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## WELCOME NOTE



Dear participants,

I take this opportunity to welcome you to the 11th CUHAS scientific graduation conference.

This year's conference theme "Emerging health threats in Lake Zone, Tanzania: The need for a concerted effort" gives us an opportunity to learn and discuss a growing concern of emerging health threats that is unique to this region. In early September this year, the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDEC), through its deputy Minister, Hon. Faustine Ndungulile, challenged the scientific community to contribute to finding answers to a rise in non-communicable diseases like cancers in the Tanzania Lake Zone. Non-communicable diseases account for 7 of the top 10 causes of death globally and are responsible for 70% of all deaths worldwide and tragically kill 15 million people aged between 30 and 70. The vast majority of these premature deaths occur among the people of the poorest countries. To halt the rising epidemics of diabetes, cancer, heart disease, we cannot simply treat the sick. We must find innovate strategies to protect the healthy, by addressing the root causes and prevent further manifestations of those diseases.

Bugando Medical Centre in collaboration with CUHAS has responded to this challenge by urgently committing research funds for early population-based screening of common non-communicable diseases in the lake Zone. This early data will lay the foundation for future in-depth research to obtain some answers to these emerging health problems. We call for concerted efforts from the regional and international scientific community to join hands for the betterment of the health of the people.

It is my hope that this scientific conference will help to identify our common challenges and discuss robust pragmatic solutions. On behalf of Bugando Medical Centre, I would like to thank the organizing committee for their tireless efforts to make this conference a success. I wish you all a successful conference, and look forward to working with you to beat emerging health threats in our region.

Yours sincerely,

**Prof. Abel Makubi**  
**Director General, Bugando Medical Centre**

## FOREWORD



It is with great pleasure that I write this foreword for the 11<sup>th</sup> Scientific Graduation Conference, 2019. This Conference, as per Bugando custom, has been jointly organized by CUHAS and BMC, with the support of our partners Cornell and Wurzburg Universities.

The planned two-day conference with the theme “*Emerging Health Threats in the Lake Zone, Tanzania: The Need for Concerted Effort*”; will give participants an opportunity to listen to key-note speeches, presentations and enjoy a display of scientific posters, all resulting from a variety of research activities conducted by undergraduate students, residents, faculty and other research collaborators.

This abstract book contains 112 abstracts distributed in three main areas of focus where Communicable Diseases account for 40%, while Non-Communicable Diseases and Health System Management account for 35% and 25% of all the abstracts, respectively. The distribution reflects the actual health challenges in our local community; thus, this Conference will give researchers and various stakeholders an opportunity to participate in evaluating which strategies offer the best solutions in mapping a concerted effort to combat these data-proven challenges.

It is my hope that this forum will serve to remind researchers to always ensure that their work not only serves to produce data, but also provide solutions that address various health challenges that are relevant to the community.

I am also delighted to inform readers that while presentations will be geared towards the dissemination of various research findings during this conference, there will be prizes for the best presenters on both days, to reward those who have excelled.

I thank our researchers, collaborators, sponsors, the Organizing Committee and all those who participated to facilitate this event in one way or another. I also thank all participants for availing yourselves to attend and actively engage in this Scientific Conference. I am confident that the two days you will spend with us will surely be a worthwhile investment. On a social note, I encourage our out of town visitors to socialize responsibly while in Mwanza and to nevertheless fully enjoy the beauty of Rock City.

**Prof. Paschalis Rugarabamu**

**Vice Chancellor, Catholic University of Health and Allied Sciences**

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## **COMMUNICABLE DISEASES**



## CU01CD: Antimicrobial Susceptibility Testing Results Utilization by Doctors at the Bugando Medical Centre, Mwanza Tanzania

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**Introduction:** The WHO has declared antimicrobial resistance as a global threat, and there is an urgent need for instituting antimicrobial stewardship measures across countries. In Tanzania studies from Mwanza and Dar es Salaam are showing approximately 20% of neonates are dying due to multidrug resistant bacterial infections. There is limited information on how laboratory results on antimicrobial susceptibility testing (AST) are utilized by doctors at Bugando Medical Centre (BMC).

**Methods:** A cross section study was conducted at BMC between May and June 2019. Microbiology post culture results reports for patients were obtained from the BMC clinical microbiology laboratory. Antibiotics prescriptions and other data were obtained from patients' file. Structured data collection tool was used to collect information among 62 doctors to delineate factors hindering utilization of AST results.

**Results:** A total of 303 participants' AST results were obtained. The median age of patients was 10 (1-49) years, and approximately 161 (53.1%) were female. Prevalent samples in this study were urine (43.3%) and blood (22.6%). The most prevalent bacteria isolated were *E. coli* 18.2% (55/303), *S. aureus* 13.9% (42/303) and *P. aeruginosa* 9.6% (28/303). Utilization of the AST results was 58.1% (176/303). The most common reasons for not utilizing AST results were improvement of the patients' conditions (21%), culture results delay (24.2%), and multiple reasons (21%). The study found that 61.7% of patients received empirical treatment.

**Conclusion:** Antibiotic prescriptions at BMC is largely empirically and utilization of AST results is low. Both individual and system based factors hindering utilization of AST results need to be addressed so as to have comprehensive antimicrobial stewardships measures.

**Key words:** *Antimicrobial susceptibility testing; Utilization; Mwanza*

## CU02CD: Antimicrobial Susceptibility Patterns of Enteric Fever Pathogens and the Diagnostic Utility of Rapid Immunochromatographic Test among Febrile Adult Patients at Sengerema Hospital, Mwanza - Tanzania

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**Background:** Failure or inappropriate diagnosis of enteric fever remains a challenge in Tanzania, and often results into over-prescription of antibiotics to febrile patients suspected of enteric fever. This in turn can potentially result into morbidity, mortality, and escalation of the burden of antimicrobial resistance and healthcare costs. Recently, several point-of-care *Salmonella* spp. antigen tests have been developed. However, the utilities of these tests have not been evaluated in the northwestern part of Tanzania.

**Methods:** A cross-sectional analytical study was conducted at Sengerema District Designated Hospital (SDDH) from December 2018 to March 2019 involving febrile outpatients. Data was collected using a pre-tested interviewer administered questionnaire. Slide and tube agglutination Widal tests (using VoXbank kits, Voxtur Bio Ltd®, India) for the determination of antibody titer and a point-of-care rapid *Salmonella typhi* and *Salmonella paratyphi* antigen test were done using Laborex test kits®, Zhejiang Orient Gene Biotech Co.Ltd®, China. Furthermore, blood culture was performed to isolate bacterial pathogens (including *Salmonella* spp.) causing febrile illness and their antimicrobial susceptibility patterns. Data analysis was performed using STATA version 13.0 software

**Results:** The overall prevalence of blood stream infections was 19.9% (65/327), with predominance of infections due to *Escherichia coli* (49.2%, n=32) and *Salmonella* spp. (35.4%, n=23). The prevalence of *Salmonella*-attributable blood stream infection was 7.0% (23/327). HIV seropositivity was significantly associated with a higher risk of *Salmonella*-attributable blood stream infections [OR (95% CI): 5.92 (1.62 - 21.63), p=0.007]. The sensitivity and specificity of Widal test were 88.2% and 88.7%, respectively. On the other hand, the sensitivity and specificity of the rapid immune chromatographic test were 29.4% and 100%, respectively. Antimicrobial sensitivities of *S. typhi* and *S. paratyphi* A were as follows: piperacillin-tazobactam (58.8%), gentamicin (23.5%), ciprofloxacin (88.2%), and ceftriaxone (82.4%).

**Conclusion:** The prevalence of *Salmonella*-attributable blood stream infections was low. The rapid immunochromatographic test had low sensitivity (29.4%) but very high specificity (100%) in diagnosing enteric fever. The antimicrobial sensitivity profiles to most antimicrobial agents in this rural setting remain promising with only 8.6% of bacteria being ESBL producers. There is an urgent need to evaluate alternative rapid antigen-based immunochromatographic tests with high sensitivities

**Key words:** Enteric fever; *Salmonella* spp.; Rapid immunochromatographic test; Sengerema; Tanzania.

## CU03CD: Prevalence of Rectal Colonization with Multidrug Resistant Gram Negative Bacteria among Neonates Admitted at Bugando Medical Centre in Mwanza, Tanzania

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**Background:** Antimicrobial resistance is a global concern and the escalating preponderance among resistant Gram negative bacteria is evident. This study determined the prevalence and factors associated with rectal colonization of multidrug resistant Gram negative bacteria (MDR-GNB) among neonates admitted in premature (PREM) unit and neonatal intensive care unit (NICU) at Bugando Medical Centre (BMC), Mwanza-Tanzania.

**Methods:** A cross-sectional hospital based study was conducted among 170 neonates admitted in PREM unit and NICU at BMC from May to July 2019. Rectal swab specimens were collected and transported to CUHAS-Microbiology laboratory in Stuart media (Amies, UK) for processing. Culture was done on MacConkey agar plates supplemented with cefotaxime 2mcg/ml. The isolates were identified based on colony morphology and conventional biochemical tests. Double disk synergy (DDS) was used for confirmation of ESBL-GNB. STATA

software version 13.0 was used for data analysis.

**Results:** The majority of neonates, 106 (62.4%) were enrolled from PREM unit. Out of 170 rectal swab specimens, 52 (30.6%) had positive growth on MCA supplemented with cefotaxime 2mcg/ml. A total of 32/52 (61.5%) were confirmed to be ESBL producers by DDS test. The most common ESBL-GNB was *Klebsiella pneumoniae* 26 (50.0%), followed by *Escherichia coli* 10 (19.2%). Neonates with higher median weight in kilogram [3.3 (2.9-3.8) vs 2.9 (2.5-3.4); p=0.0196] and neonates' whose mothers had fever during pregnancy [34 (38.6%) vs. 18 (22.0%); p=0.018] were significantly more colonized with ESBL-GNB.

**Conclusion:** Rectal carriage of ESBL-GNB among neonates admitted in PREM unit and NICU at BMC is high. There is a need to strengthening IPC measures and antimicrobial stewardship in these units to reduce the magnitude and cross transmission of these strains.

**Key words:** Rectal carriage; Extended spectrum beta-lactamase; Neonates; Bugando Medical Centre; Mwanza; Tanzania

## CU04CD: Decreasing Trend of Antimicrobial Resistance among Gram Negative Clinical Isolates at Bugando Medical Centre, Mwanza-Tanzania: A Retrospective Review between 2015 and 2019

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**Background:** An increasing trend of antimicrobial resistance (AMR) is a public health threat all over the world. The aim of this study was to determine a four years trend (2015-2019) of AMR among clinical isolates at the Bugando Medical Centre (BMC), Mwanza, Tanzania.

**Methods:** This hospital based retrospective study was conducted between April and July 2019 on 4,393 culture and susceptibility reports from June 2015 to May 2019 in the Clinical Microbiology Unit, Central Pathology Laboratory at BMC. Results were collected, entered and analysed using WHONET software.

**Results:** Out of 4,393 microbiological report forms, 4414 bacteria isolates were reported. *Staphylococcus aureus* (23%, n=1017) was the most prevalent isolate followed by

unidentified Gram negative rods (16%, n=726), *Escherichia coli* (14%, n=600) and *Klebsiella pneumoniae* (12%, n=509). There was an increase in resistance trends among Gram positive bacteria from 2015 to 2019 [clindamycin (29.3% to 42.4%) and vancomycin (2.8% to 12.1%)]. On the other hand, Gram negative bacteria showed decreased resistance trends to ceftriaxone (73.4% to 51.4%), gentamicin (59.0% to 39.5%) and imipenem (6.1% to 2.9%) in the same time frame. Proportion of extended spectrum beta lactamases producers (ESBL) decreased from 73.4% in 2015 to 51.4% in 2019 and that of MRSA from 4.6% to 2.1%.

**Conclusion:** About half of the enteric gram negative bacteria at BMC are ESBL producers necessitating strong measures focusing on antimicrobial stewardship to control this problem.

**Key words:** *Antimicrobial resistance; Trend of resistance; ESBL; MRSA; Mwanza; Tanzania*



## CU05CD: Patterns of Pathogenic Bacteria and Factors Associated With Urinary Tract Infections: Preliminary Insights from Patients Attending District Hospitals in Mwanza, Tanzania

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**Background:** Urinary tract infections (UTI) are the most common bacterial infection resulting into increased morbidity and cost across the world. There is limited information on the prevalence and factors associated with UTI among patients attending district hospitals. The present study evaluated the prevalence, antibiotics susceptibility profiles and risk factors of UTI among patients attending District Hospitals in Mwanza-Tanzania.

**Methods:** This cross sectional analytical study was conducted from June to July 2019 among 256 patients attending Magu, Misungwi and Sumve Hospitals. Urine specimens were collected in wide mouthed, sterile containers and then transported to Microbiology laboratories within 2 hours of collection for processing. STATA (StataCorp LLC, USA) version 13.0 was used for data analysis.

**Results:** The medium age of study participants was 23 (IQR: 5-37) years, and the majority were females 158 (61.7%). The overall prevalence of bacterial UTI was 27.7 % (71/256). *E. coli* 24/158 (15.2%), *S. aureus* 19/158 (12.0%) and *C. freundii* 9/158 (5.7%) were the most frequently isolated bacteria. The proportion of extended spectrum beta-lactamase (ESBL) production among Gram-negative bacteria was 7.0% (4/57). UTI was significantly higher among female than males (32.3% vs. 20.4%;  $p=0.039$ ). Moreover, health facility ( $p<0.001$ ), neighbour keeping domestic animals ( $p=0.034$ ), history of fever ( $p=0.004$ ) and use of invasive devices ( $p=0.019$ ) were significantly associated with bacterial UTI.

**Conclusion:** Prevalence of UTI among patients attending District Hospitals is higher compared to other studies in the same region. Identified risk factors should be used for priority screening of patients and for targeted preventive measures.

**Key words:** *Bacteria; District hospitals; Urinary tract infections; Mwanza; Tanzania*

## CU06CD: Cephalosporins Resistant *Salmonella Typhimurium* Colonizing Patients in Hospitals in Mwanza Region, Tanzania

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**Background:** An increasing rate of cephalosporins resistant of *Salmonella* spp. is a global public health concern. Five percent of individuals previously infected with *Salmonella* become chronic carriers especially with *Salmonella typhi* even after effective and appropriate antibiotic therapy. This study was done to investigate the prevalence of cephalosporins resistant *Salmonella* species among patients attending and admitted in primary, secondary and tertiary healthcare facilities in Mwanza-Tanzania.

**Methods:** It was a cross-sectional hospital based study which was conducted from April to July, 2019 at Bugando Medical Centre (BMC), Sekou Toure regional referral hospital, Nyamagana district hospital, Magu district hospital and Sengerema designated district hospital. A total of 348 participants were enrolled. Stool specimen was self-collected (at the tip) using a sterile stool container with a scoop. For isolation of *Salmonella* species, specimens were enriched in selenite F and then inoculated on *Salmonella*-*Shigella* agar (SSA) plates following conventional biochemical identification of all colonies suggesting *Salmonella* species. Kirby-Bauer disc diffusion technique was used for antibiotic susceptibility testing. STATA 13.0 was used for data analysis.

**Results:** A total of 348 participants were enrolled in this study, with median age of 4: IQR (0-31) years with almost equal distribution of gender whereby 175 (50.29%) were females. The prevalence of *Salmonella* species carriage was 5.2% (n=18). High carriage rate was observed among patients from BMC, 61.1% (11/18). *S. typhimurium* (66.7%, n=12) was prevalent isolated *Salmonella* species colonizing patients. Other species isolated were *S. paratyphi* A (27.8%, n=5) and *S. typhi* (5.5%, n=1). Percentage of susceptibility of *Salmonella* isolates to piperacillin-tazobactam, ciprofloxacin, tetracycline and trimethoprim-sulfamethoxazole was 100%, 100%, 52.6% and 42.1%, respectively. Only one isolate was resistant to ceftriaxone (5.6%, 1/18). No variable under this study was found to be associated with carriage of *Salmonella* species.

**Conclusion:** The rate of *Salmonella* spp. gastrointestinal carriage among different population of patients attending hospitals in Mwanza is low with very low rate of cephalosporin resistance. More studies to establish the outcome of this carriage is recommended in Mwanza, Tanzania.

**Key words:** cephalosporins resistance; *Salmonella* carriage; *Salmonella typhimurium*; Mwanza; Tanzania

## CU07CD: Seroprevalence of Human Cytomegalovirus, Rubella Virus, Herpes Simplex Virus-2 and *Treponema Pallidum* among Women with Previous Unfavourable Pregnancy Outcomes in Mwanza Tanzania: The Urgent Need for Control Interventions

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**Background:** Infections such as Human cytomegalovirus (HCMV), Rubella virus (RV), Herpes simplex virus-2(HSV-2) and *Treponema pallidum* which are implicated in causing bad pregnancy outcomes are common in developing countries. This study was carried out to establish the current status of these infections among women with unfavourable fatal outcomes in Mwanza, Tanzania.

**Methods:** An analytical cross sectional hospital based study involving 198 women with previous unfavourable pregnancy outcome was conducted between March and June 2019 in three hospitals in Mwanza region. Indirect enzyme linked immunosorbent assay (ELISA) test was used to detect HCMV and Rubella specific IgM and IgG antibodies, while rapid immunochromatographic test was used to detect HSV-2, *T. pallidum* hemagglutination test (TPHA) and venereal disease research laboratory (VDRL) were used to test for *T. pallidum* seropositivity. Data were analyzed by using STATA version 13.0

**Results:** The median age of enrolled women was 28 (IQR, 24-34) years. Of these 194 (98%,

95% CI: 96.0-99.9) were HCMV specific IgG seropositive while only 2(2.1%, 95% CI: 0.8-5.1) were IgM seropositive. Out of 180 women tested for RV, 175(96.7%, 95% CI 94.1-99.3) tested positive for RV IgG antibodies while only 1(1.2%, 95% cl 1.1-3.5) tested positive for RV IgM antibodies. Regarding HSV2; out of the 146 women tested, 21(14.38% CI 8.6-20.0) tested positive for HSV2 IgG, and only 3(2.05% CI 0.24-4.34) tested positive for HSV2 IgM antibodies. Among 194 women tested for *T. pallidum* only 1 (0.5%, CI: 0.49-1.49) tested positive for *T. pallidum* by TPHA while none of them tested positive for *T. pallidum* by VDRL. Primary educational level ( $p=0.046$ ) and being married ( $p=0.035$ ) were significantly associated with HSV-2 IgG seropositivity while none of the factors was associated with HCMV, RV and *T. pallidum*.

**Conclusion:** This study report high seroprevalence of HCMV, RV and HSV-2 indicating these pathogens are common in Mwanza and might be associated with unfavourable fetal outcomes. Further studies to establish causal effect relationship are recommended in Mwanza.

**Key words:** HCMV; RV; HSV-2; *T. pallidum*; Mwanza

## **CU08CD: Undetectable Viral Hepatitis (Hepatitis B and Hepatitis C) Among Children with Sickle Cell Disease at Bugando Medical Centre: Reflection of Improved Blood Transfusion Practices in Tanzania**

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**Background:** Hepatitis C Virus (HCV) and Hepatitis B virus (HBV) can cause life-long infection of the liver and over time it can cause fibrosis, cirrhosis, liver cancer, liver failure and death. Although the incidence of transfusion-acquired infections has significantly decreased in recent years because of effective blood donor screening techniques, the risk is still present to date especially in countries where the health related resources are limited. In a view of that, this study was carried out to determine the magnitude of HCV and HBV among children attending Sickle Cell Clinic (SCC) at Bugando Medical Centre.

**Methods:** This was the hospital based cross-sectional study involving 200 children with SCD attending SCC at Bugando Medical Centre between June and August 2019. At least 3 mls whole blood was withdrawn to obtain plasma that was used for detection of

HCV antibodies and Hepatitis B surface antigen by using Biotech HCV rapid immunochromatographic tests. Data was analysed by using STATA version 13.

**Results:** The mean age of enrolled children was 99.3±46.9 months. None of the children was found to be neither HCV seropositive nor HBV positive.

**Conclusion:** Despite high risk of HCV and HBV transmission among children with SCD none of the children was found to be HCV seropositive and HBV positive reflecting improvement in measures established to reduce HCV infection in this setting. Strict measures currently employed including upgrading quality of blood transfusion practise should be reinforced across the country.

**Key words:** *HBV; HCV; Sickle cell disease; Bugando*

**CU09CD: Low Prevalence of *Borrelia* Spp. Infection among Adult Outpatients in a District Hospital, Mpwapwa, Dodoma Tanzania**

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**Background:** *Borrelia* spp. infection is the one of the neglected tropical diseases often not routinely diagnosed or misdiagnosed with other diseases such as malaria, or typhoid fever. In east African region the disease is endemic and has been associated with considerable morbidities. Despite having a global distribution, little is known about its epidemiology in Tanzania. The aim of the study was to determine its magnitude among outpatient adults at Mpwapwa district hospital, Dodoma Tanzania.

**Methods:** A cross-sectional hospital based study involving 186 outpatients attending at Mpwapwa district hospital was conducted between May and June 2019. Socio-demographic data and other relevant information were collected using structured

data collection tool. Detection of *Borrelia* spp. infection was performed by using giemsa stain according to Standard Operating Procedure (SOP). Data were analyzed by using STATA version13.

**Results:** The median age of enrolled participants was 36 (IQR: 22-52) years and mean BMI was 21.82 kg/m<sup>2</sup>. Among 186 enrolled patients only 1 patient (0.54 %, 95% CI: 0.51-1.59) was found to have *Borrelia* spp. infection.

**Conclusion:** The prevalence of *Borrelia* spp. infection in Mpwapwa district is low. Advanced technique with high sensitivity like PCR should be employed for further and accurately investigations.

**Key words:** *Borellia* spp.; Mpwapwa; Adults; Outpatients; Giemsa

## **CU10CD: Drinking Unboiled Tap Water is Associated with High Prevalence of *Helicobacter Pylori* infection Among Asymptomatic Adults in Mwanza, Tanzania**

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**Background:** *Helicobacter pylori* is a bacteria known to cause of peptic ulcers and gastritis in all ages. This study report very high prevalence of *H.pylori* among asymptomatic adults in Mwanza, the information that may be useful in devising control measures

**Methods:** This was a cross sectional study conducted from May to August, 2019 at the Catholic University of Health and Allied Science in Mwanza among non-asymptomatic students. Demographic and clinical information were collected using pre tested questionnaires. Stool specimens were collected in clean containers whereby *H. pylori* infection was detected by using *H. pylori* Antigen Rapid test as per

manufacturer's instructions. Data was analyzed using STATA version 13 software.

**Results:** The median age of enrolled participants was 23[IQR 22-24] years. Out of 199 asymptomatic medical students enrolled, 96(48.24% CI; 41-55) were positive for *H. pylori* infection and drinking unboiled tap water (OR: 2.22, 95%CI: 1.21-4.09 p=0.01) was significantly associated with *H.pylori* positivity.

**Conclusion:** The prevalence of *H.pylori* among healthy normal adult students at CUHAS is alarmingly high and is significantly associated with drinking unboiled tap water. This calls for need of emphasizing of the control measures among the students.

**Key words:** *H.pylori*; CUHAS; adults; asymptomatic; Mwanza

## CU11CD: Seroprevalence of *Brucella* Spp. Antibodies among Pregnant Women in Urban Areas in the City of Mwanza, Tanzania

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**Background:** Brucellosis is one of the neglected zoonotic diseases caused by *Brucella* spp. The disease is common in many resource-limited countries and has been associated with a number of adverse pregnancy outcomes. Previous studies in Mwanza city reported high prevalence of *Brucella* spp. among different populations. However, none of them focused on pregnant women. This study was conducted to determine the seroprevalence of *Brucella* spp. magnitude among pregnant women attending Makongoro health centre, Mwanza

**Methods:** A hospital based cross section study involving 384 pregnant women was done between May and July 2019 at Makongoro Health Centre in Mwanza. Blood samples from consenting pregnant women were collected and plasma was tested for *Brucella* antibodies using plate agglutination test. Data were analysed using STATA VERSION 13 computer software.

**Key words:** *Brucella* spp.; *B. melitensis*; *B. abortus*; Urban; Mwanza; Pregnant women

**Results:** The mean age of the enrolled women was 25.6±4.9 years and the mean gestation age was 19.5±8.1 weeks. Overall, out of the 384 pregnant women tested, 148(38.5%, 95%CI: 33.6-43.3) were *Brucella* spp. seropositive. Seroprevalence of *B. abortus* was 121(31.5%) while that of *B. melitensis* was 94(24.4%). Sixty seven (17.4%) women were sero-positive to both spp. On multivariate logistic regression analysis, only consumption of roasted meat was significantly associated with overall *Brucella* spp. seropositivity (OR: 4.9 CI: 1.8-13.2 P=0.001).

**Conclusion:** The overall seroprevalence of *Brucella* spp. was high among pregnant women in urban areas of Mwanza city and was significantly associated with consumption of roasted meat. Therefore, *Brucella* screening test should be adopted into antenatal screening profile tests.

## **CU12CD: Prevalence of Hepatitis B Virus and Hepatitis C Virus among Pregnant Women Attending Njombe Regional Hospital**

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**Background:** Hepatitis B virus (HBV) and Hepatitis C are highly infectious viruses which causes acute and chronic liver inflammation which may results into liver cirrhosis and hepatocellular carcinoma (HCC). In Njombe region where prevalence of HIV infection is high, information on Hepatitis HBV and HCV among pregnant women is scarce. This study was done to determine the magnitude of HBV and HCV among pregnant women at Njombe region.

**Methods:** Hospital based analytical cross sectional study involving 205 pregnant women from different areas attending antenatal clinic at Njombe regional hospital was conducted between May 2019 and June 2019. Blood samples were collected and the plasma were used for detection of Hepatitis B surface antigen (HBsAg) and HCV antibodies by Immunochromatographic test

**Key words:** *HBV; HCV; Pregnant women; Njombe*

strips. Data was analyzed using STATA version 13 as per study objectives.

**Results:** The median age of enrolled pregnant women was 26(IQR 22-30) years and the mean gestation age was 29(IQR 22-37) weeks. The prevalence of HBsAg was found to be 8(3.9%CI: 1.24-6.55) while none of the women was found to be HCV seropositive. HBsAg was significantly associated with history of needle injury ( $p=0.039$ ).

**Conclusion:** Prevalence of hepatitis B surface antigen among pregnant women in Njombe is considered as moderate endemic as per WHO criteria and is significantly associated with history of needle stick injuries. These findings call for the need of HBsAg screening during antenatal care and vaccination to women of reproductive age.



**CU13CD: Prevalence of Hepatitis B and Hepatitis C among Human Immunodeficiency Virus Seropositive Patients Attending Magu District Hospital, Mwanza, Tanzania**

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**Background:** Hepatitis B Virus (HBV) and Hepatitis C virus (HCV) are public health concern due their potential to cause liver cirrhosis and hepatocellular carcinoma. Despite of sharing the same routes of transmission with HIV virus and being common in Tanzania there are paucity of data regarding HBV and HCV in these patients. This study investigated the magnitude of HBV among HIV infected patients in Magu district, the information that might be useful in devising control measures.

**Methods:** A cross-sectional hospital-based study involving 200 HIV seropositive adult patients attending Care and Treatment Centre at Magu district hospital was conducted from June to July 2019. About 3-4 ml of blood was collected and analyzed for Hepatitis B surface antigen (HBsAg) and HCV antibodies using immunochromatographic test as per

manufacturer's instructions. Data were analyzed by using STATA version 13.

**Results:** The median age of enrolled participants was 43(IQR: 35.5-50) years. The prevalence of the HBsAg was found to be 15(7.5%, 95% CI: 3.8-11.1) while that of HCV was 7(3.5%, 95%, CI: 0.95-6.0). Only being a farmer (P=0.045) was significantly associated with HBsAg positivity while none of the factors was associated with HCV seropositivity.

