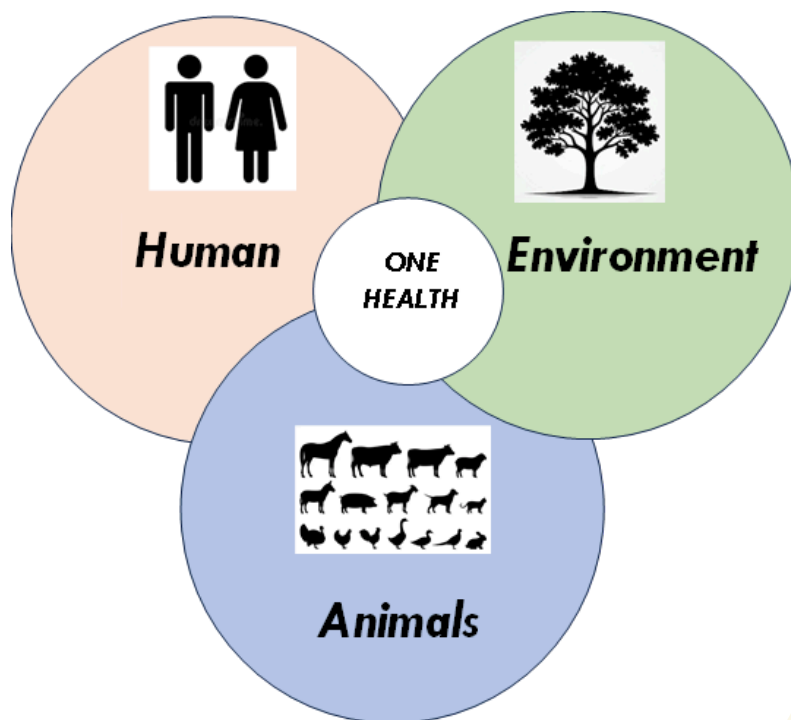


CATHOLIC UNIVERSITY OF HEALTH AND ALLIED SCIENCES

14TH CUHAS ANNUAL INTERNATIONAL SCIENTIFIC CONFERENCE

One Health and Global Health Security



ABSTRACT BOOK
November 13 - 14, 2024
Malaika Beach Resort
Mwanza-Tanzania



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WELCOME NOTE



Esteemed Participants,

I would like to welcome you to the 14th CUHAS International Scientific Conference with the theme **“One Health and Global Health Security”**. It is a pleasure to stand before you today as we gather to explore and discuss critical issues that affect Human Health, the ecosystems, and our shared future. In the theme of the conference, **“One Health,”** underscores the interconnectedness of human, animal, and environmental health which affects the local, regional, national, and global levels to achieve optimal health outcomes. In a period where pandemics, zoonotic diseases, and environmental degradation pose significant threats, collaboration across disciplines is not just beneficial it is essential.

As we delve into these important sessions, today, I would like to welcome our guest of Honor, The Deputy Prime Minister and the Minister of Minerals, for the United Republic of Tanzania, **Honorable Dr. Doto Mashaka Biteko** to this 14th Catholic University of Health and Allied Sciences International Scientific Conference.

We are privileged to have a lineup of esteemed speakers from different Universities and Organizations within and outside the Country who will share their insights and research, fostering discussions that can lead to innovative solutions. I encourage each of you to engage actively, ask questions, and share your perspectives. We expect to welcome **around 500 participants** and **over 150 scientific works** and exhibitions to be presented. Let us harness the collective wisdom present in this room to forge pathways toward a healthier and more secure world. Together, we can address the complexities of the global health landscape and create a resilient future for all.

Dr. Fabian Massaga
Director General
Bugando Medical Centre



FOREWORD



Ladies and Gentlemen,

It is with great pleasure that I welcome you to the 14th Catholic University of Health and Allied Sciences International Scientific Conference this year 2024. This event aims to bring together diverse expertise (Clinicians, Health scientists, environmental specialists, Social Scientists, Public Health officials, and Policymakers, among others) to discuss the interconnectedness of human, animal, and environmental health in the efforts to strengthen Global Health Security.

As you are already aware, the Conference Theme is ***“One Health and Global Health Security”***. In an era where zoonotic diseases and environmental challenges pose significant threats to public health, the One Health approach has become more crucial than ever. I trust that this forum will remind researchers that their efforts should aim to create not only data but also actionable solutions to the One health challenges impacting communities globally.

