited information on its magnitude among children especially in rural areas in Tanzania. In a view of that, this study investigated the prevalence and associated factors of *H. pylori* infection amongst children in a rural setting of Mwanza, Tanzania.

Methods: This was a cross sectional community-based study involving 104 children aged 0-13 years which was conducted from June to August 2018 at Sengerema district, Mwanza. Sociodemographic and other relevant information was collected using pre-tested data

collection tool. *H. pylori* infection was detected by using SD Bioline *H. pylori* stool antigen test as per manufacturer's instructions. Data was analyzed using STATA version 13

Results: The mean age of the enrolled children was 78.5±44.1 months with the predominant age range being 6-11 years. The prevalence of *H. pylori* infection among children in rural areas was found to be 4.81%, 95% CI: 3.8-5.7. None of the factors was found to be associated with *H. pylori* infection among children in rural areas of Mwanza

Conclusion: About 48 out of 1000 children in rural areas of Mwanza are infected with *H. pylori*. Further studies with large samples size are recommended to investigate the possible contributing factors.

Keywords: *Helicobacter pylori*; Rural; Mwanza; Tanzania; Children

CU05HO: Challenges in The Diagnosis of Typhoid Fever Among Febrile Patients in Mwanza Tanzania

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Background: Typhoid fever is presumed to be the commonest type of fever in malaria endemic areas. In the majority of hospitals in resource limited countries, typhoid fever is diagnosed using Widal test. The agreement of Widal test and other assays has not been evaluated in many centres in these countries. This study was done to investigate the prevalence of typhoid fever in febrile adult patients in Mwanza, Tanzania using Widal test, stool antigen test and blood culture.

Methods: A cross-sectional hospital-based study involving 200 febrile adult patients was conducted in Mwanza from June to August 2018. Sociodemographic and other relevant information were collected using pre-tested structured data collection tool. Blood for culture, Widal test and plasma for viral detection was collected as well as stool for *Salmonella* antigen test. Multiplex polymerase chain reaction (PCR) was done to detect Zika, Dengue and Chikungunya viruses. In addition, all participants were tested for malaria using malaria rapid diagnosis test (MRDT) and blood slide was done to detect malaria parasites and *Borrelia* spp. Data was analysed using STATA version 13

Results: The median age of the enrolled patients was 38(IQR: 25-60) years with the median body temperature of 38.7(IQR: 37.9-38.7)^oC. All enrolled participants were negative for MRDT and blood slide for malaria parasite and *Borrelia* spp. In addition, all were Zika and Chikungunya negative with only 1 (0.5%) being positive for Dengue virus. Four of participants (2%) had elevated O antibodies with 2(1%) having elevated H antibodies. *Salmonella* stool antigen was positive in 4 (2%, 95%CI 0.06-3.9) of participants. One patient who was stool antigen positive had elevated both O and H antibodies. Three of the participants (1.5%) had *Klebsiella pneumoniae* isolated from blood culture. None of participants with elevated O and H antibodies and those with positive stool antigen was blood culture positive.

Conclusion: There is no agreement in positive results of assays used to diagnose typhoid fever in this setting. Further studies with large sample size using stringent inclusion criteria is recommended to establish utility of these assays in developing countries.

Key words: *Typhoid fever; Febrile adult patients; Mwanza*

CU06HO: Prevalence of Syphilis, Neurosyphilis and Associated Factors in a Cross-Sectional Analysis of HIV Infected Patients Attending Bugando Medical Centre Mwanza Tanzania

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Background: HIV-syphilis co-infection enhances rapid progression of early syphilis to neurosyphilis, with potentially catastrophic neurological complications. Older studies have suggested that up to 23.5% of HIV-syphilis co-infected patients also have neurosyphilis. To determine the prevalence of syphilis, neurosyphilis and associated factors among HIV-infected patients attending the Bugando Medical Center.

Methods: This was a cross sectional study in which HIV-infected adult inpatients and outpatients were screened for syphilis using serum *Treponema Pallidum* hemagglutination assay (TPHA). Blood was also taken for CD4+ T cells and viral load. Those who were TPHA-positive underwent neurological examination for any neurologic deficit. Those with neurologic deficits were offered lumbar puncture to ascertain if they have neurosyphilis. Neurosyphilis was defined according to Centers of Disease Control (CDC) as serum positive for syphilis with neurological manifestation, plus either cerebrospinal fluid (CSF)-VDRL positive or CSF- white blood cell more than 20 cells per microliter without other clear cause.

Results: The prevalence of syphilis in HIV infected patients was found to be 9.6%. The majority of these were female (72.5%) and median age was 42 years [interquartile range, 32-50]. Most patients were on ART (99.4%). Most of the participants with syphilis (89.2%) reported not knowing that they had syphilis and had not previously been treated. Most had viral loads <50 copies/ml (77.2%) and CD4+ T cells >350 cell/ul (56.3%). Neurological examinations were performed in 141 TPHA-positive patients, 4 of whom had abnormal findings that necessitated lumbar puncture. One of these had confirmed neurosyphilis and was not taking ART; the other three who were on ART did not have neurosyphilis.

Conclusion: The high prevalence of syphilis in HIV-infected patients indicates the need for increased efforts reduce sexually transmitted infections in this population. All HIV-infected patients should be screened for syphilis given its high prevalence and the risk that aggressive forms of neurosyphilis can occur despite recovery of CD4+Tcell counts in untreated syphilis. The prevalence of neurosyphilis was lower than expected, even though most patients did not report prior treatment for syphilis, due to widespread use of antibiotics.

Keywords: *Treponema pallidum*; Syphilis; HIV; Neurosyphilis; Mwanza; Tanzania

CU07HO: Clinical Characteristics and Treatment Outcomes in Children Under 3 Years of Age who are Initiated on Lopinavir Based ART in Mwanza, Tanzania

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Background: To achieve the 90-90-90 strategy, introduced by United Nations program on HIV/AIDS, antiretroviral therapy (ART) is initiated in all people diagnosed with HIV regardless of clinical status. WHO recommends Lopinavir based regimen as a first line ART for children <3 years due to superior outcomes¹ and Tanzania adopted this practice in 2015.² This study describes clinical characteristics and treatment outcomes of children <3 years old initiated on Lopinavir based ART.

Methods: Retrospective chart review was conducted of children <3 years old who initiated Lopinavir based ART from October 2014 - May 2016 at Baylor Center of Excellence in Mwanza, Tanzania. Age, timing of HIV diagnosis, nutritional status, type of caregiver, TB diagnosis, date of ART initiation, and adherence were collected from the electronic medical. Viral load (VL) and treatment outcome from 6-12 months after ART initiation were collected. Baseline CD4 and post-treatment CD4 percentages were compared using t-test. Nutritional status was defined using weight-for-length/height z-scores. Timing of HIV diagnosis was classified as early (<9 weeks of age), late or presumptive. Adherence was calculated as the proportion of visits with good

adherence (pill count 95-105%) over the first 12 months of ART.

Results: Seventy-eight children met inclusion criteria. Of these, 9 died, 2 were lost to follow-up and 11 transferred out before 12 months of treatment. Median age at ART initiation was 14 months, 56% (44/78) were females, and 85% (66) had biological mother as their primary caregiver. Fifty-eight percent (45/78) had late diagnosis, 40% (31) presumptive and 3% (2) early. Forty-two percent (33/78) had TB and 53% (41) had severe or moderate malnutrition. Mean CD4 percentage was 19% before and 26% after ART initiation ($p=0.003$). Average proportion of visits with good adherence was 92%. Of patients with 6-12 months VL available, 71% (17/24) had VL < 1000.

Conclusion: Among children <3 years old started on Lopinavir-based ART, 71% had confirmed viral suppression, which is below the UN-AIDS target of 90%. Lack of reliable timely CD4 and VL results for a majority of patients makes it difficult to conclude on treatment outcome in all children. Future studies on this topic with bigger study populations and more follow-up time and laboratory data are needed to make reliable conclusions.

Keywords: *Treatment outcomes; HIV; Children; Lopinavir; Mwanza*

CU08HO: Characteristics and Treatment Outcomes of Paediatrics and Adolescent Patients Treated for Kaposi's Sarcoma in Mwanza, Tanzania

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Background: Kaposi's sarcoma (KS) is the most common HIV-associated malignancy. In much of Africa, access to treatment for KS is challenging and mortality remains high in resource-limited settings. The Baylor Center of Excellence (COE) in Mwanza, Tanzania cares for pediatric HIV patients and collaborate with referral hospital Bugando Medical Centre (BMC) for KS treatment. Access to laboratory testing and chemotherapy is limited by the ability of the patient or the COE to pay and by medication availability. Treatment is supervised by oncologists at BMC as the COE lacks personnel trained in KS treatment. This study describes clinical characteristics of patients treated for KS at the Mwanza COE and compares patients with successful (survived) versus unsuccessful (died) treatment outcomes.

Methods: We conducted a retrospective chart review using the electronic medical record and clinical files of patients treated for KS from May 2012 - May 2017. Data collected included age, nutritional status, ART regimen, mode of KS diagnosis, presence concurrent opportunistic infections (OIs), chemotherapy regimen, chemotherapy side effects, site of KS involvement, KS disclosure, and treatment outcome. Patients and treatment characteristics were compared between patients who survived and died using chi-square tests.

Results: Sixteen children with epidemic KS were identified. Median age was 12 years (range 3-19). Median CD4 at presentation was 35cell/ μ l, and CD4 was higher among those who survived (50.5 v 17, $p=0.02$). The majority of patients (12/16) had severe acute malnutrition (SAM), including all 8 who died. The most common chemotherapy (12/16) was ABV (Doxorubicin, Vincristine, Bleomycin), followed by Vincristine and Bleomycin (4/16). All patients who survived completed 6 cycles of chemotherapy, whereas 6/8 patients who died completed ≤ 3 . The most common side effect of chemotherapy was myelosuppression and anemia (5/16).

Conclusion: Most patients with KS treated at Mwanza COE has Severe acute malnutrition (SAM) and were on 1st line ART regimen with disclosed status. There was a statistical significance of lower CD4 count with the P-value of 0.02. Patient with unfavorable outcome were more likely to have TB or another OI but the association was not statistically significant. We recognize that there were data limitation to our study, we recommend larger sample size for future study.

Keywords: *Kaposi's sarcoma; Human Immunodeficiency Virus; CD4*

CU09HO: Community Awareness and Practice on the Use of Antimalarials for the Treatment of Uncomplicated Malaria in Nyamagana District, Mwanza

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Background: Malaria remains an important cause of illness and deaths in children and adults. In 2016, malaria cases worldwide were 216 million and deaths were 445,000. Despite a decline in prevalence, Tanzania malaria cases range from 10-12 million with a great variation in the risk of transmission and prevalence. The aim of this study was to determine community awareness and practice on the use of antimalarials for the treatment of uncomplicated malaria.

Methods: A cross-sectional descriptive study design was employed; data was collected using questionnaires among patients visiting local drug stores in Nyamagana district. A total of 384 participants were eligible to participate in the study.

Results: Out of 384, males were 185 (48.2%) and females were 199 (51.8%). The mean age was 30 years. A total of 98.2% were aware of signs and symptoms of malaria, 99.7% were aware of the ways to protect themselves, 99.7% were

aware of the ways of transmission and 96.4% were aware of high-risk groups susceptible to malaria transmission. Sixty-four percent responded that malaria was a reason to visit the hospital once developing fever and 88.4% finished their doses and took the medication at the right frequency. A total of 72.2% self-medicated for various reasons, the commonest being the freedom to choose the drug of choice. Out of 384 study participants, 61.9% used ALU, 14.6% used Dihydroartemisinin Piperaquine, 21.6% used Sulfadoxine Pyrimethamine and 1.9% used other medications including traditional medicines.

Conclusion: There is a high awareness of uncomplicated malaria and antimalarials, which might be due to an increased access to mass media, health education by health workers and self-exposure to malaria. However, adherence and self-medication need to be addressed to improve malaria control programs.

Key words: *Antimalarials; Community; Malaria; Uncomplicated malaria*

CU10HO: Experimental huts Performance of Veeralin long-lasting insecticidal nets (LLINS) Against Natural Populations of *Anopheles funestus* s.s. in Muheza, Tanzania

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Background: The success of long-lasting insecticidal nets (LLIN) as the primary method for preventing malaria is threatened by pyrethroid resistance in Anopheline vectors. New generation long-lasting nets incorporating PBO synergist (piperonyl butoxide) with pyrethroid are designed to control insecticide resistant mosquitoes. The efficacy of Veeralin PBO LLIN was evaluated in experimental hut against wild free flying pyrethroid resistance *Anopheles funestus*.

Methods: The East African experimental huts were used to assess wild mosquito population responses. WHO method was also used to detect resistance in wild anopheles mosquitoes exposed to 0.75% permethrin. Mosquito mortality, blood feeding inhibition and personal protection were compared between untreated nets, standard LLINs and

PBO/pyrethroids combination nets.

Results: Blood feeding rates recorded by 20 times washed Veeralin was statistically similar to that of the 20 times washed WHOPES approved PBO/pyrethroid and a positive control in this trial PermaNet 3.0 LN, this provide evidence that Veeralin LN provides similar blood feeding inhibition to the standard approved LN and thus meeting WHOPES criteria for blood feeding inhibition.

Conclusion: Results show partial improvement of Veeralin PBO LLINs efficacy against pyrethroid resistant *Anopheles funestus* compared to standard pyrethroid only LLIN. This study's eta- analysis found that PBO LNs are significantly more effective against pyrethroid resistant mosquitoes than standard pyrethroid only LNs.

Keywords: Resistance; PBO LN; Exophilic; Mortality; Knockdown

CU11HO: In Vitro Studies on Antimalarial Properties of *Commiphora africana* and *Dichrostachys cinerea* Used by the Maasai in Arusha Region, Tanzania

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Background: Traditional medicinal plants are one of the potential sources of antimalarial drugs and there is an increasing interest in the use and development of traditional herbal remedies for the treatment of malaria and other ailments. This investigated the cytotoxic effect and antiplasmodial activities of *Dichrostachys cinerea* and *Commiphora africana*, both plants are used by the Maasai in Tanzania for treating malaria and other diseases.

Methods: We investigated the *in-vitro* antimalarial properties of methanol and dichloromethane extracts of the two plants against chloroquine sensitive (D6) and chloroquine resistant (Dd2) strains of *Plasmodium falciparum*. The antimalarial property was assessed by the lactate dehydrogenase method (pLDH). Cytotoxic tests were carried out using monkey kidney epithelial cell line in [3, (4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide] (MTT) assay. Qualitative phytochemical screening was carried out using standard methods of analysis.

Results: Plant extracts of whole stem and stem bark of *D. cinerea* and *C. africana* showed no

activity to promising anti-plasmodial properties. Promising anti-plasmodial activity was found in the DCM extracts of *C. africana* (stem bark) and *D. cinerea* (whole stem) with IC₅₀ (4.54 ± 1.80 and 11.47 ± 2.17 µg/mL respectively). MeOH extract of *D. cinerea* (whole stem) showed promising activity (2.96 ± 1.87 µg/mL), whereas DCM extract of *D. cinerea* (stem bark) showed promising activity in both CQ sensitive and resistant *P. falciparum* strains (D6 and Dd2) with IC₅₀ (2.37 ± 0.86 and 11.92 ± 7.43 µg/mL, respectively). Most plant extracts were not cytotoxic except for DCM extract of *D. cinerea* (whole stem) CC₅₀ (29.44 µg/mL). The phytochemical screening of plant extracts revealed the presence of alkaloids, flavonoids, tannins, steroids, triterpenoids, glycosides and saponins. However, alkaloids were absent in most of the plant extracts.

Conclusion: The findings of this study provide scientific evidence supporting the use of the plants in the treatment of malaria by the Maasai in Arusha region, Tanzania. Consequently, further work in *in-vivo* antimalarial and toxicity testing will likely yield new antimalarial drug candidates from these plants.

Keywords: *Phytochemical screening; C. Africana; D. cinereal; Antimalarial and cytotoxicity*

CU12HO: Pooled Sputum for Xpert MTB/RIF Testing: A Cost Effectiveness Diagnostic Tool in North-western Tanzania

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Background: Tuberculosis (TB) is a global public health problem, with the highest burden occurring in low-income countries, wherein the use of more sensitive diagnostics, such as Xpert MTB/RIF (GeneXpert), is still limited by costs. Pooling of samples from various individuals and test them with a single test has been a cost-saving strategy to diagnose some diseases. We assessed a pooled testing strategy to optimize the affordability of GeneXpert for the diagnosis of TB.

Methods: Presumptive TB patients attending at Bugando Medical Centre and Sekou-Toure Regional Referral Hospital in Mwanza, provided sputum for individual and pooled (5 per pool) testing. The agreement of the results of testing of individual and pooled samples and costs were assessed.