**Conclusion:** The prevalence of HBV among HIV seropositive individuals in Magu is moderate endemic as per world health organization (WHO) criteria and is significantly associated with being a farmer. This study calls for the need of routine screening of HBsAg and provision of HBV vaccination

**Key words:** HBsAg; HCV; HIV; Magu; Mwanza; CTC

**CU14CD: Knowledge, Attitude and Perceptions towards Human Papilloma Virus Vaccine among Parents with School Aged Children at Nyamagana District, Mwanza, Tanzania**

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**Background:** All vaccine quadrivalent, bivalent and nonavalent protect against common different genotypes of human papilloma virus (HPV) and the studies have shown that they are effective as prophylactic. In Tanzania, HPV vaccines has been recently introduced to girls aged 9 to 14 years. However, there is limited data about the knowledge and attitude of parents toward HPV vaccine to their school aged girls. The aim of the study was to assess knowledge and attitude of parents towards HPV vaccine to their primary school aged girls in Nyamagana, Mwanza.

**Methods:** Community based cross sectional study was conducted at Nyamagana district in Mwanza involving a total of 350 both female and male parents from May to June 2019. Data was collected by using pre-tested data collection tool. Analysis was done by STATA version 13.

**Results:** The median age of the parents involved was 35(IQR: 29-44) years. More than one third 126 (36%) of participants were from Pamba ward. Regarding knowledge, about two thirds of parents 231(66%) heard about HPV, more than a half 187(53.4%) knew the age groups for vaccination while 279(84.8%) knew that the vaccine prevent against cervical cancer. Positive attitudes on HPV vaccine among parents from Nyamagana districts were above 83% and acceptance rate was above 58.6%.

**Conclusion:** Results from this study has shown that parents with school aged girls living in Nyamagana district have good knowledge concerning HPV vaccine, and their attitudes were broadly positive. Further studies should be done to asses factors associated with low vaccine uptake among children in Nyamagana district and across the country.

**Key words:** *Human papilloma virus; Parents; Knowledge; Attitude; Nyamagana*

## CU15CD: Prevalence of Hepatitis B Surface Antigen and Hepatitis C Virus Antibodies among Pregnant Women Attending At Makole Health Centre Dodoma, Tanzania

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**Background:** Hepatitis B (HBV) and Hepatitis C (HCV) infection during pregnancy can result into adverse pregnancy outcomes. Despite being common in Tanzania, there is scarcity of information on HBV and HCV among pregnant in Dodoma. This study aimed at determining prevalence of hepatitis B surface antigen (HBsAg) and HCV antibodies and associated factors among pregnant women at Makole Health centre in Dodoma.

**Methods:** Analytical cross sectional hospital based study involving 300 pregnant women was carried out from May to June 2019 at Makole health centre in Dodoma. Socio-demographic, obstetrics and other relevant information were collected by using structured data collection tool. About 5ml of blood was collected aseptically and plasma was used for detection of hepatitis B surface antigen and HCV antibodies using immunochromatographic test. Data was analyzed by STATA version 13 as per study objectives.

**Results:** The mean age of enrolled women was 26.27±6.03years and mean gestation age was 22.05±8.33 weeks. Prevalence of HBsAg was found to be 10(3.33%, 95% CI: 2.797-3.863) while that of HCV was found to be 1(0.3%). Low education level (OR: 5.1683, 95% CI: 1.21-22.04, p=0.026) and history of a baby with low birth weight (OR: 6.14 95% CI: 1.30-28.9, p=0.022) were found to independently predict HBsAg positivity on multivariate logistic regression analysis.

**Conclusion:** The prevalence of HBsAg is moderate endemic as per the World Health Organization criteria while that of HCV is very low among pregnant women at Makole health centre. HBsAg positivity is predicted by history of a baby with low birth weight and low education level. Emphasis on control measures including vaccinating reproductive aged women are recommended in Tanzania and other developing countries where HBV is endemic.

**Key words:** *HBV; HCV; HBsAg; Makole; Dodoma; Pregnant women*

## **CU16CD: High Prevalence of Human Cytomegalovirus Antibodies among Pregnant Women with Signs and Symptoms Attending Antenatal Care in Mwanza, Tanzania: The Need to be considered in Tanzanian Antenatal Screening Services**

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**Background:** Human cytomegalovirus (HCMV) is the one of the most common cause of congenital infections mostly in resource limited countries. Pregnant women infected with HCMV may vertically transmit the virus to their unborn fetus causing a high likelihood of fetal damage which may results in spontaneous abortions, still birth, and fetal death. Despite being common in Mwanza, there is scarcity of data on the magnitude of HCMV among pregnant women presenting with signs and symptoms during pregnancy. This study was carried out to determine the seroprevalence of HCMV among pregnant women presenting with signs and symptoms in Mwanza, Tanzania.

**Methods:** This was a cross sectional laboratory based study involving 171 achieved sera from pregnant women with signs and symptoms of HCMV in Mwanza conducted between May and July 2019. Detection of HCMV IgM and IgG antibodies from sera was done by using indirect

Enzyme-linked Immunosorbent Assay (ELISA) as per manufactures instructions (Qingdao Hightop Biotech Co. Ltd, China). Data was analyzed by using STATA version 13 as per study objectives.

**Results:** The median age of enrolled women was 24(IQR: 21-30) years and the median gestation age was 25(IQR: 20-32) weeks. Seroprevalence of HCMV IgG specific antibodies was 171 (100%) while none of the sera was IgM seropositive. Among 70 sera with high IgG antibody titters 10 (14.29%) were found to have low avidity index indicating most recent infections.

**Conclusion:** HCMV IgG seroprevalence among pregnant women with signs and symptoms in Mwanza city is alarmingly high with about one tenth of those with high IgG titters being recently infected. This calls for the need to emphasize the control measures among women of reproductive age in high endemic areas.

**Key words:** *HCMV; Seroprevalence; Mwanza; Signs and symptoms*

## **CU17CD: Quantification of *Brucella* Spp. Antibodies Titers among Febrile Adult Patients from Mwanza, Tanzania**

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**Background:** Brucellosis is a bacterial zoonotic disease of public health importance especially in agro-pastoral communities and animal product consumers. Most of clinical presentations resemble that of other diseases like malaria which are also endemic in these countries. Routine diagnosis has been challenging due to lack of reliable tests. This study aimed at quantifying the *Brucella* antibodies from sera of febrile patients who were found to be positive for *Brucella* spp. antibodies.

**Methods:** A cross sectional laboratory-based study involving 260 sera from *Brucella* spp. seropositive febrile patients was conducted from May to June 2019. Quantification of the *Brucella* titers was done by slide agglutination test as per manufacturer's instructions (Euro cell A/M® Euromaidan

equip LTD.UK.). *Brucella* spp. antibody titers of 1:320 was considered as active infection. Data was analyzed by STATA version 13.

**Results:** Median age of enrolled adults febrile patients was 31(IQR 25-44) years and mean temperature was 37.78±0.23°C. Among 260 adults febrile patients sera tested for *Brucella* antibodies 73(28.08% CI: 22-0.33) were found to have high *Brucella* antibodies titers indicating active infection.

**Conclusion:** The prevalence of brucellosis among adult febrile patients is high. With decrease trend of malaria fever, brucellosis should be considered in routine diagnosis of fever.

**Key words:** *Brucellosis; Quantification; high titers; Febrile patients; Mwanza*

## CU18CD: Leptospirosis Among Febrile Adult Patients in Mwanza: The Need to be considered in The Routine Diagnosis of Fever in Tanzania

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**Background:** Leptospirosis is an acute febrile zoonotic illness caused by the pathogenic spirochetes of the genus *Leptospira* with a worldwide distribution. In tropical areas the disease is common with a wide range of case manifestations from clinically apparent to multi-systemic cases. Despite being common, it has never been considered in the cases of fever of unknown origin. This study aimed at investigating its magnitude among adult febrile patients in Mwanza, Tanzania.

**Methods:** A cross-sectional laboratory-based study involving 296 achieved sera from febrile patients collected in different hospitals and health centers in Mwanza region was conducted at the Pest Management Center at Sokoine University of Agriculture (SUA), Morogoro from May to June 2019. Detection of *Leptospiral* serovars was done using microscopic agglutination test (MAT). Data was extracted from existing database using a checklist and analysis was done using STATA version 13.

**Results:** The median age of the febrile patients was 32, IQR: 24-45 years. Out of 296 sera 36(12.16%, 95%CI: 8-15) were seropositive for *Leptospira* antibodies. The common circulating serovars were Sokoine 28(9.45%) followed by Lora 12(4.05%) and Grippotyphosa 2(0.67%). On multivariable logistic regression analysis, increase in age (OR: 1.03, 95%CI 1.00-1.07, P=0.03) independently predicted *Leptospira* spp. seropositivity among febrile patients in Mwanza.

**Conclusion:** About one tenth of febrile patients in Mwanza are *Leptospiral* seropositive and is significantly associated with advanced age. Serovar Sokoine is among the commonest serovar circulating in Mwanza. With declining trend of malaria fever in endemic areas other causes of febrile illness like *Leptospiral* spp. should be considered in routine workup of fever.

**Key words:** *Leptospirosis; Febrile illness; Mwanza; Tanzania*

## **CU19CD: High Prevalence of *Brucella* Spp. Antibodies among Pregnant Women Attending Antenatal Care at Sengerema Designated District Hospital, Mwanza Tanzania: Should it Be Included in Tanzanian Antenatal Package?**

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**Background:** Brucellosis is among tropical neglected zoonotic disease common in resource limited countries including Tanzania. The role of *Brucella* spp. and its magnitude in animals has well been documented unlike in human population. Despite its potential to cause devastating pregnancy outcomes such as preterm birth, abortion, fetal death, and low birth weight in human there is limited data on magnitude of disease among pregnant women in Tanzania. This study for the first time in Mwanza investigated the magnitude of *Brucella* spp. among pregnant women attending antenatal care at Sengerema designated district hospital (SDDH) Mwanza Tanzania.

**Methods:** A across sectional hospital based study involving 251 pregnant women attending SDDH antenatal care was conducted from May to June 2019. Socio-demographic and other relevant data was collected using pre-tested structured data

collection tool. Blood samples were collected and tested for *Brucella* spp. using qualitative agglutination method. Data was analyzed by STATA version 13.

**Results:** The mean age and mean gestation age of enrolled women was 26.61± 6.69 years and 24.35± 7.19 weeks, respectively. Overall seroprevalence of *Brucella* spp. was 74/251 (29.48%, 95% CI: 23.7-35.2) with 8/251 (3.19%, 95% CI: 0.9-5.3) being seropositive for both *B. abortus* and *B. melitensis*. On multivariate logistic regression analysis only consumption of unpasteurized milk was significantly associated with *Brucella* spp. seropositivity (OR: 1.78 CI: 1.00-3.15 P=0.048).

**Conclusion:** Overall *Brucella* spp. seropositivity is high among pregnant women in Sengerema necessitating the need for adequate preventive and control measures to be taken including inclusion in Tanzanian antenatal screening services.

**Key words:** *Brucella* spp.; antenatal care; Sengerema; Tanzania

**CU20CD: Prevalence of *Helicobacter Pylori* among Human Immunodeficiency Virus Seropositive Patients Attending Care and Treatment Centre at Bugando Medical Centre, 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 common etiologies causing upper GI symptoms in HIV infected individuals. The role of *Helicobacter pylori* (*H. pylori*) gastric mucosa infection in HIV seropositive adults in relation to upper GIT symptoms has not well documented. This study aimed at determining the prevalence and factors associated with *H.pylori* infection among HIV infected adults at Bugando Medical Centre, Mwanza.

**Methods:** Analytical cross sectional hospital based study involving 148 HIV infected

adults patients was conducted at Bugando medical Centre, Mwanza from May 2019 to June 2019. Stool specimens were collected and detection of *H.pylori* antigens was done using *H. pylori* stool antigen tests as per manufacturer's instructions. Data were analyzed using STATA version 13.

**Results:** The mean age of the study participants was 41.87±11.88 years. The prevalence of *H. pylori* was 30(20.27%, CI: 13.79-26.74). Advanced age (OR: 1.04, 95% CI: 1.00-1.08 P=0.029) was significantly associated with *H.pylori* positivity.

**Conclusion:** A significant proportion of HIV seropositive adult patients with advanced age are infected with *H.pylori*.

**Key words:** *H.pylori*; HIV; Stool antigen test; Bugando



## **CU21CD: Prevalence of Multi-Drugs Resistant Gram-Negative Bacteria Colonizing Gastro-Intestinal Tract of Patients with Urinary Tract Infection in Mwanza, Tanzania**

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**Background:** The incidence of infection and colonization due to multi-drug resistant (MDR) bacteria is one of the foremost issues that we face in the coming decades. Multi-Drug Resistant Gram Negative Bacteria (MDR-GNB) pathogens frequently exhibit plasmid-encoded resistance. The study investigated gastrointestinal (GIT) colonization of MDR-GNB among patients presenting with UTIs symptoms in Mwanza, Tanzania.

**Methods:** A hospital based cross sectional study was conducted between 15th March and 15th July 2019. The stool samples were plated on MacConkey agar (HI Media, Mumbai, India) supplemented with cefotaxime (2 µg/mL) and thereafter isolates were sub-cultured on MacConkey agar

supplemented with cefotaxime (2 µg/mL), gentamycin (16 µg/mL) and ciprofloxacin (2 µg/mL).

**Results:** A total of 799 stool samples were processed. The prevalence of ESBL producing gram negative bacteria colonization among clinically diagnosed UTI patient was 54.1% (432/799), 95% CI: 50 – 57. Of the isolate tested, 95 (55.1%) of isolate were resistant to ciprofloxacin (CIP) and cefotaxime, 73 (43.7%) resistant to gentamicin and cefotaxime and 51 (30.5%) resistant to cefotaxime, ciprofloxacin and gentamicin.

**Conclusion:** A significant proportion of patients with signs and symptoms of UTI were colonized by MDR in their GIT.

**Key words:** *MDR; Cefotaxime; Ciprofloxacin; Gentamicin; Gram negative GIT*

## CU22CD: High Prevalence of Non-Albicans *Candida* Spp. Candiduria among Patients Presenting With Symptoms of Urinary Tract Infection Mwanza, Tanzania

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**Background:** Candiduria has been found to be predisposed by diabetes mellitus, indwelling urinary catheters, exposure to antimicrobials and poor genital hygiene. Varieties of *Candida* spp. have been reported to cause candiduria, *Candida albicans* being the commonest species. This study aimed at determining the prevalence and associated factors of *Candida* spp. among patients presenting with symptoms of urinary tract infections in the city of Mwanza, Tanzania.

**Methods:** A cross sectional hospital based study was done at Sekou Toure, Nyamagana, Makongoro and Bugando Medical Centre. Mid-stream urine samples

were quantitatively cultured on Blood Agar and Sabouraud Dextrose Agar. *Candida* Chromogenic agar was used for species identification.

**Results:** The median age of enrolled patients was 23 ± (21-30) years. Among 1258 patients, 26(2.1%) had significant candiduria. Common *Candida* spp. detected were *Candida albicans* 10(38.5%), *C. krusei* 9(34.7%), *C. tropicalis* 5(19.2%) and *C. glabrata* 2(8%).

**Conclusion:** Prevalence of significant candiduria is low among patients with signs and symptoms of UTI with the majority of cases caused by non-albicans *Candida* spp.

**Key words:** *Candida albicans*; UTIs; Significant candiduria

## CU23CD: Prevalence and Patterns of Non-Albicans Candida Colonization among Neonates with Low Birthweight at Bugando Medical Centre, Mwanza, Tanzania

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**Background:** Candida infections have become an increasingly frequent problem in neonatal intensive care units, particularly among low and extremely low birth weight infants. Infections among neonates is associated with increased mortality rate in neonates. This study aimed at determining the prevalence and patterns of non-albicans Candida colonization among neonates with low birth weight at Bugando Medical Centre in Mwanza, Tanzania.

**Methods:** A cross-sectional hospital based study involving neonates with low birth weight was conducted between May and July 2019 at Bugando Medical Centre in Mwanza region. Oral swab and rectal swab specimens were collected. Data were collected from participant's mother or relative using pre-tested structured questionnaires. Samples were cultured on Sabouraud Dextrose Agar (OXOID, UK). Candida Chromogenic Agar was used to

identify species level. Data analysis was done using STATA version13.

**Results:** A total of 320 neonates with low birth weight were enrolled in this study. The majority of these neonates 278 (88.86%) aged above 24 hours and about a half of them 164 (51.25%) had birth weight between 1.5-2.5 kg. Out of 320 swabs, 22 (6.9%) oral swabs had positive growth of *Candida* spp. while 35 (10.9%) rectal swabs had positive growth of *Candida* spp.

Twelve (3.8%) neonates had positive growth of *Candida* spp. on both oral and rectal swabs. Non-albicans *Candida* spp. were more from rectal swabs than oral swabs [14/35(40%) vs. 4/18(18.2%), p=0.074]. Common non-albicans *Candida* spp. were *C. glabrata* and *C. krusei*

**Conclusion:** A third of *Candida* spp. colonization in neonates is due non-albicans *Candida* spp. with rectal swabs yield more non-albicans *Candida* spp. than oral swabs

**Key words:** *Non-albicans Candida* spp.; neonates; colonization

## CU24CD: Cryptococcus Meningitis among HIV Patients on Antiretroviral Therapy in Mwanza, Tanzania

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**Background:** Cryptococcal meningitis is a life-threatening infection with high mortality among immunocompromised patients. The mortality of Cryptococcal meningitis is reported to be 70% among immunocompromised patients in the Sub-Saharan Africa. The use of highly active antiretroviral therapy has been reported to reduce the mortality of Cryptococcal meningitis worldwide. Here, we report cases of Cryptococcal meningitis among HIV infected patients on highly active antiretroviral therapy.

**Methods:** This cross sectional hospital based study was conducted between May and July 2019 involving patients with signs and symptoms of meningitis at Bugando Medical Center and Sekou Toure regional hospital, Mwanza-Tanzania. Socio-demographic and clinical data were extracted from patients

files using data collection checklist. Cerebral spinal fluid (CSF) was processed in the microbiology laboratory by the use of India ink, Cryptococcal antigen test and fungal culture on the Sabouraud dextrose agar following the laboratory standard operating procedures.

**Results:** Among 99 patients enrolled in this study, only 6 (6.06%) were Cryptococcal antigen (CRAG) test positive, and 3 (3.03%) of them were India ink positive and positive culture. All six patients who were Cryptococcal antigen test positive had CD4 counts below 200 cells/microliters.

**Conclusion:** HIV patients on antiretroviral therapy with CD4 count less than 200 per microliter with signs and symptoms of meningitis should be investigated for Cryptococcal meningitis.

**Key words:** *Meningitis; India Ink; CRAG; Cryptococcus*

## **CU25CD: Gastrointestinal Carriage of Multidrug Resistant Bacteria among Clinically Diagnosed Urinary Tract Infections Patients at Sengerema Designated District Hospital**

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**Background:** The multidrug resistant bacteria (MDR) is one of the global health threat. Urinary tract infections is documented to be caused mainly by the endogenous bacteria ascending from gastrointestinal tract and the treatment option is always limited in multidrug resistant pathogens. This study was designed to determine the magnitude of MDR gram negative bacteria colonizing the gastrointestinal tract of clinically diagnosed UTIs patients in Sengerema.

**Methods:** A prospective cross sectional hospital based study enrolling 212 patients attending at Sengerema district hospital was conducted from April to July, 2019. Data were collected using pretested questionnaire. Stool sample were cultured on MacConkey agar with 2µg/ml of cefotaxime. Data analysis was performed using STATA version 13 as per study objectives.

**Results:** The median age of study participants was 31(IQR 23-45) years. Majority of the participants 193(72.56%) were females and most of them 182(73.68%) were married. Most of the participants 193(78.14%) were self-employed and were 265(99.62%) outpatient. A total of 128(48.12%) stool samples had culture positive results of cefotaxime resistant bacteria. On subsequent subculture of 128(48.12%) cefotaxime resistant isolates, 29(22.26%) were also ciprofloxacin resistant, 17(13.28%) were gentamicin resistant and 8(6.25%) were resistant to both cefotaxime, ciprofloxacin and gentamicin.

**Conclusion:** Nearly half of patients with clinically diagnosed UTI are colonized by MDR pathogen in the gastrointestinal tract. The results in this study underscore the need to improve antibiotic resistance surveillance in resource -poor settings.

**Key words:** *Multi drug resistant; Urinary tract infection; Gastro intestinal tract*

## **CU26CD: Patterns of Bacteria on Tonsillar Surface Pre-Tonsillectomy and Tonsillar Core Tissue Post Tonsillectomy among Patients Attending Bugando Medical Centre for Tonsillectomy**

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**Background:** Tonsillitis is an inflammation of tonsils due to either viruses or bacteria and the major treatment of choice has remained to be tonsillectomy. This study was designed to determine patterns of bacteria on tonsillar surface pre tonsillectomy and tonsillar core tissue post tonsillectomy, among patients scheduled for tonsillectomy at BMC, Mwanza Tanzania.

**Methods:** A cross sectional study involving 120 patients who have undergone tonsillectomy was conducted at BMC from April to July 2019. Socio-demographic data and other relevant information were collected by pretested structured data collection tool. Surface tonsillar sample pre tonsillectomy and deep tonsillar samples post tonsillectomy were collected from all patients. Culture was performed on 102 surface swab and 111 core sample following the microbiology laboratory standard operating procedure. Data analysis was done through the use of STATA version 13 as per study objectives.

**Results:** The majority of participants were males 73 (60.83%). More than three quarter of patients 114 (95%) experienced breathing difficult and 60 (50%) had fever. The majority of patients reported to have swallowing difficult 91 (76%). A total of 99 (82.5%) reported recurrent tonsillitis. Three quarter 90 (75%) of patients had history of antibiotic use for tonsillitis A total of 74(61.1%) and 73(42.3%) had positive pathogenic bacteria growth on the surface and core of tonsil, respectively. *S. pyogenes* 49(66.2%) and *S. aureus* 18(24.6) were the most predominant bacteria isolated from the surface and core of the tonsil, respectively. Features suggestive of tonsillitis on histology were reported in 83 (73.5%) of samples.

**Conclusion:** More than two third of patients undergoing tonsillectomy at BMC had bacterial infection. *Streptococcus pyogenes* and *Staphylococcus aureus* were the predominant bacteria causing tonsillitis. More studies to investigate the antimicrobial susceptibility patterns and treatment outcome of these patients are highly recommended.

**Key words:** *Tonsillar; BMC; Gram negative*

## CU27CD: High Contamination of Gram Negative Bacteria in Oral Extemporaneous Product at Compounding Unit in the Bugando Medical Centre

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**Background:** Oral liquid formulation has increased chances of getting microbes comparing with other formulations. Taking this in mind there must be some procedure to ensure the quality of every resource used including the raw material used during compounding since they can be a source of contamination. This study was done to assess the microbials contamination of oral extemporaneous preparations at compounding unit in BMC

**Methods:** This study was conducted at compounding unit, a part of pharmacy department in the Bugando Medical Centre (BMC) Mwanza, Tanzania. Samples were taken from mortar to a sterile container then transferred to CUHAS multipurpose laboratory for processing using standard operating procedures to detect microbial contaminants. Data were analyzed using STATA version 13.

**Results:** A total of 388 extemporaneous sample were evaluated of which diuretic drugs (58%) was the most frequently

compounded followed by beta blockers (8.8%), antimetabolites (8.8%) and antibacterial (4.1%). Among 388 processed samples, 146 (37.6%) were contaminated with 117(80.1%) having significant growth of microorganisms. The majority 99(76%) of contaminated compounds had significant growth ( $\geq 10^3$ ) of gram negative bacteria with 17(13.0%) being contaminated with fungi. The common gram negative bacteria were *Pseudomonas aeruginosa* (41.4%), *Klebsiella pneumoniae* (38.8%) and *Escherichia coli* (32.3%). The contamination before enforcing hand wash practicing was significantly higher than that during hand wash practicing (42.3% vs. 23%,  $p < 0.001$ ).

**Conclusion:** A significant proportion of extemporaneous product at compounding unit are contaminated with gram negative bacteria. There is need to constantly enforcing practicing of hand washing to reduce the magnitude contamination hence reduce risk of serious infections to the patients.

**Key words:** *Extemporaneous product; BMC; Gram negative*

## CU28CD: Characterization of Virulence Factors of *Candida Albicans* Isolates Colonizing Cancer Patients

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**Background:** Cancer treatments such as chemotherapy and radiotherapy are extremely intense, potentially toxic to human cells and known to compromise the immune status of the patients, therefore increasing the risk of opportunistic infections. The current study investigated the association between cancer therapy and virulence of *Candida albicans* colonizing patients attending Oncology unit at Bugando Medical Center (BMC), Mwanza-Tanzania.

**Methods:** This experimental laboratory-based study was conducted from January to July 2019 using Archived *Candida albicans* isolated from cancer patients at different cycle of chemotherapy. Virulence factors:

biofilm formation, germ tube, extracellular protease activities, hemolysin and coagulase production were detected using standard operative procedures. Data were analyze using STATA version 13.

**Results:** Out of 52 *Candida albicans* isolates, 7/52 (13.46%), 41/52 (78.84%), 42/52 (81%) and 12 (23.1%) had biofilm activities, germ tube activities, hemolysin and coagulase production, respectively.

**Conclusion:** A significant proportion of *Candida albicans* isolates colonizing cancer patient are potentially virulent posing the patients at serious invasive *Candida albicans* infection in the course of cancer treatment

**Key words:** *Cancer; Candida albicans; Hemolysin; Coagulase; Germ tube; Biofilm*



## **CU29CD: Outcome of Neonates with Sepsis like Illness Admitted at a Tertiary Hospital in North Western Tanzania**

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**Background:** Neonatal mortality rate in the lake zone area of Tanzania is almost twice the national neonatal mortality rate of 21/1000. The Bugando Medical Centre is one of Tanzania's leading health institutions. Approximately 40% neonatal admissions result in mortality. In addition, almost 80% of neonates admitted at the Centre present with sepsis-like illness. Reports from studies conducted in the lake zone area suggest that more than 60% of neonates with sepsis like illness have negative blood cultures. Sepsis like illness is the major cause of admission in neonatal units, and a leading cause of mortality. This study was conducted in a neonatal unit in a resource limited setting in order to compare the course of illness and six weeks outcome of neonates with culture positive and negative neonates.

**Methods:** Between February and December 2018 we conducted a Cohort study of admitted full term neonates with signs and symptoms of sepsis as per WHO working group. The neonates were managed according to the local guidelines. Blood

culture were taken and processed according to standard operating procedures. Clinical and laboratory parameters were analyzed to identify the clinical characteristics and outcomes. Multivariate logistic regression was used to identify independent risk factors for mortality in culture positive and negative neonates with sepsis like illness

**Results:** Three hundred and forty eight neonates were included in analyses, 32% with positive-cultures. In-hospital mortality were 13.7% and 14.2% in culture positive and negative, respectively. Neonates in culture positive group significantly presented with convulsions (15% vs. 5%,  $p=0.03$ ). Post-hospital mortality of 4% was observed in the culture positive group and none in culture negative group.

**Conclusion:** Culture negative and positive neonates had similar in-hospital mortality. Due to post-hospital mortality in culture positive neonates, there is a need to plan for routine follow up and management of post admission complications.

**Key words:** *Sepsis; Culture; Neonates; Mortality*

## CU30CD: Prevalence of Bacterial Contamination of Platelet Concentrates at National Blood Transfusion Service Center, Mwanza, Tanzania

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**Background:** Bacterial contamination of platelet concentrates (PC) has been recognized as a risk factor for transfusion-transmitted infection (TTI) for decades and bacterial contamination of PC remains the leading risk factor for TTI. Among the labile blood components, PC exhibit the highest prevalence of bacterial contamination owing to storage at 22-24°C, an optimal condition that facilitates bacterial proliferation. More than two decades ago, persistent reports of platelet transfusion-related sepsis (TRS) led to widespread reduction in the storage duration of PC from 7 to 5 days in an effort to limit the extent of bacterial proliferation and to reduce the incidence of TRS but the prevalence of PC contamination in our local transfusion centers remains unknown.

**Methods:** A cross sectional laboratory based study was conducted from May to August 2019 at the zonal National blood transfusion service center in which a total of 126 platelet

concentrate (PC) units were collected. The PC were collected and cultured in brain heart infusion broth then sub cultured in blood agar, chocolate agar and MacConkey.

**Results:** During this study, 126 platelets concentrate samples were collected. Out of 126 cultured platelets concentrates, 25.4% (32/126) were culture positive. The identified isolates were: *Bacillus* spp., 47% (15/32), Coagulase negative *Staphylococcus* 44% (14/32), *Pseudomonas aeruginosa* 6% (2/126) and *Staphylococcus aureus* 3% (1/126).