This conference will address the following key topics to maximize the coverage of all different angles of human health research and ***Global Health Security*** specifically on: ***Institutional system thinking leadership; Artificial intelligence (AI) in medical training, research, healthcare provision; Pathogens of public health importance surveillance, epidemic control; Health systems; Planetary Health and Climate Change; Basic biomedical research; and Communicable and non-communicable diseases interaction***

At the end of this conference, we will reward the best presenters with prizes to acknowledge their excellence in delivering their work. We invite you to engage in thought-provoking discussions, share your research findings, and collaborate with fellow experts dedicated to improving health outcomes across the world.

I appreciate your enthusiastic responses to participate in this International Scientific Conference, and I am looking forward to an inspiring event.

Prof. Erasmus Kamugisha
Vice Chancellor
Catholic University of Health and Allied Sciences



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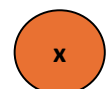
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CUHS: HEALTH SYSTEMS AND GLOBAL HEALTH SECURITY



CU01HS: Curriculum-based Sexual and Reproductive Health education: Revealing its relevance for Risky Sexual Behaviours among Secondary School Students in Mwanza, Tanzania

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Background: Secondary school students are vulnerable to risky sexual behaviours (RSBs), which lead to negative health outcomes including teenage pregnancies and sexually transmitted diseases (STIs) like HIV/AIDS. In Tanzania, the prevalence of teenage pregnancy was reported to be 27% in 2016. Integrating sexual and reproductive health (SRH) education into the school curriculum is recognized as a crucial intervention. This study aimed to describe students' and teachers' perceptions regarding the relevance of curriculum-based SRH education.

Methods: A qualitative study was conducted involving 5 secondary schools in the Ilemela district, in Mwanza, Tanzania. In-depth interviews (30) were conducted among secondary school students and teachers. Data were collected in Swahili then transcribed and translated into English after which thematic content analysis was performed.

Results: The majority (56%) of secondary school students were revealed to have a

limited understanding of curriculum-based SRH education, which was limited to a few aspects of health that involved married people and pregnant women. Subject teachers had different perceptions about the relevance of curriculum-based SRH education. Civics teachers perceived that it was relevant and enough, while Biology teachers thought that it was not enough. Students reported utilizing the information taught in class to manage and navigate RSBs. Moreover, they expressed a need for additional delivery strategies to be used for a comprehensive understanding of SRH matters.

Conclusion: Despite the identified gaps in providing comprehensive knowledge that builds on the appropriate attitudes and skills, the existing curriculum-based SRH education in secondary schools was utilized to help students address and manage RSBs. However, there is a need for more comprehensive information and an improved delivery approach for SRH to equip students with the necessary skills when faced with RSBs.



Curriculum-based sexual and reproductive health; Risky sexual behaviors; Secondary school students; Relevance; Tanzania



CU02HS: Incidence, Causes, and Predictors of Thirty-Day Unplanned Re-Admissions after Major Abdominal Surgery at Bugando Medical Centre, Mwanza Tanzania

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Background: The subject of thirty-day unplanned readmissions following major surgery continues to generate interest in the last decade as are an important indicator of quality patient care. Unfortunately, there is limited published data regarding this subject in Tanzania and Bugando Medical Centre in particular. This study aimed to determine the incidence, causes and predictors of thirty-day unplanned readmissions among patients who underwent abdominal surgery at BMC.

Methods: This was a combined retrospective and prospective study that was conducted at BMC between June 2023 and June 2024. The study included patients who underwent major abdominal surgery, discharged alive and thereafter followed up for possible readmission for the same or related diagnosis within 30 days of discharge after initial admission.

Results: Out of 316 patients who underwent abdominal surgery and discharged alive, 78 had unplanned readmitted within 30 days of discharge, representing a cumulative readmission incidence of 24.7%. The median age of readmitted patients was 24[IQR, 3-50]

years. Forty-seven (60.3%) were males and 31(39.7%) were females (M: F = 1.5). Surgical site infection was the most common reason for unplanned readmissions occurring in 17(21.8%) cases following major abdominal surgery. On multivariate logistic regression analysis, co-morbidity(HIV, HTN, DM, SCD) (OR 2.64, 95% CI 1.06-11.59, p-value = 0.011), ASA score (OR 6.11; 95% CI 3.42-10.92; p-value <0.001), emergency surgery (OR 0.13; 95% CI 0.05-0.33; p-value <0.001), electrolyte imbalance (OR 25.01; 95% CI 22.13-56.7; p-value <0.001) and presence of complications(Electrolyte imbalance, anemia and gastrointestinal complications) (OR 0.06; 95% CI 0.02-0.17; p-value <0.001) were found to be significant predictors of 30-day unplanned readmission after major abdominal surgery.