Results: A total of 250 individuals were enrolled and submitted sputum samples. Their median age was 35 [IQR 27-40] years and 143 (57.2%) were males. Of the 250 patients, 28

(11.2%) patients were detected to have MTB. Of the 50 sputum pools, MTB were detected in 17 (34%) pools and were not detected in 33 (66%) pools. Following retesting of these 17 positive pools, all 28 (100%) individual MTB samples were detected with the overall agreement being 100% (The sensitivity of 100% and specificity of 100%). The number of individual MTB positive ranged from 1 to 3 per pool. Through the 'pooling of sputum samples' technique, we saved 115 cartridges to run the tests for 250 patients which is equivalent to $2,627,750 / = \text{TZS}$ ($115 \times 22,850 / = \text{TZS}$). This pooling strategy saved 46% of cartridge costs.

Conclusion: The pooled sputum testing strategy reduced cartridge costs by 46%. The results of testing of pooled samples had a 100% level of agreement with the results of testing of individual samples. The use of the pooled testing strategy reduces costs and has the potential to increase the affordability of GeneXpert testing in countries with limited resources, as the cost of the test is not expected to change in the near future.

Keywords: *Pooled Sputum; Xpert MTB/RIF; Cost Effectiveness; Diagnostic Tool; North-western Tanzania; Tuberculosis*

CU13HO: A First Case Report of *Diectophyme renale* (Giant Kidney Worm) Infestation in a 19 Years Old Male Patient in Mwanza, Tanzania

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Background: *Diectophyme renale* (*D. renale*), or giant kidney worm, is the largest nematode that infects fish-eating mammals including mink, dogs, wolves, foxes and human, though very rarely. Mammals are the definitive host as the nematode prefers to complete its life cycle in the mammalian kidney, with a preference for the right kidney.

Case presentation: A 19-year old male patient was admitted in November 2017 with a main complaint of haematuria associated with difficulty in voiding. The patient came from a fish-eating community along the shores of Lake Victoria - Shirati, Rorya District of the Mara Region in Tanzania. Clinical signs suggested a case of urethral stricture. The patient was under catheterization awaiting urethroplasty. Full Blood Picture and serum creatinine and urea were ordered. There was marked eosinophilia with mild anaemia (Haemoglobin = 8.1 g/dl) with elevated serum creatinine and urea levels

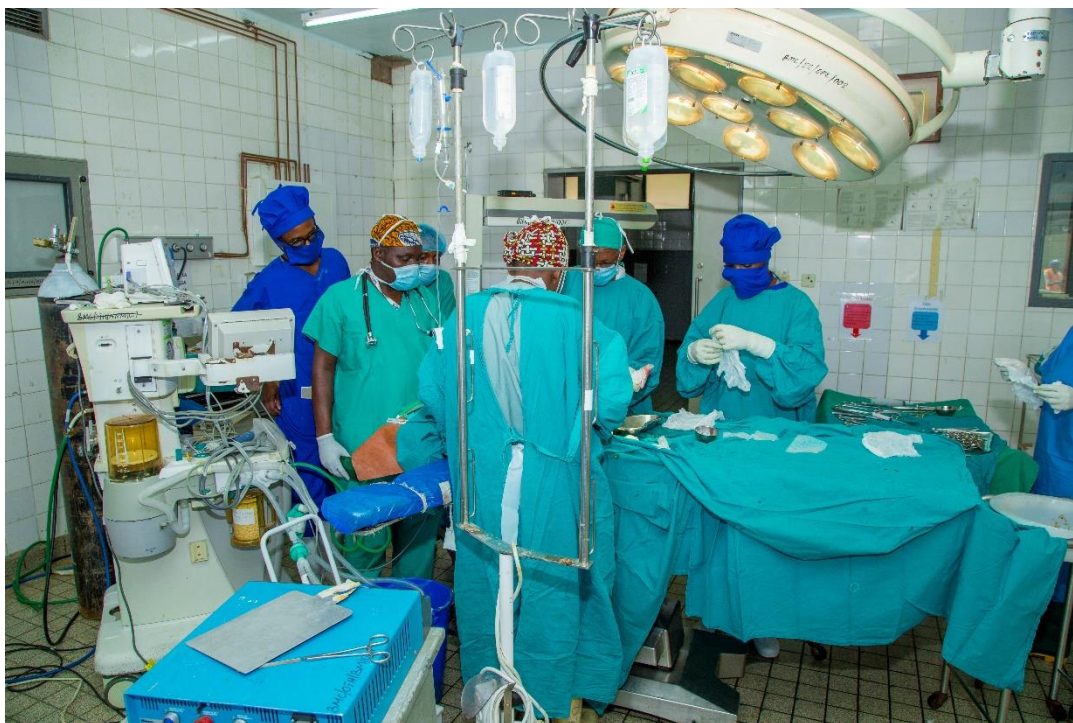
(107.1µmol/l and 46.13 mg/dl respectively). After 2 days of admission, two elongated erythematous tissue like matter emerged via his urethra in the catheter bag. This was submitted to the clinical parasitology laboratory for identification.

Case findings: The erythematous matter was identified macroscopically, based on literature and morphological appearance, in particular the size, as *D. renale*. The largest of these worms measured 33 cm in length and 2 mm diameter and another measured 17.5 cm and 1.5 mm in diameter. No ova were seen in the urine and stool.

Conclusion: We report a first case of human parasitism by the giant kidney worm, *Diectophyme renale*, in the urinary tract of a young male patient from a fishing community along Lake Victoria shores in Tanzania.

Key words: *Diectophyme renale*; Giant kidney worm; Renal function

NON-COMMUNICABLE DISEASES AND SURGICAL CONDITIONS



CU01NC: Elevated C-Reactive Protein Among Hypertensive Patients at Bugando Medical Centre, Mwanza Tanzania: Is it a Marker of Complications?

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Background: C-reactive protein is a marker of inflammation. The normal level of C reactive protein is 6mg/l and tends to rise in responses to an inflammatory process. Different studies have shown the relationship of C reactive protein levels and inflammation. This study aimed at determining the association between elevated C-reactive protein levels and high blood pressure among hypertensive adult patients attending the Bugando Medical Centre in Mwanza, Tanzania.

Methods: This was a cross-sectional hospital-based study, involving 232 known adult hypertensive patients, conducted in Mwanza City from May to July 2018. Venous blood was collected from eligible participants by using a sterile syringe. Samples were processed at CUHAS multipurpose laboratory following standard operation procedures. Quantity of CRP were measured by Turbidimetric

Immunoassay Test. Data were analysed by using STATA version 13.

Results: The mean age of the enrolled patients was 57.6 ±14.4 years with a median body mass index of 22. Out of 232 patients, 88 (37.9%) were found to have controlled blood pressure. Elevated CRP levels were detected in 144/232(62.0%) hypertensive adults. Having stroke (p= 0.02), uncontrolled blood pressure (p= 0.002), chest pain (p= 0.000) and difficult breathing (p= 0.002) were significantly associated with elevated levels of CRP.

Conclusion: A considerable proportion of hypertensive patients with uncontrolled blood pressure had elevated CRP level which was significantly associated with stroke, chest pain, uncontrolled blood pressure and difficult breathing.

Keywords: *C reactive protein; Hypertension; Stroke; Mwanza; Tanzania*

CU02NC: Ninety-Day Mortality and Associated Factors in Patients Starting Chemotherapy at Bugando Medical Centre Oncology Department

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Background: The first ninety days of cancer therapy are associated with high mortality especially in patients with febrile neutropenia. Various factors such as age, co-morbidities, type of cancer, type of chemotherapy and even dosage and stage have been implicated with this increased mortality. This study aimed at determining 90-day mortality and associated factors among patients starting chemotherapy at the Bugando Medical Centre, Oncology department.

Methods: A prospective cross-sectional study with a 90-day follow up component was conducted between August 2017 and May 2018. Physical examinations and functional status assessment using Karnofsky scores were applied to each patient. Clinical samples were processed following the laboratory protocols. Data were analysed using STATA version 13.

Results: A total of 102 study participants were enrolled. Their median [IQR] age was 50 years

[38-60]. The majority of study participants were females 76 (75%), had primary education 82 (80.4%), had solid cancer 96 (94%) and presented at clinic at an advanced cancer stage 69 (68%). The mortality within 90 days of starting cancer treatment was 11.8% (12/102). Decrease in median baseline haemoglobin 10g/dl [9.3-10.8] versus 11.8g/dl [10.5-12.7], (P=0.001), having a low performance status, (80% [70-85] versus 90% [80-90], p=0.001) and using 5-Fluorouracil (OR [95% CI] 7.0 [1.63-30], P= 0.019) were factors associated with 90-day mortality.

Conclusion: One in every ten patients starting cancer therapy at BMC dies within 90 days of treatment. Anaemia at baseline, the use of 5-Fluorouracil and poor performance status were associated with 90-day mortality. There should be a guideline which includes the assessment of all factors related to poor outcome of treatment before initiation of therapy among cancer patients.

Keywords: *Mortality; Cancer therapy; Anaemia; Performance score; 5-fluorouracil*

CU03NC: Characteristics and Treatment Outcomes of Depression Among Children and Adolescents Living with HIV at the Lake Zone Centre of Excellence, Tanzania: A Retrospective Study

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Background: Depression affects more than 300 million people worldwide with the highest burden in low- and middle-income countries. People living with HIV are two to three times more likely to suffer from depression compared to non-HIV infected persons. Untreated depression may hasten HIV disease progression. A recent study in Tanzania concluded that adolescents living with HIV (ALHIV) were at higher risk of depression compared to non-infected counterparts. This study aims to describe characteristics of ALHIV treated for depression in Mwanza, Tanzania including psychosocial and clinical factors as well as treatment outcomes.

Methods: We conducted a retrospective study of ALHIV (ages 10-18 years) on ART who were diagnosed with depression by clinician or counsellor screening using Beck Depression Inventory between May 2013 - May 2017. Data collected from the EMR and register book included age, sex, loss of parents, disclosure, symptoms at time of depression diagnosis, and mode of treatment. CD4 was recorded from before and after depression treatment. ART adherence was categorized as good or poor by averaging pill counts for three months preceding depression diagnosis and months 3-

6 after starting depression treatment. Adherence and CD4 before and after treatment were compared with chi-square and t-test.

Results: We reviewed 40 clients, 50% (20/40) were females, with mean age 14.4 years and mean duration on ART 3.6 years at time of diagnosis. Fifty-five percent (22/40) had biological caregivers and 65% (26) had history of loss of one parent. All but one was full disclosed (97%). The table below shows depression symptoms at time of diagnosis. Ninety-two percent (37) were treated by both psychotherapy and Amitriptyline while 8% (3) had only psychotherapy. Proportion of patients with good adherence was unchanged before and after treatment (75% vs 77.5%, $p=0.79$). Mean CD4 was 287 cells/ μ L before and 550 cells/ μ L after treatment ($p<0.01$).

Conclusion: ALHIV treated for depression in Mwanza have a high rate of parental loss and are almost all fully disclosed their HIV status. Among our sample, we found an increase in CD4 after depression treatment. Integration of mental health evaluation and treatment into adolescent HIV care can improve psychological and immunological outcomes.

Keywords: *Mental health; Adolescent living with HIV; Tanzania*

CU04NC: Malnutrition Treatment Outcomes of Patients Receiving Ready to Use Therapeutic Food (RUTF) versus Peanut Butter and Fortified Based Flour

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Background: High morbidity and mortality rate in Tanzanian children are in part due to deficiency of protein energy foods. Lack of these foods results in severe acute malnutrition (SAM) and moderate acute malnutrition (MAM), especially those from poor families. Ready to Use Therapeutic Food (RUTF) is defined by the World Health Organization (WHO) as the gold standard dietary supplements for management of children with SAM and MAM. At Baylor-Tanzania, due to a shortage of RUTF, peanut butter (PB) and fortified blended flour (FBF) are used as substitutes in management of children with malnutrition. This study aims to compare treatment outcomes of children receiving RUTF versus those receiving PB and FBF.

Methods: This was a retrospective cohort study. Data was obtained from electronic medical record (EMR) and malnutrition database. The study period was from May 2015 to May 2017. Children between 6 months and 18 years who were treated for SAM or MAM were included.

Results: A total of 169 children (46.7% females) were included in this study. Of the 169 enrolled,

119 clients were discharged after reaching targeted weight. 73 (61.3%) received RUTF and 46 (38.7%) received PB and FBF. Those receiving RUTF took an average of 7.7 weeks to reach targeted weight vs. 7.3 weeks for those receiving PB and FBF ($p=0.48$).

There were no significant differences in the rate of TB, HIV status, gender, initial weight, or age between groups. There was a significant difference in the distribution of patient nutrition status between nutritional support type ($p=0.002$, Table 1).

Conclusion: Time taken for clients to reach a target weight among those using RUTF, FBF, and PB was almost similar. In absence or shortage of RUTF, PB and FBF may be an alternative to manage children with malnutrition even if they have TB or are HIV infected. We recommend a study with a larger sample size from multiple Centres of Excellence to further evaluate the use of PB and FBF for management of malnutrition in absence of RUTF. Nutritious food should be available and accessible to all groups at all time to support therapeutics food on management of malnutrition.

Keywords: *Ready to Use Therapeutic Food; Children; Malnutrition; Tanzania*

CU05NC: Magnitude and Management of Snakebite Envenomation at Meserani juu in Monduli District- Arusha, Tanzania

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Background: Snakebite envenomation is a grossly and tragically neglected tropical disease, mostly affecting poor people living in remote areas in developing countries including sub-Saharan Africa. In Tanzania, data on snakebite are almost certainly underestimated because not all victims attend health facilities and some victims prefer to visit traditional healers or use some forms of traditional methods in the management of snakebite, which might be neither safe nor effective. The scarcity of anti-snake venom (ASV) products, especially in the rural areas of this region, complicates the issue, as it leaves the majority of untreated victims dying or becoming permanently disabled. The primary objective of this study was to determine the magnitude and management of snakebite envenomation in Meserani Juu village in Monduli district-Arusha, Tanzania.

Methods: A retrospective household survey was conducted in Meserani Juu village and the primary public health facilities found in Monduli district in Arusha, Tanzania. Using a snow ball and purposive sampling approaches, a total of 214 respondents were interviewed

using a semi-structured questionnaire. Data were analysed using SPSS version 20.

Results: Sixty-seven (31.5%) cases of snakebite were reported at Meserani Juu village, of which 58 (27.2%) cases had occurred in the past five years. Of 67 cases, 55 (82.1%) used local methods such as tourniquets 13 (19.4%), local incision 11 (16.4%), and snakestone 7 (10.4%) following snake bite. This study also found that there were neither ASV products nor documentation of snakebite cases in all primary public health facilities found in Monduli district which reported to refer all snakebite cases to the Meserani snake park clinic where ASV products were available and provided free of charge.

Conclusion: Generally, snakebite is a problem in Meserani Juu village, affecting mostly pastoralists and crop farmers. Most of the cases relied on local methods for the management of snake bites, of which most are of unknown efficacy and safety. The government and non-governmental organizations should collaborate so as to improve the health services and provision of preventive programs, especially to the rural communities.

Key words: *Snakebite envenomation; Anti-snake venom; Maserani juu*

CU06NC: Treatment Regimens and Outcome of Childhood Lymphoma at the Oncology Department, Bugando Medical Centre, Tanzania

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Background: Lymphoma is a general term for a group of cancers that originates in the lymphatic system. It is the third most common childhood malignancy. Due to current advances in lymphoma treatment, the overall survival rates for children with lymphoma has increased. However, in Africa, especially in sub Saharan African countries, there is little information regarding the regimen that are used in the treatment and the outcome of paediatrics lymphoma patients who are on chemotherapy.

Methods: A retrospective cross-sectional hospital-based study was conducted at the Oncology unit, BMC, Tanzania, from January 2012 to December 2017. The study included 108 files from patients between 0-12 years of age that were selected by consecutive sampling method. Data was recorded based on check list then filled and analysed by STATA version 13.

Results: Average age of participants was 4 years. Out of 108 patients' files, males were 63

(58%) and females were 45 (42%). Along the Lake Zone region, Mara had a large number of patients with 33 patients, followed by Mwanza with 18 and Kagera with 4 patients. CHOP and MCV regimens were highly used in the treatment of non-Hodgkin lymphoma, while in Hodgkin lymphoma, ABVD regimen was the only one used. Eighty-four patients (78%) were alive, 16 (15%) were deceased during treatment and 8 (7%) had an unknown outcome due to loss to follow up. In alive patients, 67% had partial progress, 14% had complete response, 2% had disease progression and 17% had stable disease.

Conclusion: CHOP and MCV regimens were highly used in the treatment of NHL while in HL, ABVD regimen was the only one used. According to the study the complete response in childhood lymphoma was at a low rate of 14%. These results highlight the need for an increase of the department's workforce with skills to tailor the specific treatment of children.

Keywords: *Oncology; Lymphoma; Regimen; Oncology department*

CU07NC: Health Practitioners Cancer Chemotherapy Infusion Practice and Infusion Errors Related Effects on Patients at Bugando Medical Centre, Mwanza, Tanzania

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Background: Delivery care and environment for chemotherapy infusion does affect safety and care of patients. Practitioners must ensure each patient receives the appropriate infusion therapy at the right environment and time. Various oncology societies have established standards for minimizing risk of infusion errors. This study aimed at assessing the practices of health care practitioners on delivery of chemotherapy infusion to patients and infusion error related effects on patients at the Oncology Department of Bugando Medical Centre.