**Conclusion:** The bacteria contamination in PC is higher compared to other places. Based on these findings, there is need to review the quality assurance protocol and design strategies and interventions to reduce the risk of bacterial contamination during the initial blood collection process.

**Key words:** *Platelets concentrates; Bacterial contamination; Transfusion-transmitted infection (TTI)*

## **CU31CD: Knowledge on HIV Prevention Mother to Child Transmission among Pregnant Women at Rubya Hospital Kagera Region Tanzania**

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**Background:** Despite the improvement in prevention of mother to child transmission (PMTCT) services over the years mother to child transmission of HIV infection is still a problem as it is evidenced by Global information and education on HIV and AIDS statistics/ AVERT 2017; that 36.9 million people were living with HIV including 1.8% million are children. Therefore, knowledge among PMTCT among pregnant mothers is still a problem which needs intervention. The aim of this study was to assess the knowledge among pregnant women on PMTCT attending reproductive child health at Rubya hospital Kagera- Tanzania.

**Methods:** A cross sectional study involving antenatal mothers attended reproductive and child health (RCH) services at Rubya hospital Kagera- Tanzania was conducted. A cluster of random approach was used to recruit 203 pregnant women.

**Key words:** *Knowledge; Prevention Mother to Child Transmission; Kagera*

**Results:** The mean age of participants were 24.2 years old. The majority of the participants (91.7%) reported that had heard about HIV. One hundred and forty four (70.6%), 113 (55.4%), 42(20.6%), 3(1.5%) and 101(49.5%) reported that HIV can be transmitted through sexual intercourse, by sharing sharp tools, via blood transfusion, via insect bite and from affected mother to the new born respectively. In addition, 66 (32.4%) reported that HIV can be transmitted during pregnancy, 57(27.9%) during delivery, 35(17.2%) during breastfeeding 39(19.1%) and only 7(3.4%) didn't know.

**Conclusion:** Despite the fact that a significant proportion of women seems to have good knowledge on HIV, there is limited knowledge on prevention of mother to child transmission. This calls for the need for more emphasis on health education to the pregnant women regarding PMCTC.

## CU32CD: Detection and Quantification of *Schistosoma Mansoni* DNA Using Real-Time PCR in Human Blood Samples Pre and Post Treatment

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**Background:** Assessing the true effectiveness of schistosomiasis treatment regimens requires an accurate and precise diagnosis of infection. A limited number of surviving parasites can continue the life cycle, spread rapidly and may negate the success of control programs. Therefore, more sensitive detection methods are needed in clinical settings and for epidemiological studies, especially in the phase of disease eradication. The main objective of the study was to observe the amount of *S. mansoni* specific DNA in human blood samples before and after treatment and to compare the performance of this molecular detection method with classical methods.

**Methods:** Blood, urine and stool samples were collected from adults before treatment, 5-7 days after treatment and 3 months after treatment in a fishing community near the southern shore of Lake Victoria in north-western Tanzania. Urine, stool and blood samples were analysed by POC-CCA test, Kato-Katz or real-time PCR, respectively. All three sample types from all examinations were available from 36 patients.

**Results:** Before treatment with praziquantel, 27/36 (75%) *S. mansoni* positive samples

could be detected by real-time PCR, 23/36 (64%) positive samples by POC-CCA and 12/36 (33%) by KK method. About 5-7 days after treatment, an increase in the amount of DNA could be measured. Three months after treatment, 58% *S. mansoni* positive samples could be detected by serum real-time PCR, 33% using POC-CCA test and 0% using KK. The amount of DNA decreased compared to the first round of examination.

**Conclusion:** Detection of schistosome specific DNA using PCR seems to be more sensitive than the two classical methods used. The real-time PCR method also allows a quantitative determination of the amount of DNA in the starting material. We assume that as a consequence of treatment schistosomes are killed and the level of circulating schistosome specific DNA increases temporarily, peaking a few days after treatment. It cannot be clarified by the PCR method used whether the PCR-positive samples, 3 months after treatment, are caused by infections that persist despite a single dose of praziquantel treatment, re-infections or circulating DNA of killed worms.

**Key words:** *Schistosomiasis*; DNA; Kato-Katz; quantification

## CU33CD: Chemical and Microbiological Analysis of Water Samples from Shallow Wells Constructed on Ijinga Island as Part of the Schistosomiasis Elimination Pilot Study

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**Background:** Clean and safe drinking water is a human right and an essential component to reduce water contact in schistosomiasis endemic areas. As part of the ongoing schistosomiasis elimination pilot project on Ijinga Island launched in 2016 so far 8 shallow wells have been built by local constructors. Moreover, a rainwater collection system has been installed at the school and the dispensary of the island. In March 2019 water samples from these water supply points as well as from water collection points of the lake were investigated for chemical composition and coliform bacteria. For comparison water samples from 11 water supply points in Sangabuye and Kayenze, composed of shallow wells and municipal water distribution points were analyzed.

**Methods:** Water samples were collected and analysed. For chemical analysis the portable eXact mini 20 smart photometer (Industrial Test Systems, Inc., Salisbury, United Kingdom). The test panel consisted of pH, phosphate, chloride, nitrite, nitrate, total hardness, sulfate, manganese, total iron, ammonia, fluoride, chlorine and arsenic. Microbiological analysis was done by portable Membrane Filtration Kit and the portable Electricity-free Incubator (LetzTest, Cologne, Germany).

**Results:** On Ijinga Island 1/8 shallow wells exceeded the WHO recommended values for chloride, total hardness and sulfate content. One of the wells, close to the lake shore,

**Key words:** *Microbiological analysis; Ijinga island; Schistosomiasis*

showed unexpectedly high sulfate concentrations rendering the water non-potable. Another well on Ijinga showed slightly elevated fluoride concentrations. Phosphate, nitrate and ammonia contents were within the recommended limits. In 1/ 8 wells an arsenic level exceeding the WHO recommendations was detected whereas iron and manganese levels were unremarkable. The fluoride content was slightly above the threshold in 1/ 8 wells. The microbiological investigations detected a significant amount of coliform bacteria in all wells, whereas *E. coli* was scanty compared to the lake water. In one well finished just a few days prior to examination 83 *E. coli* / 100ml could be detected. Only the municipal water distributions points, delivering chlorinated water, were free of *E. coli*.

**Conclusion:** Although the water quality of the shallow wells on Ijinga was superior to untreated surface water from the lake, the WHO criteria for coliform bacteria were not met. These findings are in line with the results from shallow wells on the mainland. Only chlorinated water from municipal distribution points met the WHO microbiological standard with zero coliform bacteria per 100ml of the sample. As a consequence, the wells on Ijinga were chlorinated in June 2019. Household water chlorination should be considered for the users of shallow wells.

## CU34CD: Malaria Morbidity After Second Round of Long Lasting Insecticide Treated Mosquito Nets Distribution, the Case of Ukerewe Islands, North-Western Tanzania

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**Background:** Surveillance of clinical morbidity of malaria remains key for disease monitoring and subsequently development of early warning system intentionally for appropriate and timely interventions. This case study presents the current status of malaria morbidities right after the second round of mass distribution of insecticides treated mosquito nets in Ukerewe Island, north-western Tanzania.

**Methods:** To determine the trend of malaria admissions, review of number of all malaria and other causes of admission were collected monthly in three selected health facilities as well as the combined data from all health facilities in the district. These monthly number of admissions were counted for both under-fives and over-fives for a period of 48 months (July 2014 to June 2018). To determine prevalence of asymptomatic malaria parasitaemia and health seeking behaviour, the community based cross-sectional studies among pregnant women and general population were conducted respectively.

**Results:** In the study period, malaria was the leading cause of inpatient morbidity among under-five children accounting for

45% of all admissions. Malaria related case fatality of 9.1 deaths per 1000 admitted under-five children was observed, these fatalities accounted for 42.8% of all registered causes of deaths. Observation of malaria inpatient morbidity for a period of 48 months among under-fives showed a monthly mean admission of 19±05 and 150±24 at Bwisya health centre and all admissions in the district, respectively. However, between October 2017 and January 2018 the mean number of under-five admissions raised by 2.7 fold at Bwisya health centre whilst by 1.02 fold for all under-five admissions in the district (51±16 vs 155±93).

**Conclusion:** Malaria morbidity and mortalities are still high among under-five children in Ukerewe district. Trend analysis of malaria inpatient morbidities among under-five children revealed existence of unnoticed surge of admissions suggestive of an outbreak in Ukara Island. The use of district aggregated malaria data dashboard for monitoring dynamics of malaria morbidity alone may still be less informative if no analysis and interpretation of malaria data in discrete health facilities.

**Key words:** *Malaria surveillance; inpatient morbidity; under-five children; Tanzania*

## CU35CD: Utility of Urine Dipstick in the Diagnosis of Urinary Tract Infections (UTIs) Using Culture As Gold Standard among Symptomatic Patients

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**Background:** With decrease in malarial fever urinary tract infections (UTIs) have become among the commonest cause of fever especially in children. Rapid tests to confirm UTIs are needed especially in developing countries where there is limited facilities for culture. This study aims at determining the utility of urine rapid dipstick in the diagnosis of UTIs using culture as gold standard.

**Methods:** This analytical cross-sectional hospital based study involved 2060 patients clinically suspected to have urinary tract infections attending treatment at Bugando medical center, Sekou Toure regional hospital, Nyamagana district hospital, Sengerema designated district hospital, Mbeya regional hospital, Ifisi hospital and Makongoro clinic from March 2019 to September 2019. Mid-stream urine specimens were obtained and quantitatively cultured to establish significant bacteriuria. Data were analyzed by using STATA version 13.

**Results:** A total of 2060 patients with signs and symptoms of UTI were enrolled. 610 (29.6%) patients had significant bacteriuria of more than 10<sup>4</sup> CFU/ML. Sensitivity, specificity, positive predictive value and negative predictive value of nitrite parameter in the diagnosis of UTI were 13.14%, 99.6%, 93.02% and 73.2%, respectively. While the Sensitivity, specificity, positive predictive value and negative predictive value of positive leucocyte (trace and above) were 75.1%, 46.4%, 37.1% and 81.6%, respectively. The sensitivity was found to decrease from 75.1% when considering trace (15 cells) and above as positive to 15.2% when large (500) was considered as positive while specificity increased from 46.4% to 95.9%.

**Conclusion:** Positive nitrite test is very specificity but less sensitive while positive leucocytes is sensitive but less specific in the diagnosis of UTIs. There is a need to invest on robust rapid test to diagnose UTIs that will appropriate guide treatment.

**Key words:** UTIs; Nitrite; Leucocytes

### **CU36CD: Reduction of *Schistosoma Mansoni* Infection in *Biomphalaria Sudanica* after Four Rounds of Mass Drug Administration Using Praziquantel Drug in Human Population within the Schistocontrol Program on 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. The acquired knowledge can be used to guide and implement focused control measures and to monitor the effect of MDA in human populations. In 2016 – before conducting the first treatment round using Praziquantel drug of the Schist Control project at Ijinga Island – 16 water points regularly visited by the population were examined. Overall, 34.4 % of *Biomphalaria* species and 1.2 % of *Bulinus* species were identified by real-time PCR to be 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 round 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 based on shell morphology. 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 fewer egg excretion and, correspondingly, in reducing the infection rate of the intermediate hosts. Nevertheless, there are 2 sites, which have a high infection rate and are still hotspots. Reinfection with *S. mansoni* can still occur. Improvements in local sanitation and hygiene as well as public health awareness would be advocated to complement chemotherapy in reducing transmission and re-infection in such rural settings.

**Key words:** *Schistosoma mansoni*; Magu; Ijinga; praziquantel



## **CU37CD: Prevalence and Associated Factors of *Schistosoma Mansoni*-Hepatitis B and C Co-Infection among Adult Patients Diagnosed With Oesophageal Varices at Bugando Medical Centre**

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**Background:** Oesophageal varices are one of the common causes of Upper Gastro Intestinal Bleeding which can either be related to cirrhosis or schistosomiasis. Most *Schistosoma* endemic areas are also highly endemic for hepatitis B/C and co infection whereby synergism accelerates the rate of hepatic disease progression. Despite being common in Mwanza, there is limited information on the magnitude of *Schistosoma mansoni*-hepatitis B/C co-infection among patients diagnosed with oesophageal varices at Bugando Medical centre (BMC). This study was designed to determine the prevalence and associated factors of *Schistosoma mansoni*-hepatitis B/C co-infection among adult patients with oesophageal varices attending BMC endoscopy unit.

**Methods:** This was a cross sectional hospital based study among patients diagnosed with oesophageal varices at endoscopy unit, Bugando Medical centre. Socio-demographic, clinical and endoscopic information was gathered. Urine CCA, hepatitis B surface antigens and anti-hepatitis C antibodies was done. The analysis was done using STATA version 13.

**Results:** Out of 140 participants with oesophageal varices, male forms majority 95(67.9%) of the participants with a median age of 43(IQR: 35-52) years. Most participants, 118(84.3%) were married, 73(52.1%) were peasants and 77(55.0%) were in contact with lake water. In this study a total of 12 (8.6%) were found to have *Schistosoma*/ hepatitis co infection. Participants who were *Schistosoma* hepatitis co-infected were more likely to have lower haemoglobin (HB) (75% vs. 25%);  $p<0.001$ ) and lower platelet counts (58.3% vs.41.7%;  $p=0.049$ ).

**Conclusion:** Hepatitis schistosoma co-infection is prevalent in this setting which is predicted by low HB level and low platelet count. This suggests that co-infected patients are likely to have severe disease with probably chronic bleeding resulting into severe anaemia and low platelet counts. Patients diagnosed to have portal hypertension should undergo testing for both hepatitis and schistosomiasis and appropriate treatment offered to prevent further damage of the liver.

**Key words:** *Varices; Cirrhosis; portal hypertension; UGIB*

## CU38CD: Patterns of Bacteria Causing Symptomatic Bacteriuria among Patients in Sengerema, Mwanza

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**Background:** Urinary tract infections are the leading cause of morbidity and health care expenditures in persons of all ages. It has been estimated that symptomatic UTIs result in as many as 7 million visits to outpatient clinics, 1 million visits to emergency departments, and 100,000 hospitalizations annually. This study report the prevalence and pattern of bacteria causing UTIs among patients attending Sengerema district designated hospital.

**Methods:** A cross sectional hospital based study was conducted from May to June 2019 in Sengerema Designated District Hospital. Urine samples were collected from patients presenting with signs and symptoms of UTIs. Demographic and clinical data were collected from participants using pre tested structured questionnaires. Detection of bacteria causing UTIs from urine was done using standard urine culture. Data was analysed using STATA version 13 as per study objectives.

**Key words:** UTIs; *Escherichia coli*; Females; Significant bacteriuria

**Results:** A total of 377 with signs and symptoms of UTI were recruited in the study. Their median age was 35 [22-47] years. The majority of the participants were females 275(72.94%). Significant bacteriuria was observed in 96(25.4%) patients. Urinary tract infections were highest in females 71/96(73.9%) than males 25/96(26.0%),  $p < 0.001$ . *Escherichia coli* was the most prevalent uropathogens 50/96(52.0%) followed by *Staphylococcus aureus* 28/96(29.2%) and *Klebsiella pneumoniae* 5/96(5.2%). *Klebsiella pneumoniae* were 100% sensitive to Piperacillin Tazobactam and Meropenem while *Escherichia coli* were 100% sensitive to Meropenem and 45/50 (90%) sensitive to Piperacillin Tazobactam.

**Conclusion:** A quarter of symptomatic UTI patients' mainly female patients are microbiologically confirmed to have significant bacteriuria. *Escherichia coli* is the leading pathogen and highly sensitive to meropenem and Piperacillin/tazobactam.

## CUH39CD: Methicillin Resistant *Staphylococcus Aureus* Causing Osteomyelitis in A Tertiary Hospital of The Lake Zone of Tanzania

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**Background:** Culture results from draining sinuses or open wound are not reliable in establishing the causative agent of osteomyelitis due to the fact in most cases represent superficial contaminants. Bone fragments obtained during surgery have been recommended as ideal specimens to establish pathogens causing osteomyelitis. This study was designed to determine pathogens causing osteomyelitis among patients undergoing surgical treatment in order to obtain data that can be used to draft antibiotic empirical treatment in our setting.

**Methods:** A cross sectional hospital based study was conducted from December 2017 to July 2018 among 74 patients with osteomyelitis who underwent surgical treatments at Bugando Medical Centre (BMC), Mwanza, Tanzania. During surgical procedures, bone fragments were collected into sterile 10ml of in-house prepared brain heart infusion (BHI) broth (Oxoid, UK). Specimens were sent to Microbiology laboratory within an hour of collection and

processed according to standard operating procedures. Data were analyzed using STATA 13.0.

**Results:** The median age of study participants was (IQR) of 12 (8 – 20) years. The majority 45 (60.8%) of participants were male. Out of 74 non-repetitive bone fragments, 63 (85.1%) had positive growth of *Staphylococcus aureus* of which 20 (31.7%) were methicillin resistant *Staphylococcus aureus* (MRSA) strains. Generally, isolates were highly resistant to tetracycline (91.7%) and penicillin (100%) but highly sensitive to vancomycin (100%), clindamycin (91.7%) and chloramphenicol (91.7%). Presence of fever was significantly associated with Staphylococcal osteomyelitis (100% vs. 79.6%, p=0.029).

**Conclusion:** About one third of Staphylococcal osteomyelitis cases are caused by MRSA. There is a need to tailor antibiotic management of osteomyelitis based on culture and sensitivity patterns for the better treatment outcome of the patients.

**Key words:** *Staphylococcal osteomyelitis; Methicillin resistant S. aureus; Bugando Medical Centre; Mwanza; Tanzania*

## CUH40CD: *Escherichia Coli* Serotype O157:H7 in Humans, Domestic Animals and in the Environmental Premises in Mwanza and Shinyanga, Tanzania

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**Background:** Diarrheal disease due to *Escherichia coli* serotype O157:H7 is one of the leading causes of morbidity and mortality among enteropathogens globally. This study aimed at determining the prevalence and drug susceptibility patterns of STEC serotype O157:H7 and STEC non O157:H7 among children, domestic animals and their surrounding environmental premises so as to have comprehensive interventional measures.

**Methods:** A cross sectional analytical study was conducted between 2018 and 2019 in Mwanza and Shinyanga, Tanzania. Stool samples from children with diarrhea (n=355), recto-fecal samples from domestic animals (n=285) and selected environmental samples such as juices, salad, and water (n=142) were collected and cultured on MacConkey agar and CHROMOagar to identify *E. coli* and STEC, respectively. Then, all STEC isolates were cultured into Sorbitol MacConkey agar to identify STEC serotype O157:H7. Demographic and clinical information were collected using a standard tool and STATA software version 13.0 was used for data analysis.

**Results:** Out of 782 samples collected, STEC and O157:H7 strains accounted for 13.0% (102/782) and 1.9% (15/782), respectively. Group-wise, the proportions of *E. coli*, STEC and O157:H7 in children were 62% (220/355),

20.5% (45/220) and 11.1% (5/45), respectively. The proportions of *E. coli*, STEC and O157:H7 in domestic animals were 71.6% (204/285), 25.5% (52/204) and 13.5% (7/52), respectively. Whereas, the respective proportions from the environmental premises were 10.6% (15/142), 33.3% (5/15) and 60.0% (3/5). STEC attributable diarrhoea among children was higher in urban areas (28.4%) than in the rural areas (17.0%), although the association was not statistically significant (p-value=0.058). STEC was significantly associated with domestic animals in Sengerema (20.5%) and Shinyanga (34.6%) compared to Mwanza (7.0%), p-value <0.001. The extended spectrum beta lactamase production (ESBL) among *E. coli* strains isolated from children, domestic animals and environmental premises were 30.1%, 8.4% and 46.7%, respectively.

**Conclusion:** The proportions of STEC among *E. coli* strains in three interfaces is high but the proportions of *E. coli* O157:H7 is low. Of note, the proportion of STEC, O157:H7 and ESBL production were higher in the environmental strains compared to strains from children and domestic animals. Assessing strains' clonality will be of interest to ascertain potential sources in the three interfaces and thereby instituting specific preventive measures.

**Key words:** *Escherichia coli*; *Escherichia coli* O157:H7; One-Health

## **CUH41CD: Factors Associated With Candida Colonization among Neonates with Low Birth Weight Admitted in Mwanza, Tanzania**

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**Background:** Candida species are among the causes of late onset sepsis in very low birth weight neonates with mortality rate of 50%-70%. Candida colonization is reported to be the major risk factor for candidiasis. Neonatal intensive care and premature units of Bugando Medical Center admit approximately 40% neonates with low birth weight and mortality rate of 18%-19% due to sepsis like illness. The contribution of candida infections to the morbidity and mortality among these neonates are yet to be established.

**Methods:** This hospital based cross sectional study was conducted between January 2019 and April 2019 among neonates with low birth weight, very low birth weight and extremely low birth weight admitted at Bugando Medical Center, Sekou Toure Regional Referral and Sengerema District hospitals. Clinical and social demographic data were collected using interviewee guide questionnaire. Oral and umbilical -rectum swabs were collected within 72 hours, day 7 and day 14 of life to assess colonization. Furthermore, under portable ultrasound guidance suprapubic urine sample was collected and blood from the vein for culture and sensitivity if the neonates develop clinical sign of sepsis within 14 days of life

according to the World Health Organization. Data were analyzed using STATA version 13 following the study objectives.

**Results:** A total of 320 neonates were enrolled with median age of 2 days IQR (2-3) and median body weight of 1600 grams IQR (1000-2000). Prevalence of candida colonization was 16.2% (52/320) and candiduria was 0.3% (1/320). Being a female neonate (OR: 0.5, 95%CI: 0.29-0.98, P=0.046) was the protective factor of candida colonization. Weight less than 1500grams (OR: 3.9, 95%CI: 1.96-7.67, P= <0.001) and resuscitation at birth (OR: 2.5, 95%CI: 1.28-5.07, P=0.008) were factors associated with candida colonization among admitted neonates with low birth weight.

**Conclusion:** The prevalence of candida colonization among neonates with low birth weight is alarming and is highly pronounced in neonates with birth weight below 1500 grams and those who were resuscitated after delivery. Multicenter study utilizing advance techniques like polymerase chain reaction in identification of fungal pathogen from blood is recommended to unveil the contribution of fungi infections in neonatal sepsis.

**Key words:** *Candida Colonization; Candiduria; Resuscitation at Birth*

## CUH42CD: Pin Tract Infections among Patients with Percutaneous Pins at Bugando Medical Centre, Mwanza, Tanzania

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**Background:** Percutaneous pins remain the widely used orthopedic implants for fracture stabilization on musculoskeletal injured patients. The main common complication affecting patients with percutaneous pins is pin tract infections (PTI). The rate of PTI and the causative bacteria vary in different settings. This study was designed to determine the prevalence, bacteria isolates and factors associating with PTI at Bugando Medical Centre (BMC).

**Methods:** This was a hospital based analytical cross sectional study which involved 91 participants with 358 percutaneous pins on different body sites. Study was conducted at BMC orthopedic outpatient clinic from April to June 2019. Pus swabs/ serous were collected from patients with pin tract infections for culture and susceptibility test. Data entry and analysis was done using Microsoft excel (2016) and Stata v.13, respectively.

**Results:** A total of 91 patients with 358 pins were recruited. The median age of the participants was 28 [IQR 22 to 39], and the majority of them were male 71 (77.8%). The majority 71/91 (78.0%) of patients had pin fixation due to open fracture. Four out of 91 patients (4.4%) had two fixation constructs. Uniplanar external fixator 38.5% (35/96) was the most common fixation modality used. A

total of 117 (32.7%) pins from 50 (54.9%) patients had clinical signs of PTIs (pain or tenderness around pin site and serous or puss discharge). Of 50 patients with clinical signs of PTI, 48.0% (24/50) were microbiologically confirmed PTI. For the pins, of 117 pins with clinical signs of PTI, 48 (41.0%) were microbiologically confirmed PTI. The predominant bacteria were *Staphylococcus aureus*, 25 (52.1%) followed by *Acinetobacter* spp. 9 (18.6%). Gram negative bacteria showed high resistance to ampicillin 100% (18/18), amoxicillin-clavulanic acid 65% (13/20), ceftriaxone 61.1% (11/18) and ceftazidime 60% (9/15). Gram positive bacteria were found to have low resistance of 24% for erythromycin. However, 2/25 (8.0) of *Staphylococcus aureus* isolates were found to be Methicillin Resistant *Staphylococcus aureus* (MRSA).

**Conclusion:** Pin tract infections at BMC are predominantly due to *Staphylococcus aureus* and *Acinetobacter* spp. Due to high resistance to common antibiotics culture and sensitivity should be performed and guide treatment of PTI. In addition, there is a need to develop protocol for percutaneous pins care.

**Key words:** *Percutaneous pins; Pin tract infections; Staphylococcus aureus*

## **CUH43CD: HIV Seroprevalence, Clinical Patterns and Early Surgical Outcomes among Patients with Acquired Anorectal Conditions in Two Referral Hospitals, Mwanza, Tanzania**

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**Background:** HIV infection, a major health problem worldwide and has been reported to be prevalent in patients with acquired anorectal conditions. There is a paucity of published data regarding acquired anorectal conditions and its association with HIV in Tanzania. This study describes the HIV seroprevalence, clinical patterns and surgical outcomes among patients with acquired anorectal conditions attending surgical clinics at Bugando Medical Centre (BMC) and Sekou Toure referral regional hospital (SRRH) in Mwanza, Tanzania.

**Methods:** This was a cross sectional analytical study that was conducted at BMC and SRRH from January to June 2019 involving 389 patients with acquired anorectal conditions. Data were collected using structured questionnaires. HIV testing was done using standard guidelines and data analysis done using STATA version 13.0 software.

**Results:** A total of 389 patients (M: F ratio = 1.5:1) were studied. Their median age was 42 [IQR 30-54] years. Out of 389 patients, 101 (26.0%) were HIV positive. Hemorrhoids were the most common acquired anorectal diseases accounting for 50.9% of cases. The

rate of HIV infection in this study was significantly higher in patients with perianal ulcers (p-value <0.001), warts (p-value = 0.004), anorectal abscess (p-value = 0.009) and rectal prolapse (p-value < 0.013). A total of 173 (44.5%) patients underwent surgical treatment for acquired anorectal diseases and the remaining 216 (55.5%) patients were treated conservatively. Out of 171 operated patients who were followed and outcomes evaluated, 138 were treated successfully, giving an overall success rate of 80.7%. The success rate was significantly influenced by HIV status (p-value = 0.002). Surgical site infection was the most common postoperative complications accounting for 25.8% of all complications recorded.

**Conclusion:** HIV infection is prevalent (26.0%) among patients with acquired anorectal conditions in our setting and has an influence on the surgical outcomes. It is recommended that all patients with acquired anorectal conditions attending health facilities in this region should be screened for HIV infection. Also preventive measure measures against HIV infections should be more advocated to prevent new infections and subsequently ensure favourable surgical outcomes.

**Key words:** *HIV; Anorectal conditions; Mwanza*

## CUH44CD: Prevalence of Helicobacter Pylori Infection, Iron Deficiency, and Iron Deficiency Anemia and Their Associated Factors in Non- Dyspeptic Adults in Mwanza, Tanzania

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**Background:** *Helicobacter pylori* infections affect one half to two-thirds of the world population, with high prevalence being in low-income countries. About 20-25% of *H.pylori* infected individuals will eventually develop a significant clinical disease. Infections have been associated with extra gastrointestinal diseases such as iron deficiency and iron-deficiency anemia. In Tanzania, the majority of *H.pylori* studies have targeted dyspeptic individuals and less is known in non-dyspeptic individuals. The magnitude of *H. pylori* infection and the extent to which it is associated with iron deficiency and iron deficiency anemia among non-dyspeptic adults in Mwanza, Tanzania is currently not known.

**Methods:** A cross-sectional study that involved 402 non-dyspeptic adults was conducted. Study participants were tested for *Helicobacter pylori* infection using *H.pylori* stool antigen test. Iron deficiency and anemia were evaluated using complete blood count and serum ferritin. Data were analyzed using STATA version 15.1.