Conclusion: About a quarter of patients with major abdominal surgery had 30-day unplanned readmission with surgical site infection being the most common reason for unplanned readmissions. Appropriate strategies on discharge and close follow-ups for high-risk patients should be drawn up in order to enhance the quality of care.



Unplanned readmission; Major abdominal surgery; Extent (incidence, causes and predictors) of the problem



CU03HS: Factors Associated with Uptake of Breast Cancer Screening among Catholic Nuns in Lake Zone, Tanzania

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Background: Breast cancer is the most common cancer among women worldwide. Breast cancer screening programs are widely promoted because of their effectiveness in the early detection of cancer. However, a significant proportion of eligible Catholic nuns in the Lake Zone of Tanzania remain under-screened. This study aimed to investigate the factors associated with breast cancer screening uptake among Catholic nuns in the Lake Zone, Tanzania.

Methods: This cross-sectional study enrolled 385 Catholic nuns. Multivariable logistic regression was used to determine factors associated with breast cancer screening. Statistical analysis was performed using STATA 18.0, with a significance level of p less than 0.05.

Results: The prevalence of breast cancer screening was 64% (95% CI: 59.3%-68.9%). A total of 221 (57.4%) nuns had inadequate knowledge of breast cancer screening (95% CI: 52.4%-62.4%). In addition, the study found that 61.3% (95% CI: 56.4%-66.2%) of Catholic Nuns had a

negative attitude towards the uptake of self-breast examination. The findings revealed that 133 (55.6%, 95% CI: 50.6%-60.6%) and 203 (52.7%, 95% CI: 47.7%-57.7%) Catholic Nuns accepted breast cancer screening and self-breast examination, respectively. Catholic nuns who had negative acceptance of self-breast examination were more likely not to undergo breast cancer screening, with an AOR of 1.65 (95% CI: 1.07-2.55, $p=0.024$). Despite not being statistically significant, Catholic nuns with negative attitude and inadequate knowledge of breast cancer were more likely not to perform breast cancer screening, with an AOR of 1.42 (95% CI, 0.91-2.20, $p=0.118$) and AOR of 1.21 (95% CI, 0.78-1.88, $p=0.384$) respectively.

Conclusion: This study found a low rate of breast cancer screening in Catholic nuns. This highlights the need for breast health intervention programs within female religious congregations to address misconceptions and promote early detection of breast cancer.



Catholic nuns; Acceptability; Uptake; Breast Cancer Screening



CU04HS: Men's Attitudes, Willingness, And Practices to Support Their Wives in Cervical Cancer Screening in Mufindi District, Iringa, Tanzania

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Background: Cervical cancer is a major public health issue in sub-Saharan Africa, where healthcare access is limited. Early detection through screening is vital for better treatment outcomes. While women's awareness and access to screening are well-studied, the role of men in supporting their wives' health remains underexplored. Research indicates husband's support can significantly influence a woman's decision to undergo screening. This research aimed to assess the attitudes, willingness, practices and factors influencing men to support their wives in cervical cancer screening.

Methods: A cross-sectional and phenomenological study design approach used, combined structured questionnaires and Focus Group Discussions. The study included both urban and rural settings in Mufindi District. Quantitative data collected from 384 men, while qualitative

data involved 8FGDs. Quantitative analysis was performed using SPSS 25, with descriptive and inferential statistics. Qualitative data were analysed thematically.

Results: It involved 384 men with a mean age of 38.85 years. Among them, 44.1% had good knowledge of cervical cancer. A 75.3% believed men should encourage screening, and 77.4% agreed husband's support is crucial. Overall, 62.7% had positive attitude towards cervical cancer screening, and 92% indicated they would encourage their wives to undergo screening. Education and awareness were key factors influencing support.

Conclusion: Educational interventions and community engagement is essential to improve men's support for cervical cancer screening. Future research should explore cultural barriers that may affect male participation.



Cervical cancer; Screening; Men's support



CU05HS: Magnitude and Associated Factors of Dignity Preservation among Hospitalized Patients, Mwanza Region Northwestern Tanzania. A cross-sectional study

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Background: Dignity is considered a fundamental human right and is recognized as one of the core concepts in patient care. Human beings have an intrinsic value that differentiates them from other creatures and thus deserve respect and privacy irrespective of their position. Therefore, a violation of human dignity is also regarded as a violation of human rights. This study aimed to determine the magnitude of dignity preservation and its associated factors among hospitalized patients.