Methods: An observational cross-sectional study involving 12 health care practitioners and 124 cancer patients was carried out at the Oncology Department. A pre-tested checklist was used for data collection. Data was analysed using SPSS version 20.

Results: Hundred and ten (110(88.7%) patients received antiemetic's medication during chemotherapy, 11(8.9%) patients were given hypersensitivity medications. Blood pressure

and temperature assessment before chemotherapy was observed in 1 (0.8%) patient. Dose calculation was observed in 80 (64.5%) patients. Safety protocols based on infusion errors were observed in which the rate of chemotherapy spill was 21 (16.9%), extravasation and under dose 26 (10.5%) and overdose in 1 (0.8%) patient. A correct rate of administration based on infusion time was observed in 49 (39.5%) patients. Pre-chemotherapy counselling was observed in 100 (80.6%) patients. The most common side effects observed during infusion, after 24hrs and after the third day of chemotherapy was vomiting.

Conclusion: Results show there was a low frequency in practice competencies among nurses on chemotherapy infusion and one third of the patient's encountered infusion error related effects. The Government should conduct more training for the practitioners on safety chemotherapy administration practice in order to improve competency among practitioners.

Keywords: *Oncology; Chemotherapy; Infusion errors; Bugando medical centre*

CU08NC: Prevalence and Associated Factors of Microvascular Complications Among Children and Adolescents with Diabetes Mellitus Attending Clinics in Mwanza, Tanzania

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Background: Diabetes mellitus in childhood can cause threatening eye disorders, disabilities and end stage renal failure. Signs and symptoms of these complications are subtle, and no routine investigations are done at early stages during childhood. The purpose of this study was to determine the prevalence and associated factors of microvascular complications in children and adolescents with Diabetes mellitus attending clinics in Mwanza.

Methods: A cross-sectional study was conducted, enrolling children and adolescents from 5 to 19 years attending Bugando Medical Centre, Sekou Toure Regional Referral hospital and Sengerema Designated District Hospital. Detailed history taking, and thorough physical examination were carried out. Variations of both systolic and diastolic blood pressure with position were recorded and Semmes Weinstein Monofilament was used to assess the presence of neuropathy. Spot urine was collected to detect protein, ketones and leukocyte. Venous blood was drawn to measure the level of HbA1c and serum creatinine for eGFR. Digital funduscopy was done to assess the presence of retinopathy.

Results: Of the 155 enrolled participants, 77 (50%) were females and the majority 129 (83%) were aged between 13 and 19 years. A total of 65 (42%) had any microvascular complications with diabetic nephropathy being the commonest with prevalence of 51 (33%), followed by neuropathy 21 (14%) and retinopathy 16 (10.3%). Surprisingly, diabetic nephropathy occurred as early as 8 years of age and increased constantly with age. Of note, 3/65 (4.6%) children had all the complications. Children and adolescents aged more than 13 years and those with very poor glycaemic control were more likely to develop any microvascular complications (OR 11.1; 95% CI 2.3 – 52.0; p-value=0.002 and OR 3.5; 95% CI 1.5 – 8.1; p-value 0.003, respectively).

Conclusion: Presence of any diabetic microvascular complications is increasing with age and poor glycaemic control. Co-existence of microvascular complications is common among children and adolescents. High prevalence of any diabetic microvascular complications in children and adolescents is alarming and calls for a routine assessment in this population.

Keywords: *Diabetes mellitus; Children; Adolescents; Microvascular complications*

CU09NC: Prevalence and Factors Associated with Diabetes in Pregnancy Among Women Delivered at a Tertiary Hospital in Northern Tanzania: A Registry-Based Retrospective Cohort Study

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Background: Diabetes in pregnancy has been associated with an increased risk of both maternal and perinatal morbidity and mortality. There is scanty information concerning diabetes in pregnancy in sub-Saharan Africa including Tanzania. This study aimed to determine the prevalence and factors associated with diabetes in pregnancy among women who delivered at a tertiary hospital in Northern Tanzania.

Methods: A hospital-based retrospective cohort study was conducted from April to June 2017 using maternally-linked data from Kilimanjaro Christian Medical Centre (KCMC) medical birth registry for the period of 2000 to 2015. A total of 53,543 singleton deliveries were studied. All women who were diagnosed with diabetes before or during the index pregnancy were included in the study. Data were analysed using SPSS version 20. Descriptive statistics were summarized using frequencies and percentages for categorical variables while mean and

standard deviation was used for continuous variables. Adjusted odds ratios with 95% CI for risk factors associated with diabetes in pregnancy were estimated using multivariable logistic regression models. Finally, statistical significance was tested at P-value <0.05.

Results: The prevalence of diabetes in pregnancy was 0.3%. Maternal age ≥ 30 years (OR 3.79; 95% CI: 1.33 – 10.84), gravidity ≥ 5 (OR 4.58; 95% CI: 1.94 – 10.81), chronic hypertension (OR 4.21; 95% CI: 1.67 – 10.62) and pre-pregnancy obesity (OR 3.61; 95% CI: 1.18 – 10.91) were significantly associated with higher odds of diabetes in pregnancy.

Conclusion: Multiple risk factors were identified. Efforts to screen at risk women during prenatal care is warranted in order to provide appropriate clinical management to reduce/ prevent adverse pregnancy outcome related to diabetes mellitus.

Keywords: *Diabetes in pregnancy; Prevalence; Associated factors; Tanzania*

CU10NC: Herbal Use Among Hypertensive Patients at The Kilimanjaro Christian Medical Centre, Tanzania: A Cross-Sectional Study

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Background: Hypertension control remains a challenge. The concomitant herbal use, a common practice in resource-limited settings, has been linked with poor control. Despite the link, information on herbal medicine use among hypertensive patients in this setting is scarce. Thus, the current study aimed to determine the prevalence, reasons, and factors associated with herbal use among hypertensive patients attending outpatient clinic at Kilimanjaro Christian Medical Centre.

Methods: We conducted a cross-sectional study between June and August 2018 at the Kilimanjaro Christian Medical Centre. Patients at the medical outpatient clinic aged 18-years and above who gave written consent were enrolled. A questionnaire was used to collect participants socio-demographic, economic, and reasons for the herbal use. A multivariable logistic regression model was used to determine independent factors associated with herbal use. Factors with a p-value of less than 0.05 were considered significant.

Results: A total of 300 hypertensive patients were enrolled in this study. The mean (\pm SD) age was 64.1 (\pm 2.00) years. More than half (52.0%) of the participants were female and the majority (73.7%) were married. The prevalence of herbal remedies' use was 84 (28.0%). Most of the participants reported using garlic (68.8%), followed by 'mlonge' (29.4%). The majority (68.3%) mentioned advice from a friend or a relative as the main reason for herbal use. The only factors independently associated with herbal use among hypertensive patients was the lack of health insurance (aOR= 2.8, 95% CI=1.2-6.7).

Conclusion: In this population, herbal use was common among those lacking health insurances. Friends and relatives are influential in the decision to use herbal remedies. The results call for more efforts to address awareness on the consequences of herbs' use in hypertensive patients.

Keywords: *Herbal use; Hypertension factors; Tanzania; Kilimanjaro Christian medical centre*

CU11NC: Depression Among University Students in Kilimanjaro Region, Tanzania. A Cross-Sectional Study

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Background: Depression is the second leading cause of death among youth worldwide. Despite being a common condition, data on the prevalence and determinants of depression in this population, especially those living in resource-limited settings, is scarce. The current study aimed at determining prevalence and factors associated with depression among university students in the Kilimanjaro region.

Methods: We conducted a cross-sectional study between March and July 2018. The undergraduate students in four universities of Kilimanjaro region were eligible for participation. A self-administered questionnaire was used to collect socio-demographic, academic and economic characteristics of the participants while the Patient Health Questionnaire (PHQ-9) was used to screen for depression. Those with a PHQ-9 score of 5 and above were considered having signs of depression. A multivariable logistic regression model was to determine independent predictors of depression. Factors with a p-Value of less than 0.05 were considered statistically significant.

Results: A total of 410 students were eligible and enrolled in the study. The mean (\pm SD) age was 24.8 (\pm 3.7) years. More than half (58.0%) were males and single (79.3%). Of the enrolled, 297 (72.4%) screened positive for depression. Three (0.7%) students had severe depression and 8.3% (n=34) moderately severe depression. Twelve (2.9%) students reported thoughts of better being dead or hurting themselves. Not involved in extracurricular activities (AOR=2.3, 95% CI=1.1-4.5) and substance abuse (AOR=3.1, 95% CI=1.1-8.3) were independently associated with depression. There was no association between economic factors, including receiving a loan from the Higher education student loan board, and depression.

Conclusion: Students who reported substance abuse and who were not involved in extracurricular activities had higher chances of screening positive for depression. The results call for more efforts to raise awareness on the burden of depression including poor academic performance and dropouts among university students.

Keywords: *Depression; Prevalence; Factors; Youth; University students; Kilimanjaro; Tanzania*

CU12NC: Prevalence of Sick Cell Trait Among Blood Donors at Bugando Medical Centre in Mwanza, Tanzania

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Background: It is estimated that Tanzania is the fourth ranking country in prevalence of sickle cell anaemia (SCA) and sickle cell trait (SCT). SCT is a benign carrier condition in which one allele of the beta globin gene carries the sickle haemoglobin mutation and the other allele is normal, producing haemoglobin AS (HbAS). People with SCT are healthy and are most likely recruited for blood donation, however knowledge on sickle cell trait is important in many settings such as transfusion medicine, pre-conception counselling and evaluation of rare complications.

Methods: A hospital-based cross-sectional study involved 300 blood donors at Bugando Medical Centre (BMC), Mwanza. Blood was collected on dried blood spots from every study participant and processed according to standard operating procedures using isoelectric focusing with agarose gel electrophoresis technique.

Keywords: *Sickle cell trait; Blood donors; Bugando medical centre*

Results: Study participants median (IQR) age was 34 (41) years old, males represented 244 (76.3%) of participants, the youngest being 18 years and the oldest being 59 years. Out of 300 blood donors, 80 (25%) had sickle cell trait, 61 (76%) were males and 19 (24%) were females. Proportion of SCT among males and females was equally distributed.

Conclusion: A 25% prevalence of SCT among blood donors is high in comparison to other regions. Given that this prevalence represents healthy adults in the general population, efforts should be made to screen for SCT among blood units for sickle cell blood recipients as there is evidence of exacerbation of haemolysis in this population of patients. Premarital counselling and new-born screening programmes are essential for prevention of SCA and early interventions to SCA patients respectively.

CU13NC: Geospatial Mapping of Sickle Cell Trait and Disease in Northwest Tanzania: the Tanzania Sickle Surveillance Study (TS3)

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Background: Tanzania ranks 3rd in Africa for the estimated number of annual births with sickle cell disease. Tanzania lacks a national newborn screening program, and no contemporary multi-regional screening of infants has been undertaken. We designed this study to determine the prevalence of sickle cell trait and disease by region and district in northwest Tanzania, where prevalence of sickle cell is thought to be highest. Secondary objectives included characterization of regional hemoglobin variants and exploration of associations between sickle cell trait, sickle cell disease, malaria, and HIV.

Methods: The Tanzania Sickle Surveillance Study (TS3) is a prospective cross-sectional study of HIV-exposed infants born in northwest Tanzania. Dried blood spots (DBS) from these infants are transported to a central laboratory at Bugando Medical Centre, where they are tested for HIV and then stored on-site. All DBS were tested using isoelectric focusing (IEF) and interpreted by two independent readers. DBS samples scored as disease or variant were repeated for confirmation and preserved for later genotyping.

Results: Between February 2017 and May 2018, 17,204 DBS samples were scored. The overall prevalence of sickle cell trait and disease in the entire cohort 20.3% and 1.2%, respectively with a 0.1% prevalence of hemoglobin variants. Geospatial mapping revealed slight variations across regions with trait ranging from 16.6% to 22.5% and disease ranging from 0.5% to 1.5%. Analysis of individual districts that provided > 100 samples revealed wider geographic variability with trait ranging from 15.2% to 27.8% and disease ranging from 0.0% to 4.3%. The prevalence of sickle cell disease was the same among HIV-infected and HIV-negative children (1.2%).

Conclusion: The prevalence of sickle cell trait and disease among young children born in northwest Tanzania is very high, exceeding 20% trait and 1.2% disease. Geospatial mapping has identified high prevalence districts where targeted newborn screening can be started using existing public health infrastructure. Future work will evaluate the correlation between historical malaria prevalence and sickle cell prevalence and identify hemoglobin variants.

Key words: Mapping; Sickle cell disease; North Western Tanzania

CU14NC: Assessment of Serum Amylase Levels Among Critically-ill Patients Admitted in the Internal Medicine Department at BMC-Mwanza, Tanzania

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Background: Pancreatitis is an inflammatory condition caused by inappropriate activation of pancreatic enzymes (proteases, lipase and amylase) within and surrounding the pancreas, resulting in auto digestion of pancreatic tissue, necrosis, edema and possibly hemorrhage. This study was designed to determine the serum levels of serum amylase in critically ill patients admitted in the Internal Medicine Department at the Bugando Medical Centre (BMC)

Methods: A hospital-based cross-sectional study was conducted from March to July 2018 at BMC. Demographic and clinical information were collected using questionnaires. Blood was drawn from a patient using a sterile syringe then was sent to the laboratory for processing and testing for the pancreatic amylase and

lipase. Data were analyzed using STATA version 13 software.

Results: A total of 124 patients were enrolled with a mean age (\pm SD) of 55.5 (\pm 16.94) years. Of all the study participants, 32.3% (40/124) had elevated levels of serum amylase. Fluctuations of pancreatic serum amylase was significantly associated with alcohol consumption ($p=0.04$).

Conclusion: Alcohol intake is the predominant etiology factor associated with elevation of serum amylase among critically ill patients admitted at BMC, in the internal medicine department. The most common symptoms being abdominal pain and tenderness, nausea and steatorrhea.

Key words: BMC; Serum amylase; Pancreatitis; Critically ill patients

CU15NC: Efficacy and Satisfaction of the Miraclefeet versus Steenbeek Foot Abduction Brace in the Ponseti Treatment of Idiopathic Clubfoot in Mwanza, Superiority Clinical Trial

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Background: Idiopathic clubfoot is one of the commonest musculoskeletal birth defects characterized by cavus, adductus, hindfoot equinus and varus. The Ponseti method is the standard of care. Different foot abduction braces have been in use since the invention of the Ponseti method. Currently the Steenbeek foot abduction brace is the most available brace in the Sub Saharan countries including Tanzania. The aim of this study was to determine the effectiveness and parent satisfaction of the new design foot abduction brace Miraclefeet as opposed to the standard Steenbeek foot abduction brace.

Methods: The study was an interventional, open label, two-armed, superiority randomized trial conducted from August 2017 to May 2018 at the Bugando Medical Centre, Sekou-Toure Regional Referral Hospital and Sengerema Designated District Hospital. A total of 160 eligible participants were enrolled in the study 80 on each study arm, study arm A received Miraclefeet foot abduction brace and study arm B received Steenbeek. Pirani score and recurrence and modified Orthotics Prosthetics User survey for parent satisfaction were used.

The primary outcome was recurrence of the club foot deformity and the secondary outcome was parent satisfaction. Analysis was done as per protocol and with superiority margin set at 5%.

Results: The randomization was proper as the distribution of baseline characteristics of the participants had p-value >0.05. Miraclefeet group had higher success rates compared to Steenbeek [100% (80/80) versus 97.5% (78/80); p-value=0.0773 95% CI -0.9% – 5.9%] with the difference of 2.5%. Using the orthotics prosthetics user survey tool there was no statistical significance on the level of parent satisfaction.

Conclusion: This study has demonstrated that the use of a Miraclefeet brace for maintenance of clubfoot correction has similar results in terms of prevention of recurrence and parent satisfaction compared to our traditional steenbeek foot abduction brace. Thus, we recommend use of both braces and recommend further studies with larger sample size with longer period of follow up.

Key words: *Clubfoot; Foot abduction braces; Miraclefeet; Steenbeek; Mwanza; Tanzania*

CU16NC: Pattern of Utilization of Blood and Blood Components at the Bugando Medical Centre Mwanza, Tanzania

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Background: Blood transfusion service is a vital and integral part in the health care delivery system, identifying the pattern and monitoring appropriateness on blood and blood components' utilization helps in the effective management of bloodstock to meet the present and future demands in hospitals. A single unit of donated blood can save lives and improve outcomes in more than one patient if appropriately utilized. This study aimed to determine the patterns and appropriateness of utilization of blood and blood components at the Bugando Medical Centre in Mwanza, Tanzania.

Methods: This was a laboratory-based cross-sectional study, conducted from June to August 2018. Patients' transfusion request forms were reviewed and then patient's demographics and all clinical information including; indication of transfusion, type of blood component requested, department and number of units requested were collected into a well-prepared data collection form.