**Results:** A total of 402 participants were enrolled, 51% were female. The prevalence of *H. pylori* infection was 16.3 % (n=64). The prevalence of iron deficiency and iron-deficiency anemia among *H.pylori* infected individuals was 25.4 % (16/63) and 8.8 % (5/57), respectively. *H.pylori* infection did not differ statistically between age groups (p=0.42), gender (p=0.56), level of education (p=0.205), income status (p=0.22) and area of residence (p=0.17). *H.pylori* infection was not associated with Iron deficiency (p=0.698). The presence of Iron deficiency was statistically associated with the female gender (p<0.001), unbalance diet (p=0.024), low body weight (p=0.02) and leukopenia (p=0.016).

**Conclusion:** In our study, we observed that the prevalence of *H.pylori* is low among non-dyspeptic individuals in our region compared to other parts of the world. We also observed that *H.pylori* was not associated with iron deficiency. So when it comes to addressing patients with iron deficiency and anemia, other possible causes must be sought as *H.pylori* may not be among the major culprit in our region.

**Key words:** *H.pylori*; Non-dyspeptic; Iron deficiency; Iron deficiency anemia; Mwanza; Tanzania



## **CU45CD: Prevalence of Hepatitis C Antibodies and Hepatitis B Surface Antigen among Pregnant Women Attending Antenatal Clinics in Selected District Hospitals in Mwanza, Tanzania**

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**Background:** Viral hepatitis (Hepatitis B & C viruses) infections in pregnant women is one of the most common public health concern that can lead to unpropitious consequences to the infant yet to be born. Despite being common in Tanzania, data regarding the magnitude of these infections among pregnant women are scarce. In a view of that, this study determined the prevalence and factors associated with HBsAg and HCV in pregnant women attending antenatal clinics (ANC) in district hospitals, Mwanza region-Tanzania.

**Methods:** Between May and July 2019 a cross sectional study involving 300 pregnant women attending ANC at District Hospitals (Magu, Sumve and Misungwi) in Mwanza region, Tanzania was conducted. Venous blood from consenting women were collected and sera were analyzed for Hepatitis B surface antigen (HBsAg) and Hepatitis C viral antibodies using One-step HBV rapid test and One-step HCV rapid test kits (POCT, EGENS DIAGNOSTICS, China).

STATA version 13.0 was used for data analysis.

**Results:** The median age of enrolled women was 25 (IQR: 21-30) years with age range of 15 to 48 years. The prevalence of HBsAg and HCV antibodies was 5%, 95%CI: 2.5-7.4 (15/300) and 0.7%, 95%CI, 0.2-1.6 (2/300), respectively. One 0.3% (1/300) pregnant woman was co-infected. None of the factor was statistically associated with either HBsAg or HCV antibodies among pregnant women attending ANC at District Hospitals in Mwanza region.

**Conclusion:** This study found moderate prevalence of HBsAg and low prevalence of HCV antibodies among pregnant women attending ANC clinics in district hospitals in Mwanza region. Screening and treatment of viral hepatitis (HBV& HCV) among women of reproductive age to prevent vertical transmission to unborn children is recommended.

**Key words:** *Antenatal clinic; Hepatitis B surface antigen; Hepatitis C virus antibodies; Mwanza; Tanzania*

## NON-COMMUNICABLE DISEASES AND SURGICAL CONDITIONS



## CU01NC: Blood Pressure, Weight, Diet and Physical Activity among Fourth Year (MD 4) Medical Students at CUHAS-Bugando

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**Background:** Non-communicable disease is a local and global public health concern. Blood pressure, body weight, balanced diet, and physical activities which when well incorporated in daily life reduces the chance to have non-communicable diseases, they are poorly practiced by most people, particularly medical students in Tanzania. Few studies exist to evaluate the magnitude of the problem.

**Methods:** A cross-sectional study was conducted with 113 randomly selected fourth-year medical students at CUHAS. Informed consent was obtained from participants. Data were collected using self-administered questionnaires including questions on demographic data, eating habits, weekly consumption of selected items and physical activity. Also, height and weight were measured. Body mass index (BMI) was calculated. Blood pressure measured using a sphygmomanometer. Statistical package for social science software version (SPSS) 20.0 was used to analyze data.

**Results:** The study showed that most of the students (62%) had a normal weight while the prevalence of overweight and obesity

was 25.5% and 7.1%, respectively. Considering blood pressure, the prevalence between optimal, normal, high normal and hypertensive was 50%, 45.1%, 3.5% and 0.9%, respectively. However, only 42.5% had adequate physical activity while 57.5% did not (15.9% never and 41.6% involved less than 3 times a week)

**Conclusion:** Despite the overall high prevalence of normal weight, optimal and normotensive, there are concerns on the prevalence of obesity, hypertension and physical inactivity among medical students. Hence, strategies through education, counseling and training are needed to prevent total cardiovascular risks and being free from cardiovascular diseases locally. Since our community/society places a high premium on role models, doctors and medical students in particular should play this role with their patients by exploring and embracing good lifestyle measures like regular exercises, smoking cessation, weight controlling and eating a well-balanced diet. This may induce their patients to adopt healthy lifestyles for primary prevention of chronic diseases

**Key words:** *Blood pressure; weight; physical activity; Medical Students*

## CU02NC: Ambulatory Blood Pressure Monitoring in Tanzanian HIV-Infected Adults with and without Hypertension: Nocturnal Dipping, Masked, and White Coat Hypertension

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**Background:** People Living with HIV (PLHIV) are at increased risk of cardiovascular disease (CVD). Ambulatory blood pressure monitoring (ABPM) allows for discovery of abnormal blood pressure phenotypes known to increase CVD risk: nocturnal non-dipping, masked hypertension, and white coat hypertension. There are few studies employing ABPM among PLHIV.

**Methods:** In this cohort-nested cross-sectional study, adults attending an HIV clinic in Mwanza, Tanzania were enrolled in four groups: HIV-infected and HIV-uninfected normotensives and HIV-infected and HIV-uninfected hypertensive. Mean ABPM study characteristics, including heart rate and nocturnal systolic/diastolic dip were compared across groups via two-tailed T tests. Prevalence of categorical non-dipping status, white coat hypertension, and masked hypertension were compared via Chi squared.

**Results:** HIV-infected normotensives had significantly higher awake and asleep HR.

Mean nocturnal systolic dip % was significantly less among HIV-infected normotensives. Mean nocturnal diastolic dip % was significantly less among HIV-infected hypertensives. Presence of either systolic or diastolic categorical non-dipping status was more common among HIV-infected normotensives. White coat hypertension was common but significantly more so among PLHIV (82% HIV-infected, 47% HIV-uninfected,  $p=0.031$ ). No cases of masked hypertension were identified.

**Conclusion:** WCH was common but more so among PLHIV, underscoring the need for routine use of ABPM to confirm all cases of hypertension in East Africa, especially among PLHIV. Normal dipping of nocturnal BP was disrupted in HIV-infected groups, which may account for the increased CVD risk seen in this population. Resting heart was higher among HIV-infected normotensives, suggesting underlying parasympathetic dysfunction.

**Key words:** *Ambulatory Blood Pressure; Tanzanian HIV-Infected Adults; Hypertension*

## CU03NC: Family Influence on Women Decision Seeking Maternal Health Services during Antenatal and Delivery Periods

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**Background:** Almost all maternal deaths are in developing countries, especially Sub-Saharan countries. Maternal death rate related to pregnancy and childbirth in those regions is high. In Tanzania, maternal mortality rate is 556/100,000 live birth. Attendance to antenatal care and health facility delivery are important to improve pregnancy outcomes for a mother and a baby. Studies reported that women decision to attend health care during pregnancy and at delivery is influenced by other family members. Mothers in law and male partners have been reported to influence women decision in accessing antenatal care and health facility delivery.

**Methods:** We conducted 8 focus group discussions (five for women and three for husbands), and 6 In-depth interviews with purposively selected informants who were women and men of 18 years old to 49. All Interviews were audiotaped, transcribed, translated into English language and thematic analysis was done through Nvivo version 12.

**Results:** Women decisions to access antenatal care and health facility delivery are influenced by family factors. Majority fail to make decision themselves as they do not have autonomy, their husband having decision power. The study highlights that men have the final say on family economic matters. Men refuse to pay for women essentials during clinic and delivery. Women lack psycho-social and emotional support, as men do not escort them to the facility. Men also have multiple partners, hence fail to support their wives. Some women decide not to go to the facility for antenatal care or delivery as the result of men refusal. However, some family members have a positive influence on women to attend antenatal care and deliver at the facilities. Mothers in law, sisters, and other family members may be supportive.

**Conclusion:** Empowering women in social, economic matters and decision making will increase access to health care and help them to have equity in poor rural settings. This might be the key to better pregnancy and child health outcomes.

**Key words:** *Women's decision; Antenatal care; Delivery*

## CU04NC: Factors Associated with Physical Activity and Capacity in HIV-Infected Patients and HIV-Uninfected Population in Mwanza, Tanzania

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**Background:** In Sub-Saharan Africa, studies suggest that HIV-infected patients are less active compared to HIV-uninfected populations but objective data are lacking. We assessed physical activity, capacity and investigated associated factors among HIV-infected and HIV-uninfected populations in Mwanza.

**Methods:** A cross-sectional study was conducted in 2017 in Mwanza and HIV-infected patients and HIV-uninfected population were recruited. Demographic, socio-economic status, height and weight data were collected using standard methods. Additionally, blood samples were collected and analysed for HIV status, CD4 counts, haemoglobin (Hb), and C-reactive protein (CRP). Measures of physical activity and capacity were assessed using Combined heart rate and accelerometer monitor (physical activity energy expenditure (PAEE) (KJ/kg/day), Sleeping heart rate (SHR) (beats/min) and maximum uptake of oxygen during exercise (VO<sub>2</sub>max) (ml/kg/min)). Hand dynamometer measured handgrip strength (kg) as a proxy for physical capacity. Body mass index

(BMI) was computed as weight (kg)/height (m<sup>2</sup>) and defined as underweight.

**Results:** A total of 272 HIV-infected and 119 HIV-uninfected participants were included in the analysis. There was no age difference between HIV-infected and HIV-uninfected participants (39.8yrs vs 38.5yrs, P=0.27). Similarly, the proportions of females between HIV-infected and HIV-uninfected participants were not different (69% vs 31%, P=0.19). In multivariable linear regression model, log CRP was strongly associated with reduced levels of PAEE (-8.09 kJ/kg/day, 95%CI: -10.9,-5.2), and increased SHR (5.28 HR beats/min, 3.81, 6.75) whereas HIV status (-2.1kg,-4.0,-0.14), underweight (-3.95 kg,-5.7,-2.2), moderate anaemia (-1.9kg, -3.75, -0.06) and log CRP (-2.03 kg,-3.00,-1.06) were associated with reduced grip strength. Participants who were overweight had reduced physical capacity (-2.40 ml/kg/min, -4.1,-0.7).

**Conclusion:** HIV-related inflammation and overweight reduce physical activity and physical capacity. Strategies to improve physical activity in HIV-infected patients are urgently needed to reduce risk of non-communicable diseases in this population

**Key words:** *Physical activity; physical capacity; combined heart rate; accelerometer*

## CU05NC: The Association of Pre-Pregnancy Body Mass Index (BMI) with Risk of Preeclampsia: A Registry-Based Study from Northern Tanzania

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**Background:** Preeclampsia is among the three leading causes of maternal mortality and morbidity worldwide; it occurs in 6-8% of all pregnancies and is estimated to account for at least 9% of maternal deaths in Africa. Studies from developed countries have shown that high pre-pregnancy BMI increases the risk of preeclampsia. We examined the effect of pre-pregnancy BMI on the risk of preeclampsia.

**Methods:** A hospital registry study design was used, analyzing births registered in the Kilimanjaro Christian Medical Center (KCMC) birth registry between July 2000 and May 2013. Singleton births of gravida 1 or 2 mothers (n= 17, 750 births) were analysed. Pre-pregnancy BMI was categorized according to WHO categories underweight (less than 18.5), normal (18.5 – 24.9), overweight (25.0 – 29.9) and obese (30

or more). Measured confounders were adjusted for in the multivariable model.

**Results:** Among the 17,750 singleton births, 9.1 % of the mothers were underweight, 24.0 % were overweight, and 7.4 % were obese. Five hundred and eighty-two pregnancies (3.3 %) were affected by preeclampsia. Compared to women of normal BMI, overweight and obesity was associated with risk of preeclampsia (aOR 1.5 (95%CI 1.2 – 1.7 and, 1.7(1.2 – 2.1), respectively, while underweight was protective (aOR 0.8 (0.8 - 1.1).

**Conclusion:** Pre-pregnancy maternal overweight or obesity increased the risk of preeclampsia. Overweight and obesity among pregnant women should be considered as a challenge also in developing countries.

**Key words:** *Preeclampsia; Eclampsia; Obesity; BMI; Pregnancy; Developing countries; Birth registry*

## CU06NC: Prevalence of Depression among Medical Students at Catholic University of Health and Allied Sciences, Mwanza, Tanzania

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**Background:** Major depressive disorders or depression are a common cause of morbidity and mortality. According to the WHO, every 40 second someone commits suicide while being depressed. Medical schools are known to be stressful and medical students are believed to experience a higher incidence of depression than the general population. The prevalence of depression and its associated factors are poorly understood in our settings.

**Methods:** This was a cross-sectional study conducted in November 2018 involving a random sample of 353 students from CUHAS. Ethical clearance and permission were obtained from the relevant committees. A written consent was obtained before a self-administered questionnaire was given to record social demographic data. Depressive symptoms were assessed using nine-question patient health questionnaire (PHQ-9). (PHQ-9) has a total of 27 points. A score of more than 4 was considered positive for depressive symptoms. A score of more than

20 was considered to have severe depressive symptoms.

**Results:** A total of 353 students were eligible and enrolled in the study. Male students were 190(54%) and female students were 163(46%). Most of the students were not married (93%). 71.4% of the students were sponsored by the loan board and 23.5% were self-sponsored. Of the sample, 40.1% were screened positive for depressive symptoms. No student was found to have severe depressive symptoms but 41 students (11.6%) had thoughts that they are better dead or hurting themselves. Self-sponsored students were found to have a significantly higher prevalence of depression than those sponsored by the loan board. Male students and students living inside the campus were less likely to be depressed.

**Conclusion:** Depression occurs in a significant number of students at CUHAS. Its prevalence is higher than the general population

**Key words:** *Depressive symptoms; Medical students; Tanzania*



## CU07NC: Male Engagement Bylaws: Unintended Consequences Impacting Care for Single Pregnant Women in Rural Tanzania

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**Background:** Promoting health facility attendance for antenatal care (ANC), delivery, and postnatal care (PNC) in low-resourced settings is a critical element to programs that target maternal and newborn mortality reduction. As part of an intervention to address gender and equity issues in both Misungwi and Kwimba districts in rural Tanzania, a qualitative study was conducted to better understand local influencers, barriers and enablers to three services: facility-based ANC, delivery and PNC.

**Methods:** Trained focus group discussion (FGD) and key informant interview (KII) facilitators used semi-structured guides to seek participants' input regarding experiences and perspectives on ANC, delivery and PNC services. Participants were purposively selected to represent communities, health providers, and decision-makers. Discussions were audio-recorded, transcribed, translated, then coded in NVivo 10 to analyze key and emerging themes.

**Results:** Data from 12 FGDs and 7 KIIs revealed important barriers to care-seeking, including a common belief that pregnancy is

normal and ends at childbirth, that women lack permission by husbands/families to attend ANC/PNC, a fear of learning HIV status, and perceptions of poor treatment at health facilities. An unexpected and pervasive barrier found was a perceived requirement that women should attend ANC only if accompanied by a male partner. This rule is allegedly commonly enforced in most health facilities in both Misungwi and Kwimba districts and pregnant women arriving alone may be denied services or given low priority. In other cases, women must get written permission from local leaders to seek services alone. These practices, understood as 'local government bylaw policies', seemingly impact 'vulnerable women', especially single and young ones.

**Conclusion:** Male involvement is important in maximizing ANC services care-seeking, yet practices requiring male attendance create unnecessary barriers for vulnerable groups and reinforce gender inequality. We need to join our hands in working with policymakers at various levels, health providers, and communities to promote access to these important services for all women.

**Key words:** *Gender equity; Care-seeking; Delivery; Tanzania*

## **CU08NC: Association between the First Birth Cesarean Delivery and Maternal-Fetal Outcomes in the Subsequent Pregnancy at Kilimanjaro Christian Medical Centre Northern, Tanzania: A 5-Year Review**

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**Background:** Cesarean delivery (CD) is the commonest obstetric surgery and surgical intervention to save lives of the mother and/or the newborns. It is been accepted as safe procedure, yet it has increased risk of adverse maternal and fetal outcomes. The rising rate of cesarean delivery has been a major concern worldwide and has been linked to potential adverse maternal-fetal outcomes in subsequent pregnancies. The aim of the study was to determine the association between the first birth cesarean delivery and maternal-fetal outcomes in the subsequent pregnancies.

**Methods:** A hospital-based retrospective cohort study was conducted using secondary data routinely collected from mother who delivered at Kilimanjaro Christian Medical Centre (KCMC) from medical birth registry for five years, included women with second singleton delivery. Data extraction sheet was used to obtain information for the demographic characteristics and maternal and fetal outcomes. The collected data was processed and analysed using computer software

STATA version 13.0. Multinomial logistic regression was conducted to determine the association between first CD and maternal-fetal outcome in subsequent pregnancy.

**Results:** A total of 5984 deliveries were analysed. Cesarean delivery in the first birth was associated with a significantly increased risk of adverse maternal and fetal outcomes in the subsequent pregnancy. The outcomes included repeated CD (ARR 1.19; 95% CI: 1.05-1.34), pre/eclampsia (ARR 1.38; 95% CI: 1.06-1.78), GDM (ARR 2.80; 95% CI: 1.07-7.36), uterine rupture (ARR 1.56; CI: 1.05-2.32), peri-partum hysterectomy (ARR 2.28; CI: 1.04-5.02) in the mother and preterm birth (ARR 1.18; CI: 1.03-1.34) in the baby.

**Conclusion:** Women who had cesarean delivery in the first birth are at increased risk of repeated cesarean section and adverse maternal-fetal outcomes such as pre/eclampsia, uterine rupture and preterm birth in the subsequent pregnancy. There is therefore a need for clinician and pregnant women especially those for the first birth, to be mindful when decision is in favors of CD.

**Key words:** *first birth cesarean delivery; Maternal-fetal outcomes; Subsequent pregnancy*

## CU09NC: Prevalence and Risk Factors of Elevated Blood Pressure among Primary School Children in Mwanza Region

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**Background:** Hypertension (HTN) among children is reported to be increasing due to sedentary lifestyles. In developed countries, the prevalence of pediatric HTN is recorded to be up to 21% while its magnitude is up to 11% in Tanzania. A recent study in Tanzania showed more than 15% of school children had elevated blood pressure (BP) but the factors which influenced this elevation were not fully explored. This study aimed to determine the blood pressure profile and factors associated with elevated BP among children of Mwanza region.

**Methods:** A cross-sectional study of 742 children aged 6 to 16 years in selected primary schools in Mwanza region was conducted from June to August 2019. Data were collected using self-administered structured questionnaires where parents helped children to fill in. BP, body weight and height were measured using digital portable sphygmo-manometer, self-calibrating digital weighing scale and Shorr measuring board respectively. Data were analyzed using Epi Info.

**Results:** This study found 18.3% prevalence of elevated BP (pre-hypertension -10.5%, hypertension -7.8%) among 742 participants according to western reference values of

Paediatric BP. The levels read slightly lower with population specific BP profile, with a prevalence of 18.1% (pre-hypertension - 9.6%, hypertension - 8.5%). The age specific elevated BP prevalence was significantly higher (OR=1.5, 95% CI: 1.0 - 2.2, p = 0.024) among children aged  $\geq 10$  years (21.4%) than younger ones (15.1%). Prevalence was also higher (OR = 1.3 95% CI: 0.9 - 1.9, p=0.001) among girls (20.1%) than boys (16.0%). Elevated BP was found to be associated with obesity (OR=2.9, 95% CI: 1.4 - 5.9, p= 0.006), overweight (OR=2.2, 95% CI: 1.3 - 3.8, p=0.002), eating fried food (OR=2.3, 95% CI: 1.2 - 4.2, p=0.003), drinking sugar soft drinks (OR=2.0, 95% CI: 1.3 - 3.2, p=0.002), watching TV (OR = 1.5, 95% CI: 1.0 - 2.3, p=0.014) and video gaming (OR = 2.4, 95% CI: 0.8 - 6.6, p= 0.014).

**Conclusion:** Findings indicate a high prevalence of elevated BP among children of Mwanza region. There was a close relationship between increased age, gender, sedentary life and obesity. Emphasis on the importance of measuring paediatric blood pressure and health information regarding effects of sedentary life is recommended. Parents and health workers should encourage children to have active physical activities.

**Key words:** *Elevated blood pressure; Pre - hypertension; Hypertension*

## CU10NC: Knowledge and Attitude toward Informed Consent among Patients Undergoing Surgery at Bugando Medical Center in Mwanza, Tanzania

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**Background:** Informed consent is defined as a process by which a patient understands the purpose, benefits and potential risks of a medical or surgical intervention, including clinical trials and then agrees to receive the treatment or participate in the trial. For effective participation in this process patient's understanding and attitude is crucial. Few studies have been done to assess patient's understanding and attitude in Tanzania and none of them in a hospital setting. This study will provide basic information for the improvement of informed consent process and patient care at BMC.

**Methods:** This was a cross-sectional hospital-based study conducted between January and March 2019, involving 345 participants from various surgical departments who were undergoing surgery during the study period. Data were collected using structured questionnaire, summarized and analyzed using SPSS version 20

**Results:** Participants of 18-30 years and 31-40 years old were 34.1% and 28.4%, respectively. Fifty three percent of participants were female and 47% were male, 75.9% were

married and 71.6% were Christians; 44.9% had primary level of education, 14.2% had no formal education and 40.9% had either secondary or college education; 38.3% were engaged in unskilled labor, 33.9% semiskilled and 27.3% were skilled; 64.9% were urban residents while 35.1% were rural; 57.4% had moderate level of knowledge, 34.8% had a high level of knowledge and 7.8% had low knowledge. About half of the participants 50.7% had positive attitude, 33% had moderate attitude and 16.2% had poor attitude; 54.4% were satisfied with the process of informed consent, 20.3% were not, while 25.2% were moderately satisfied. Knowledge was positively associated with attitude, education, occupation and type of residence. There was no association between knowledge and the type of occupation. Individual attitude determined satisfaction of informed consent ( $\chi^2=34$ ,  $P<0.005$ ).

**Conclusion:** Knowledge of informed consent is inadequate among most of the patients undergoing surgery; this, in turn, affects their perception and satisfaction not only of the informed consent but also the treatment they receive.

**Key words:** *Informed consent; Knowledge; Attitude*

# **CU11NC: Experiences of Women Receiving High Dose Rate Brachytherapy for Cervical Cancer at Ocean Road Cancer Institute, Dar-Es-Salaam, Tanzania**

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**Background:** Around 84% of all women diagnosed with cervical cancer live in the developing world. It is estimated that 78897 women living in Africa will be diagnosed with cervical cancer annually, whilst 61671 (78%) will die of the disease. Late presentation and lack of treatment facilities contribute to the high death rate. East Africa has the highest rate of cervical cancer in the world with an age-standardized incidence rate (ASR) of 42.7 new cases per 100,000 women. Tanzania ranks second in the region with an ASR of 54.9/100,000 women. Cervical cancer is the leading cause of cancer and cancer-related death among Tanzanian women. Each year more than 7,300 Tanzanian women are diagnosed with cervical cancer with more than half of those dying as they are diagnosed at a late stage of the disease.

**Methods:** A quantitative study was conducted from April to July 2019 involving 50 women receiving high dose rate brachytherapy for cervical cancer at Ocean Road Cancer Institute in Dar-es-salaam Tanzania. Data collection was achieved by quantitative interviewer-administered questionnaires. Data was analyzed using SPSS version 20 and descriptive statistics were summarized using frequencies and percentages.

**Results:** Many patients have a good perception of brachytherapy (96%) before treatment because they believed it cures their disease. The first impression about the procedure was bad for most patients (92%) because of stories heard from patients who already had brachytherapy. Participants explained the importance of being provided with enough information about brachytherapy to improve their experiences. The psychological experiences faced by patients during brachytherapy treatment included pain, fear, distress and anxiety. Pain was a major complaint during insertion of uterine and vaginal applicators in the cervix. Pain medication given to patients was not enough for pain relief. Presence of many people in a preparatory room made participants to consider brachytherapy a humiliating procedure.

**Conclusion:** The study explained the experiences of women receiving high dose rate brachytherapy including the perception, expectations and impressions toward treatment, information needs by patients and psychological experiences. Provision of information regarding treatment and improvement of pain management before insertion of applicators seems to improve patients' experiences.

**Key words:** *Brachytherapy; Cervical cancer; Experiences*

## **CU12NC: Prevalence and Factors Associated with Sodium and Potassium Abnormalities among Outpatients with Heart Failure Taking Diuretics at Bugando Medical Centre (BMC)**

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**Background:** Majority of patients with heart failure need life-long diuretics which have been associated with electrolyte abnormalities of sodium and potassium, in turn associated with increased morbidity and mortality. Data about these abnormalities in Tanzanian adults with heart failure are limited.

**Methods:** A hospital-based cross-sectional study of adults with heart failure on diuretics, at BMC outpatient clinic took place from October 2018 to January 2019. History taking and physical examination were performed in consenting patients with heart failure for more than one month. Chronic illnesses and medication history were reviewed through the hospital electronic system. Blood samples were obtained for serum sodium, potassium, and creatinine measurement. Data was analysed using STATA version 13

**Results:** A total of 305 participants were enrolled in this study with a median age of 61 (IQR48-70) years; females formed most of the study participants (52.8%). Most participants had heart failure NYHA class three (87.7%), and most participants had a history of at least one admission due to heart failure (82%). About 90.2% of participants were on beta-blockers and 82.2% on ACEI. Hyponatremia was found in 36.7% of participants and was strongly associated with lower limb edema

(OR: 3.18;P= <0.001), heart failure duration (OR:1.02;p=0.004) and increase in creatinine levels (OR:1.003;P=0.045). The prevalence of hypernatremia was 7.9% and was independently associated with raised jugular venous pressure (OR: 0.1; P=0.025). Hypokalemia was found in 4.3% of participants and was independently associated with NSAID use (OR: 9.69; P=0.003). Hyperkalemia was found in 19.3% of patients and factors independently associated were high serum creatinine levels (OR: 1.004; p=0.009) and elevated SBP (OR: 1.02; p= 0.012).

**Conclusion:** Electrolyte abnormalities are common in adults with heart failure in the medical outpatient clinic of BMC. Hyponatremia and hyperkalemia are the most common electrolyte abnormalities. Factors associated such abnormalities include lower limb edema, renal failure, high blood pressure, long duration of heart failure and use of NSAID. Health care providers should ensure that all patients with these associated factors undergo regular electrolyte monitoring. Also, preventive strategies should be put into place to prevent electrolyte abnormalities in this population including the judicious prescription of medications and avoidance of NSAIDs if possible.

**Key words:** *Sodium and potassium abnormalities; Heart failure; Diuretics*

## **CU13NC: Clinico-pathological Profile of Urological Malignancies at Bugando Medical Centre, Mwanza, Tanzania**

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**Background:** Urological malignancies global incidence has been increasing at an alarming rate despite improved primary prevention, detection and treatment. In Tanzania, they are a major burden in cancer morbidities and mortalities and are the single most common cause of urological and oncological admissions at Bugando Medical Centre (BMC). This study aimed at determining the clinico-pathological profile of urological malignancies at BMC.

**Methods:** This was a hospital-based, prospective and retrospective study involving patients with histopathologically confirmed urological malignancies at BMC. The 3-year retrospective part included patients from March 2016 to February 2019 whereas the 3-month prospective part enrolled patients from March 2019 to May 2019. Demographic profile, clinical presentation, anatomical site and histopathology data were collected and analyzed using STATA.

**Results:** A total of 662 patients (M: F ratio = 3.8:1) were studied. The median age at presentation was 67 (IQR, 54 to 76 years), the duration of symptoms ranged from 2 months to 4 years (median: 12 months). The commonest clinical presentations were lower urinary tract symptoms, 470 (71.1%), hematuria, 224 (33.8%),

bone pain, 205 (31.0%), abdominal pain, 190 (28.7%), abdominal mass, 128 (19.3%) and weight loss 82 (12.4%). Prostate was the commonest anatomical site affected 384 (58.0%), then urinary bladder 182 (28.1%). Bladder cancer was the commonest among females 78.1% (107/137), followed by kidneys 21.2% (29/137). Adenocarcinoma was the leading histopathological type for prostate cancer 99.7% (383/384) while squamous cell carcinoma (SCC) was the commonest histopathology for bladder cancer 62.4% (116/186). The leading kidney histology was nephroblastoma (Wilm's tumor) in children 57.7% (30/52) and renal cell carcinoma (RCC) in adults 30.8% (16/52).

**Conclusion:** Majority of patients presented late to the hospital and about one third of patients had signs and symptoms of metastatic disease. Bladder cancer was 1.4 times more common in females than males contrary to other studies and prostate cancer constituted more than half of all urological malignancies. Further studies to establish determinants for delayed presentation as well as exposure to risk factors are warranted so that they can be addressed accordingly. Furthermore, resources in our setting should be allocated with emphasis on the most common urological malignancies

**Key words:** *Urological malignancies; Clinico-pathological profile; Mwanza; Tanzania*

## **CU14NC: Prevalence of Depression among Staff of Bugando Medical Complex, Mwanza, Tanzania**

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**Background:** Depression is a significant contributor to the global burden of disease and a major public health concern which affects people in all communities across the world. Depression in the workplace has been an alarming concern which may have a big effect on relationships at workplace, as people who experience an emotional disorder may withdraw from others, take a lot of time off, appear less productive than usual. A person may have a hard time concentrating, learning and making decisions when they are supposed to. This in turn may affect work performance and productivity.

**Methods:** This was a cross sectional study, where a total of 301 BMC/CUHAS staff were recruited and interviewed by using Becks Depression Inventory (BDI). The sample size was randomly selected from each

department of the hospital and the university.

**Results:** The majority of the participants (53.16%) were females while male participants were 46.84%; 72.08% of the participants were married; 86.38% of the participants were BMC employees while 13.62% were CUHAS employees. The prevalence of depression among CUHAS/BMC staff was found to be 32.89%, with 18.94% staff found to have mild depression, 10.96% moderate depression and 2.99% severe depression. Gender, education, primary employer and night shift showed statistically significant correlation with depression.

**Conclusion:** There is a high prevalence of depression among CUHAS/BMC staffs, therefore there is a need to increase access and availability of counselling services to departmental level in every department, and initiation of psycho education.

**Key words:** *Depression; risk factors; workplace; psychological education*



## CU15NC: Global Picture of Kaposi's Sarcoma in HIV/AIDS Patients

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**Background:** Kaposi's sarcoma is a neoplasm of endothelial cells within the skin and other organs. Kaposi's sarcoma affects any portion of cutaneous surfaces. These cutaneous lesions may progress through three stages which are macular stage, plaque stage and tumor stage. Kaposi's sarcoma remains one of the most common cancer in people living with HIV/AIDS. It occasionally occurs in people who are on HIV treatment and have a good CD4 count.

**Methods:** A literature review was made to capture the epidemiology and trends of Kaposi's sarcoma in global aspect for HIV positive patients and sources of information were properly cited. A Boolean operators' search of relevant information was conducted in Google Scholar. Keywords like global, epidemiology, Kaposi sarcoma and HIV/AIDS were used, separately and joint.

**Results:** Globally, among HIV-Infected people, the overall Kaposi's sarcoma

incidence was 481.54 per 100,000 persons-years. HIV positive men practicing homosexuality reported the highest incidence of Kaposi's sarcoma at 1397.11 per 100,000 persons-years. The incidence of Kaposi's sarcoma was significantly lower in females than in males (IRR=3.09). Also, people receiving highly active antiretroviral therapy (HAART) had a lower incidence than those who had never received highly active antiretroviral therapy (HAART) (IRR=6.57). The incidence of Kaposi's sarcoma was 68.59 per 100,000 persons-years in transplant recipients.

**Conclusion:** Kaposi's sarcoma remains a common malignant vascular tumor commonly associated with HIV/AIDS in Tanzania as well as globally. Ensuring availability of testing for CD4 Count and viral load determination and early initiation of ART to HIV/AIDS patients will alleviate the suffering of these patients as the study suggested.

**Key words:** *Kaposi's Sarcoma; HIV/AIDS; Tumor; Malignancy; Epidemiology*

## **CU16NC: Understanding Vulnerability of Women in Accessing and Utilizing Maternal Newborn and Child Health (MNCH) Services in Western Uganda: an Intersectionality Approach**

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**Background:** Vulnerability at the individual, family, community or organization level vulnerability affects access and utilization of health services. Several frameworks have been used to explore the concept of vulnerability and identified demographics including ethnicity, economic class, level of education, and geographical location. There are many indicators pertaining to specific forms of vulnerability such as extreme poverty. Women in low and middle-income countries often do not control economic resources and are culturally disadvantaged, which aggravates other vulnerabilities they experience. Women's vulnerability starts at the individual through the family relations and effects the society and facility level. An intersectionality approach was used to review the profile of vulnerable women among beneficiaries of Mama Toto project in Uganda.

**Methods:** Purposive sampling framework was employed to target vulnerable women in the Mama Toto study sites. The participants were selected from predetermined criteria using WHO and Mama Toto perspective of

vulnerability. Basing on saturation principle, the study used a sample of 6 respondents. Data was collected through in-depth interviews, transcribed, then coded and analyzed using NVIVO.

**Results:** The study found that traditional criteria based on levels of incomes were insufficient to identify all categories of vulnerable women in context of Maternal Newborn and Child Health (MNCH) access. Beyond the criteria used for selection of study participants, we identified the following characteristics of vulnerable women: women with alcohol consuming habits, women with alcohol consuming husbands, women with a history of home births, women that have produced girls only, those living on fishing sites and families perceived to be practicing witchcraft.

**Conclusion:** Recognizing the diversity of vulnerability of women in different contexts is a useful approach in designing, implementing and monitoring of MNCH for Mama Toto program.

**Key words:** *Vulnerability; Women; MNCH Services; Uganda*

## **CU17NC: Barrier for Illiterate Women in Accessing Quality and Respective Maternal, Newborn and Child Health in Rural Northern Tanzania**

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**Background:** Globally, Sub-Saharan Africa has the highest rate of maternal, neonatal and child deaths. At least four antenatal visits (ANC4+), health facility delivery (HFD) by a trained birth attendant, and a postnatal-care (PNC) visit for mothers and babies are proven strategies that can reduce maternal, neonatal and child deaths. Illiteracy has been associated with reduced utilization of such health services. In this study, we examined the barriers illiterate women face in accessing these services in Misungwi District, Tanzania.

**Methods:** We used a qualitative approach that employed ecological model to explore perspectives on maternal newborn and child health care-seeking around interpersonal, family, community and societal levels. We purposefully selected our sample in four Misungwi communities in rural Tanzania. We used in-depth interview guides to conduct 13 in-depth interviews, eight focus group discussions, and 11 key informant interviews. We conducted the interviews in the local dialect, then transcribed the interviews to Swahili and translated these into English. Subsequently, we used NVIVO 12 to conduct thematic data analysis.

**Results:** Four themes emerged from the study's participants: Language, illiteracy, inadequate understanding and utilization of health services and dependency. Language barrier: Health services are provided by healthcare workers who speak Swahili, but not the local Sukuma tongue. Illiteracy hinders attendance: Not knowing appointment dates and the Expected Dates of Delivery (EDD) causes the women to miss clinic appointments. Inadequate understanding and utilization of health services due to illiteracy as the women feel unable to understand any health information provided. Dependency: The women depend on relatives and neighbors to read on their behalf.

**Conclusion:** Illiterate women are among the vulnerable population group which faces numerous challenges in accessing care. To minimize communication gap, health education at the facility should be provided in the local dialects for easier understanding of the health procedures and health providers should have a better understanding of local contexts.

**Key words:** *Illiterate, ANC; HF delivery; PNC, Barriers; Enablers and Influencers*

## **CU18NC: Prevalence and Associated Factors of Low Birth Weight among Neonates Born at Bugando Medical Center in Mwanza Tanzania**

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**Background:** Birth weight is a potent determinant of infant growth and survival. Globally 16% of live births about 20 million infants per year, are born with less than 2500g of weight and 90% of these infants are born in developing countries. The prevalence of low-birth weight (LBW) is different between and within geographical regions. In some areas in Africa, the proportion of LBW neonates among term babies have been reported to be 56% - 62%. However, the magnitude of the problem is largely unknown in Mwanza region. Therefore, this study aimed to determine the prevalence and factors associated with LBW and their outcome among neonates born in Mwanza city.

**Methodology:** A cross-sectional analytic study involved 180 mothers who were delivered at Bugando Medical Hospital (BMC) in July 2018 was done. Data were collected using structured questionnaires and review of birth registry. SPSS was used to analyze data. Chi square test or Fisher's

exact test was used to determine association between LBW and various factors.

**Results:** A total number of women who delivered at Bugando Medical Center involved in this study were 180. Mostly Sukuma and Haya were involved in this study. The majority of the participants live in urban areas 161/180 (89.4%) and mostly had secondary level of education. The study has shown that the prevalence of low birth weight was 9.5%. The factors associated with Low birth weight were marital status ( $p = 0.016$ ), gestation age ( $p = 0.000$ ), nutrition problems ( $p=0.003$ ) and number of antenatal clinic ( $p=0.003$ ).

**Conclusion:** The factors associated with low birth weight were marital status, gestation age, nutritional problems and number of antenatal clinic. It is essential to provide health education to women during pregnancy in order to decrease the chance of getting low birth weight babies.

**Key words:** *Low birth weight; Prevalence; Neonates; Tanzania*

# CU19NC: Assessment of Pre-Menstrual Education from The Parents Among School Aged Girls at Bugarika Primary School in Nyamagana District, Mwanza Tanzania

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**Background:** In social contexts where the issues of menstruation are not openly discussed or where there is a stigma and/or taboos surrounding menstruation, girls may have very little understanding of what is happening to them and their bodies. A lack of knowledge concerning to menstruation, adequate sanitary materials and private facilities makes it even more difficult for girls to have positive attitudes towards their bodies. The aim of this study was to examine pre-menstrual education given by parents of school aged girls studying at Bugarika Primary school Nyamagana district Mwanza, Tanzania.

**Methods:** A cross-sectional study of pupils at Bugarika Primary school was used. A cluster of random approach was used to recruit 110 pupils studying from class five to seven at Bugarika Primary School. SPSS was used to analyze data.

**Results:** The research involved 110 female pupils who were studying at Bugarika Primary school in Nyamagana District Mwanza Tanzania. The mean age of participants was 13 years in which majority

of participants were 13-14 years 66 (60.0%). The participants who were living with their biological parents, either mother or father, were 76 (69.09%). About 17 (15.5%) received menstrual education from their parents. Majority of participants got premenstrual information from the school 56 (50.9%). Concerning practices during menstruation, all participants 110 (100%) said that they used absorbent material. The absorbent material used was reported as sanitary pads by 41 (37.3%), old cloth by 37 (33.6%), new cloth by 13 (11.8%) and soft paper by 19 (17.3%). Most of them changed pads after returning home from school 49 (44.5%).

**Conclusion:** Parental disclosure about pre menstruation education and menstruation is still a big challenge due to local traditions and culture. Further education should be given to the parents on the importance of disclosure to their children concerning menstruation matters. Also, government and non-governmental organizations should provide a supportive and conducive environment for girls at school, especially water and toilets.

**Key words:** *Menstruation; Knowledge; Practice; Mwanza; Tanzania*

## **CU20NC: Utility of Ultrasound Guided Versus Conventional Fine-Needle Aspiration Cytology in Diagnosing Breast Malignancy among Patients with Palpable Breast Lumps at Bugando Medical Centre, Mwanza, Tanzania**

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**Background:** Breast lump is the commonest presentation for both benign and malignant breast conditions. Both ultrasound guided and conventional fine needle aspiration cytology (FNAC) has been used for diagnosing of breast malignancy among patients with palpable breast lumps. This study compared diagnostic utility of ultrasound guided versus conventional FNAC in diagnosing breast malignancy among patients with palpable breast lump at Bugando Medical Centre (BMC).

**Methods:** This was a hospital based cross sectional study with follow up component, combined both retrospective from January 2017- June 2018 and prospective from July 2018 -June 2019.

**Results:** During the study total of 354 patients were enrolled in the study (M; F ratio=1: 31.2). The median age of patients was 40 years. A total of 134(37.9%) patients had malignant lesions while 220(62.1%) of patients had benign lesions. The patients

with malignant lesions were significantly older than that with benign lesions,  $p < 0.001$ ).The diagnostic utility(sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy) for conventional FNAC were 86.7%, 95.7%, 93.5%, 91.1% and 92.0% respectively and for ultrasound guided FNAC were all 100% respectively. The kappa statistic for conventional and ultrasound guided FNAC were 0.83 and 1.0 respectively, showing almost perfect agreement with histological examination.

**Conclusion:** Both ultrasounds guided and conventional FNAC have shown almost perfect agreement with histological examination and may be used interchangeably in our settings as they all have shown good diagnostic utility. However, ultrasound guided FNAC has slightly higher diagnostic utility relative to conventional FNAC in diagnosing breast malignancy.

**Key words:** *Breast malignancy; Ultrasound; Fine-needle aspiration; Mwanza; Tanzania*

## **CU21NC: Prevalence, Associated Factors and Four-Month Outcome of Hypertensive Urgency in Adults Attending Bugando Medical Centre Outpatient Medical Clinic Mwanza-Tanzania**

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**Background:** Hypertension is increasingly common in sub-Saharan Africa and is among the modifiable risk factor for CVDs that causes morbidity and mortality among hypertensive patients. Data regarding the prevalence of hypertensive urgency, the pattern of established cardiovascular diseases among hypertensive patients seen in sub-Saharan Africa and their outcomes are lacking. This information is needed for improving clinician's awareness, addressing the risk factors to the community, which will also improve awareness, overall morbidity and mortality among these patients will be reduced. Therefore, there is an essential need to conduct an epidemiological profile on the prevalence, predictors, and outcome of hypertensive urgency in Tanzania. The general objective of this study was to determine the prevalence of hypertensive urgency, the pattern of established cardiovascular diseases, associated factors and the 120-day outcomes for adults with hypertensive urgency attending MOPD at Bugando Medical Centre.

**Methods:** A cross-sectional study with a follow-up component was conducted at medical clinics among hypertensive patients

who were interviewed through a designed modified WHO STEPS questionnaire. BP measured, a Retinal photograph was taken, and a resting 12 lead electrocardiograms, serum creatinine, FBG/RBG and urine for proteinuria were done. Then they were followed for four months after that through a phone call.

**Results:** The prevalence of hypertensive urgency was found to be 150/7600 (2.0%); 29 (19.3%) were admitted and four died at four months and 21/29 (72.4%) of them had moderated to poor adherence and baseline (OR 76.2, [14.20-409.12],  $p < 0.001$ ).

Higher systolic blood pressure per milliliter was strongly associated with admission or death (OR 1.09, [1.05-1.14],  $p < 0.001$ , as well as having a low social economic status (OR 40.0, [2.39-668.66],  $p$ -value 0.01. There is a high proportional of established cardiovascular disease among these patients.

**Conclusion:** The prevalence of hypertensive urgency is 2%; Poor baseline adherence to antihypertensive medication predicts the poor outcome of these patients.

**Key words:** *Hypertensive urgency; prevalence; associated factors; medical clinic patients; Bugando Medical Centre*

## **CU22NC: Patterns of Immediate Post-Anesthetic Complications and Their Associated Factors among Adult Patients in the Operating Theatre Recovery Room following Surgeries at Bugando Medical Centre Mwanza Tanzania**

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**Background:** The recovery room in the operation theatre, is a specialized area in which intensive monitoring and care is provided to all patients immediately after surgery. The immediate post-operative period in the recovery room is a known period of high risk for anesthetic complications due to significant physiologic changes. Several publications have shown that approximately 10% of all anesthetic-related complications occur in the recovery period. This study aims at describing the patterns of immediate post-anesthetic complications and associated factors among patients admitted in the operating theatre recovery room following all surgeries at BMC.

**Methods:** This was a cross-sectional study of adult patients admitted in the operating theatre recovery room following all surgeries at BMC from March 2019 to June 2019. Patients were followed up post-operatively till complete recovery to determine the patterns of immediate post-anesthetic complications and their associated factors. Data were analyzed using STATA.

**Results:** A total of 430 patients (M:F ratio = 1:1.7) were studied. The median age at

presentation was 35 [IQR, 27 - 52] years. Of all patients, 68.4% (294) developed immediate post-anesthetic complications. Of these, postoperative nausea and vomiting were the most common post-anesthetic complication accounting for 43.5% (187) of cases followed by pain 19.5% (84). ASA II (OR 1.8; 95% CI [1.1 - 3.1]; p-value = 0.02) and general anaesthesia (OR 3.3; 95% CI [1.7 - 5.0]; p-value < 0.001) were found to be statistically significantly associated with post-anesthetic complications on multivariate logistic regression analysis.

**Conclusion:** This study has demonstrated that the incidence of immediate post-anesthetic complications among patients admitted in the operating theatre recovery room of BMC is high despite recent advances in anesthetic techniques and the introduction of newer anesthetic drugs. ASA II and general anaesthesia are associated with post-anesthetic complications. We recommend that factors responsible for increased incidence of immediate post-anesthetic complications at BMC should be addressed to reduce the occurrence of complications.

**Key words:** *Pain; Post-anesthetic complications; Cardiovascular, Respiratory, Central nervous system; Post-operative nausea and vomiting; Bugando medical centre, Tanzania*



## **CU23NC: Clinical Profile, Factors Associated with Early Complications and Patients Satisfaction Assessment of Hypospadias Repair at Bugando Medical Centre, Mwanza -Tanzania**

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**Background:** Hypospadias is the leading pediatric urological condition in Bugando Medical Centre. Poor outcome after hypospadias repair is universally high and patients/ parental satisfaction after repair are always diverse. Knowing the factors associated with early post-operative complications and assessing the early patients/parental satisfaction would improve the outcome

**Methods:** This was both retrospective and prospective hospital based analytical study involving all male patients who underwent hypospadias repair at Bugando Medical Centre from May 2018 to April 2019. Univariate and multivariate logistic regression were used to determine the factors associated with 30 days post-operative complication. Patient/ parental satisfaction was assessed using hypospadias objective scoring evaluation (HOSE). Data were analyzed using STATA version 13.0 software.

**Results:** A total of 67 patients were studied, their median age was 3years IQR [9months

to 13years], and 55 (82.1%) had distal hypospadias. There were 12 (18.2%) patients who needed re-do repair and 20 (30.3%) with chordee into which 18/20 (90%) were corrected by degloving. Unilateral mal-descended testis was seen in 7 (10.6%) patients. All had orchidopexy before hypospadias repair. Early complications were observed in 29/64 (45.3%) patients. Patient age < 2years p=0.01, re do operations p=0.02, presence of chordee p= < 0.01, suture material- vicryl 4.0 p=< 0.01 and urine drainage p value 0.02, were associated with early complication.

**Conclusion:** Hypospadias repair was associated with higher early complication rate of 45.3%. Urethro-cutaneous fistula was the leading early complication. Repeating repairs, vicryl 4.0 as a suture material, urinary drainage of more than 10days, presence of chordee and age ≤ 2years were statistically associated with early complications. Most of the parents/patients (80.3%) were satisfied with the early outcome of hypospadias repair.

**Key words:** *Hypospadias; Early outcome; Patient, Parent satisfaction; HOSE; Tanzania*

## CU24NC: Time Interval from Decision to Delivery in Emergency Caesarean Section and Fetal Outcome at Bugando Medical Centre in Mwanza, Tanzania

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**Background:** An emergency caesarean delivery is performed in an Obstetric emergency when complications of pregnancy suddenly arise, and immediate action is required to prevent adverse newborn and maternal outcomes. In order to improve fetal outcomes, guidelines recommend that decision to delivery interval (DDI) should be within 30 minutes for category 1 caesarean sections and 75 minutes for category 2 caesarean sections. This study was done to evaluate DDI, factors influencing DDI and the fetal outcomes in emergency caesarean section at BMC.

**Methods:** The study was a prospective cross-section study involving 217 women who delivered by emergency caesarean section at BMC. A standard checklist was used for data collection in which demographic and Obstetrics characteristics including antenatal, labor and delivery information of the recruited women was collected. The time from the decision for emergency caesarean delivery to the delivery of the newborn was determined. Also, the causes of the delay, if any were documented from the preparation of the

patient in labor room, transferring the patient to operating theatre. Then, on day 3, following caesarean delivery, fetal outcome was determined. Data was entered and analyzed using Stata/ IC version 13.0.

**Results:** A total of 217 pregnant women who underwent emergency caesarean delivery were enrolled. The median DDI was 120minutes (IQR: 80-179 minutes) with 1.4% delivered within 30minutes. Abruptio placenta and thick meconium in labor had significantly short DDI, O.R 0.1[0.02-0.7] p-value 0.020 and 0.2[0.03-0.7] p-value 0.012 respectively, while decision to anaesthesia and anaesthesia to delivery had significantly prolonged DDI, 45.7[5.7-367.9] p-value <0.001 and 2.9[1.3-6.0] p-value 0.006 respectively. Prolonged DDI beyond 75minutes, was high likely to cause poor fetal outcome but not statistical significantly 1.7[0.1-18.6] p-value 0.683.

**Conclusion:** The median DDI in this study at Bugando medical centre was 120 minutes. Reason behind for delayed DDI was related with the longer duration of time required for patient preparation and transfer to theatre. Fetal outcome was related with delayed decision to delivery time interval.

**Key words:** *Decision to delivery; Time interval; Emergency caesarean section; Fetal outcome*

# CU25NC: Indications and Predictors of Early Complications among Patients Undergoing Open Tracheostomies at Bugando Medical Centre

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**Background:** Tracheostomy is a lifesaving procedure used globally. As with other surgeries open surgical tracheostomies do not go without risks and complications. The aim of this study was to determine the common indications and predictors of early complications among patients undergoing open tracheostomies.

**Methods:** This was a prospective cross-sectional study that included 56 patients who underwent open tracheostomy at Bugando Medical Centre from January to July 2019. Data collected were demographic information and clinical details. Detailed history taking and thorough physical examination were done to determine diagnosis and indications for tracheostomy. After tracheostomy surgery characteristics were determined and patients were followed up for seven days to determine complications. Univariate followed by multivariate logistic regression analysis were performed to determine predictors of early complications.

**Results:** The age ranged from 14days-80years, and median age 40years. Male were

41 (73.2%) and 15 (26.8%) females. Majority of the patients were in the 3<sup>rd</sup> decade. About 31 (55.4%) had elective tracheostomy. The commonest indications for tracheostomy were upper airway obstruction 27 (48.2%), prolonged intubation 19 (33.4%), adjunct to major head and neck surgery 7 (12.5%) and airway protection 3 (5.4%). The complications rate was 32% and recorded tracheostomy tube blockage 9 (42.8%), false tracheostomy 3 (14.3%), wound infection 3 (14.3%), surgical emphysema 2 (9.5%), apnea 2 (9.5%), haemorrhage 1 (4.8%) and tube dislodgement 1 (4.8%). Increased age (OR 1.3; 95% CI 1.00 - 1.06; p=0.048) was the only significant factor in the univariate and none in multivariate logistic regression. Overall 3.6% tracheostomy related mortality was recorded.

**Conclusion:** The most common indications are upper airway obstruction followed by prolonged intubation, adjunct to head and neck surgery and lower airway protection. The most common complications were tracheostomy tube blockage, false tracheostomy and wound infections. Increased age was the only significant predictor.

**Key words:** *Tracheostomy; Early complications; Predictors*

## CU26NC: Quality of Life among Patients with Primary Knee Osteoarthritis Managed at Bugando Medical Centre, Mwanza

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**Background:** Knee osteoarthritis is a major public health issue related to age, characterized by progressive loss of articular cartilage resulting in pain, functional impairment, disability and diminished patient's quality of life. The aim of the study was to determine the quality of life (QOL) in primary knee osteoarthritis in patients managed at Bugando Medical Centre, Mwanza

**Methods:** This was a descriptive analytical cross-sectional study whereby 155 patients with knee Osteoarthritis managed at orthopaedics clinic were recruited in three months. Data were collected by case report forms which included patient's demographic information, clinical assessment, and radiological assessment and associated medical comorbidities. The patient's QOL was measured by means of the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36) questionnaire. Statistical analyses included descriptive statistics, multivariate regression techniques, t-tests, chi-square and one-way ANOVA. The clearance to carry out this study was

sought from the joint CUHAS and BMC Research, Ethics and Review committee.

**Results:** This study included 155 of patients with primary knee OA; 74.1% of these patients were women and 25.9% were men. The mean age was 61.5±11.0 years. The mean duration of symptoms was 5.96± 4.5 years. Forty seven percent of the patients were obese and majority (64%) had at least one comorbidity, the commonest being hypertension. The significant reduction in QOL was observed in pain (34.1±21.6) and general health domains (39.3±11.7) while better score was given to the social function domain with mean score of 65.3±21.7. There was statistically significant negative correlation between QOL and the age of the patient, duration of the disease and location of disease.

**Conclusion:** The patients with knee osteoarthritis managed at Bugando medical Centre have poor quality of life in most of the domains of SF 36. However, pain and general health were significantly affected domains while social functioning were the least affected domain.

**Key words:** *Quality of life; Knee osteoarthritis; Mwanza; Tanzania*

## CU27NC: Prevalence, Grade and Associated Factors of Peripheral Arterial Disease among Adult Patients Attending Diabetic Clinic at Bugando Medical Centre

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**Background:** Peripheral arterial disease is a disease of public health significance, ranging from asymptomatic to gangrene. Culminates in major limb amputation with social and economic impact. This study was done to determine the prevalence, grade and associated factors of PAD among adult patients attending diabetic clinic at BMC.

**Methods:** Ankle brachial index was measured in adult diabetic patients attending clinic in May and June 2019, using 8.0MHz handheld vascular Doppler and sphygmomanometer. PAD was defined as  $ABI \leq 0.90$ . Demographic data, associated factors of PAD were inquired by pretested and coded questionnaire. Univariate and multivariate logistic regression were used to determine association between dependent and independent variables. PAD was graded by using Fontaine classification system.

**Results:** Total of 386 patients were studied, 165 males and 221 females, M: F ratio 1:1.3, age ranged from 18-95 years, with mean age 60.0 years [Std.Dev.±12.3]. Prevalence of PAD was 36.3%, males and females were affected by 40% and 33.5% respectively,  $p=0.188$ . PAD Prevalence increased by increasing age 12.5%, 27.6% and 45.6% for age group  $\leq 40$ years, 41-60years and  $> 60$  years respectively,  $p=0.005$ . PAD Prevalence

increased with higher BMI, 32.7% for normal BMI and 38.2% for overweight and obese,  $p=0.179$ . PAD was common among hypertensive (40.8%) compared to normotensive (24%),  $p=0.003$ . Those with family history of vascular diseases and those without had PAD by 43% and 32% respectively,  $p=0.027$ . Those with history of cigarette smoking and those without history of cigarette smoking had PAD by 74.1% and 33.4% respectively,  $p=0.000$ . Patients with typical, atypical and no claudications had PAD by 76%, 58.3% and 22% respectively,  $p=0.000$ . Patients whose HbA1c was  $\geq 7$  and  $< 7\%$  had PAD by 60.5% and 35.1% respectively,  $p=0.006$ . Grading PAD using Fontaine classification system, patients who were in grade I, IIA, IIB, III and IV had PAD by 23.1%, 46.5%, 72.7%, 74.4% and 100% respectively.

**Conclusion:** Peripheral arterial disease is common among diabetic patients attending outpatient clinic at BMC, majority present with claudications. PAD is associated with increasing age, hypertension, family history of vascular diseases, history of cigarette smoking and higher levels of glycated haemoglobin  $\geq 7\%$ . Grading PAD using Fontaine grading system, patients in grade I, IIA, IIB, III and IV had PAD by 23.1%, 46.5%, 72.7%, 74.4% and 100%, respectively.