Results: Out of 440 transfusion requests, 234 (53.2%) and 206 (46.8%) were for male and

female patients, respectively, their age ranged from 1 day to 92 years old with mean age of 34(±27). A total of 382 (86.8%) units were issued, whole blood was the most utilized 94.9%, followed by PRBC 3.6%. Department of the Internal Medicine utilized 30% of blood issued followed by general surgery by 14%. Anaemia was the most common request indication for blood transfusion by 39%. The laboratory was effective by 97.7% in issuing appropriately requested blood/blood component. Ninety-two percent of the requests for whole blood were processed and issued on the same day.

Conclusion: More than 90% of blood requested and utilized was whole blood; this calls for clinicians to request an appropriate blood product necessary for an individual patient and increase requests for packed red cells. The hospital blood bank should extend its service to include regular provision of blood components; this will make more patients benefit from one unit of donated blood. There should be a periodic review and implementation of guidelines for use of various blood components, this may help decrease inappropriate use of blood.

Key words: *Pattern; Appropriateness; Blood components; Blood transfusion*

CU17NC: Orofacial Clefts: Clinical Patterns and Outcome of Treatment at Bugando Medical Centre

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Background: Orofacial cleft is one of the congenital malformation of head and neck. It can be classified into typical, that includes isolated cleft lip, and combined cleft lip and palate and atypical ones. The aetiology of cleft lip is still unknown. The majority of cases are believed to be multifactorial in nature and include environmental, familial and genetical factors. Orofacial clefts remain a major problem at BMC. The study aimed at documenting the condition at BMC and the post-operative outcomes.

Methods: A descriptive cross-sectional study was undertaken between October 2009 and June 2010. All patients with primary orofacial clefts who attended to BMC and fit for the inclusion criteria were sampled. Cases were described. Statistical analysis was performed by using SPSS software version 10.0.

Results: The study involved a total of 94 patients with different clinical patterns of

orofacial clefts. Most of the patients were from Mwanza region (48.9%), followed by Mara, Shinyanga and Kagera that accounted for 19.1%, 17.1% and 1.1%, respectively. The majority of the orofacial clefts seen were infants (48.9%), followed by 1-2yrs (30.9%) and above 2yrs (20.2%). Male were affected more than female, 62.8% versus 37.2%. Combined cleft lip and palate were 46.8%; cleft lip, 39.4% and cleft palate, 13.8%. Left-sided were more affected (37.2%). The majority of children with orofacial cleft had normal birth weight with an average of 2.6kg. Mean hospital stay for postoperative orofacial cleft was 6days. Nine patients (9.6%) had postoperative complications like pneumonia and wound dehiscence.

Conclusion: Orofacial Clefts are more male than female patients. Most patients had combined cleft lip and palate. The left side was affected more than the right side. Further studies are needed to establish the factors associated with orofacial clefts.

Keywords: *Orofacial clefts; Clinical patterns; Outcomes; BMC*

CU18NC: Prevalence and Presentation of Pharyngeal Malignancies among Head and Neck Malignancies for Patients Attending ORL and Dental Care Management at Muhimbili National Hospital (MNH)

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Background: Oral and pharyngeal cancers are the sixth most common cancers Worldwide. Cancer of oral cavity and oropharynx accounts for about 220,000 new cases per year in men (5% of all cancer) and about 90,000 in women (2% of all cancer) Worldwide. Over 5 million of the total number of cancer cases diagnosed each year are in developing countries, with approximately 60,000 new cases being reported in South Africa. In Tanzania, cancer cases are increasing, in 2013 head and neck malignancies were reported to contribute 39% of all cancers. This study aimed at determining the prevalence and presentation of pharyngeal malignancies.

Methods: A descriptive cross-sectional study was carried out at the clinics and wards of oral and maxillofacial (ORL), and Dental department at MNH. All patients attending ORL and the dental departments between May and December, 2016 were interviewed using a questionnaire. Clinical examination was done followed by a biopsy for cytology/histology.

Results: A total of 438 patients had head and neck malignancies. The ones with pharyngeal malignancies were 114; male 79 (69.3%) and female 35 (30.7%). The mean age was 55.7 years with majority of them aged 61 years and above. Forty nine (43%) of patients reported to smoke and consumed alcohol while those who neither smoke nor consumed alcohol were 30 (26.3%). The leading form of malignancy was those affecting oropharynx (55.3%), followed by hypopharynx (27.2%) and nasopharynx (17.5%). Histological types were: squamous cell carcinoma (77.2%), Kaposi's sarcoma (7.9%), lymphoma (5.3%) and undifferentiated carcinoma (5.3%).

Conclusion: This study showed that the common form of pharyngeal malignancies in Tanzania is those affecting oropharynx highlighting the importance of focusing on the possible interventions for management and control

Keywords: *Maxillofacial; Pharyngeal malignancies; Muhimbili; Tanzania*

CU19NC: Cobalt-60 External beam radiotherapy and high dose rate brachytherapy treatment for carcinoma of cervix in Bugando Medical Centre, Mwanza, Tanzania

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Radiotherapy is the safe use of controlled doses of radiation to treat disease especially cancer together with surgery and chemotherapy. About 60 % of cancer cases require radiation as medicine to cure or palliate. Radiotherapy has pivotal role in the curative treatment of breast cancer, cervical cancer, cancer of mouth, pharynx, larynx and others depending on stage of disease. This modality can reduce the risk of recurrence, improve survival or provide palliation of symptoms. Bugando Medical Centre has started external beam radiotherapy in August 2017 with Bhabhatron Cobalt machine and Imagin Simulator and Brachytherapy with Bebig Co-60 high dose rate remote after loader with 2 Curies source of 3.5 mm length with a half-life of 5.27 years. Intracavitary brachytherapy application after external beam therapy started on 13 September 2018 with dedicated C-arm for orthogonal imaging of applicators, rectum and bladder for treatment planning in SagiPlan software.

Availability of these equipment allow provision of High dose rate (HDR) treatment. HDR treatment time is shorter, allows outpatient treatment, less patient discomfort and reduced risk of applicator displacement. In every 5 years, major service of the equipment including calibration will be done. Evidence based protocol for treatment will be followed so total dose and biologically effective dose (BED) two gray equivalent dose at reference points A1, A2, bladder and rectum will be presented.

In conclusion: Radiotherapy is safely practised at BMC and HDR is a vital clinical tool in treatment of gynecological cancers. There is demand for the radiation therapy in Tanzania. Newer innovations like 3 D brachytherapy is required. Advocacy is essential for increasing radiotherapy facility in all region. Adequate access to radiotherapy is a crucial component of quality modern multidisciplinary cancer care.

Keywords: *Cobalt-60; High dose rate; Bugando Medical centre; Gynecological malignancies*

HEALTH SERVICES DELIVERY, PUBLIC HEALTH AND PATIENT'S CARE



CU01HS: Faecal Sludge Containment and Risk for Cholera Outbreak in Informal Settlements of Nyamagana and Ilemela Municipals in North Western, Tanzania

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Background: Cholera and poor hygiene-related diseases present the greatest health burden in Nyamagana and Ilemela Municipals of Mwanza City. The purpose of this study was to assess the association between faecal sludge containment and the risk for cholera outbreak in informal settlements in Nyamagana and Ilemela Municipals.

Methods: An analytical cross-sectional study involving 428 households of equal distribution from Igoma and Sangabuye (high cholera outbreak), Pasiansi and Bezi (low cholera outbreak) was conducted. Data were collected through face-to-face interviews and field observations. The location of the latrines was recorded by using a GPS and data were analysed using Stata version 13.

Results: About one third of the households interviewed were using traditional pit latrines while 39(9.1%) were defecating in open spaces. The quality of the available latrines was poor: majority 276 (64.5%) had flies, 162(37.8%) found

with faeces around the floor, 250 (58.4%) had bad smells and 168 (39.2%) were having overflowing waste water. Factors known to contribute to cholera outbreaks, like use of water from unprotected well (OR 2.7; 95% CI [1.1 – 6.7]; p-value=0.024), communal tape (OR 4.1; 95% CI [1.7 – 10.0]; p-value=0.002) and water from the lake (OR 4.4; 95% CI [1.8 – 10.4]; p-value=0.001), used untreated drinking water (OR 1.8; 95% CI [1.1 – 2.9]; p-value=0.030) and not using soap for washing hands in the latrine (OR 1.7; 95% CI [1.2– 2.7]; p-value=0.043) were significantly found more in areas with high cholera outbreak than in areas with low cholera outbreak.

Conclusion: There is poor faecal sludge containment in the interviewed households of Nyamagana and Ilemela Municipals. Poor hygienic practices predispose people to a high cholera outbreak. There is a need to carry out a study on community perceptions and practice on the quality of faecal sludge containment in relation with cholera outbreak.

Keywords: *Faecal sludge containment; Cholera; Hygienic practices; Ilemela; Nyamagana*

CU02HS: Overcoming Barriers for Uptake of Sexual and Reproductive Health Services Among Adolescents by Using Peer Educators

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Background: Adolescents often lack basic reproductive health information, skills in negotiating sexual relationships and access to affordable, confidential reproductive health services. Baylor College of Medicine Clinical Center of Excellence (COE) in Mwanza, Tanzania initiated targeted Adolescent Sexual and Reproductive Health Services (ASRHS) in October 2013. ASRHS was conducted by trained healthcare workers once per week during adolescent clinic and teen club. After 2 years, evaluation showed a majority of clients served were caregivers instead of adolescents. Thus, an intervention was taken to improve ASRHS by providing adolescent-friendly services through qualified peer educators.

Methods: Beginning in January 2016, peer educators provided information on sexuality, risks of unprotected sex, safe abortion, prevention of new HIV infections and other sexually transmitted infections through skill-based approaches. A retrospective study was conducted to describe ASRHS uptake before and after the peer educator intervention. Data were obtained from January 2015 to December 2016 from Tanzanian Ministry of Health sexual and reproductive register book and clinic log book for adolescents ages 13-18.

Results: In the pre-intervention year, 43 adolescents received ASRHS compared to 299 in the post-intervention year. Uptake of each type of ASRHS increased post-intervention. Most adolescents received health education only across both study periods (244/342). For adolescents who received a SRHS medication or device, condoms were the most preferred method across both study periods (58/342).

Conclusion: Based on the data collected, this survey demonstrates that while more adolescents received ASRHS after implementation of peer educators, there was still low uptake of family planning medications and devices, this could be due to barriers to medication and device uptake cultural beliefs, myths and misconceptions, inadequate education about contraceptives or difficulty communicating with caregivers about ASRHS. Therefore, we plan to involve caregivers in gender-specific ASRHS discussions and increase the number of trained peer educators to conduct ASRHS sessions. Doing so could potentially help overcome barriers that prevent youth participants from adopting services.

Keywords: *Adolescent Sexual and Reproductive Health Services; Peer educators; Tanzania*

CU03HS: Impact of Enhanced Adherence Counselling on ART Adherence and Viral Suppression among HIV Infected Children and Adolescents at Baylor College of Medicine Centre of Excellence in Mwanza, Tanzania

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Background: Drug adherence is essential to successful antiretroviral therapy (ART) and non-adherence contributes to treatment failure and development of drug-resistance. Enhanced adherence counselling (EAC), intensive individualized and motivational counselling, may be used to improve adherence. Where genotypic resistance testing is not widely available, EAC is a key first step in management of patients with elevated viral load (VL), as it can help differentiate virologic failure from poor adherence versus viral resistance. This study aims to describe characteristics of patients with high VL and to assess the rate of viral suppression after EAC among paediatric patients at Baylor Center of Excellence (COE) in Mwanza, Tanzania.

Methods: We conducted a retrospective review of children 5-18 years who participated in EAC from May 2015 - May 2017 using the electronic medical record, EAC logbook and patient files. At Baylor Mwanza COE, patients with VL>1000 are referred for EAC and VL is rechecked after completing 3 EAC sessions and demonstrating 3 months of good adherence. Data collected included sex, age, primary caregiver, ART regimen, disclosure, years on ART, and barriers to adherence. Patient characteristics and

adherence barriers were compared between those with post-EAC VL>1000 and ≤1000.

Results: Sixty patients (25 female) with a mean age of 12.2 years, an average of 6 years on ART who had completed EAC and had a post-EAC VL available were identified. Sixty-three percent (38/60) were fully disclosed, 50% (30) had their biological caregiver at home, and 93% (56) were on first line ART. Barriers to adherence identified during EAC are presented in the table. The most common barrier was lack of caregiver support (75%, 45/60). Forty-three percent (26/60) had VL≤1000 after EAC. Patient characteristics did not differ by post-EAC VL result. The only difference in barriers to adherence was that patients with VL>1000 after EAC were more likely to report pill burden as a barrier (24% vs 4%, p=0.03).

Conclusion: Fewer than half of patients had VL≤1000 after EAC. Good caregiver support and simplified and fixed drug combination to reduce pill burden are two major factors that, if improved, might improve adherence and viral suppression among HIV infected children and adolescents.

Keywords: *Care giver support; Pill burden; Adolescents in ART; Tanzania*

CU04HS: Predictors of HIV Disclosing Status Among HIV Pregnant Women in Southern Highlands Zone, Tanzania

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Background: Disclosure or sharing of HIV status with one's sexual partner is encouraged and is an integral practice both in VCT and PMTCT programs. Among HIV-positive pregnant women, studies have shown that disclosure of HIV status to partners or relatives led to increased - acceptance, use and adherence to maternal and infant ARVs. However, up to date there are limited studies on HIV status disclosure to partners, among pregnant women in Tanzania. The most recent study revealed low rates of HIV status disclosure to partners, about 41%. This study aimed to determine the prevalence and predictors of disclosure among HIV positive pregnant women enrolled into PMTCT program in southern highlands, Tanzania.

Methods: Descriptive retrospective analysis of 3555 pregnant mothers from PMTC program was carried out in 161 HIV Infant Tracking system (HIT system) facilities from Mbeya, Songwe, Ruvuma, Rukwa and Katavi. The data, extracted from the HIT System database, included all pregnant women from January 2016 to December 2017. Chi square analysis used to estimate the measure of association between variables. P value set to 0.05. The data

was analysed using SPSS (Version 22.0 SPSS Inc, Chicago, USA).

Results: In total, 93.0% of the pregnant women had disclosed their HIV status to either partner or other family member. Around 53.8% of women knew their HIV status before current pregnancy. Women who were middle aged (18-35 years), married/cohabiting, knowing their HIV status before the pregnancy and living with a partner with known HIV status were more likely to disclose their status (p value < 0.05).

Conclusion: The overall findings of this study suggest that the proportion of HIV status disclosure to either partner or other family member is high in Southern highlands. Our results point to missed opportunities by the health system of diagnosing women of reproductive age earlier for HIV. There is a need to encourage reproductive women to test for HIV before pregnancy by strengthening PITC for HIV at reproductive age other than antenatal entry point. It also crucial to create interventions that target men in HIV testing, for example, the "Mwanaume jitambue" intervention.

Keywords: *HIV Disclosing Status; Predictors; Pregnant women; Tanzania*

CU05HS: Awareness, Attitude and Practice of Intermittent Preventive Treatment of Malaria in Pregnancy (IPTP) Among Pregnant Women Attending Makongoro Health Centre, Mwanza, Tanzania

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Background: Malaria during pregnancy is a major health issue. The infection may cause complications to the pregnant woman, the foetus and the neonate. IPTp of malaria is a full therapeutic course of antimalarial drugs given to pregnant women at routine ANC visits, regardless of the recipient's status of malaria infection. IPTp reduces maternal malaria episodes, maternal and foetal anaemia, placental parasitaemia, low birth weight and neonatal mortality. This study aimed at determining the level of awareness, attitude and practice of IPTp among pregnant women that attended ANC at Makongoro Health Centre.

Methods: A cross-sectional study with a non-probability convenient sampling selection of participants was used. The data obtained from pregnant women through semi-structured questionnaires was validated and compiled for analysis. Data entry first involved Microsoft Excel Spreadsheet prior analysis performed using STATA version 13.

Results: The study involved 396 pregnant women. About 74.75% admitted having heard of IPTp, 66.16% knew the IPTp drug that they were required to take and over 50% mentioned SP (sulfadoxine/pyrimethamine) and the source of information about IPTp-SP. However, 59.34% had no idea of the frequency of doses they were supposed to take. 60.51% of the respondents found it beneficial for them to take IPTp-SP even if they did not test positive for malaria. More than half of the respondents had taken at least one dose of IPTp-SP under Direct Observed Treatment (DOT) scheme.

Conclusion: The level of awareness, attitude and practice of IPTp-SP has increased among pregnant women and health practitioners due to increased sensitisation programs. The current findings underscore the importance to raise awareness and improve knowledge on IPTp among pregnant women and all women of child bearing age.

Keywords: *Malaria IPTP; Awareness and Use; Pregnant women; Tanzania*

CU06HS: The Impact of Missing Data on Estimating HIV/AIDS Prevalence, Incidence and Causal Effects in a Demographic Sentinel Surveillance

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Background: Most population surveys will account for survey designs and clustering for estimating disease, but few will account for missing data. Missing data are still a challenge when it comes to estimation of disease prevalence and incidence. Few population level estimates explicitly state how missing data were dealt with. In population survey studies, missing data can be due to unit or item non-response. Handling of missing data depends on the mechanism of missingness. Data can be Missing Completely at Random (MCAR), Missing at Random (MAR) or Missing not at Random (MNAR). Though well studied methods, readily available in standard statistical packages, exist in tackling this problem, most estimates of disease prevalence and incidence use inappropriate techniques. Population studies such as sentinel surveillance surveys are the major source of HIV data in sub-Saharan Africa. Prevalence and Incidence estimates from these studies are considered reliable and precise. However, these studies are subjected to missing data, which may result in biased estimates. Finding ways to minimize bias using appropriate statistical methods will improve these national estimates on the estimation of prevalence and incidence of disease. The main objective of this work is to

evaluate the impact of missing data on estimating HIV/AIDS prevalence, incidence and causal effects in a demographic surveillance system in Tanzania.

Methods: Data from Magu Health and Demographic Sentinel Surveillance n≈40,000 will be used. A systematic review will be conducted. Application of simulation studies, multiple imputations, inverse probability weighting and double robust methods will be applied. To determine causal effects: propensity scores, instrumental variables and G-estimation methods will be used. A sensitivity analyses will also be used to answer the study objective.

Conclusion: Through this work we will be able to explore and apply different statistical methods of analysing data with missing values that can result into an unbiased and precise prevalence and incidence estimates mainly in HIV/AIDS demographic studies. Also, we will be able to determine causal effects which are a major challenge in observational studies.

Keywords: Missing data, HIV/AIDS, Multiple Imputation, Inverse Probability Weighting, Propensity scores, Double robust methods, G-estimation.

Keywords: *Missing data; HIV/AIDS prevalence; Biases; Sentinel surveys; Tanzania*

CU07HS: Knowledge and Attitude Towards Voluntary Counselling and Testing of HIV and AIDS Among CUHAS-Bugando University Students in Mwanza-Tanzania

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Background: Voluntary Counselling and Testing (VCT) is a component of the national response to HIV and AIDS prevention. It marks the entry point for early treatment as well as providing information for behaviour change and stigma management. The knowledge of HIV status encourages individuals to reduce risky sexual behaviours. For those testing positive for HIV virus, it improves access to further diagnostic investigations, treatment, care and support. VCT therefore, is a vital point of entry to the HIV/AIDS related illnesses including Tuberculosis control, psychological and legal support and prevention of maternal to child transmission. The aim of this study was to explore the knowledge and attitude towards voluntary counselling and testing for HIV and AIDS among CUHAS-BUGANDO university students in Mwanza.

Methods: A cross-sectional study was conducted to assess knowledge and attitude towards HIV voluntary counselling and testing of HIV/AIDS. The sample size was 384. Ethical approval for this research was sought from Catholic University of Health and Allied Science (CUHAS).

Results: A total of 384 students participated in the study, 237 (61.7%) were males and 147 (38.33%) female; 358 (93.2%) were between 20-24 years of age, 315 (82%) were Christian and Muslims were 67 (17%). The majority, 327(85.2%), were single. About 343 respondents (88.8%) reported to have heard about VCT, 257 (66.7%) had knowledge about voluntary counselling and testing; 320 (93.2%) knew where voluntary counselling and testing services were provided. Regarding attitude, 279 (72.6%) agreed that VCT for HIV should be available for CUHAS students. Knowledge about VCT, awareness about VCT and using VCT services were significantly associated with the programme of study ($p < 0.005$).

Conclusion: More than half of the Catholic University of Health and Allied Sciences' students had not undergone a HIV test for fear of a positive result, stigmatization and discrimination, doubt about confidentiality, fear of losing friendship with a girlfriend/boyfriend or spouse.

Keywords: *Knowledge, attitude; VCT; CUHAS-Bugando; Tanzania*

CU08HS: Prevalence and Indications of Long-Term Indwelling Urinary Catheter Among Outpatients Attending Urology Clinic at a Tertiary Hospital in North-Western Tanzania

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Background: Indwelling urinary catheterization is performed to manage urinary problems and is associated with a number of complications. This study was done to determine the prevalence and indications of long-term indwelling urinary catheter (IUC) at home in a developing country.

Methods: This was a descriptive cross-sectional study conducted at urology clinic at Bugando Medical Centre (BMC), a referral hospital in the Lake Zone. The study population included all patients attending the urology clinic with different conditions between December 2016 and September 2017. A review of 202 outpatients' hospital records using checklist was done to determine indications and also patients were interviewed using interview guide to gather patients' information. Data were analysed using STATA version 13 (college station, Texas). Descriptive statistics such percentages, frequencies were used for categorical variable whereas median [inter quartile range (IQR)] was used for continuous variables.

Results: A total of 2112 patients were seen at the urology clinic between December 2016 and September 2017. Of these, 202 were living at home with a long-term IUC, giving a prevalence of living with an IUC of 9.6% (202/2112), CI (8.4 -10.8). The age of patients with IUC ranged from 18 – 95 years; with the median age of 69 [IQR 61 – 77] years. The majority 195 (96.5%) were males. A slight majority 111 (54.9%) had their catheters for ≥ six weeks and 123 (60.9%) had their catheters changed at least once. The most common indications were benign prostatic hypertrophy (BPH), 129 (63.9%) and urethral stricture 34 (16.8%).

Conclusion: Prevalence of IUC at home is high in comparison with data from developed countries. The common indication was BPH. There is a need to formulate policies institutionally and at government level to lower the prevalence of patients living with long-term IUC at home.

Keywords: *Prevalence; Indication; IUC; Tanzania*

CU09HS: Mid-Term Reflection on Qualitative Research Capacity Building Initiative in Misungwi, Tanzania

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Background: Mama na Mtoto is a district-led comprehensive maternal, new-born, and child health (MNCH) package rolled out in Mwanza Region aiming to improve care-seeking and health facility services. Baseline qualitative data collection in 2017 revealed practical experience and senior mentors in qualitative research in vulnerable populations is limited. Additionally, though the involvement of key influencers in MNCH programming is determinant, it is unclear what the most culturally appropriate ways to reaching these populations are. The 'Synergy' initiative was developed to enhance East African capacity for qualitative research design, delivery, and knowledge translation, as well as increase understanding of how to better engage influencers, adolescents, and vulnerable populations in MNCH programming.

Methods: Three 'teams' of 4-5 members were formed to carry out focused research projects on male partners, adolescent women and vulnerable illiterate women, identified from baseline findings as key influencers and/or vulnerable target populations. A mentorship program with Canadian and East African qualitative experts, including one-on-one coaching and a series of five workshops over two years, was designed to build team capacity on qualitative research design, data collection,

analysis, synthesis and dissemination of their research projects.

Results: As of September 2018, two mentorship workshops on qualitative research design and data collection have been implemented, and a third on data analysis is scheduled in October. Each team has developed a research protocol, a data management strategy, and data collection tools. Data collection is currently successfully completed between 17-21 interviews/focus groups, of which most have been transcribed into Swahili and about half translated into English. Highlights thus far include increased team knowledge in how to organize interviews/focus groups, effectively mobilize data collection teams and better recruit target participants. Data collection on community MNCH care-seeking and health service experiences was undertaken. Identified areas for improvement were identified.

Conclusion: A capacity-building approach has been successful in mentoring junior East African researchers to conduct focused qualitative research in MNCH. Experiences thus far will help to inform how to better mobilize qualitative research and implement MNCH programming so that the most vulnerable populations are reached.

Keywords: *Capacity Building; Maternal New-born and Child Health (MNCH); Qualitative Research*

CU10HS: Understanding the Contextual Scope of Mass Media Key Informants Coverage on Issues Related to Maternal, New-born and Child Health in Lake Zone, Tanzania

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Background: Mass media have a role to play in public health promotion. Health authorities and medical experts provide mass media key informants with essential health information, which is then relayed to the public in readily accessible formats through a variety of media outlets. However, in Tanzania, little is known about the scope to which the mass media promote maternal, new-born and child health (MNCH). The primary aim of this study was to examine the opinions and views of mass media key informants on MNCH related issues covered in selected mass media in the Lake Zone, Tanzania.

Methods: A qualitative phenomenological approach was used to explore views and opinions of mass media key informants on coverage of issues related to MNCH in Tanzania. Participants of this study included programming managers, editors, journalists and/or producers working at selected newspapers, radio, and television stations with media coverage in Lake Zone. In-depth interviews were conducted to capture information on mass media key informants' coverage on issues related to MNCH in Tanzania. Thematic content analysis was employed to categorize themes.

Results: Breastfeeding, nutrition, antenatal care visits, postnatal care, pneumonia disease, diarrheal diseases, pregnancy complications, facility deliveries, vaccination and immunization, HIV/AIDS, preventing mother-to-child transmission (PMTCT), and malaria were identified as frequently covered and important MNCH topics reported in mass media. The coverage of MNCH issues was mainly influenced by the agenda of sponsors, and the increasing maternal and child morbidity and mortality rates.

Conclusion: The present study demonstrated that mass media key informants consider MNCH matters as issues of public interest given the extensive coverage of matters related to the health of mothers and their children in the Lake Zone. News stories/bulletin was the most common ways used by mass media key informants to deliver intended messages to target audiences. The results of this study strongly support the collaboration of government, medical professionals and media practitioners in promoting MNCH through use of mass media. To improve mass media coverage of MNCH issues there is a need develop strategies to best equip mass media key informants/journalists with specialized knowledge and skills to enable them write informed articles on MNCH health issues.

Keywords: *Mass Media; Maternal Health; Key Informants; Coverage; Lake Zone*

CU11HS: Proportion, Appropriateness and Immediate Outcome of Referrals in Pediatrics Ward at Bugando Medical Centre, Mwanza – Tanzania

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Background: Delayed referrals and inappropriate pre-referral care in primary health care facilities contribute to poor patients' outcomes in secondary and tertiary referral health care facilities. This calls for a need to analyse the status of referrals seen at the tertiary health care facility in order to come up with recommendations for patients care improvement at all levels of health care system. The study aimed at determining the proportion, appropriateness and immediate outcome of referrals in paediatric wards at Bugando Medical Centre (BMC).

Methods: A hospital-based cross-sectional study enrolled all acutely referred children aged 1-59 months admitted in BMC paediatric wards. Referral forms were reviewed, detailed history and thorough physical examination were done. Children were reviewed after 48 hours to determine the immediate outcome. Data were analysed using STATA.

Results: A total of 300 children were enrolled. Only 2% (6) had appropriately filled-in referral form and only 3.3% (10) used ambulance as means of transport. The proportion of referral was 55.1% (332/602), appropriateness was 16.7% (50), partially appropriate 39% (117) and

inappropriate 44.3% (133). Death occurred in 34 (11.3%) [95% CI 8.2% – 15.5%]. Inappropriate referrals were not associated with mortality at tertiary referral health care facilities. Other factors associated with mortality were, lower chest in-drawing (OR: 4.9; 95% CI: 1.7 – 13.8; p=0.003), lower limb swelling (OR: 3.6; 95% CI: 1.3 – 10.2; p=0.013), convulsion (OR: 8.1; 95% CI: 2.2 – 29.9; p=0.008), shock (OR: 9.7 95% CI: 1.8 – 52.6; p=0.008), age >2 years (OR: 5.2; 95% CI: 1.7 – 16.2; p=0.004), and inability breastfeed or drink (OR: 7.3; 95% CI: 2.2 – 23.7; p=0.001).

Conclusion: The low proportion of referrals observed was accompanied by a large inappropriateness of referral. There was a relatively low mortality which was linked to serious ill children (lower chest in drawing, convulsion, shock and inability to breastfeed or drink). The inappropriateness of referral was not associated with mortality. Clear guidelines for referral are needed from the relevant Ministry to improve referral systems along with the capacity of facilities at all levels. Specialised hospitals/clinics are wanted to refer children directly to tertiary hospitals to prevent unnecessary delay.

Keywords: *Immediate outcome; Mortality; Referral; Appropriateness of referral*

CU12HS: Modifiable Risk Factors for Community-Acquired Pneumonia in Children Under Five Years of Age in Resource Poor Settings: A Case-Control Study

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Background: Despite the availability of vaccines and antibiotics, pneumonia remains the leading cause of morbidity and mortality among children under-five worldwide. Four years after the introduction of the 13-valent pneumococcal conjugate vaccine in Tanzania, information on the risk factors for community-acquired pneumonia remains scarce. This study aimed to determine modifiable risk factors for community-acquired pneumonia in children under-five years in a vaccinated population.

Methods: A prospective case-control study was conducted between January and December 2017. Cases were children aged 2 – 59 months with X-ray confirmed pneumonia, admitted to one of the three hospitals in Moshi municipal, whereas controls were children with no history of respiratory infection within 28 days preceding enrolment. Frequency matching was used to match cases and controls on the basis of age and sex in a ratio of 1:3. A questionnaire was used to collect information on demographic, socioeconomic, breastfeeding, and vaccination status. Finally, anthropometric measures were collected, and HIV rapid antibody test was done for HIV diagnosis if the status was unknown. A logistic regression model was used to determine the modifiable risk factors for community-acquired pneumonia.

Results: A total of 113 children with X-ray confirmed pneumonia and 350 healthy children were enrolled in this study. Among the cases, the median age was 13.7 months and the interquartile range (IQR) was 7.2 – 25.3, similar to the control group median age was 13.4 (IQR=6.0 – 24.8). Three of the enrolled participants were HIV infected, of which one had pneumonia. One (0.9%) child died following enrolment. The most important independent predictors of community-acquired pneumonia were the lack of exclusive breastfeeding for six months (aOR=1.7, 95% CI=1.0 – 2.9), underweight (aOR= 2.1, 95% CI=1.0 – 4.5), unclean cooking fuel (aOR=1.8, 95% CI=1.0 – 3.3), and farming/unskilled employment (aOR=2.9, 95%CI=1.6 – 5.4). No association of community-acquired pneumonia was found with vaccination status.

Conclusion: In addition to the lack of exclusive breastfeeding, children from families involved in farming or performing unskilled labour resulting in a low income, poor nutrition, and the use of unclean cooking fuel were at risk of community-acquired pneumonia. These results call for more concerted efforts to stop child mortality caused by preventable diseases like community acquired-pneumonia.

Keywords: *Community-acquired pneumonia; Risk factors; Under-five children; PCV13; Hib; Tanzania*

CU13HS: Knowledge and Practices on Breast Cancer Detection and Associated Challenges Among Women Aged 35 Years and Above in Tanzania: A Case of Morogoro Rural District

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Background: Breast Cancer is the leading cause of cancer-related deaths in the world. Its incidence has been increasing in developing countries including Tanzania. Diagnosis of breast cancer is still a challenge in Tanzania, partly due to the lack of specialized capacity and facilities for cancer diagnosis making the services less accessible to some groups of women, especially in remote areas. Thus, most of the breast cancer patients present late in health centres often with advanced stages of the disease making any medical intervention difficult and leading to an increase in breast cancer-related mortality. While strategies for breast cancer diagnosis are dependent on community knowledge and practices, little has been done on the subject. This study assessed the knowledge and practices on breast-cancer detection and associated challenges among women aged 35 years and above in Morogoro rural District.

Methods: This descriptive cross-sectional study was conducted in Morogoro rural District from June-July 2017. A standardized questionnaire was used to obtain information from 130 study participants regarding breast cancer knowledge and practices Data were analysed using (SPSS)

software version 23 and descriptive statistics was used to summarize data; data was presented categorically in percentages.

Results: All participants were aware of breast cancer and 71.5% knew the effects breast cancer could have on their lives. However, the majority (73.8%) had never heard of breast self-examination as an early detection method of breast cancer hence did not practice it. Only 37.7% knew about the signs and symptoms of breast cancer. The most frequently reported cause and risk factor of breast cancer were putting money under brassiere (30.8%) and alcohol (13.8%) respectively. The most reported source of information about the disease was television/radio programs (83.1%).

Conclusion: Knowledge and practices on breast cancer detection was poor, posing challenges on breast cancer screening in the study area. This calls for sensitization and provision of practical education to women, emphasizing the need for regular breasts check-up for early intervention in case of development of the disease.

Keywords: *Breast cancer detection; Knowledge; Practices; Tanzania*

CU14HS: The Use of Stories to Understand Maternal and Child Health Realities: Feasibility and Applicability of Digital Storytelling in Lake Zone, Tanzania

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Background: Digital storytelling (DST) is a participant-led video creation process that explores participants' lived experiences. Globally, DST has potential as a research and dissemination tool because it can capture deeply-personal experiences of marginalized community members, may be culturally relevant as a research tool in contexts where oral storytelling is used to communicate knowledge, and allows the participant to guide the messaging of a story, resulting in products with emotional impact that represent authentic experiences. However, most reports on DST reflect experiences in high-income countries with specific logistical and technological capabilities. There is a gap in understanding DST feasibility and applicability in low-income countries including Tanzania. The aim was to report storyteller and facilitator reflections from a DST pilot conducted in Mwanza, Tanzania.