**Key words:** *Peripheral arterial disease; Associated factors; Ankle brachial index*

## **CU28NC: Prevalence and Associated Factors of Hyperuricemia among Type2 Diabetes Mellitus Patients Attending Bugando Medical Centre**

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**Background:** Type2 diabetes mellitus, also known as non-insulin dependent diabetes is a result of insulin resistance and a risk factor for metabolic syndrome. Behavioural and metabolic risk factors for type2 diabetes mellitus including excessive smoking or alcohol drinking and overweight also contributes to an increased risk of hyperuricemia, but limited data explains this relationship. This study aimed to determine the prevalence and associated factors of hyperuricemia among type 2 diabetic patients attending Bugando Medical Centre.

**Methods:** A cross sectional hospital based study was conducted (May- July). Random sampling technique was used to enroll participants. Samples were processed by the auto analyzer (Cobas Integra 400 plus). Data was analyzed using STATA version 13.

**Key words:** *Type 2 diabetes mellitus; hyperuricemia; metabolic syndrome; behavioural risk factor; metabolic risk factors*

**Results:** A total of 315 diabetes mellitus patients with a median age of 55 (41-67 years) were enrolled. Among these 163 (51.75%) were males. Only 219 (69.52%) had normal uric acid levels, 9 (2.86%) had hypouricemia while 87 (27.62%) had hyperuricemia. About 94 (29.84%) had normal weight, 104 (33.02%) were overweight, 86 (27.30%) were medium obese and 28 (8.89%) were severely obese. On multivariate analysis only overweight, alcohol drinking and having kidney disease was significantly associated with hyperuricemia among study participants (p= 0.01, 0.03 and 0.01 respectively).

**Conclusion:** There is a high prevalence of hyperuricemia among type2 diabetes mellitus patients attending Bugando Medical Centre. Behavioural or lifestyle activities that lowers metabolic syndrome must be advocated among type 2 diabetic patients.

## CU29NC: Hematological Indices among Paediatric Cancer Patients Undergoing Chemotherapy at Bugando Medical Center

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**Background:** Chemotherapy is critical for cancer treatment, but is frequently associated with hematologic toxicity. Among pediatric cancer patients in Tanzania, there is limited information about their baseline haematological indices and how such indices change over time while on chemotherapy treatment. This information is needed to plan for chemotherapy treatment adaptation for use in this setting. This study aimed to determine the baseline hematological indices among pediatric cancer patients attending Bugando Medical Centre (BMC) and how such indices change while on chemotherapy.

**Methods:** A combined retrospective-prospective cross-sectional study was conducted at BMC from January to August 2019. Sixty nine new pediatric cancer cases and 52 healthy controls were tested for baseline hematological indices, then 30/69 cases were prospectively followed after only one cycle of chemotherapy to obtain similar indices using the DH 76 auto hematology analyzer. Data was analyzed using Microsoft Excel©.

**Results:** Participants were aged between 0-18 years old. There were no differences in mean age or sex between cases and controls. The most prevalent cancer type was Wilm's tumor followed by retinoblastoma. At baseline, mean Hb and MCV were significantly lower for cases as compared to controls (9.7 g/dL vs. 11.6 g/dL;  $p < 0.001$ ;  $69.5 \mu\text{m}^3$  vs  $75 \mu\text{m}^3$ ;  $P < 0.01$ ), with higher relative WBC count ( $11.4 \times 10^9/l$  vs  $8.4 \times 10^9/l$ ;  $p > 0.05$ ). While the majority of children had some anemia, cases had increased severity with 49% of cases with moderate or severe anemia, compared to 21% of controls. After one cycle of chemotherapy, only total WBC count significantly decreased compared to other indices ( $9.76 (6.65) \times 10^9/l$  to  $6.67 (3.76) \times 10^9/l$ ,  $p = 0.03$ ).

**Conclusion:** Hematological indices were lower among cancer patients at baseline compared with healthy controls. However, only WBC count was significantly affected from chemotherapy treatment. Additional investigations are needed to evaluate the impact of increased anemia on treatment outcomes for children with cancer in Tanzania.

**Key words:** *Haematological indices; Cancer patients; BMC*

## **CU30NC: Clinical Patterns, Surgical Outcomes and Prognostic factors among Patients undergoing Cleft Palate repair at Bugando Medical Centre, Mwanza, Tanzania**

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**Background:** Cleft palate poses major therapeutic challenges among otorhinolaryngology, plastic/reconstructive, oral and maxillofacial surgeons practicing in a resource-limited country. There is a paucity of prospective studies regarding this subject in Tanzania and Bugando Medical Centre (BMC) in particular. This study describes the clinical patterns, surgical outcomes and prognostic factors among patients undergoing cleft palate repair at BMC.

**Methods:** This was a cross sectional study among patients undergoing cleft palate repair at BMC between January 2019 and June 2019 to determine clinical patterns, surgical outcomes and prognostic factors.

**Results:** A total of 44 patients (M; F ratio = 1.4: 1) were studied. The majority of patients, 35(79.5%) were aged between 6 and 12 months at the time of presentation. Associated congenital anomaly was reported in one (2.3%) patient. A total of 10 (22.7%) patients had isolated cleft palate and the remaining 34(77.3%) patients had associated cleft lip. No patient had

associated atypical orofacial cleft. Half of the patients, 22 (50.0%) had bilateral cleft palate. The right and left cleft palates were involved in 12 (27.3%) and 10 (22.7%) respectively. Majority of patients, 35(79.5%) had complete cleft palates. All patients underwent cleft palate repair. The median age at surgery was 9 months. A total of 21 (47.7%) postoperative complications were recorded, of which the bleeding (10; 47.6%) and palatal fistula (9; 42.8%) were the most common postoperative complications. There was no death recorded in this study. Out of 44 patients, 34 were treated successfully giving an overall success rate of 77.3%. The success rate was significantly influenced by nutrition status ( $p=0.020$ ) and width of the cleft ( $p=0.033$ ).

**Conclusion:** This study showed that the majority of patients with cleft palate presented to BMC within 1 year of life. More than three quarter of patients were treated successfully. Malnutrition and cleft width > 10 mm were the major prognostic factors affecting the treatment success. Appropriate measures focusing at these factors are vital in order to deliver optimal care for these patients in this region.

**Key words:** *Cleft Palate repair; Surgical Outcomes; Prognostic factors; Tanzania*



## **CU31NC: Prevalence and Factors Associated with Pulmonary Hypertension in Sickle Cell Anaemia Patients Attending Outpatient Clinic at Bugando Medical Centre, Mwanza, Tanzania**

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**Background:** The greatest burden of sickle cell anemia is in sub-Saharan Africa (SSA) with 75% of the 300,000 global births of affected children. The World Health Organization estimates 70% of sickle cell anemia deaths in Africa are preventable with simple, cost-effective interventions such as early diagnosis and the subsequent provision of comprehensive care. Pulmonary hypertension is now recognized to be a common complication in sickle cell anemia and associated with increased morbidity and mortality. Recurrent haemolytic, vaso-occlusive crises, chest syndrome and aging are among the associated factors of pulmonary hypertension in sickle cell anemia patients. Cardiac catheterization is the gold standard for the diagnosis of pulmonary hypertension; however, it is not available in most health care in sub-Saharan Africa and many other parts of the developing world. Doppler echocardiography is an excellent validated screening tool for pulmonary hypertension.

**Methods:** This was a cross-sectional study in which sickle cell anemia patients aged 12 years and above were screened for

pulmonary hypertension. Clinical history for symptoms and physical examination for pulmonary hypertension were performed. Blood was taken for Full blood picture to assess for the level of anemia and echocardiography done to all patients. Blood was then taken for NT-pro-brain natriuretic peptide (NT-Pro-BNP) to those patients found with mild to moderate elevated Tricuspid regurgitant Velocity (TRV).

**Results:** A total of 171 sickle cell anemia patients were included in the final analysis with the median (IQR) age of 14 (13-17), females formed majority 94(54.97%) of the study participants. The prevalence of pulmonary hypertension was 11.11% and was significantly associated with; increase in age [OR=7.9 (2.21-28.25) p=0.001] and a loud second heart sound [OR=47.32(6.74-332.14) p<0.001].

**Conclusion:** Pulmonary hypertension is an alarming complication among sickle cell anemia patients with a prevalence of 11.11%. Aging and loud second heart sound on physical examination found to be strongly associated factors.

**Key words:** *Sickle cell anaemia; Pulmonary hypertension; Mwanza; Tanzania*

## CU32NC: Factors Associated With Physical Activity and Capacity in HIV-Infected Patients and HIV-Uninfected Population in Mwanza, Tanzania

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**Background:** In the sub-Saharan Africa, studies suggest HIV-infected patients are less active compared to HIV-uninfected populations but objective data are lacking. We objectively assessed physical activity and capacity and investigated associated factors among HIV-infected and HIV-uninfected populations in Mwanza.

**Methods:** A cross-sectional study was conducted in 2017 in Mwanza and HIV-infected patients and HIV-uninfected population were recruited. Demography, social-economic status, height, and weight data were collected using standard methods. Additionally, blood samples were analysed for HIV status, CD4 counts, haemoglobin (Hb), and C-reactive protein (CRP). Measures of physical activity and capacity were assessed using Combined heart rate and accelerometer monitor (physical activity energy expenditure (PAEE) (KJ/kg/day), Sleeping heart rate (SHR) (beats/min), and maximum uptake of oxygen during exercise (VO<sub>2</sub>max) (ml/kg/min)). Hand dynamometer measured handgrip strength (kg) as a proxy for physical capacity. Body mass index (BMI) was computed as weight (kg)/height (m<sup>2</sup>) defined as underweight (BMI<18.5 kg/m<sup>2</sup>), normal weight (18.5-24.99 kg/m<sup>2</sup>) and overweight (BMI≥25kg/m<sup>2</sup>). Anaemia was defined as mild (Hb<11-12.9g/dL in males and <11-11.9g/dL in females), moderate (8-10.9g/dl in males and 8-10.9g/dL in females) and

severe (<8g/dL in males and females) and CRP was log-transformed. Data management and analysis was done in STATA 13 and factors associated of physical activity and physical capacity was assessed using multiple linear regression.

**Results:** A total of 272 HIV-infected and 119 HIV-uninfected participants were included in the analysis. There was no age difference between HIV-infected and HIV-uninfected participants (39.8yrs vs 38.5yrs,  $P=0.27$ ). Similarly, the proportions of females between HIV-infected and HIV-uninfected participants were not different (69% vs 31%,  $P=0.19$ ). In multivariable linear regression model, log CRP was strongly associated with reduced levels of PAEE (-8.09 kJ/kg/day, 95%CI: -10.9,-5.2), and increased SHR (5.28 HR beats/min, 3.81,6.75) whereas HIV status (-2.1kg,-4.0,-0.14), underweight (-3.95 kg,-5.7,-2.2), moderate anaemia (-1.9kg, -3.75, -0.06) and log CRP (-2.03 kg,-3.00,-1.06) were associated with reduced grip strength. Overweight participants had reduced physical capacity (-2.40 ml/kg/min, -4.1,-0.7).

**Conclusion:** HIV-related inflammation and overweight reduce physical activity and physical capacity. Strategies to improve physical activity in HIV-infected patients are urgently to reduce risk of non-communicable diseases in this population group.

**Key words:** *Physical activity; HIV patients; Mwanza*

## **CU33NC: Prevalence, Associated Factors and Outcome of Children With Clinical Acute Chest Syndrome Admitted at Bugando Medical Centre, Mwanza, Tanzania**

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**Background:** Acute chest syndrome (ACS) is common complication of Sickle Cell Anemia (SCA) and major cause of mortality and sequela if not intervened early. ACS in SCD is defined as the presence of fever and/or new respiratory symptoms accompanied by the presence of a new pulmonary infiltrate on chest X-ray. Clinical diagnosis ACS is important especially in the presence of hypoxemia as radiological changes may lag behind clinical findings and where imaging is not available. Tanzania is the third highest birth rate of children with SCA, Mwanza city has the most prevalent sickle gene. This is a report of prevalence, associated factors and outcome of clinical ACS in Mwanza, Tanzania.

**Methods:** Retrospective study enrolled 250 children less than 13years with Sickle Cell Disease admitted between January 2016 and September 2019. A record of social-demographic data and clinical data were taken to determine ACS. A child with fever

and cough, and/or chest pain, and/or difficult in breathing and/or presence of hypoxemia was categorized as clinical ACS.

**Results:** The slightly majority 133(53.2%) of the study participants were male. Children below five years of age were 127(50.8%). Out of 250 children with sickle cell, 57(22.8%, 95%CI: 17.5-28.0%) had acute chest syndrome. On multivariable logistic regression analysis children who did not use folic acid (OR 2.2, 95%CI 1.07-4.94, p=0.034) had significantly higher odds of getting ACS.

**Conclusion:** Children with SCA not on folic acid prophylaxis have significantly higher odds of developing ACS. There is a need of emphasizing folic acid prophylaxis in children with SCA to prevent complications associated with ACS.

**Key words:** *SCA; ACS; Folic Acid*

## CU34NC: Association of Qsofa Score With 30-Day Mortality in Admitted Medical Patients at Bugando Medical Center

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**Background:** Data on prevalence of critical illness in low and middle-income countries (LMIC) is limited due to the lack of specific diagnostic criteria. Sepsis is one of the most prevalent diagnoses in critically ill and the recent Sepsis-3 guidelines have identified late diagnosis as a key contributor to the observed high mortalities. To enable early diagnosis qSOFA has been proposed as a screening tool and help predict those likely to have poor outcome. The aim of the study was to assess the association between qSOFA scores and mortality among admitted adult medical patients at BMC. Additionally, to assess predictive value of qSOFA score on mortality at 30 days post admission.

**Methods:** This was a cross sectional study with a follow up component conducted between October 2017 to March 2018. The study enrolled 402 adult patients aged 18 years and above who were newly admitted to medical wards, qSOFA scores were computed on admission. All patients were followed up for 30 days.

**Results:** There were more men than women admitted during the study period (61.7% vs. 38.3% respectively) with similar mean age between males and females (49.5(SD

19.2) vs. 47.9 years (SD 19.3) respectively). At 30 days post admission 36.9% of the patients had died (148/402). Level of education ( $p < 0.01$ ), type of occupation ( $p = 0.02$ ), lack of insurance ( $p < 0.01$ ), admission diagnosis ( $p = 0.01$ ), HIV infection ( $p < 0.01$ ) and admission to ICU ( $p = 0.02$ ) were independent predictors of 30-day mortality. Increasing qSOFA scores (0,1,2 and 3) exhibited concomitant increase in mortality 26.3%, 37.4%, 48.2% and 55.6% respectively,  $p = 0.03$ . qSOFA score of two points had sensitivity and specificity of 34.5% [95% CI: 26.8%-42.7%] and 79.5% [95% CI: 74.0%-84.3%] respectively in predicting 30-day mortality. The area under the receiver operating curve (AUC) of qSOFA was 0.60 [95% CI: 0.55 -0.66] to predict 30-day mortality.

**Conclusion:** When assessed among hospitalized adult medical patients at BMC, higher qSOFA scores were associated with increased risk of death within 30 days from the time of admission. With appropriate implementation, the use of qSOFA scores in stratification of hospitalized adult medical patients, could improve allocation of healthcare resources and prediction of patients likely to have poor outcome.

**Key words:** Sepsis; Mortality; qSOFA

## **CU35NC: Short Duration of Cancer and Short Duration of Cancer Treatment is Associated with Elevated Serum C Reactive Protein among Cancer Patients Attending Oncology Unit at Bugando Medical Centre Mwanza, Tanzania**

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**Background:** C-reactive protein (CRP) is an acute phase protein of hepatic origin that increases following interleukin-6 secretion by macrophages and T cells. Elevated serum levels of CRP have been associated with an increased risk of cancer and high levels have been recorded in some types of cancer. This study aimed to determine the proportion of cancer patients with elevated serum CRP and associated factors among patients with different types of cancers attending oncology unit at Bugando Medical Center in Mwanza Tanzania.

**Methods:** A cross sectional hospital based study involving 200 cancer patients was conducted from May to July 2019 at BMC, Mwanza Tanzania. Socio-demographic and other relevant information was collected using structured pretested data collection tool. Semi quantitative detection of CRP was done using Agglutination test as per manufacturer's

instructions. Data were analyzed using STATA version 13.0 software.

**Results:** The mean age of enrolled participants was 50.93±19.22 years. Sixty five participants, (32.5%, 95% CI: 26.0-38.9) were found to have elevated levels of serum CRP. Short duration of cancer (chi2 =8.7268, p=0.013) and short duration of treatment (chi2 =7.507, p =0.023) were significantly associated with elevated serum CRP among cancer patients.

**Conclusion:** Elevated levels of CRP in cancer individuals is associated with short cancer duration (<3 months) and short duration of cancer treatment (<3 months) compared to those with greater than twelve months. These findings support previous studies which showed that CRP can be used as prognostic makers in cancer patients

**Key words:** *C reactive protei; cancer; Oncology; Bugando*

## **CU36NC: Clinical Profile and Outcomes of Patients with Clinical Benign Prostate Hyperplasia Treated by Trans Urethral Resection of Prostate at Bugando Medical Centre, Mwanza, Tanzania**

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**Background:** Benign prostate hyperplasia (BPH) is the most common prostate pathology in elderly men. Trans Urethral Resection of the Prostate (TURP) is still considered as the gold standard surgical management of BPH. TURP is the commonest endoscopic surgery performed for BPH in developing countries including Tanzania, however its outcome is not known. This study determined the clinical profile, outcome as well as predictors of outcome in patients with clinical BPH undergoing TURP at Bugando Medical Centre (BMC), a tertiary hospital in Mwanza, Tanzania.

**Methods:** A cross-sectional longitudinal hospital based study involved 210 participants with clinical BPH treated by TURP at BMC from November 2018 to April 2019. All data of interest from pre, intra, and postoperative were collected using a pretested questionnaire. Participants were followed up at 6 and 12 weeks postoperative. Data were analyzed using STATA version 15.

**Results:** The median age was 69 (IQR 63-75) years. Prostate size ranged from 15 - 200mls with median size of 77 (IQR 51-107) mls. Acute urine retention was the most common indication 69 (33%), followed by lower urinary

tract symptoms 52 (25%). Urologist operated most of the patients 122 (58.1%) with the rest operated by either a resident alone or finished up by a urologist, and the median weight resected was 20 (IQR 13.5 -28.3) grams. About 66 (31.4%) developed perioperative complication with majority having clot retention. During follow up, the median IPSS score was 9 (IQR 7 - 12) and 2 (IQR 0 - 6) and median QoL score of 3 (IQR 1 - 3) and 0 (IQR 0 - 1) with improvement in 93 (45.4%) and 184 (89.8%) on 1<sup>st</sup> and 2<sup>nd</sup> visits respectively. There was a total of 9 (4.3%) participants who developed Trans urethral resection (TUR) syndrome out of which, 1 (11.1%) died and the overall mortality was 3 (1.4%) participants.

**Conclusion:** BPH is common from 6<sup>th</sup> decade of life onwards. Though most participants were operated because of acute urine retention or disturbing LUTS, some presented already with renal insufficiency. Despite the fact that most of the participants had severe symptoms and their quality of life was poor at presentation, TURP improved symptoms in most of the participants. The improvement is better in the hands of experienced surgeon, small prostate and in absence of UTI prior to surgery.

**Key words:** *Benign prostate hyperplasia; TURP; Mwanza; Tanzania*

## CU37NC: Outcomes of Patients Undergoing Radical Hysterectomy For Early Stage Cervical Cancer at Bugando Medical Centre, Mwanza, Tanzania

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**Background:** Cervical cancer is the fourth most common cancer among women worldwide. In Tanzania, it is the leading malignancy in women with 58% of deaths reported annually. Patients presenting in early stage disease can be treated surgically with radical hysterectomy. This study was undertaken to provide basic information on operative complications, survival outcomes and associated tumour characteristics among patients who underwent radical hysterectomy at Bugando Medical Centre (BMC).

**Methods:** This was a 5-year retrospective hospital-based study, involving 62 case files of patients with early stage cervical cancer treated with radical hysterectomy from January 2014 to May 2018. Case files were obtained from BMC medical records and information were extracted and filled in the data collection tool in form of checklist. Data were analyzed using STATA version 13 according to the study objectives.

**Results:** During the study period, a total of 62 patients' retrospective files were involved in the analysis. The median age was 49.5 [IQR: 42 - 57] years, with the youngest case aged 26 year. Patients who presented with per vaginal bleeding and had more than five

children in their lifetime were 95.2% and 72.6% respectively. Pelvic lymph nodes, parametrial and resected vaginal margins involvement were detected in 12.9%, 9.7% and 24.2% of the patients respectively. Twenty patients (30.6%) had intra-operative complications while eleven patients (17.7%) presented with postoperative complications. The most frequent intra-operative complications were hemorrhage 16.1%, ureteric injury 8.1%, with operative mortality of 1.6%. The early and late post-operative complications were 16.1% and 11.3%; fistula and bladder dysfunction occurred more frequently at 8.1% in each group. During the study period, the overall survival (OS) rate was 90.6%, disease free survival (DFS) rate was 75.5% and disease recurrence was found to be 15.1%. Tumour size above 4 cm was the only tumour characteristics found to have an association with decrease in survival outcomes and increase in recurrence rate with P - value of 0.013.

**Conclusion:** Radical hysterectomy, the surgical treatment for patient with early cervical cancer, has a favorable survival outcomes and minimal surgical complications.

**Key words:** *Hysterectomy; Cervical cancer; Outcomes; Tanzania*

## CU38NC: Validity of HbA1c in Diagnosing Diabetes Among People With Sickle Cell Trait in Tanzania

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**Background:** Hemoglobin A1C (HbA1c) measures the glucose concentration and is recommended for diagnosing and monitoring diabetes. In people with shorter red blood cells life spans, like those with sickle cell trait (SCT), the test may underestimate the prevalence of diabetes. The study compares diabetes diagnosis outcomes among adults with and without SCT by HbA1c and 2hrs oral glucose tolerance test (OGTT) in the East African setting, where the prevalence of SCT approaches 22%.

**Methods:** A cross-sectional study of patients previously recruited in the Chronic Infection, Co-morbidities and Diabetes in Africa (CICADA) study, was conducted. Participants aged  $\geq 18$  years and residents of Mwanza were enrolled. Stored blood samples were analyzed for SCT and other hemoglobinopathies i.e. thalassemia and G6PD deficiency through gene extraction, PCR and gel electrophoresis. Demographic and anthropometric data as well as HbA1c and OGTT, haemoglobin and lipids test results were available as part of CICADA study. Regression models were used to evaluate the association between SCT and diabetes diagnosis by HbA1c and OGTT separately.  $P < 0.05$  indicated significant differences.

**Results:** The mean age of 480 participants was 40.8 ( $\pm 11.8$ ) years; 292 (60.8%) were females, 128 (26.7%) had SCT and no sickle cell disease (SCD) which is homozygous trait observed. Those with SCT had lower body mass index (BMI) ( $21.6(\pm 4.3)$  vs.  $22.5(\pm 5.0)$ ,  $P = 0.01$ ) and lower HbA1c (5.2% vs. 5.9%,  $P < 0.0001$ ) compared to those without SCT. In multivariable logistic regression analysis adjusted for sex, age, BMI, another hemoglobinopathy which is thalassemia, G6PD deficiency, hemoglobin and lipids, participants with SCT were 88% less likely to be diagnosed with diabetes by HbA1c compared to those without SCT (OR=0.12, 95% CI (0.1,0.2),  $P < 0.001$ ). In contrast to logistic regression model adjusted for the same variables as above, SCT was not associated with diabetes diagnosis by OGTT (1.44, 95% CI (0.9, 2.3),  $P = 0.12$ ).

**Conclusion:** Compared with OGTT, the findings show that HbA1c systematically underestimate the prevalence of diabetes among people with SCT. The use of HbA1c for diabetes diagnosis should be done with caution especially in areas with high prevalence of SCT like in North Western Tanzania. Further research is needed to optimize the use of HbA1c in diagnosing and monitoring diabetes among people with SCT.

**Key words:** *Validity of HbA1c; Diabetes; Diagnosis; Sickle cell trait; Tanzania*



## CU40NC: Effects of Prenatal Exposure to Chemical Elements and Their Mixtures on Early Infant Developmental Outcome in Areas with Small-Scale Gold Mining Activities in Northern Tanzania

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**Background:** Artisanal and small-scale gold mining (ASGM) in low- and middle-income countries is associated with the release of neurotoxic metallic elements into the local environment. These chemical elements can cross the placental barrier and pose a health risk to the fetus; continuous exposure during this critical period of nervous system development could have significant effects on neurodevelopment. Lead (Pb), Mercury (Hg), Arsenic (As) and Cadmium (Cd) are neurotoxic metallic elements, ubiquitous in the environment. They occur naturally or are introduced from anthropogenic sources. A growing body of evidence suggests that early exposure to these elements is a public health concern with neurotoxic effects following acute or chronic exposure. However, research on the neurodevelopmental effects of prenatal exposure to such toxic substances from activities such as artisanal and small-scale gold mining remains minimal. The aim of this study was to investigate the association between co-exposure to total Pb, Hg, As, and Cd during pregnancy and infant neurodevelopment in areas with ASGM activities in Tanzania.

**Methods:** This study is part of the ongoing Mining and Health prospective longitudinal study in Northern Tanzania. The present

study included women whose blood levels of Pb, Hg, and Cd and urine levels of As were assessed during the second trimester of pregnancy and whose infants participated in a neurodevelopmental assessment between six and 12 months of age (n = 439; infant mean age 7.92 ± 1.77 months). A culturally appropriate measure, the Malawi Developmental Assessment Tool (MDAT) was used to assess infant neurodevelopment at 6 to 12 months of age.

**Results:** Prenatal Hg level was significantly associated with the neurodevelopment status of the infants; for a 1 µg/L increase of blood Hg, the prevalence ratio for impaired development status increased by 3% (aPR 1.03, CI: 1.01-1.04; p<0.001). The prevalence ratio of global neurodevelopmental impairment was 80% greater for infants prenatally exposed to T-Hg at or above the reference level of 0.80µg/L as compared to those exposed to T-Hg below the reference level (aPR 1.8, CI:1.3-2.4; p<0.001).

**Conclusion:** Infants born to women in areas with ASGM activities are at significant risk for neurodevelopmental impairment. Prenatal exposure to higher levels of mercury increased the risk of severe neurodevelopmental impairment among infants

**Key words:** Prenatal exposure; Mercury; Infants; Neurodevelopment; Gold mining

## CU41NC: Assessment of Knowledge of Diabetes Mellitus among General Population in Shinyanga Region

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**Background:** The burden of diabetes-related complications has been increasing, partly due to late diagnosis of the disease. The success of any disease control program depends on the community knowledge in regard to the risk factors, signs and symptoms, treatment and prevention. It is predicted that high knowledge and awareness of these conditions will prompt people to seek health care timely and reduce possibilities of complication. There is scarcity of studies on the knowledge of diabetes in developing countries, and the few available reports are hospital-based focusing on awareness of the disease among patients. In Tanzania, the low knowledge of diabetes mellitus in general population may contribute to late diagnosis and management of diabetic patients. The objective of this study was to assess the knowledge of diabetes mellitus (DM) among the general population in Shinyanga region, North-western Tanzania.

**Methods:** This was a descriptive cross-sectional community-based study conducted in September 2019. A stratified random sampling technique was used to recruit 1200 participants. The participants were interviewed using a pre-tested semi structured questionnaire.

**Results:** About 38.3% of the population was aware DM while 61.7% were not aware. However, among those aware, only 21.3% knew the risk factors of the disease and 78.7% had no knowledge on the risk factors that could lead to DM. Among those aware of existence of the disease, only 20.9% were aware of the symptoms and complication. Among those aware of DM, 58.9% were from urban area (Shinyanga Town) while 41.1% were from rural area (Kishapu District). Among those not knowledgeable, 54.5 were from rural area (Kishapu) and 45.5% from urban area (Shinyanga Town). Among people unaware, 55.7% had an education level of primary school and below, while 44.3% had a secondary school level and above. Females seemed to be more aware of DM by 51.5%.

**Conclusion:** The majority of people were not aware of Diabetes Mellitus, especially those living in rural areas. Moreover, even those aware of the existence of disease, are not fully aware of the risk factors, symptoms and complication. Awareness campaign on DM is needed so as to reduce the burden of DM related complications resulting from late diagnosis.