Methods: A convenient sample of three Tanzanian women involved in a maternal and child health initiative in Mwanza Region participated as storytellers. They each created one personal, digital story during four sessions technically supported by a Canadian DST facilitator. Storytellers learned about DST, drafted a story that recounted a personal life experience, and selected and ordered visual and audio content for their stories. Participants and

the facilitator shared their experiences to identify themes related to feasibility and applicability.

Results: Storytellers described the DST process as useful, meaningful, and transformative. Compared to traditional dissemination methods (i.e. qualitative interviews, documentary video), storytellers found the participant-led DST method produced authentic stories in their own words and voices. Assigning meaning to their past life events enabled deep reflection on the experiences that have shaped participant life trajectories. DST challenges included a greater-than-expected time commitment, a lack of context-appropriate web-based media, limited and variable internet access, and difficulty communicating certain DST concepts. Identified barriers that might be especially relevant to future use in rural areas included low literacy, language, and potential to stigmatize less-empowered women who share controversial stories.

Conclusion: In Lake Zone, Tanzania, DST was a feasible and applicable tool for capturing a participant's experience and communicating the emotional content. A pilot to engage rural participants should be considered, assuming accommodations to manage language and literacy barriers, and to reduce risk of stigma.

Key words: *Digital Storytelling; Feasibility; Applicability; Mwanza Region*

CU15HS: The Effect of Early Attendance to Antenatal Care on Adverse Perinatal Outcomes Among Women Delivered at KCMC Hospital in Northern Tanzania from 2010-2015

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Background: Late initiation of Antenatal Care (ANC) has been associated with poor maternal and foetal outcomes. Early attendance of ANC services provides the opportunity for early identification and management of pregnancy complications. Little has been documented on the effects of early initiation of ANC on adverse perinatal outcomes in Tanzania. This study aimed to examine the effects of early ANC attendance on adverse perinatal outcomes among women who delivered at KCMC hospital in Northern Tanzania.

Methods: A cross-sectional study was conducted using KCMC maternally-linked medical birth registry data. A total of 20,281 women who delivered singletons at KCMC hospital from 2010-2015 were included in the analysis. Data was analysed using SPSS version 20.0. Adjusted odds ratio with 95% confidence intervals for factors associated with early ANC attendance and the effect of early ANC attendance on adverse perinatal outcomes (preterm birth, LBW and perinatal mortality) were estimated in multivariable logistic regression models.

Results: Only 8.3% of mothers had early initiation of ANC (first trimester). Several factors were associated with early ANC attendance. These included: mothers who resided in urban areas (AOR 1.28, 95% CI: 1.15-1.42), educated mothers (AOR 0.79, 95% CI: 0.52-1.22) and married mothers (AOR 0.96, 95% CI: 0.83-1.12). On the other hand, compared to mothers who initiated early to ANC visits, mothers who started ANC late had higher odds of delivering preterm babies (COR 1.10, 95% CI: 0.99-1.23), delivering LBW babies (COR 1.16, 95% CI: 0.99-1.36) and higher perinatal mortality (COR 1.16, 95% CI: 0.97-1.55).

Conclusion: Very few pregnant women attend early ANC. Area of residence (urban) was a significant predictor of early initiation of ANC. Women who attended ANC early had lower odds of having adverse perinatal outcomes. Our findings suggest the need for awareness creation on the importance of early initiation of ANC during prenatal period.

Keywords: *Antenatal care; Low birth weight; Preterm; Perinatal mortality*

CU16HS: Household Survey on Access to Medicines Used for the Treatment of Diarrhoea in Musoma Municipal Council

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Background: Access to medicines is part of the human rights to health. According to WHO, access to medicines is measured by how easily households obtain medicines for acute and chronic conditions including diarrhoea. Diarrhoea is among the top ten leading causes of death. Anti-diarrhoea medicines save lives but should be available and obtainable to do so. The objectives of this study were to identify the anti-diarrhoeal medicines used by households, their sources and factors affecting their accessibility in Musoma Municipal.

Methods: A cross-sectional survey was conducted in Musoma Municipal Council, Mara, Tanzania. A lottery method of simple random sampling was used to select three wards and to pick three streets from each ward. A study population of 255 heads of households were selected by systematic random sampling from each street. A structured questionnaire was used to obtain information from household heads.

Results: Males (51.8%) had more diarrhoea illness than females (48.2%). More than half of household heads (52.6%) had primary education. The majority (79.1%) of all diarrhoea patients had been recommended/prescribed with anti-diarrhoea medicines. Among those, 63.5% adhered to prescriber's/dispenser's instructions, and obtained and used anti-diarrhoea medicines. The most common source

of anti-diarrhoeal medicines was Accredited Drug Dispensing Outlets (ADDO) (38%). Widely used anti-diarrhoea medicines were antimicrobials (77.5%), followed by Oral Rehydration Salts (ORS) (17.5%). Reasons not to seek or obtain anti-diarrhoeal medicines were: Patient started feeling better (56.3 %), alternative treatment (26%), financial reasons (10%), decided that medicines were not needed (3.5%), distance from source (2.2%), reactions to medicine (1%). There was a significant association between education attainment of household heads and the source of medicine (p value of 0.028). Under-fives were mostly prescribed with antimicrobials (62.5%) rather than ORS (31.2%) and Zinc (6.3%) in mild dehydration.

Conclusion: Anti-diarrhoeal medicines were moderately easily obtainable in Musoma municipal (50%). Alternative treatments (26%) and financial reasons (10%) were important factors hindering access. Treatment of diarrhoea in under-fives was not adhered to. There is a need for Musoma District Health Authorities to increase the knowledge of households about the importance of primary health care utilization and encourage healthcare staff to strictly adhere to treatment guidelines. The Ministry of Health (MoHCDGEC) should conduct surveys in other areas of Tanzania.

Keywords: *Access to Medicine; Anti-diarrhoea; Medicine; Diarrhoea; Household*

CU17HS: Assessment of Source, Methods and Barriers Towards Local Water Purification in Ukerewe District

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Background: Water is one of the basic needs for survival, and potable water is essential for good health. Contaminated drinking water is a major health hazard in developing countries. Water-related diseases are a significant contributor to the global burden of illness. Contaminated drinking water and inadequate supplies of water for personal hygiene and poor sanitation are responsible for about 4 billion cases of diarrhea each year that causes about 2.2 million deaths mostly among children under age of five years. This study aimed to assess the sources, methods and barriers of local water purification in Ukerewe district.

Methods: This was a descriptive cross-sectional study. A multi-stage random sampling technique was used to recruit 2164 participants' households. Data were collected using a semi-structured pre-tested questionnaire.

Results: A slight majority (55%) of respondents used dug wells as their water source, whereby

(52.2%) of the wells were protected. About (67.7%) of the respondents had a good knowledge about proper water purification and 71.1% of the respondents had a positive attitude towards water treatment. However, only 26.7% of the respondents used proper methods of purification despite of having the knowledge. The major barrier identified was an energy source scarcity, whereby 55.4 % of the respondents claimed to have difficulties in purifying their water despite knowing how to carry out proper water purification.

Conclusion: The majority of the respondents had good knowledge and positive attitude toward local water purification practice. However, a significant number of respondents did not practice proper local purification methods due to various barriers, the major being the source of energy. There is a need to find out new cost-effective local water purification methods.

Keywords: *Local water purification; Water sources; Purification*

CU18HS: Critical Shortage of Pathologists in Africa

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Background: The World Health Organization and Global Oncology since 2016 are launching alerts towards the critical shortage of pathologists in Africa as a major cause of hindering the ability of medical laboratories to properly diagnose and classify diseases, with special regard to cancer. With exception of South Africa, where 100 pathologists are present among 55 million population, the remaining 14 countries of the Southern Africa Development Community including Tanzania, have a number of pathologists in a single digit. In Mwanza, a series of fortunate events have created the premise for an appropriate analysis of the context and suggest an innovative model which has all requirements to solve the problem in a global way.

Methods: In this paper, we analyze the special context of Mwanza, where we have a Bugando Medical Centre, which is a teaching hospital for the Catholic University of Health and Allied Sciences. The hospital has a Histopathology department with five permanent pathologists.

Results: A newly-established Cancer Institute at BMC is under the tutorage and support of an Italian Research Cancer Institution (I.O.R.)

which comprises Medical Oncology, Radiotherapy and, in the near future, Nuclear Medicine. At present, the University has 10 graduated-MD generations. Cancer therapy largely depends upon histological diagnoses that must be prompt, up-dated, and able to guide specific treatment, predicting the response and the prognosis. This can be guaranteed only by a service made up by modern and competent histopathologists devoted to implement the techniques and to train in situ young generations of pathologists.

Conclusion: There is a need to activate a School of Specialization in Pathology profiting from the availability of outstanding internationally recognized pathologists (from Europe, US, Australia) who are willing to provide, as volunteers, educational and diagnostic activities, either full time or upon rotation periods. The optimism towards a successful outcome relies upon the local Authorities' sensibility and perspective, insight and upon previous experiences carried out in Tanzania under the same inspiring fundamentals ("To badge at Southern Equator" and "North-South polarity inversion").

Keywords: *Pathologists; Pathology; Shortage; BMC; Mwanza; Africa*

CU19HS: Establishing a National Accreditation Body - Tanzania Accreditation Service (TANAS)

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Background: Scientifically, we cannot prove that a certain health facility is providing better health care just by looking at its structure, staff and listening to people attending to the facility. We can only comment on the quality of service provided if the facility competence in providing health care conforms to established and agreed upon international standards for health provision (ISO). The latter play a key role in supporting of competitive markets across continuum of care. Tanzania is lacking an accreditation body that assesses the compliance and conformance of health services, products and suppliers to guide specification and requirements.

Methods: All accreditation bodies for clinical laboratories require conformance to the requirements established by International Laboratory Accreditation Cooperation (ILAC). Therefore, all policies and procedures for establishing this body require fulfilling ILAC regulations. Negotiations and approval from the Ministry of Health, Community Development, Gender, Elderly and (MoHCDEC), Tanzania Bureau of standards (TBS) and Tanzania Food and Drugs Authority (TFDA) are also needed. This requires a technical working group from the three entities to discuss and agree on the structure and how documentations will be developed.

Expected Results: The money paid outside the country by accredited medical laboratories, Tanzania Bureau of standard, Food and drug authority laboratories to get accreditation services outside the country will be retained. The established body, in full operation, will provide international recognition of conformity assessment results produced by organizations accredited by it, provide a service that promotes, develops and maintains good regulatory practices, create employments to Tanzanians who will be employed by the body and promotes standards on clinical services provided by Tanzania health services institutions.

Conclusion: We urgently need to establish a National Accreditation Body to testify that certified bodies (CBs), Inspection Bodies (IBs) and Laboratories (testing, veterinary, pharmaceuticals, and proficiency testing scheme providers are competent to carry out specific conformity assessment tasks. Implementation of the required standards creates mutual benefits between the consumers and providers of the services or products. This practice will inform the world to trust services or products produced from Tanzanian organizations, form equivalence to global market competitions and therefore support our National industrialization policy.

Keywords: *National; Accreditation bodies; Standard health care; Inspection bodies; ISO*

CU20HS: Global Health Electives: Ethical Engagement in Building Global Health Capacity

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Background: Increasingly, medical trainees from high-income countries seek global health electives (GHE) as part of their medical education. However, little is known about the impact medical trainees undertaking global health electives have on host institutions, staff, local trainees, patients or communities in low- and middle-income countries. The goal of this qualitative study was to explore the relationship dynamics associated with global health electives as perceived by stakeholders at three sites in the sub-Saharan Africa. More specifically, we examined stakeholder perspectives in Mwanza, Tanzania and Mbarara and Rugazi, Uganda.

Methods: We used focus groups and semi-structured interviews to explore perspectives and an interpretive phenomenological analysis framework to guide the study and analyse the data.

Thirty-four host stakeholders participated in semi-structured interviews and twenty-eight

host stakeholders participated in six focus groups.

Results: The findings revealed that although GHEs are well-established and a frequent experience for host stakeholders there are many poorly understood aspects. Participants acknowledged that there are a variety of benefits they gain because of GHEs, but overall VMTs benefit the most from this unique learning opportunity. Despite reluctance to directly admit to harms, host stakeholders described significant challenges and burdens of GHEs such as visiting medical trainees taking away learning opportunities from local trainees. Participants recommended multiple ways in which GHEs could be improved to work towards relationships which are more mutually beneficial and equitable.

Conclusion: Our study findings suggest, to be mutually beneficial and reciprocal, GHEs should occur between collaborating institutions with a bidirectional focus.

Keywords: *Global health elective; Medical education; Low and middle-income countries*

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PREAMBLE TO THE CUHAS - BMC LIST OF PUBLICATIONS



In the past year, CUHAS/BMC's scientists have published over 90 publications in peer-reviewed journals, which represents an increasing trend of 167% compared to past years. The topics investigated and documented cover the following research fields: 41% investigate Infectious Diseases, 32% cover Non-Communicable Diseases (with a third of those dedicated to Oncology), 15% examine issues pertaining to Health Systems and Health Care Delivery and 10% explore Social Determinants of Health. Few works study Vectors Control (4%).

These percentages reflect the overall National Health Research priorities and remain geared towards clinical subjects and infectious diseases. The quality of research output produced at CUHAS/BMC has been recognized at national and international forums. In particular, the discovery and documentation in 2018 of a new enterobacterial species, *Enterobacter bugandensis*, associated with severe clinical infection, has put Mwanza researchers on the world map. The schistosomiasis control project in Ijinga Island, where a combination of control measures is being implemented to eradicate the disease in a well-defined environment, is yet another example of applied research in a community setting. CUHAS has also developed three policy briefs which were submitted to the Ministry of Health and have influenced national policies, i.e. the Antimicrobial Action Plan, congenital infections Antenatal Screening and Rubella Strategic Vaccination.

Several grants have been obtained or are still ongoing for research in specific areas (antimicrobial resistance, malaria, mother and child health, neglected tropical diseases, HIV and other viral infections, oncology, etc.). In particular, CUHAS is extremely grateful to the Medical Research Council UK for funding SNAP-AMR and HATUA projects to address antimicrobial resistance problem in Tanzania.

Developing research capacity is at the core of CUHAS/BMC priorities and has been made possible by various training initiatives and programmes, such as the Medical Education Partnership Initiative (MEPI) in collaboration with Weill Cornell Medical College to train future leaders of health care academics, research and policy in Tanzania. CUHAS/BMC and partners aim at building a scientific community, producing research-based evidence allowing medical professionals to better serve the communities which surround them and improve the delivery of health services and care to the patients.

Prof. Domenica Morona

Director - Research and Innovations

PUBLICATIONS OUTPUT 2018

2. Ambrose EE, Makani J, Chami N, Masoza T, Kabyemera R, Peck RN, Kamugisha E, Manjurano A, Kayange N, Smart LR. High birth prevalence of sickle cell disease in Northwestern Tanzania. *Pediatr Blood Cancer*. 2018 Jan;65(1). doi: 10.1002/pbc.26735. Epub 2017 Aug 2.
3. Assem H, Rambau PF, Lee S, Ogilvie T, Sienko A, Kelemen LE, Köbel M. High-grade Endometrioid Carcinoma of the Ovary: A Clinicopathologic Study of 30 Cases. *Am J Surg Pathol*. 2018 Jan 5. doi: 10.1097/PAS.0000000000001016.
4. Aziz R, Colombe S, Mwakisambwe G, Ndezi S, Todd J, Kalluvya S, Mangat HS, Magleby R, Koebler A, Kenemo B, Peck RN, Downs JA. Pre-post effects of a tetanus care protocol implementation in a sub-Saharan African intensive care unit. *PLoS Negl Trop Dis*. 2018 Aug 30;12(8):e0006667.
5. Batavia AS, Severe P, Lee MH, Apollon A, Zhu YS, Dupnik KM, McNairy ML, Pape JW, Fitzgerald DW, Peck RN Blood pressure and mortality in a prospective cohort of HIV-infected adults in Port-au-Prince, Haiti. *J Hypertens*. 2018 Jul;36(7):1533-1539. doi: 10.1097/HJH.0000000000001723.
6. Beyanga M, LGerwing-Adima L, J Kahima, Majaliwa B, Shimba H, Ezekiel S, Massambu C, Majige D, Mwasegaka M, Mtotela W, Mateta P, Kasang C. Implementation of the laboratory quality management system (ISO 15189): Experience from Bugando Medical Centre Clinical Laboratory – Mwanza, Tanzania. *African Journal of Laboratory Medicine*, Vol 7, No.1 (2018).
7. Beyanga M, Kidenya BR, Gerwing-Adima L, Ochodo E, Mshana SE, Kasang C. Investigation of household contacts of pulmonary tuberculosis patients increases case detection in Mwanza City, Tanzania. *BMC Infectious Diseases* (2018) 18:110 <https://doi.org/10.1186/s12879-018-3036-6>.
8. Binde MS, Kasanga G, Chalya PL, Mahalu W. Diagnostic utility of abdominal ultrasound in the evaluation of abdomino-pelvic lesions at Bugando Medical Centre in Mwanza, Tanzania. *Tanzania Journal of Health Research*, Vol 20, No 3 (2018).
9. Bintabara D, Ntwenya J, Maro II, Kibusi S, Gunda DW, Mpondo BCT. Client satisfaction with family planning services in the area of high unmet need: evidence from Tanzania Service Provision Assessment Survey, 2014-2015. *Reprod Health*. 2018 Jul 16;15(1):127. doi: 10.1186/s12978-018-0566-8.
10. Block MS, Vierkant RA, Rambau PF, Winham SJ et al. MyD88 and TLR4 Expression in Epithelial Ovarian Cancer. *Mayo Clinic Proceedings*, March 2018. Volume 93, Issue 3, Pages 307–320.
11. Bravaccini S, Ravaioli S, Amadori D, Scarpi E, Puccetti M, Rocca A, Tumedei MM, Masalu N, Kahima J, Pangan A, Faustine L, Farolfi A, Maltoni R, Bonafè M, Serra P, Bronte G. Are There Differences in Androgen Receptor Expression in Invasive Breast Cancer in African (Tanzanian) Population in Comparison with the Caucasian (Italian) Population? *Front Endocrinol (Lausanne)*. 2018 Mar 29;9:137. doi: 10.3389/fendo.
12. Bull S, Thomas DS, Nyanza EC, Ngallaba SE. Tanzania Health Information Technology (T-HIT) System: Pilot Test of a Tablet-Based System to Improve Prevention of Mother-to-Child Transmission of HIV. *JMIR Mhealth Uhealth*. 2018 Jan 15;6(1):e16. doi: 10.2196/mhealth.8513.
13. Callea F, Giovannoni I, Francalanci P, Boldrini R, Faa G, Medicina D, Nobili V, Desmet VJ, Ishak K, Seyama K, Bellacchio E. Mineralization of alpha-1-antitrypsin inclusion bodies in Mmalton alpha-1-antitrypsin deficiency. *Orphanet J Rare Dis*. 2018 May 16;13(1):79. doi: 10.1186/s13023-018-0821-7.

14. Chamba C, Iddy H, Tebuka E, Tluway F, Osati E, Budodi N, Meda C, Yonazi M, Schuh A, Luzzatto L, Makani J. Limited Exchange Transfusion Can Be Very Beneficial in Sick Cell Anemia with Acute Chest Syndrome: A Case Report from Tanzania. *Case Rep Hematol*. 2018 Jun 21;2018:5253625. doi: 10.1155/2018/5253625. eCollection 2018.
15. Chandika AB, Chalya PL, Hauli KA, Rambau PF, Mwakanyamale AA, Gilyoma JM. The burden and management of self-inflicted injuries at a tertiary care hospital in Mwanza, Tanzania. *Tanzania Journal of Health Research*. Volume 20, Number 2, April 2018. Doi: <http://dx.doi.org/10.4314/thrb.v20i2.6>
16. Chibwe A, Kapesa A, Jahanpour O, Seni J, Basinda N, Kadelya E, Konje E, Nyanza EC, Ngallaba S, Dewey D. Attendance of male partners to different reproductive health services in Shinyanga District, North western Tanzania. *Tanzania Journal of Health Research* Volume 20, Number 2, April 2018. Doi: <http://dx.doi.org/10.4314/thrb.v20i2.9>.
17. Chibwe E, Mirambo MM, Kihunrwa A, Mshana SE. Magnitude of the Cytomegalovirus infection among pregnant women attending antenatal clinics in the city of Mwanza, Tanzania. *BMC Res Notes*. 2018 Sep 20;10(1):489. doi: 10.1186/s13104-017-2813-4.
18. Cole JB, Manyama MF, Nikitovic D, Gonzalez PN, Liberton DK, Wilson WM, Rolian C, Larson JR, Kimwaga E, Mathayo J, Roseman CC, Santorico SA, Lukowiak K, Spritz RA, Hallgrimsson B. Facial shape manifestations of growth faltering in Tanzanian children. *J Anat*. 2018 Feb;232(2):250-262. doi: 10.1111/joa.12748. Epub 2017 Nov 28.
19. Colombe S, Lee MH, Masikini PJ, van Lieshout L, de Dood CJ, Hoekstra PT, Corstjens PLAM, Mngara J, van Dam GJ, Downs JA. Decreased Sensitivity of *Schistosoma* sp. Egg Microscopy in Women and HIV-Infected Individuals. *Am J Trop Med Hyg*. 2018 Apr;98(4):1159-1164. doi: 10.4269/ajtmh.17-0790.
20. Colombe S, Corstjens PLAM, de Dood CJ, Miyaye D, Magawa RG, Mngara J, Kalluvya SE, van Lieshout L, van Dam GJ, Downs JA. HIV-1 Viral Loads Are Not Elevated in Individuals Co-infected With *Schistosoma* spp. After Adjustment for Duration of HIV-1 Infection. *Front Immunol*. 2018 Sep 6;9:2005. doi: 10.3389/fimmu.2018.02005. eCollection 2018.
21. Colombe S, Machemba R, Mtenga B, Lutonja P, Kalluvya SE, de Dood CJ, Hoekstra PT, van Dam GJ, Corstjens PLAM, Urassa M, Changalucha JM, Todd J, Downs JA. Impact of schistosome infection on long-term HIV/AIDS outcomes. *PLoS Negl Trop Dis*. 2018 Jul 2;12(7):e0006613.
22. Derua YA, Kahindi SC, Mosha FW, Kweka EJ, Atieli HE, Wang X, Zhou G, Lee MC, Githeko AK, Yan G. Microbial larvicides for mosquito control: Impact of long-lasting formulations of *Bacillus thuringiensis* var. *israelensis* and *Bacillus sphaericus* on non-target organisms in western Kenya highlands. *Ecol Evol*. 2018 Jul 6;8(15):7563-7573. doi: 10.1002/ece3.4250. eCollection 2018 Aug.
23. Dika HI, Iddi S, Kayange N. Teething induced fever in a 9-month old child: a case report. *Tanzania Journal of Health Research*. Vol 20, No 4 (2018).
24. Downey-Wall K, Hilary K, Katabalo D, Masalu N, Schroeder K. Impact of Pharmacist Participation on Chemotherapy Administration Outcomes in a Low-Resource Setting. *Journal of Global Oncology*. 2018. Meeting Proceedings. Abstract 50.
25. Ekoru K, Young EH, Dillon DG, Gurdasani D, Stehouwer N, Faurholt-Jepsen D, Levitt NS, Crowther NJ, Nyirenda M, Njelekela MA, Ramaiya K, Nyan O, Adewole OO, Anastos K, Compostella C, Dave JA, Fourie CM, Friis H, Kruger IM, Longenecker CT, Maher DP, Mutimura E, Ndhlovu CE, Praygod G, Pefura Yone EW, Pujades-Rodriguez M, Range N, Sani MU, Sanusi

- M, Schutte AE, Sliwa K, Tien PC, Vorster EH, Walsh C, Gareta D, Mashili F, Sobngwi E, Adebamowo C, Kamali A, Seeley J, Smeeth L, Pillay D, Motala AA, Kaleebu P, Sandhu MS. HIV treatment is associated with a two-fold higher probability of raised triglycerides: Pooled Analyses in 21 023 individuals in sub-Saharan Africa. *Glob Health Epidemiol Genom.* 2018;3. pii: e7. doi: 10.1017/ghg.2018.7.
26. Esmaili BE, Stewart KA, Masalu NA, Schroeder KM. Qualitative Analysis of Palliative Care for Pediatric Patients with Cancer at Bugando Medical Center: An Evaluation of Barriers to Providing End-of-Life Care in a Resource-Limited Setting. *J Glob Oncol.* 2018 Jul;(4):1-10. doi: 10.1200/JGO.17.00047.
 27. Fahme SA, Bloomfield GS, Peck R. Hypertension in HIV-Infected Adults: Novel Pathophysiologic Mechanisms. *Hypertension.* 2018 May 18. pii: HYPERTENSIONAHA.118.10893. doi: 10.1161.
 28. Faya A, Charles M, Sembajwe LF, Dika HI. Haematological profile of healthy adult blood donors in Mwanza, Tanzania. *Tanzania Journal of Health Research - Vol 20, No 3* (2018).
 29. Friis H, Range NS, Chagalucha J, PrayGod G, Jeremiah K, Faurholt-Jepsen D, Krarup HB, Andersen AB, Kæstel P, Filteau S. HIV, TB, inflammation and other correlates of serum phosphate: A cross-sectional study. *Clin Nutr ESPEN.* 2018 Oct;27:38-43. doi: 10.1016/j.clnesp.2018.07.003
 30. Fuss A, Mazigo HD, Tappe D, Kasang C, Mueller A. Comparison of sensitivity and specificity of three diagnostic tests to detect *Schistosoma mansoni* infections in school children in Mwanza region, Tanzania. *PLOS One*, Published: August 22, 2018 <https://doi.org/10.1371/journal.pone.0202499>.
 31. Garsed DW, Alsop K, Fereday S, Emmanuel C, Kennedy CJ, Etemadmoghadam D, Gao B, Gebiski V, Garès V, Christie EL, Wouters MCA, Milne K, George J, Patch AM, Li J, Arnau GM, Semple T, Gadipally SR, Chiew YE, Hendley J, Mikeska T, Zapparoli GV, Amarasinghe K, Grimmond SM, Pearson JV, Waddell N, Hung J, Stewart CJR, Sharma R, Allan PE, Rambau PF, McNally O, Mileskin L, Hamilton A, Ananda S, Grossi M, Cohen PA, Leung YC, Rome RM, Beale P, Blomfield P, Friedlander M, Brand A, Dobrovic A, Köbel M, Harnett P, Nelson BH, Bowtell DDL, deFazio A; Nadia Traficante, for the Australian Ovarian Cancer Study Group. Homologous Recombination DNA Repair Pathway Disruption and Retinoblastoma Protein Loss Are Associated with Exceptional Survival in High-Grade Serous Ovarian Cancer. *Clin Cancer Res.* 2018 Feb 1;24(3):569-580. doi: 10.1158/1078-0432.CCR-17-1621. Epub 2017 Oct 23.
 32. Gunda DW, Kido I, Kilonzo S, Nkandala I, Igege J, Mpondo B. Prevalence and Associated Factors of Incidentally Diagnosed Prostatic Carcinoma among Patients Who Had Transurethral Prostatectomy in Tanzania: A Retrospective Study. *Ethiop J Health Sci.* 2018 Jan;28(1):11-18. PMID: 29622903.
 33. Gunda DW, Maganga SC, Nkandala I, Kilonzo SB, Mpondo BC, Shao ER, Kalluvya SE. Prevalence and Risk Factors of Active TB among Adult HIV Patients Receiving ART in Northwestern Tanzania: A Retrospective Cohort Study. *Can J Infect Dis Med Microbiol.* 2018 Jul 4;2018:1346104.
 34. Hau DK, Chami N, Duncan A, Smart LR, Hokororo A, Kayange NM, Peck RN. Post-hospital mortality in children aged 2-12 years in Tanzania: A prospective cohort study. *PLOS one*; Published: August 14, 2018. <https://doi.org/10.1371/journal.pone.0202334>.

35. Issa A, Mbelenge N, Chalya PL, Gilyoma JM. Aetiological spectrum, injury characteristics and treatment outcome of multiple injuries at a tertiary care hospital in Tanzania. *Tanzania Journal of Health Research*. Vol 20, No 4 (2018).
36. Jaka H, Rhee JA, Östlundh L, Smart L, Peck R, Mueller A, Kasang C, Mshana SE. The magnitude of antibiotic resistance to *Helicobacter pylori* in Africa and identified mutations which confer resistance to antibiotics: systematic review and meta-analysis. *BMC Infectious Diseases* (2018) 18:193. <https://doi.org/10.1186/s12879-018-3099-4>
37. Jani B, Hokororo A, Mchomvu J, Cortese MM, Kamugisha C, Mujuni D, Kallovya D, Parashar UD, Mwenda JM, Lyimo D; Tanzania Rotavirus Surveillance Teams, Materu A, Omari KF, Waziri M, Laswai T, Juma H, Mlay J, Dogani J, Stephen E, Seugendo M, Nkumbi U, Lyakurwa A, Matojo A, Bendera E, Senyota J, Msingwa V, Fungo Y, Michael F, Mpamba A, Chambo A, Cholobi H, Lyamuya F, Chami I, Mchome E, Mshana AM, Mushi E, Mariki U, Chard R, Tuju D, Ambokile N, Lukwale F, Kyessi F, Khamis A, Michael I, Macha D, Saguti A. Detection of rotavirus before and after monovalent rotavirus vaccine introduction and vaccine effectiveness among children in mainland Tanzania. *Vaccine*. 2018 Apr 11. pii: S0264-410X(18)30144-0. doi: 10.1016/j.vaccine.2018.01.071.
38. Jiang QQ, Han MF, Ma K, Chen G, Wan XY, Kilonzo SB, Wu WY, Wang YL, You J, Ning Q. Acute kidney injury in acute-on-chronic liver failure is different from in decompensated cirrhosis. *World J Gastroenterol*. 2018 Jun 7;24(21):2300-2310.
39. Kagaruki GB, Kamugisha ML, Kilale AM, Kamugisha E, Rutta ASM, Baraka V, Mandara CI, Magesa SM, Materu G, Kahwa AM, Madebe R, Massaga JL, Lemnge MM, Mboera LEG, Ishengoma DI. Supply chain management of laboratory supportive services and its potential implications on the quality of HIV diagnostic services in Tanzania. *Tanzania Journal of Health Research*; Vol 20, No 1 (2018).
40. Kapesa A, Kweka E, Atieli H, Afrane YA, Kamugisha E, Lee MC, Zhou G, Githeko AK, Yan G. The current malaria morbidity and mortality in different transmission settings in Western Kenya. August 2018. *PLoS ONE* 13(8):e0202031.
41. Kapesa A, Kweka EJ, Zhou G, Atieli HE, Kamugisha E, Mazigo HD, Ngallaba SE, Githeko AK, Yan G. Utility of passive malaria surveillance in hospitals as a surrogate to community infection transmission dynamics in western Kenya. *Archives of Public Health* 2018;76:39. <https://doi.org/10.1186/s13690-018-0288-y>.
42. Katabalo DM, Matinde R, Mwita S, Marwa K, Masalu N. Awareness of Chemotherapy Side Effects and Attitude Towards Chemotherapy Use Among Cancer Patients Attending Oncology Clinic At Bugando Medical Centre, In Mwanza, Northern Tanzania *Journal of Drug Delivery and Therapeutics*, 8(5), 448-454. <https://doi.org/10.22270/jddt.v8i5.1900>
43. Kidenya BR, Mshana SE, Fitzgerald DW, Ocheretina O. Genotypic drug resistance using whole-genome sequencing of *Mycobacterium tuberculosis* clinical isolates from North-western Tanzania. *Tuberculosis*, 2018. Available online 21 February 2018.
44. Kilonzo SB, Gunda DW, Mpondo B, Jaka H, Bakshi FA. Hepatitis B Virus Infection in Tanzania: Current Status and Challenges. *Journal of Tropical Medicine* 2018(2018). DOI10.1155/2018/4239646.
45. Konje ET, Magoma MTN, Hatfield J, Kuhn S, Sauve RS, Dewey DM. Missed opportunities in antenatal care for improving the health of pregnant women and newborns in Geita district, Northwest Tanzania. *BMC Pregnancy and Childbirth* 2018;18:394.