**Key words:** *Awareness; Diabetes mellitus*

## CU42NC: Maternal Age as a Risk Factor for Child Undernutrition of Under Fives in Ukerewe District, Mwanza, Tanzania

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**Background:** Malnutrition is a common cause of morbidity and mortality in children in the developing countries. Globally, 22.9% of children under 5 years of age are stunted and 7.7% are wasted. Malnutrition affects physical growth, morbidity, mortality, cognitive development, reproduction and physical capacity. About half of all deaths in children under 5 years (about 3 million deaths) worldwide are caused by malnutrition. Malnutrition in childhood has many adverse consequences for child survival and long-term well-being. Malnutrition develops when the body does not get the adequate amount of energy (calories), proteins, carbohydrates, fats, vitamins, minerals and other nutrients required to keep the organs and tissues healthy and functioning well.

**Methods:** In this study, a cross-sectional study design was employed using simple

random sampling procedure of under-fives children in Ukerewe District. A questionnaire was used to collect the data on socio-demographic characteristics of mothers and children and anthropometry was used to assess the nutritional status of their children.

**Results:** The median age of mothers in this study was 28 years and the range was 15 – 61 years of age with a mean age of children investigated being 25.58 months. The present study in Ukerewe showed 6.93% prevalence of wasting which was high compared to the national average. However, stunting 4.25% was relatively low.

**Conclusion:** Wasting was still high in the studied area though no association was found between maternal age and nutrition status of the child.

**Key words:** *Maternal age; Nutritional status*

## **CU43NC: Time Taken And Associated Factors To Seek Medical Treatment In Patient With Lung Cancer And Oesophageal Cancer At BMC, Mwanza, Tanzania.**

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**Background:** Delay in cancer diagnosis may have serious prognostic consequences, and some patients experience delays lasting several months. Large individual variations in the duration of presentation to hospital treatment have been observed and several factors have been mentioned to influence patients to seek medical treatment to the hospital. This study determines the time taken and associated factors to seek medical treatment to hospital in patient with oesophageal and lung cancer at Bugando Medical Centre (BMC).

**Methods:** This was a cross-sectional hospital based study that involved a total of 46 patients diagnosed with lung or oesophageal cancer at BMC from October to November 2018. Social demographic and other relevant information were collected using semi-structured questionnaires. Data was analysed by SPSS version 20.0 software as per objectives.

**Results:** The median age was 55±11.6 years. Generally, 19(41.3%) patients out of 46 took 112 days which is approximately 4 months to seek medical treatment to the hospital. Dysphagia 23.5%, weight loss 22.4%, general body weakness 21.9% and vomiting 9.8% were the common symptoms the patients presented with to the hospital. Painful and frustrating symptoms and signs 43.5%, fear of death 19.2%, social and family support 11.5% were the main reasons for patients to seek medical treatment to the hospital.

**Conclusion:** The study showed that patients with esophageal or lung cancer takes up to 4months to seek definitive medical treatment. Most of them come when the symptoms or signs are painful or frustrating with the fear of death however family and social support has influence in early patient presentation to the hospital.

**Key words:** *Time taken; Lung and esophageal cancer*

## CU44NC: Recurrent Obstructive Uropathy Secondary to Pyometocolpos in an 8months Infant

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**Background:** Pyometocolpos is accumulation of infected fluid in the uterus and vagina. Though rare in children and mostly seen after menarche it results from a congenital genital malformation which impair the free drainage of the uterine secretions and should be suspected in a female infant presenting with a midline abdominal mass, obstructive uropathy and fever . Treatment involves removing the anatomical anomaly that caused the obstruction to insure continuous drainage of uterine secretions and prevent recurrence.

**Case report:** A case of an 8 months old female who presented with fever, vomiting, decreased urine output and abdominal distension for 12days. Abdominal examination revealed a sub-umbilical midline incision scar and a midline lower abdominal mass. Complete blood counts revealed leukocytosis with predominant neutrophils and ultrasound showed a fluid filled uterus. Examination of her genitalia revealed a transverse vaginal septum and

needle aspiration through the septum revealed foul smelling pus. Septectomy was done and 350mls of pus was drained, culture of the pus revealed *Escherichia coli*. This was a recurrence within 2 months, the first episode managed by laparotomy and drainage of the uterus to relieve the obstructive symptoms.

**Conclusion:** Pyometocolpos is rare in childhood but should be suspected in a female child presenting with a midline lower abdominal mass accompanied with urinary obstructive symptoms associated with fever and gastrointestinal symptoms. *Escherichia coli* seems to be the most probable offending organism but pus culture is crucial for antibiotic stewardship in proper management of the infection. Definitive treatment should focus on correcting the anatomical congenital deformity that caused the obstruction in order to avoid recurrence.

**Key words:** *Pyometocolpos; Pyometra; Escherichia coli; Estrogen; Abdominal mass; obstructive uropathy; genital malformation*

**HEALTH SERVICES DELIVERY, PUBLIC HEALTH AND  
PATIENT'S CARE**



## CU01HS: The Quality and the Composition of Albendazole, Mebendazole and Praziquantel Available in Northern Tanzania

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**Background:** An estimated 1.7 billion of people worldwide suffer from soil-transmitted and water-borne helminthiasis, with a high prevalence in Africa. The main control strategy is mass drug administration with anthelmintic drugs. Despite frequent reports of sub-standard and falsified medicines, little information is available about the quality of anthelmintic medicines.

**Methods:** 43 batches of the anthelmintic drugs Albendazole (ABZ), Mebendazole (MBZ) and Praziquantel (PZQ) were collected in the northwest of Tanzania from 27 randomly selected local suppliers, with focus on the city of Mwanza. The tablets and their packages were visually examined and afterwards assessed by two different methods. Mass uniformity, disintegration times and thin-layer chromatography (TLC) were performed applying the GPHF Minilab®. In addition, dissolution profiles and high-performance liquid chromatography (HPLC) were used to assess quality and composition.

**Results:** Physical characteristics of all but 7 batches fully complied with the WHO checklist despite 4 out of the 28 different products not being registered in Tanzania (by 12/2018). Mass uniformity of each tablet per batch was checked

against WHO criteria: only 87.0 % (20/23) of the brands passed the tests. Disintegration times revealed 3 out of 23 products not meeting the Minilab® requirements at all. 78.3 % of the batches fully passed, ranging between 0.75 and 23.75 minutes. The dissolution profiles of 3 MBZ brands tested revealed severe deficiency. 3 PZQ batches assayed resulted in 1 passing the requirements of the US Pharmacopeia of 75 %. The quality of active pharmaceutical ingredient (API) of the 39 different batches of tablets was determined by means of TLC. Not a single sample fell below the Minilab® specifications between 80 % and 100 % label claim (l. c.) of an adequate reference sample. In comparison to the TLC findings, HPLC results confirmed the appropriate concentration of active pharmaceutical ingredient in all samples tested so far (between 90 % and 110 % l. c.).

**Conclusion:** Sufficient concentration of API in anthelmintic medicines does not inevitably correlate with its galenic features. The samples tested were of varying quality, as only 1 PZQ batch met international dissolution standards. Further *in vivo* evaluation (for instance by therapeutic drug monitoring or egg reduction/cure rates) is required.

**Key words:** Drug quality; Albendazole; Mebendazole; Praziquantel; Tanzania

## CU02HS: Status of Traditional Medicine Registration in Tanzania Mainland

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**Background:** In recent years, there has been an increase of Traditional Medicine utilisation in Tanzania. The safety of traditional medicine products has been of less concern. Traditional and Alternative Health Practice Council is a professional body responsible for regulating and monitoring both practice and products in Tanzania. In order to serve the interest of the profession, the Council introduced mechanism of observing the safety of the traditional medicines used in the practice of traditional medicine in the Country.

**Methods:** In 2017, the Council introduced procedures regarding safety observations for all marketed traditional medicines and started to register them based on safety criteria. Traditional medicines will be registered, if they pass screening for plant identification, toxins including aflatoxins, heavy metals and microorganism contamination. The Council then issues a traditional medicine certificate of registration.

**Results:** In May 2019, a total number of 23 applications of traditional medicines had been filled. All applications of traditional medicines were assessed by the registration committee:

Thirteen (56.5%) were approved by the committee and hence registered; Ten (43.5%) were not approved by the committee and hence not registered. The reasons for failure to register were due to contamination by fungus causing aflatoxins or other microbiologic and mycologic agents. Among the prevailing contaminants were *Staphylococcus* spp. (10%), *Escherichia coli* (15%), Total Plate Count (20%), Aerobic Bacteria (35%) and fungi/moulds (20%). The results show that many of the manufacturing facilities do not observe cleanliness during processing (harvesting, drying, grinding and other manufacturing procedures), thus causing substantial contaminations.

**Conclusion:** The existing of microbial contamination explains the status of the understanding during the manufacturing process. There is a need to provide education to traditional health practitioners on hygienic manufacturing process of their products and on the importance of submitting their samples for contamination screening to relevant laboratories before submitting their products for registrations.

**Key words:** *Traditional medicine; Remedies; TAHPC; GMP; Contamination*



## **CU03HS: Factors Affecting the Utilization of Antenatal Care among Pregnant Woman Attending Makongoro Health Center in Mwanza, Tanzania**

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**Background:** In Tanzania, pregnant women attending antenatal care early in the first trimester were reported to be 24% and only 51% of women had more than 4 antenatal care visits. This ineffective utilization of antenatal care is still a challenge especially in developing countries and potentially threatens both pregnant women and unborn child. Adequate utilization of antenatal health care services is associated with improved maternal and neonatal health outcomes.

**Methods:** This study was a centre-based cross-sectional study that involved 372 pregnant women attending Makongoro Antenatal Clinics, selected by systematic sampling. Data were collected using semi-structured questionnaires in order to assess the factors affecting the utilization of the antenatal care.

**Results:** One third of pregnant women visited for the fourth or more visits; 60% of those who visited for the fourth or more visits had secondary education. Most of the respondents 211 (56.7%) were living within 2 kilometers from the center; 47.8% used to walk by feet and 82.5% took less than one hour to reach the clinic. The role of mass media is still low. Most of the respondents were satisfied by the services provided. The main challenges were too few nurses and long waiting time.

**Conclusion:** Factors such as education level, lower women empowerment, poor knowledge of maternal health services, weak partners' support, low media exposure related to maternal health services and too few nurses were significantly associated with attending less than the recommended four antenatal care visits.

**Key words:** *Antenatal Care; Pregnant women; Utilization; Women Empowerment*

## **CU04HS: Knowledge, Attitude and Practice on Reporting Adverse Drug Reactions among Health Care Providers in Community Pharmacies and Accredited Drug Dispensing Outlets in Mwanza City**

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**Background:** Under-reporting of Adverse Drug Reactions (ADRs) has been a major challenge to many countries in Africa and all over the World. Lack of knowledge among health care providers (HCPs) on pharmacovigilance and the existence and operation of ADR reporting systems has been significantly associated with the under-reporting. Tanzania is one of the countries in Africa with the lowest rates of ADR reporting. To increase the reporting rate, an online ADR reporting system has now been introduced. The objective of this study was to assess knowledge, attitude and practice on reporting ADRs among HCPs of community pharmacies and Accredited Drug Dispensing Outlets (ADDO) in Mwanza city.

**Methods:** A descriptive cross-sectional study involving 180 health care providers from 180 randomly selected retail community pharmacies and ADDO shops in Mwanza city was conducted. Data was entered and analyzed in SPSS version 20. A knowledge score was used to determine the knowledge of respondents to ADR reporting while a Likert scale was used to determine

the attitude of respondents towards ADR reporting.

**Results:** The study showed that 52.5% and 40.7% of respondents in pharmacies and ADDO shops respectively had good knowledge regarding ADR reporting. Respondents who had attended continuous professional education (CPE) or seminars on drugs, those with higher level of education and those with more experience in drug dispensing had more knowledge on ADR reporting compared to those who had not attended CPE or drug seminars, those with low education level and those with less experience in drug dispensing.

**Conclusion:** Despite a positive attitude toward ADR reporting, there is still poor knowledge and practice on ADR reporting among HCPs in community pharmacies and ADDO shops in Mwanza city. Drug authorities should provide regular education to HCPs on their role in safety monitoring of drugs along with improving awareness on the existence of an online system for ADR reporting.

**Key words:** *Adverse drug reaction; Pharmacovigilance; Health care provider; Community*

## CU05HS: Prevalence and Patterns of Pre-Analytical Laboratory Errors at the Central Pathology Laboratory, Bugando Medical Centre, Mwanza

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**Background:** Attention to Total Testing Process, pre-analytical, analytical and post analytical aspects are considered to improve overall laboratory diagnosis. The pre-analytical phase has received high level of attention since it contributes to more than seventy percent of analytical errors. The study aimed at studying the proportion and patterns of pre-analytical errors at the Central Pathology Laboratory (CPL), Bugando Medical Centre, Mwanza.

**Methods:** This was a descriptive cross-sectional study that involved all samples submitted for routine tests at CPL for three months, from May 2019 to June 2019. Samples along with laboratory request forms were received and cross-checked using a designated sample checklist for acceptance and rejection prior to analysis.

**Results:** Of all 1200 samples received, 3.9% (47/1200) had errors related to pre-analytical phase of testing cycle. Unlabeled samples 42.5% (20/47), samples in wrong containers

38% (18/47), accounted to the major proportion of errors in pre-analytical phase. Among all samples rejected, 38 % (18/47) and 62% (29/47) samples were rejected in the morning shift and evening shift respectively. The microbiology department had 10.2% of all samples subjected to pre-analytical errors and they were rejected. There were equal proportions of pre-analytical errors and rejections between inpatient and outpatient departments.

**Conclusion:** The proportion of pre-analytical errors is high. Laboratory quality managers should emphasize the importance to minimize and possibly eliminate pre analytical errors by continuous engagement with clinicians and nurses and the importance of sample labelling and use of right containers. Continuous laboratory quality audit is an essential element of a laboratory's quality management system and should include scheduled audits to minimize pre analytical laboratory error.

**Key words:** *Pre-Analytical Laboratory Errors; Pathology Laboratory*

## **CU06HS: Antibiotic Provision Practices at Community Pharmacies and Accredited Drug Dispensing Outlets Shops in Mwanza Region, Tanzania**

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**Background:** Antibiotics, since their discovery (1928) have revolutionized treatment of bacterial infection and contributed to significance decrease of mortality and morbidity. The misuse or overuse of these drugs, result into a growing global public health problem of antimicrobial resistance.

**Methods:** A cross section pharmacy based study using mystery client method was conducted in the community pharmacies and Accredited Drug Dispensing Outlet (ADDO) shops in the city of Mwanza, Tanzania. The study included all pharmacies (92) and ADDO (520). Data were collected

using Epicollect5 application and analysed using STATA version 13

**Results:** Overall proportion of antibiotics dispensed without prescription by drug sellers was 87.6% (536). Of all drug sellers, only 0.82% (5) demanded prescription. Penicillins class of antibiotics 297(67.8%) were the most frequently antibiotics class dispensed.

**Conclusion:** The study revealed a high proportion of dispensing antibiotics without prescription from both community pharmacies and ADDO shops in the city of Mwanza, Tanzania. TMDA should ensure it enforces the law regarding antibiotic dispensing policies in Tanzania.

**Key words:** *Mystery client; Mwanza; Dispensing; Prescriptions*

## **CU07HS: Information Given to Client by Dispensers on Provision of Antibiotics Without Prescription in Pharmacies and ADDO Shops Mbeya, Tanzania**

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**Background:** Antimicrobial resistance is the ability of a microbe to resist the effects of medication that once could successfully treat the microbe. Irrational antimicrobials uses has been found to accelerate the problem of antimicrobial resistance. Proper information on how to use these antimicrobials is key in ensuring adherence.

**Methods:** Cross sectional community pharmacies-based study was conducted in Mbeya, Tanzania from May to July 2019. A total of 304 (94.12%) drugs shops in both Mbeya urban and Mbeya rural were included this survey. Simulated client method was used to collect data using Epicollect5 application and analysed by STATA 13.

**Results:** The majority 277 (91.72%) of sellers dispensed half dose without prescriptions and did not provide any information that will ensure proper use of antimicrobials. Twenty two sellers (7.28%) advised the clients to buy a full course even though they dispensed a half course while only 3 (0.99%) insisted the client to buy a full course.

**Conclusion:** Majority of drug sellers dispense antibiotics without prescription and did not provide important information regarding its utilization. Tanzania Government should ensure enforcement of laws especially for those which involving dispensing antimicrobials

**Key words:** *Mystery client; Mbeya; Dispensing; Prescriptions*

## **CU08HS: Antibiotic Provision Practices at Community Pharmacies and Accredited Drug Dispensing Outlets Shops in Mwanza Region, Tanzania**

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**Background:** Antibiotics, since their discovery (1928) have revolutionized treatment of bacterial infection and contributed to significance decrease of mortality and morbidity. The misuse or overuse of these drugs, result into a growing global public health problem of antimicrobial resistance.

**Methods:** A cross section pharmacy based study using mystery client method was conducted in the community pharmacies and Accredited Drug Dispensing Outlet (ADDO) shops in the city of Mwanza, Tanzania. The study included all pharmacies (92) and ADDO (520). Data were collected

using Epicollect5 application and analysed using STATA version 13

**Results:** Overall proportion of antibiotics dispensed without prescription by drug sellers was 87.6% (536). Of all drug sellers, only 0.82% (5) demanded prescription. Penicillins class of antibiotics 297(67.8%) were the most frequently antibiotics class dispensed.

**Conclusion:** The study revealed a high proportion of dispensing antibiotics without prescription from both community pharmacies and ADDO shops in the city of Mwanza, Tanzania. TMDA should ensure it enforces the law regarding antibiotic dispensing policies in Tanzania.

**Key words:** *Mystery client; Mwanza; Dispensing; Prescriptions*

## CU09HS: Male Partner Participation in Birth Preparedness and Complication Readiness. A Case of Magu and Misungwi Districts

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**Background:** Among the reasons for the high maternal mortality rate in developing countries, including Tanzania, is the limited involvement of male partners in birth preparedness and complication readiness (BPCR). The aim of this study was to determine the magnitude of male participation in BPCR and associated factors in areas with community-based Maternal Newborn Child Health (MNCH) intervention and an area without intervention (Misungwi and Magu districts in Mwanza).

**Methods:** A community-based cross-sectional study was carried out in Magu and Misungwi in August 2019, involving 345 respondents. Interviews were done through structured questionnaire regarding male partner participation and associated factors towards BPCR.

**Results:** The uptake of participation of BPCR was (n=265, 76%) for both study sites ( $\chi^2= 0.001$ ;  $df =1$   $p = 0.979$ ). Factors associated with BPCR participation as per bivariate analysis were marital status ( $\chi^2=$

$57.32$ ;  $df =1$   $p <0.001$ ), awareness ( $\chi^2= 95.5$ ;  $df =1$   $p <0.001$ ), knowledge ( $\chi^2= 14.8$ ;  $df =1$   $p <0.001$ ), attitude ( $\chi^2= 18.65$ ;  $df =1$   $p <0.001$ ), education of a man ( $\chi^2= 22.19$ ;  $df =2$   $p <0.001$ ) and education of a partner ( $\chi^2= 10.81$ ;  $df =2$   $p = 0.004$ ). From adjusted multivariate model, marital status (aOR =10.76; 95% CI: 5.098 - 22.711,  $p=0.000$ ), awareness (aOR = 7.023; 95% CI: 3.336-14.784,  $p=0.000$ ), discussion with female partner (aOR = 4.40; 95% CI: 2.024-9.583;  $p<0.001$ ) and health facility delivery (aOR = 6.920; 95% CI: 2.045-23.420;  $p=0.002$ ) were strongly associated with male partner participation in BPCR.

**Conclusion:** The level of participation on BPCR among male partner was high and comparable between the two districts. Married couple, awareness, discussion with partner and health facility delivery predicted male participation in BPCR. The attitude towards BPCR was seen to be high and, therefore, interventions targeting at improving knowledge and awareness could result into a stronger male participation in BPCR.

**Key words:** *Birth Preparedness; Complication readiness; male partner; Tanzania*

## CU10HS: Adolescent Vulnerability in the Health System in Rural Tanzania

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**Background:** Health systems are faced with increasing challenges of providing reproductive, maternal, newborn and child services (RMNCH) to younger women aged between 15-19 years. Tanzania has the 17th highest adolescent fertility rate in Africa. According to Tanzania Demographics Health Survey (TDHS) there is an increasing trend in adolescent pregnancies. A well-managed health system achieves more accessible, equitable and sustained improvements and health outcomes for maternal, newborn and child services. The health system is not well suited to handle adolescents' unique biological and socio-cultural characteristics, hence making adolescent more vulnerable. This study aimed to explore adolescent vulnerability in the health system that become barriers to accessing MNCH services in Misungwi district, rural Tanzania.

**Methods:** This was a qualitative 2018 study that used a socio-ecological framework, based on 22 In-depth Interviews (IDI) with adolescent women who were pregnant or parenting a child under five years old to explore barriers to accessing RMNCH services in Misungwi District. Nine Key Informant Interviews (KIIs) with health care providers and eight Focus Group Discussions (FGDs) involving young husbands, elder men and women were also

conducted. We used purposive sampling to recruit participants for IDIs, KIIs and FGDs. All Interviews were audiotaped, transcribed, translated and analyzed thematically.

**Results:** We identified 3 main themes: Difficult entry to the health system (Adolescents delay or denied services due to the absence of partner, Failure to afford ANC and delivery service cost, Use of abusive language); limited ability to provide quality services to adolescents at the health facilities (Unfavorable environment to provide RMNCH services to adolescents, Inadequate medical equipment and supplies at Health facility); Inadequate provision of RMNCH services health education relevant to adolescents.

**Conclusion:** To improve MNCH services provision to adolescent women, there should be an easy entry environment to the health system to mitigate adolescent vulnerability that they already have. The health system needs to strengthen adolescent friendly policies, guidelines and protocols, adolescent friendly facilities that offer safe environment, privacy and information, and train health care providers on adolescent friendly services.

**Key words:** *Adolescent women; Health system; Vulnerability*



# CUH11HS: Antibiotic Use and Antibiotic Resistance Knowledge, Attitude and Practices among Final Year Pharmacy and Medical Doctor University Students at CUHAS-Bugando

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**Background:** As a way to combat antimicrobial resistance, WHO recommends antimicrobial stewardship to be a part of the education programs of health care workers and medical students. This study was designed to determine the knowledge, attitude and perception about antibiotic use and antibiotic resistance among final year medical doctors and pharmacy students.

**Methods:** This descriptive cross-sectional study was conducted at Catholic University of Health and allied sciences and included final year medical doctor and pharmacy students. Data were collected using a pretested questionnaire, cleaned and exported to STATA version 13 for analysis following study objectives.

**Results:** A total of 178 final year students were recruited, out of these 101(56.7%) were males. Their mean age was  $26.3 \pm 3.0$  years. MD students were 125(70.2%) while pharmacy students were 53(29.8%). On practices, 10(5.6%) students responded to prescribe or dispense broad spectrum antibiotic after being guided by culture and sensitivity results. Regarding knowledge of antimicrobial resistance, majority of final year students 150(84.3%) had knowledge on the mechanisms of resistance. A total of

168(94.6%), 169(94.6%), 171(96%), 167(98.8%), 166(93.3%) and 169(94.9%) students knew that there are different classes of antibiotics, amoxicillin is an antibiotic, aspirin is not an antibiotic, when to take antibiotic, antibiotic can kill normal flora and if antibiotics can cause allergic reactions, respectively. On perception, 114(64%) perceived that antibiotics were over used, 174 (97.7%) perceived that antibiotics are misused while 115(64.6%) reported that if antibiotics are correctly used antimicrobial resistance could be reduced in the hospital where they rotate. On utilization of antibiotics, 46(25.8%) declared to be using antibiotic when they have fever. Slightly majority 107(60.1%) of students buy antibiotics over the counter, 49(27.5%) stop taking antibiotics when they feel better while 43(24.2%) reported to have used leftovers antibiotics.

**Conclusion:** There is low utilization of culture and sensitivity services in Bugando Medical Center and Sekou Toure hospital as evidenced by response of medical students. More than half of students reported the misuse of antibiotic in different hospitals in one way or another. Antibiotic stewardship programs should involve medical students in their clinical years.

**Keywords:** *Antibiotic stewardship; Antimicrobial resistance; Students*

## **CU12HS: Tanzania's Second Act: To Suppress or not to Suppress? Viral Load Suppression after Switching to Second-Line ART at Baylor Children's Center of Excellence in Mwanza, Tanzania**

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**Background:** In 2015, nationwide viral load (VL) testing was made available in Tanzania making the monitoring of treatment failure in people living with HIV and switching to second-line antiretroviral therapy (ART) simpler. We reviewed the relationship between adherence and VL when clients are started on second-line ART due to treatment failure at Baylor Center of Excellence (COE) in Mwanza, Tanzania.

**Methods:** We retrospectively reviewed charts of 98 clients switched to second-line ART between March 2012 and December 2018 at the Mwanza COE. Data collected from the electronic medical record included: age, sex, time between ART initiation to starting second-line, adherence pre- and post-second-line, reasons for therapy switching, second-line regimen, and follow-

up VLs. Poor adherence was defined as pill count 95-105% at any visit during the 6 months before or 6 months after switching to second-line regime. Chi-Square and T-tests were used to analyze the data.

**Results:** The study included 98 clients (43 female); mean age at starting second-line regime was 10.6 years. Average time to start second-line regime after ART initiation was 5 years. The majority of clients were switched to second-line due to virological failure (46/98, 46.9%) and the most common second-line regimen was ABC-3TC-LPV/r (63/98, 64.3%). Most clients had poor adherence 6 months before and after starting second-line regime (61/98, 62.2% and 55/98, 56.1%, respectively;  $\chi^2=0.76$ ,  $p=.38$ ). Most clients had VL

**Conclusion:** Most clients achieved VLs.

**Key words:** *HIV/AIDS; viral suppression; second line*

## CU13HS: Epidemiological Transition of Disease Burden in Tanzania

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**Background:** Epidemiological Transition is a change in health and disease patterns in human populations from infectious to non-communicable. The 2030 Agenda for Sustainable Development recognizes Non-Communicable Diseases (NCDs) as a major challenge for sustainable development. In 2017, it was estimated that 57.8 million deaths worldwide were due to NCDs. The major causes are cardiovascular diseases (17.9 million deaths) ranked number one, followed by cancers (9.0 million), respiratory diseases (3.9 million) and diabetes (1.6 million). In the past, NCDs was thought to occur in developed countries, but in recent years the trend has changed significantly. The data shows that three quarters of the reported NCD deaths (85%) occurred in low- and middle-income countries.

**Methods:** Data from national registries were reviewed, compared and analyzed. The main sources of data were annual reports and regular publications released by the World Health Organization (WHO).

**Results:** Tanzania is experiencing a double burden of diseases, with increasing prevalence of chronic non-communicable diseases. New infectious diseases are emerging together with a huge number of NCDs. The burden is due mostly to few NCDs which could be preventable. Managing NCDs is challenging because patient require ongoing treatment which is expensive. Prevention requires lifestyle changes, self-management and education.

**Conclusion:** Current proven cost-effective strategies to eliminate risk factors include reducing tobacco use, unhealthy eating, physical inactivity, and harmful use of alcohol. The NCDs burden of heart diseases, stroke, and type 2 diabetes and over a third of cancers can be prevented by 80% (WHO, 2005). This transition of diseases is complicated to manage due to the emergence of new infectious diseases which are difficult to treat and others that are resistant to antibiotics. Studies have also indicated multi-drug resistance of infectious diseases, i.e. TB, HIV, malaria and emerging zoonotic infections like Ebola.

**Key words:** *Epidemiological Transition of Diseases; Non-Communicable Diseases*

## CUH14HS: Geographical distribution of pharmacies and drug shops, and antibiotics dispensing in Mwanza

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**Background:** In Developing countries, people depend more on community pharmacies to access antimicrobial which is linked to short turn around, affordable cost and availability. Retail pharmacy are classified into two type Part 1 pharmacies which are allowed to sell over the counter and prescription only. Part 2 commonly known as ADDO or drug shops which are allowed to stock basic material and over the counter drugs only. In Mwanza there are total of 611 part I and II pharmacies, however their geographical distributions, common dispensed antibiotics and utilizations are not well documented.

**Methods:** Using GPS part I the antibiotics shops were mapped and data regarding antibiotic consumed in January, February

and March 2019 collected using epicollect5. Data were filled in excel sheet and analyzed by STATA version 13.