46. Kweka EJ, Mause EA, Venter N, Derua YA, Kimaro EE, Coetzee M. Application of hydrolysis probe analysis to identify clade types of the malaria vector mosquito *Anopheles funestus* sensu stricto from Muheza, northeastern Tanzania. *Med Vet Entomol*. 2018 Mar;32(1):125-128. doi: 10.1111/mve.12274.
47. Larson JR, Manyama MF, Cole JB, Gonzalez PN, Percival CJ, Liberton DK, Ferrara TM, Riccardi SL, Kimwaga EA, Mathayo J, Spitzmacher JA, Rolian C, Jamniczky HA, Weinberg SM, Roseman CC, Klein O, Lukowiak K, Spritz RA, Hallgrimsson B. Body size and allometric variation in facial shape in children. *Am J Phys Anthropol*. 2018 Feb;165(2):327-342. doi: 10.1002/ajpa.23356.
48. Lilungulua A, Mwibeab W, Nassoroc M, Gumodoka B. The value of early trimester ultrasound scanning: a case of congenital malformation from Kibaha, Tanzania. *South Sudan Medical Journal* Vol 11. No 2. May 2018.
49. Magele NI, Ochieng J, Munabi I, Kirum GG, Buwembo W, Tumusiime G, Mwaka ES. Cervical Vertebrae at the Galloway Osteological Collection: A Morphometric Study. *Academia Anatomica International*. Vol. 4, Issue 1, January-June 2018.
50. Malale K, Hongera D, Rundu E, Bhilaniye M J, Ombe A M, Ndomba A. Quality of nursing documentation at Bugando Medical Centre in Tanzania: A retrospective patients' medical records audit. *International Journal of Nursing Care*. Year: 2018, Volume: 6, Issue: 2. Print ISSN: 2320-8643. Online ISSN: 2320-8651. Article DOI: 10.5958/2320-8651.2018.00032.7
51. Mancini M, Summers P, Fatta F, Brunetto MR, Callea F, De Nicola A, Di Lascio N, Farinati F, Gastaldelli A, Gridelli B, Mirabelli P, Neri E, Salvadori PA, Rebelos E, Tiribelli C, Valenti L, Salvatore M, Bonino F. Digital liver biopsy: Bio-imaging of fatty liver for translational and clinical research. *World J Hepatol*. 2018 Feb 27;10(2):231-245. doi: 10.4254/wjh.v10.i2.231. Review.
52. Manyiri P, Kabangila R, Kasang C, Mushi MF, Mirambo MM, Mshana SE. Prevalence and factors associated with Mycobacteremia and mortality among febrile HIV infected patients in Mwanza, Tanzania. *International Journal of Infectious Diseases*. <https://doi.org/10.1016/j.ijid.2018.03.009>.
53. Marando R, Seni J, Mirambo MM, Falgenhauer L, Moremi N, Mushi MF, Kayange N, Manyama F, Imirzalioglu C, Chakraborty T. Predictors of the extended-spectrum-beta lactamases producing Enterobacteriaceae neonatal sepsis at a tertiary Hospital, Tanzania. *International Journal of Medical Microbiology*. Available online 2 July 2018.
54. Marwa KJ, Njalika A, Ruganuzi D, Katabalo D, Kamugisha E. Self-medication among pregnant women attending antenatal clinic at Makongoro health centre in Mwanza, Tanzania: a challenge to health systems. *BMC Pregnancy Childbirth*. 2018 Jan 8;18(1):16. doi: 10.1186/s12884-017-1642-8.
55. Masaisa F, Kayigi E, Seni J, Bwanga F, Muvunyi CM. Antibiotic Resistance Patterns and Molecular Characterization of Methicillin-Resistant *Staphylococcus aureus* in Clinical Settings Study in Rwanda. *Am J Trop Med Hyg*. 2018 Sep 10. doi: 10.4269/ajtmh.17-0554.
56. Mazigo HD, Amuasi JH, Osei I, Kinung'hi SM. Integrating use of point-of-care circulating cathodic antigen rapid diagnostic tests by community health workers during mass drug administration campaigns to improve uptake of praziquantel treatment among the adult population at Kome Island, North-Western Tanzania: a cluster randomized community trial. *BMC Public Health* 2018;18:840. <https://doi.org/10.1186/s12889-018-5732-y>.

57. Mazigo HD, Heukelbach J. Diagnostic Performance of Kato Katz Technique and Point-of-Care Circulating Cathodic Antigen Rapid Test in Diagnosing *Schistosoma mansoni* Infection in HIV-1 Co-Infected Adults on the Shoreline of Lake Victoria, Tanzania. Trop. Med. Infect. Dis. 2018, 3(2), 54; doi:10.3390/tropicalmed3020054.
58. Mazigo HD, Kepha S, Kinung'hi SM. Sensitivity and specificity of point-of-care circulating Cathodic antigen test before and after praziquantel treatment in diagnosing *Schistosoma mansoni* infection in adult population co-infected with human immunodeficiency virus-1, North-Western Tanzania. Archives of Public Health 2018;76:29. <https://doi.org/10.1186/s13690-018-0274-4>.
59. Mawalla B, Yuan X, Luo X, Chalya PL. Treatment outcome of anti-angiogenesis through VEGF-pathway in the management of gastric cancer: a systematic review of phase II and III clinical trials. BMC Res Notes. 2018 Jan 12;11(1):21. doi: 10.1186/s13104-018-3137-8.
60. Mercatali L, Serra P, Misericocchi G, Spadazzi C, Liverani C, De Vita A, Marisi G, Bongiovanni A, Recine F, Pangan A, Masalu N, Ibrahim T, Amadori D. Dried Blood and Serum Spots as A Useful Tool for Sample Storage to Evaluate Cancer Biomarkers. J Vis Exp. 2018 Jun 11;(136). doi: 10.3791/57113.
61. Mfinanga RJ, Massenga A, Mashuda F, Gilyoma JM, Chalya PL. Patterns and outcome of surgical management of anorectal malformations at a tertiary care hospital in resource limited setting: a Tanzanian experience. Tanzania Journal of Health Research; Vol 20, No 1 (2018).
62. Mirambo MM, Senyaeli N, Mshana SE. Low humoral responses to human cytomegalovirus is associated with immunological treatment failure among HIV infected patients on highly active antiretroviral therapy. Pan Afr Med J. 2018 Oct 10;28:131. doi: 10.11604/pamj.2017.28.131.10480. eCollection 2017.
63. Mirambo MM, Majigo M, Scana SD, Mushi MF, Aboud S, Groß U, Kidenya BR, Mshana SM. Rubella natural immunity among adolescent girls in Tanzania: the need to vaccinate child bearing aged women. January 2018. BMC Women's Health 18(1). DOI10.1186/s12905-017-0505-9.
64. Mirambo MM, Mgone GF, Malima ZO, John M, Mngumi EB, Mhamphi GG, Mshana SE. Seropositivity of Brucella spp. and Leptospira spp. antibodies among abattoir workers and meat vendors in the city of Mwanza, Tanzania: A call for one health approach control strategies. PLOS Neglected Tropical Diseases. Published: June 25, 2018; <https://doi.org/10.1371/journal.pntd.0006600>
65. Moremi N, Claus H, Rutta L, Frosch M, Vogel U, Mshana SE. High carriage rate of extended-spectrum beta-lactamase-producing Enterobacteriaceae among patients admitted for surgery in Tanzanian hospitals with low rate of endogenous surgical site infections. The J of Hosp. Infections. 2018 Sep 6.
66. Moremi N, Claus H, Silago V, Kabage P, Abednego R, Matee, Vogel U, Mshana SE. Hospital Surface Contamination with antimicrobial-resistant gram-negative organisms in Tanzanian regional and tertiary hospitals: The need to improve environmental cleaning. The Journal of Hospital Infection. DOI: <https://doi.org/10.1016/j.jhin.2018.09.001>.
67. Morona D, Zinga M, Mirambo M, Mtawazi S, Silago V, Mshana SE. High prevalence of Plasmodium falciparum malaria among Human Immunodeficiency Virus seropositive population in the Lake Victoria zone, Tanzania. Tanzania Journal of Health Research; Vol 20, No 1 (2018).

68. Msangi S, Kweka E, Mahande A. Repellent Activity of TRIG (N-N Diethyl Benzamide) against Man-Biting Mosquitoes. *J Trop Med*. 2018 Jan 9;2018:9037616. doi: 10.1155/2018/9037616.
69. Msoffe CU, Nyanza EC, Thomas DSK, Jahanpour O, Dewey D. The sources and chemical content of edible soil sticks sold in markets in Tanzania: a cross-sectional analytical study. *Environmental Geochemistry and Health*, 2018, pp 1–14.
70. Mushi MF, Mpelasoka OE, Mazigo HD, McLeod L, Moremi N, Mirambo MM, Mshana SE. High rate of drinking water contamination due to poor storage in squatter settlements in Mwanza, Tanzania. *Tanzania Journal of Health Research*, Vol 20, No 3 (2018).
71. Mushi MF, Ngeta N, Mirambo MM, Mshana SE. Predictors of esophageal candidiasis among patients attending endoscopy unit in a tertiary hospital, Tanzania: a retrospective cross-sectional study. *African Health Sciences* Vol 18 Issue 1, March 2018.
72. Mushi MF, Ngeta N, Mirambo MM, Mshana SE. Letter to the editor 2: Predictors of oesophageal candidiasis in persons with or without HIV infection. *African Health Sciences* Vol 18 Issue 2, June 2018.
73. Nagagi YP, Temba V, Silayo RS, Kweka EJ. Salient features of *Trypanosoma congolense* in African Animal Trypanosomiasis in the sub-Saharan Africa. *Vector-Borne Diseases & Treatment*. 2018.
74. Nyanza EC, Jahanpour O, Hatfield J, van der Meer F, Allen-Scott L, Orsel K, Bastien S. Access and utilization of water and sanitation facilities and their determinants among pastoralists in the rural areas of northern Tanzania. *Tanzania Journal of Health Research*; Vol 20, No 1 (2018).
75. Pati NB, Doijad SP, Schultze T, Mannala GK, Yao Y, Jaiswal S, Ryan D, Suar M, Gwozdinski K, Bunk B, Mraheil MA, Marahiel MA, Hegemann JD, Spröer C, Goesmann A, Falgenhauer L, Hain T, Imirzalioglu C, Mshana SE, Overmann J, Chakraborty T. *Enterobacter bugandensis*: a novel enterobacterial species associated with severe clinical infection. *Sci Rep*. 2018 Mar 29;8(1):5392. doi: 10.1038/s41598-018-23069-z.
76. Peck RN. A MAP toward increased rates of blood pressure control? *J Clin Hypertens (Greenwich)*. 2018 Feb;20(2):215-216. doi: 10.1111/jch.13164.
77. Praygod G, Friis H, Filteau S. Nutritional support to reduce mortality in patients with HIV? *Lancet HIV*. 2018 May;5(5):e202-e204. doi: 10.1016/S2352-3018(18)30047-X.
78. Rambau PF, Vierkant RA, Intermaggio MP, Kelemen LE, Goodman MT, Herpel E, Pharoah PD, Kommos S, Jimenez-Linan M, Karlan BY, Gentry-Maharaj A, Menon U, Hernando Polo S, Candido Dos Reis FJ, Doherty JA, Gayther SA, Sharma R, Larson MC, Harnett PR, Hatfield E, de Andrade JM, Nelson GS, Steed H, Schildkraut JM, Carney ME, Høgdall E, Whittemore AS, Widschwendter M, Kennedy CJ, Wang F, Wang Q, Wang C, Armasu SM, Daley F, Coulson P, Jones ME, Anglesio MS, Chow C, deFazio A, García-Closas M, Brucker SY, Cybulski C, Harris HR, Hartkopf AD, Huzarski T, Jensen A, Lubiński J, Oszurek O, Benitez J, Fady M, Staebler A, Taran FA, Pasternak J 0, Talhouk A 0, Rossing MA , , Hendley J ; AOCs Group , , Edwards RP , , Fereday S , Modugno F , , Ness RB , Sieh W , El-Bahrawy MA 0, Winham SJ , Lester J, Kjaer SK , Gronwald J, Sinn P, Fasching PA, Chang-Claude J, Moysich KB , Bowtell DD , Hernandez BY, Luk H, Behrens S, Shah M , Jung A , Ghatage P, Alsop J , Alsop K, García-Donas J 0, Thompson PJ , Swerdlow AJ, Karpinskyj C , Cazorla-Jiménez A, García MJ, Deen S, Wilkens LR, Palacios J, Berchuck A, Koziak JM, Brenton JD, Cook LS, Goode EL , Huntsman DG, Ramus SJ, Köbel M. Association of p 6 expression with prognosis varies across ovarian carcinoma

- histotypes: An Ovarian Tumor Tissue Analysis consortium study. J Pathol Clin Res. 2018 Jul 0. doi: 0.00 / cjp . 09.
79. Rhee S, Nyanza EC, Condon M, Fishera J, Maduka T, Benshaul-Tolonen A. Understanding environmental, health and economic activity interactions following transition of ownership in gold mining areas in Tanzania: A case of private to public. Science Direct <https://doi.org/10.1016/j.landusepol.2018.09.009>.
 80. Rudovick L, Brauner JM, Englert J, Seemann C, Plugaru K, Kidenya BR, Kalluvya SE, Scheller C, Kasang C. Prevalence of pre-treatment HIV drug resistance in Mwanza, Tanzania. Journal of Antimicrobial Chemotherapy, 2018. dky332, <https://doi.org/10.1093/jac/dky332>.
 81. Schroeder K, Saxton A, McDade J, Chao C, Masalu N, Chao C, Wechsler DS, Likonda B, Chao N. Pediatric Cancer in Northern Tanzania: Evaluation of Diagnosis, Treatment, and Outcomes. J Glob Oncol. 2018 Sep;(4):1-10. doi: 10.1200/JGO.2016.009027. Epub 2017 Jun 9.
 82. Seni J, Moremi N, Matee M, van der Meer F, DeVinney R, Mshana SE, D Pitout JD. Preliminary insights into the occurrence of similar clones of extended-spectrum beta-lactamase-producing bacteria in humans, animals and the environment in Tanzania: A systematic review and meta-analysis between 2015 and 2016. Zoonoses Public Health. 2018 Feb; 65 - 0. doi: 0. /zph. 87. Epub 2017 Aug. Review.
 83. Seni J, Peirano G, Okon KO, Jibrin YB, Mohammed A, Mshana SE, DeVinney R, Pitout JDD. The population structure of clinical Extra-intestinal *Escherichia coli* in a teaching hospital from Nigeria. Diagnostic microbiology & Infectious Disease. DOI: <https://doi.org/10.1016/j.diagmicrobio.2018.04.00>. In Press
 84. Seugendo M, Janssen I, Lang V, Hasibuan I, Bohne W, Cooper P, Daniel R, Gunka K, Kusumawati RL, Mshana SE, Müller L, Okamo B, Orllepp JR, Overmann J, Riedel T, Rupnik M, Zimmermann O, Groß U. Prevalence and strain characterization of *Clostridioides* (*Clostridium*) *difficile* in representative regions of Germany, Ghana, Tanzania and Indonesia - a comparative multi-center cross-sectional study. Front. Microbiol. | doi: 10.3389/fmicb.2018.01843.
 85. Shao ER, Mboya IB, Gunda DW, Ruhangisa FG, Temu EM, Nkwama ML, Pyuza JJ, Kilonzo KG, Lyamuya FS, Maro VP. Seroprevalence of hepatitis B virus infection and associated factors among healthcare workers in northern Tanzania. BMC Infect Dis. 2018 Sep 21;18(1):474. doi: 10.1186/s12879-018-3376-2.
 86. Silago V, Kikaro DJ, Simon PB, Mushi MF, Seni J, Mshana SE. Extended Spectrum Beta Lactamase Producing Gram Negative Bacteria Contaminating Medical Examination Equipment and Clinical Coats at Bugando Medical Centre, Tanzania: Implication for Infection Prevention and Control. International Journal of Medical Science and Health Research. Vol., No. 0; 2018. ISSN: 58 - 66
 87. Smart LR, Ambrose EE, Raphael KC, Hokororo A, Kamugisha E, Tyburski EA, Lam WA, Ware RE, McGann PT. Simultaneous point-of-care detection of anemia and sickle cell disease in Tanzania: the RAPID study. Ann Hematol. 2018 Feb;97: 9- 46. doi: 0.007/s020177-2017-8 -8.
 88. Sravanam P, Massenga A, Bugimbi M, Mirambo MM, Chalya PL. HIV seroprevalence and factors affecting clinical outcomes among patients with surgical acute abdomen in selected hospitals in Mwanza, north-western in Tanzania. Tanzania Journal of Health Research. Vol 20, No 4 (2018).

89. Vaca SD, Warstadt NM, Ngayomela IH, Nungu R, Kowero ES, Srivastava S. Evaluation of an E-Learning Course for Clubfoot Treatment in Tanzania: A Multicenter Study. *Journal of Medical Education and Curricular Development*. First Published April 6, 2018.
90. Wall V, Premji SS, Letourneau N, McCaffrey G, Nyanza EC. Factors associated with pregnancy-related anxiety in Tanzanian women: a cross sectional study. *BMJ Open*. 2018 Jun 4;8(6): e00056. doi: 0. 6/bmjopen- 2017-0 0056.
91. Wanjala CL, Kweka E. Malaria Vectors Insecticides Resistance in Different Agro-ecosystems in Western Kenya. March 2018. *Frontiers in Public Health* 6. DOI 0. 89/ fpubh. 0 8.00055.
92. Wilson RM, Moremi N, Mushi MF, Bader O, Ngoya PS, Desderius BM, Rambau P, Kabangila R, Groß U, Mshana SE. Medical Mycology Case Reports. Disseminated cryptococcosis in a HIV-negative patient: Case report of a newly diagnosed hypertensive adult presenting with hemiparesis. *ScienceDirect. Medical Mycology Case Report*. Volume 22, December 2018, Pages 4-7.
93. Zhang X, Zhu L, Zhou Y, Shi A, Wang H, Han M, Wan X, Kilonzo SB, Luo X, Chen T, Ning Q. Interference with KCTD9 inhibits NK cell activation and ameliorates fulminant liver failure in mice. *BMC Immunol*. 2018 Jun 25;19(1):20. doi: 10.1186/s12865-018-0256-x.

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