**Results:** In a month an average of 559,782g of antibiotics were consumed. The most utilized drug was azithromycin 1.76 DID and the lowest was gentamicin 0.01 DID. The DDDs per 1000 inhabitants per day (DID) of the antibacterial chemical subgroups for systemic use (J01) was 12.3, with 52.4% being penicillin's (J01C). The DDD per 1000 inhabitants per day (DID) ranged from 0.01 for gentamicin sulfate to 1.76 for azithromycin. The majority of consumed antibiotics in Mwanza the city of Mwanza are from pharmacies.

**Conclusion:** Emphasis in antibiotics stewardship in part I pharmacies is needed to improve antimicrobial consumptions

**Key words:** *Mapping; ADO; Mwanza; DDD; DID*

## CU15HS: Mainstreaming the Community Health Worker Program in District Health Systems in Rural Mwanza Region, Tanzania

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**Background:** Tanzania's Community Health Worker (CHW) program was designed to improve access to care for underserved and marginalised populations. In Tanzania, the human resource gap is about 65%, much of this in rural primary care facilities. The Canadian-funded Mama na Mtoto project aims to mainstream CHWs in two rural districts. We have identified success factors and best practices for district integration and sustainability of CHW programming in this context.

**Methods:** The project applies a participatory approach within each stage (using the Scan, Orient, Plan, Equip, Train, Act and Reflect (SOPETAR) framework). We fully engaged regional and district leaders, health facility in-charges and community leaders. District leadership and implementers were oriented on CHW programming, and engaged in planning, CHW selection, training and monitoring. District leaders were trained on supervision and leadership skills and held monthly meetings to develop action plans and reflect on challenges with CHW program implementation. Qualitative data on district integration was collected through

focus group discussions and key informant interviews, and data analysed thematically.

**Results:** The project participatory and district-integrated approach resulted in increased CHW program awareness and ownership by regional and district leaders, demonstrated through initiative in monitoring and supporting CHWs. It also strengthened CHW supervision and leadership capacity and practice of district and facility staff. Strong links between CHWs and facilities enhanced community referral and reporting to the facility and increased participation of CHWs in community meetings. CHW retention rate is 99% after one year, with no cash incentives paid. District capacity to train CHW for replacement of dropouts (12 new national trainers at district level) was increased.

**Conclusion:** District leaders were substantively involved in planning CHW program and implementing each step of selection, training, deployment, support and monitoring. This mainstreaming approach established ownership, enhancing CHW effectiveness and potential for sustainability.

**Key words:** *Mainstreaming; Community health workers; Marginalized population*

# CU16HS: Knowledge and Risk Behaviors towards HIV/AIDS among Students at Bugarika Secondary School in Nyamagana Mwanza Tanzania

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**Background:** Recently the rate of AIDS seems to be decreasing globally. However, nationally the rate of HIV and AIDS in youth is still increasing mostly between 14 to 25 years old. Most of the youth of this age are in secondary schools. This study aimed to determine knowledge and risk behaviours towards HIV/AIDS among secondary school students.

**Methods:** This was a school-based retrospective cross-sectional study done at Bugarika secondary school. A total of 133 students were enrolled in this study with an average age of 15 years. The targeted population was both male and female students of Bugarika secondary school from Form I up to Form IV. Those who met the inclusion criteria were enrolled. Structured questionnaires were administered by

researcher and analysis was done through STATA version 13.

**Results:** All respondents were aware of HIV/AIDS but few of them had some misconception on the routes of transmission and prevention. Most common risk behaviour was early engagement in sexual intercourse without using condom, as 79.5% did not use condoms. Sources of information varied, the most common being teachers 19.8% and radio 19.4%.

**Conclusion:** Students with a higher level of knowledge were more likely to display a positive attitude. A higher level of knowledge increased the ability of respondents to have safe sex and increased the level of abstinence from sexual intercourse.

**Key words:** *HIV; Knowledge; Risk behaviours*

## **CU17HS: Barriers facing Women of Reproductive Age to Delayed Screening for Cervical Cancer at Makongoro RCH in Nyamagana District**

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**Background:** Despite the availability and affordability of cervical cancer screening, many women of reproductive age do not attend for early screening. The aim of this study was to find barriers facing women of reproductive age to delay screening for cervical cancer at Makongoro RCH in Nyamagana District.

**Method:** This was a descriptive cross-sectional study conducted at Makongoro RCH. A convenient sampling technique was used to enroll 227 women from the population of women aged 15-49 years of age. A structured questionnaire was used to collect data. The data was analyzed using SPSS version 20. Descriptive statistics were used for categorical variable and Chi-square test or Fisher's exact test was used for association of variables.

**Results:** A total of 227 women of reproductive age (15-49 years) were studied whereby only 81 (35.7%) women were screened for cervical cancer and 146 (64.3%) women had never been screened. There was a strong association between the following variables: age and lack of knowledge on cervical cancer screening, level of education on cervical cancer screening and fear of being positive and lack of awareness campaigns. The young (15-29 years) 21 (41.5%) compared to (40-49 years) 19 (38.8%) p-value 0.01; fear: level of education: primary 21(17.5%), tertiary 10(76.9%) p-value 0.04; lack of publicity: Primary 22(18.3%), Secondary 49(62.0%) p-value 0.01.

**Conclusion:** Majority of women who attended at Makongoro RCH had never been screened for cervical cancer due to lack of adequate knowledge, fear of being found positive and lack of publicity.

**Key words:** *Barriers; Women of reproductive age; Screening for cervical cancer; Tanzania*

## **CU18HS: Assessment on Caregivers Awareness and Prevention towards Burn Injures in Under Five at Sekou Toure Regional Referral Hospital, Mwanza, Tanzania**

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**Background:** Worldwide, burn injury is a problem as it causes intense pain, long term morbidity, psychological problem, permanent disfigurement or maimed to the survivors and even death. In 2010–2011, Sekou Toure Regional Referral Hospital admitted 5244 paediatric patients; 100 of these patients were burn-injured children. In 2013, a eight-bed burn unit was established and has treated over 580 patients. This study aimed at assessing caregiver’s awareness and prevention of burn Injures of Under-Fives at Sekou Toure Regional Referral Hospital in Mwanza.

**Methods:** This was a cross-sectional descriptive study. Semi-structured questionnaires were used for data collection on assessment of caregiver’s awareness towards burn injury and its prevention in

under five. 173 caregivers were selected using systematic random sampling in which individuals were chosen at regular interval. Analysis was done using STATA version 13.

**Results:** A total of 173 caregivers of children under-five years were involved. About 59 (34.1%) of children who had burn injury were under 2 years, 67 (38.7%) were between 2-4 years and 47 (27.1%) were 5 years. Fourteen (8.1%) caregivers attended burn education and 159 (91.91%) did not attend any burn education. About 163 (94.2%) caregivers said it was possible to prevent burn injury in under-fives while 10 (5.8%) said it was impossible.

**Conclusion:** Many caregivers had never had any education on burn prevention to under-fives.

**Key words:** *Awareness; Burn; Caregivers; Child burn injury; Prevention*



## **CU19HS: Factors Contributing to Poor Adherence and Compliance among HIV & AIDS Patients Receiving Antiretroviral Therapy at Korogwe District Hospital-Tanga Tanzania**

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**Background:** Antiretroviral therapy has improved the quality of life of HIV patients worldwide. A reduction in HIV-related morbidity and mortality has been recognized in countries where ART has been made widely available. To achieve optimal results from ART, high levels of patient adherence to ART is essential. High levels of adherence to ART at least 95% is needed to ensure optimal benefits. This study aimed to identify factors contributing to poor adherence and compliance to ART among HIV/AIDS patients.

**Methods:** A cross sectional study on ARV adherence was conducted at Korogwe district hospital. A total of 384 ARV users were studied. The data was collected through exit interviews, semi structured interviews, adherence measures and focus group discussions. From the health care staff, structured questionnaires, observation of staff conducting consultations and, and pharmacy stock check-ups were used.

**Results:** Defaulting on treatment were due to social factors such as cultural beliefs (34%), stigma and discrimination (46%). Patient related factors: poor understanding of treatment regimen & forgetfulness (38.5%), lack of commitment (21.5%), travelling and illiteracy affected the level of adherence to ART adherence. The health service-related factors: poor patient-health provider relationship (38%), negative attitudes of health providers (38%) and long distance to health facility. Unemployment (43.0%) and unavailability of transport (68%) were major socio-economic factors that led to defaulting. Treatment related factors: side-effects and treatment fatigue (21.5%).

**Conclusion:** Factors for non-compliance to among HIV & AIDS patients receiving Antiretroviral Therapy were unavailability of transport, stigma and discrimination, and poor patient-health provider relationship

**Key words:** *Poor Adherence; Compliance; HIV & AIDS and Antiretroviral Therapy*

## **CU20HS: Assessment of Knowledge and Barriers facing Parents towards Under-five children immunization at Makongoro Reproductive and Child Health at Nyamagana District Mwanza, Tanzania**

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**Background:** A vaccine is an intervention available for preventing infectious diseases. Low immunization coverage against preventable childhood illness constitutes a major public health concern worldwide. Improving childhood vaccination coverage is a key health policy objective in many developing countries like Tanzania. This study aimed to determine knowledge and barriers facing parents towards child immunization at Makongoro RCH.

**Methods:** This was a descriptive cross-sectional study conducted at Makongoro RCH. A convenient sampling technique was used to obtain 200 participants who were attending child immunization clinic. Self-administered questionnaires were used to collect data. The data was analysed using SPSS version 20.

**Results:** All the participants were aware of the concept of childhood immunization. Knowledge of vaccine preventable diseases were limited as only 20% of the parents were able to mention at least three diseases that could be prevented by childhood immunization. Acceptability of the childhood immunization was not a problem to all participants. Parental barriers for child uptake were business 53%, household activities 42%, carelessness 4% and social ceremony 1%.

**Conclusion:** Knowledge of vaccine preventable disease was found to be limited. The most common parental barrier for not comprehending health information including childhood immunization that given by health worker due to absence for business.

**Key words:** *Knowledge Vaccination; parents; Under-fives; Tanzania*

## **CU21HS: Assessment of Antiseptics, Disinfectants and Detergents Microbial Contamination in Various Hospitals in Mwanza Region, Tanzania**

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**Background:** Antiseptics and disinfectants are commonly used chemical agents in healthcare settings to reduce microbes on the skin or mucosa and on the surface of medical equipment or inanimate surface, respectively. Despite extensive use of these agents, we still have health care associated infections (HCAIs). There may be many factors accounting for this, but the possibility of the contamination arising from the used antiseptics, disinfectants and detergents cannot be underestimated, and hence the need to conduct this study.

**Methods:** A cross sectional hospital-based study was conducted from June to August 2019 in five hospitals in Mwanza. The samples were collected in sterile collecting tubes and transported to the laboratory for analysis. The samples were inoculated on Blood Agar and Mac Conkey Agar and incubated at 35 to 37OC for 18 to 24 hours. Bacterial load and standard biochemical identification tests were done. STATA version 13.0 software was used for data analysis.

**Results:** A total of 140 samples of were collected of which antiseptics, disinfectants and detergents were 55 (39.3%), 34 (24.3%) and 51 (36.4%), respectively. Of these, 45 (32.1%) were contaminated by microbes, with pathogenic and non-pathogenic microbes accounting for 15.0% (n=21) and 17.1% (n=24), respectively. Nine samples were contaminated by 2 different bacterial species. A total of 8 different bacterial species were isolated, with predominance of *Bacillus* spp 33.3% (18/54), Coagulase negative *Staphylococci* 14.8% (8/54), and *Pseudomonas aeruginosa* 13.0%(7/54). The proportion of contamination was highest in detergents (46.7%). The median bacterial load (IQR) was 70 (21 to 100) CFU/ml.

**Conclusion:** Approximately one third of antiseptics, disinfectants and detergents used in various hospitals in Mwanza are contaminated by microbes. The fact that these agents are in use on daily bases gives an awakening call for continuous evaluation of their effectiveness and prevent subsequent occurrence of HCAIs.

**Key words:** *Antiseptics; Disinfectants; Detergents; Mwanza*

## CU22HS: Staffing Level of Health Care Workers in Kwimba District, Northwestern Tanzania

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**Background:** The number of health care workers (HCW) in developing countries including Tanzania is low compared to recommended manpower establishment as per the world health organization (WHO). The previous report in Tanzania found approximately 0.31 physicians and 4.4 nurses and midwives per 10,000 individuals nationwide, with a lower ratio in the rural areas. The data from Tanzania Human Resources database (2013) showed 48% availability of HCW in Tanzania. This study was done to assess the current staffing level and challenges faced by HCW in Kwimba District Council.

**Methods:** This study was of cross-sectional design. The data were collected from June – July 2018 involving CHMT, 13 health facilities randomly selected, and all staff found at the surveyed health facilities.

**Results:** The study revealed overall deficit of 63.3% HCW in the district. At the dispensaries it was found 67.6% staff deficit while at the health centers was 66% and at

the district hospital deficit was only 32%. The deficit of HCW at health facilities in urban area was relatively less than in rural area. Private facilities found to have less deficit of HCW than public facilities. The common reasons for causing inadequacy of the HCW were reported to be limited employment, retirement, and attrition. The results of this study are in agreement with the findings reported from previous studies. The previous study found that HCW were inadequate in Tanzania as compared to recommended manpower establishment. The same study reported more HCW in facilities located in the urban area than those in rural area. The same reasons causing inadequate HCW were reported in the previous studies.

**Conclusion:** The study concluded that, currently there is less HCW at primary health facilities as compared to staffing level in the previous years. However, at the level of hospital there is increase in number of HCW. Intervention for HCW crisis is recommended.

**Key words:** *HCW; staffing level; Tanzania*

## CU23HS: Assessment of Quality of Water Supply, Sanitation and Hygiene among Schools in Ukerewe District Mwanza

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**Background:** The provision of adequate water, sanitation and hygiene (WASH) facilities in schools has been linked to the achievement of the Sustainable Development Goals particularly goal 6. It is estimated that Tanzania spends 70% of its health budget on preventable WASH related diseases, as the majority of the population does not have access to improved sanitation and to clean drinking water for half. Without WASH facilities, areas such as schools become a breeding ground for diseases that threaten students' ability to grow, especially in rural areas. Access to effective WASH remains inadequate in Tanzania. Hence this study aimed to determine the quality of water supply, sanitation and hygiene among schools in Ukerewe district Mwanza.

**Methods** This was a descriptive cross-sectional study done on September 2019. A simple random sampling technique was used to recruit 42 out of 150 schools. The school headteachers were interviewed using a semi-structured questionnaire. Direct observation was based on a checklist.

**Results:** About 35.7% of the schools depend on lake water as their source of water. While 19%, 16.7% and 14.3% of the schools depend on tape water, rainwater and unprotected shallow wells respectively. About 31% of the schools used flushed toilets, pit latrine being the commonest way of wastewater disposal by 71.4% of the schools. Wash basins with running water for washing hands was found in about 11.9% of the schools and 26.2% were located immediately outside the toilets. However, 47.6% of the schools had no water, no soap and no reminder for children to wash their hands. The student per toilet hole ratio was 1:66 and 1:65 for boys and girls respectively. About 61.9% of the schools had sanitation facilities which were in a fair condition and needed minor repairs while 9.5% of the facilities were in very poor condition. Burning trash and rubbish within the school compound was practiced by 71.4% of the schools practiced.

**Conclusion:** Most of the schools have no constant water supply throughout the year. Some of the schools require reconstruction of the sanitation facilities. Support and strengthening the participation of local communities in improving WASH is required.

**Key words:** *Schools; Water supply; Sanitation; Hygiene; WASH*

## CU24HS: Using the 3-Delays Framework to Prevent Stillbirth: A Mixed-Methods Study in Lake Zone Mwanza Tanzania and Central Zambia

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**Background:** The Lancet Stillbirth Series highlighted the need for further research in LMICs to ensure that women and newborns receive appropriate care. However, effective intervention studies are likely to be multifaceted and challenging. The three-delay model has been proposed as a framework for understanding the complexities related to inadequate intrapartum care. Although predominantly used when researching maternal mortality, this model has the potential to support preventative interventions for stillbirth. To gain understanding of the complexities surrounding delays in effective intrapartum care in Tanzania and Zambia and to use this knowledge to develop and implement appropriate interventions to reduce stillbirths.

**Methods:** This study, guided by pragmatism, took place in rural and urban facilities in Tanzania and Zambia. A convergent parallel design was adopted, including data collected by; a retrospective case note review (n=2000), in-depth interviews (n=166) and non-

participant observations (n=36). Quantitative data was analysed using descriptive statistics and multiple logistic regression. Qualitative analysis followed grounded theory principles.

**Results:** In the study period, included facilities reported stillbirth rates of 163/1000 in Tanzania and 102/1000 in Zambia. Defined delays (OR 1.69, 95%CI 1.06 to 2.76) and intrapartum transfer (OR 3.55, 95%CI 2.14 to 5.91) were identified as important joint predictors of stillbirth. The qualitative data offered multiple reasons for the 3 delays, including traditional beliefs, cultural constraints, lack of resources, seasonality, community constraints, fear of revealing HIV status and disrespectful care.

**Conclusion:** In Sub-Saharan Africa stillbirth rates are unacceptably high; prevention is reliant on women receiving timely care. Using the 3-delays model is a useful way of exploring modifiable factors and intervention trigger points when designing further research and planning future care strategies.

**Key words:** *3-Delay model; Stillbirth; Mixed method; Tanzania, Zambia*

## CU25HS: Program evaluation of Tanzania's First Public, City-wide EMS System in the Mwanza Region: The Three-Year Mark

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**Background:** According to a recent survey by Research for Community Access Partnership, 85% of the motorcycle taxi drivers surveyed in Tanzania had transported a passenger to a health facility in a medical emergency. The study conducted by Chalya et al (2013) found that none of 5,672 trauma patients received pre-hospital care before admission at Mwanza's referral hospital, Bugando Medical Centre. In response to this, the Mwanza Community First Response Project works to provide urgent intervention with support of Beacon software.

**Methods:** Mwanza's EMS system can be dispatched by callers to the fire department's public access number or by the volunteer motorcycle taxi drivers, trained as responders in the field. A quantitative and qualitative evaluation looked at records collected from July 2015 to December 2018. Additionally, focus groups were conducted to evaluate the programme for the following community stakeholders: the community responders, the fire fighters, the emergency dispatchers, and the emergency department physicians.

**Results:** Beacon's decentralized dispatching system was activated for 509 incidents from July 2015-December 2018 with a mean scene arrival time of 05:03 minutes. Twenty motorcycle taxi drivers were trained in basic life saving techniques of bleeding control, airway management, and splinting. Forty percent of incidents were labelled as traumatic motor

vehicles accidents. There are records after July 2016 for over 180 people that needed immediate hospital transportation to 1 of 4 local medical facilities. Thirty-nine community stakeholders participated in the focus groups to identify lessons for future programs in Tanzania. Strengths identified by the program were access to medical supplies, working relationship between volunteer community responders and fire department, ease of use of emergency response software, and quick arrival of responders. Weaknesses were the separation of training between responders and fire fighters, lack of continuity of records for patients transferred to hospitals, ability to keep accurate time records after scene arrival, and lack of medical overview.

**Conclusion:** Mwanza's first public pre-hospital systems have demonstrated the successful implementation of an urban pre-hospital system in a low-resource setting. Limitations of this program are due to the volunteer status of the responders which may be linked to an under-reporting of responder arrivals and transport times. The next steps are to get funding from potential donors for increased responder training, public education and outreach. There has been little public outreach or education due to fears about demand overwhelming this fledgling system. A secondary pilot program has been launched in the city of Iringa using the same framework with plans of follow up at the 6 month and year mark.

**Key words:** *Pre-Hospital; SMS Dispatch; EMS; First Responder*

## **CU26HS: Good Vaccine Handling Practices and Knowledge among Immunization Service Providers in Mwanza City**

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**Background:** Good knowledge and vaccine handling practices among immunization service providers is crucial in the control of vaccine preventable diseases which are common in low and middle income countries. Cold chain system must be regularly monitored for the guarantee of good quality vaccines. However, this has been a challenge in most of these countries. This study investigated knowledge on immunization, vaccine handling practices among health workers and factors associated with poor vaccine handling practices in the city of Mwanza.

**Methods:** Between May and July 2019, a cross-sectional study involving 87 immunization services providers working on 51 health facilities in Mwanza city was conducted. Pre tested structured questionnaire and checklist were used for functional thermometer placed inside ice-lined refrigerators. In 47(92.2%) of the facilities, temperature logbook is checked by the facility in-charge with refrigerators having temperature cabinet between 2°C and 8°C. Among all factors assessed, none of the factors was found to be associated with poor vaccine handlings practices.

data collection. Data was analyzed by STATA version 13.

**Results:** Female formed majority 80(91.9%) of the participants with about three quarters 65(74.7%) working in dispensaries. The median working experience was 9 IQR: 5-15 years. All immunization services providers 87(100%) had good knowledge regarding temperature range to maintain cold chain system, use of vaccine vial monitor 86(98.8%) and the use of shake test 77(88.5%). More than one third 39(44.8%) attended on-job training on cold chain maintenance. Availability of cold chain equipments was satisfactory with exception to deep freezer which was not available in all health facilities. Majority of health facilities 47/51(92.2%) had ice-lined refrigerators with 46 (90.2%) having

**Conclusion:** Vaccine handling practices and knowledge among immunization services providers appeared to be good in Mwanza city. The study reveal that cold chain equipment were available and in good state. This calls for the need of maintaining good vaccine handling practices and on job training across the country and other resource limited countries.

**Key words:** *Vaccine handling practices; knowledge; immunization service providers; Mwanza*



## **CU27HS: Knowledge, Attitude and Practice on Water Sanitation and Hygiene among People Living in Ukerewe district**

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**Background:** Clean water and sanitation are among the goals of the Sustainable Development Goals. Every year in Tanzania two million people die because of unsafe water and hygiene. Solving this problem, coupled with good hygiene practice, is crucial to reducing disease and poverty. A study done in East Africa has shown that the primary causes of many childhood illnesses and poor health in Kenya, Uganda and Tanzania are water related. Households which store the water they use for cooking and drinking at home, dipping contaminated hands and cups into storage containers can also transfer pathogens to other family members.

**Methods:** A cross-sectional study among people living in Ukerewe district used a structured questionnaire. A multistage random sampling procedure was used. Data was analyzed by SPSS for windows version 20.0.

**Results:** 80.4% of people knew there is a benefit of regular hand washing with soap,

64.4% knew there is a likelihood of diarrhea diseases from unsafe water and only 43% reported to have attended awareness sessions related to good hygiene practice. Also, 8.9% were against boiling water without any reason. 10.7% reported not to perceive a danger for which they should wash their hands. 41.8% prepared their drinking water by letting it stand or settle meanwhile only 24.8% boiled their water for drinking. 94.7% used toilets for defecation.

**Conclusion:** The study showed that people did have adequate knowledge on WASH and had a poor attendance to sessions related to good hygiene. Overall, people had a good attitude on WASH but it was surprising that a good number of people were against boiling water with no reasons and others did not perceive any dangers for which they needed hand washing with soap. The study shows that the practices of WASH are poor.

**Key words:** *Knowledge; Attitude; Practice; WASH; Tanzania*

## CU28HS: Health Facility Delivery and Maternal and Perinatal Mortality in Rural Tanzania: A Community-Based Prospective Study

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**Background:** Facility-based delivery with skilled birth attendants in an enabling environment is recommended for lifesaving and for improving maternal and newborn health outcomes. The protective association between health facility delivery and maternal and perinatal mortality in developing countries is unclear. The aim of this study was to investigate the association between place of delivery and maternal and perinatal mortality and examine the association between place of delivery and maternal complications during pregnancy, labor and delivery, and 48 hours postpartum.

**Methods:** Between September 2016 and December 2017, a cohort of 1719 women in their third trimester of pregnancy were recruited at village level through a door-to-door survey conducted in randomly selected wards in rural Geita Northwestern Tanzania. A total of 1385 eligible mother-infant pairs were followed to 48 hours post-delivery.

**Results:** Half of the women delivered at a health facility (52.23%). Only seven maternal deaths (n=7) were observed; 3 of these

occurred at health facilities. No association was found between place of delivery and perinatal mortality (aOR 1.60, 95% CI 0.65-3.80). The prevalence of maternal complications during pregnancy, labor and delivery, and 48 hours postpartum were 6.14%, 8.74%, and 12.56%, respectively. A higher proportion of women who delivered at health facilities reported complications during labor and delivery (13.26% vs 3.78%) and 48 hours postnatally (14.78% vs 10.14%) than women who delivered at home.

**Conclusion:** Health-facility delivery was not associated with reduced perinatal mortality; a higher proportion of women who delivered at health facilities reported complications during labour and delivery. Many health facilities in rural Geita Tanzania remain ill-equipped to deal with complications during childbirth. Maternal and newborn well-being and survival remain a challenge even among women who utilized available health facilities for delivery. There is a need to improve training of staff, access to essential drugs and equipment, and quality care.

**Key words:** *Maternal health; quality of care; childbirth; child health*

## CU29HS: Is It Home Delivery or Health Facility? Community Perceptions on Place of Childbirth in Rural Northwestern Tanzania Using a Qualitative Approach

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**Background:** In low and middle-income countries, pregnancy and delivery complications may deprive women and their newborns of life and or the realization of their full potential. Provision of quality obstetric emergency and childbirth care can reduce maternal and newborn deaths. Underutilization of maternal and childbirth services remains a public health concern in Tanzania. This study aimed at exploring the multisystem issues that negatively influenced use of health facilities for delivery in a rural setting northwestern Tanzania

**Methods:** A qualitative approach was used to explore the community's perceptions on place of delivery. Between September and December 2017, 11 focus group discussions with community health workers (CHWs; n = 28), women (n = 33) and their husbands (n = 5), along with key informant interviews with traditional birth attendants (TBAs; n = 2) were conducted. Coding, identification, indexing, chatting, and mapping of these interviews was done using NVIVO 12 after manual familiarization of the data. Data

saturation was used to determine that no further interviews or discussions were required.

**Results:** Four main themes emerge; self-perceived obstetric risk, socio-cultural issues, economic concerns and health facility-related factors. Health facility delivery was perceived to be crucial for complicated labor, yet due to lack of social and cultural acceptability of available services; home delivery remained appealing to women and their families. In addition, out of pocket payment for suboptimal quality of health care was reported to hinder facility delivery in this setting.

**Conclusion:** Home delivery persists in the rural settings due to economic, social issues, and cultural meanings attached to childbirth process. Accessibility to and affordability of respectful and culturally acceptable childbirth services remain challenging in this setting. Addressing barriers on demand and supply sides may improve maternal and child health during labor and delivery.

**Key words:** *Maternal health; childbirth; place of delivery; community perception*

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## **PREAMBLE TO THE CUHAS - BMC LIST OF PUBLICATIONS**

In the past five years, CUHAS/BMC' authors have published 350 publications in peer-reviewed journals at an average rate of 70 per year. Up to date, most of the research undertaken at CUHAS/BMC is still undertaken for training purposes (undergraduate, Master, MMED and PhD levels). The topics investigated follow the National Health Research Priorities and include Biomedical Research (64%), Health Systems Research (30%) and Social Determinants of Health Research 6%). These publications output is geared towards clinical subjects, though papers on health system research, specifically health services delivery, have increased since the introduction of a Master course in Public Health. Within clinical subjects, 46% are dedicated to Communicable Diseases, 43% are focussing on Non-Communicable Diseases, 8% are on health Systems Research and 3% explore the Social Determinants of Health. Publications on non-communicable diseases have increased in the past two years and social sciences and health system research publications have augmented due to the presence of faculty expertise in this domain.

Despite recognised challenges, CUHAS/BMC research has benefited from several promising environmental factors, in particular the development of research networking both within the Region and internationally. CUHAS has currently around 20 collaborative projects, of which the majority are international collaborative ventures.

The increased recognition of CUHAS/BMC quality of research, based on its published papers is also due to an efficient and constructive review of all the research projects, both scientific and ethical at all levels of research, from undergraduate to postgraduate students, to expert scientists. CUHAS/BMC has developed research clusters around senior scientists in order to further facilitate the coordination and management of the research carried out at the institution and increase the published research output.

The annual Scientific Conference is an excellent platform for exchanging the research achievements with peers and learn from others to render data meaningful in our context.

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