Methods: This cross-sectional study was conducted on 270 hospitalized patients in the two teaching hospitals of Bugando Medical Centre (BMC) and Sekou Toure Regional Referral Hospital (STRH). Data were collected by a questionnaire of two sections: (a) Demographic characteristics and (b) Patient dignity scale, including 32 statements. Data were analysed by Stata version 15E software, whereby a student's

t-test statistic was used to compare the total dignity mean score of demographic variables with two categories and the ANOVA test statistic for comparison of the total dignity mean score of demographic and other variables with more than two categories.

Results: Majority of patients 175(64.8%) were not informed about their basic rights. There was a significant difference in the mean score of total dignity among males and females ($p=0.016$), single and married people ($p=0.005$), those who attended BMC and STRH ($p=0.002$), and those who were admitted to a private and general ward ($p=0.029$).

Conclusion: The healthcare system should consider dignity preservation through comprehensive education to healthcare providers about the importance of dignified care and patient rights in hospitals.



Patient Rights; Dignity; Care; Hospitalized



CU06HS: Depression and generalized anxiety symptoms among adolescent pregnant women attending antenatal clinics in Mwanza Tanzania: A cross-sectional study

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Background: Almost one-tenth of all pregnancies and births worldwide are among adolescent women 15-19 years of age, and 90% of these births occur in developing countries. Adolescent mothers face risks related to the transition to adulthood and parenthood, physical changes, and potential health complications associated with early pregnancy and childbirth. These are associated with an increased risk for mental disorders. However, we have very limited information on the mental health of pregnant adolescents in Tanzania. This study aimed to determine the prevalence and factors associated with depression and generalized anxiety symptoms among adolescent pregnant women attending antenatal clinics in Mwanza region, Tanzania.

Methods: An analytical cross-sectional study was conducted among 529 adolescent pregnant women. Systematic sampling strategy was used to recruit participants from preselected antenatal clinics from June 2023 to March 2024. The

Edinburg Postnatal Depression Scale (EPDS) was used to assess depressive symptoms, and the Generalized Anxiety Disorder -7 (GAD 7) scale was used to screen for symptoms of generalized anxiety disorder. Trained research assistants interviewed participants and administered these questionnaires.

Results: The prevalence of depressive symptoms was 20.98%, and 22.5% of the adolescent women displayed symptoms of generalized anxiety disorder. Marital status, living with parents/care takers, planned pregnancy, partner violence, and pregnancy related stigma were identified as factors associated with both depression and anxiety symptoms.

Conclusion: At least one of five adolescent women attending antenatal clinics in Mwanza Tanzania have symptoms of perinatal depression and or anxiety. This provides strong evidence supporting the integration of mental health services into existing antenatal and postnatal care services.



Perinatal; Mental health; Depression; Anxiety; Adolescent pregnancy



CU07HS: Evaluating the Impact of Food Support (Rice and Beans) on Treatment Retention, Viral Load Suppression, And Immunological Outcomes among People Living with HIV In Mwanza City

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Background: Food insecurity poses a significant challenge for people living with HIV (PLWHIV) in Tanzania, potentially hindering their ability to consistently adhere to Antiretroviral Therapy and achieve viral load suppression. This study aimed to evaluate the impact of food support (rice and beans) on treatment retention, viral load suppression, and immunological outcomes among PLWHIV in Mwanza, Tanzania.

Methods: A retrospective cohort design was employed, utilizing medical records from Care and Treatment Clinics (CTCs) in Mwanza. Participants diagnosed with HIV and initiated on ART between January 2022 and December 2022 were recruited. Statistical tests were conducted using SPSS 25 to assess associations between food support and outcomes of retention in care, ART and viral load suppression and CD4 counts.

Results: The study enrolled 200 PLWHIV, 60 males and 140 females aged 18 to 45. At enrolment, viral load suppression was similar between the Untold Foundation Program (40.0%) and

standard care (37.0%, $p = 0.861$). Significant differences emerged at 6 months (55.0% vs. 32.0%, $p = 0.001$) and 12 months (72.0% vs. 56.0%, $p = 0.018$). By 18 and 24 months, suppression rates were similar between groups ($p = 0.762$ and $p = 0.322$, respectively). CD4 count improvements were notable, with higher percentages achieving ≥ 500 cells/mm³ in the food support group at 6 months (46.0% vs. 33.0%, $p = 0.038$), 12 months (68.0% vs. 47.0%, $p = 0.010$), 18 months (59.0% vs. 46.0%, $p = 0.044$), and 24 months (17.0% vs. 32.0%, $p = 0.000$). Retention rates were identical at 6 and 12 months (100% in each group). At 18 months, 95 (95.0%) participants in the Untold Foundation Program remained in care compared to 93 (91.0%) in standard care ($p = 0.152$). By 24 months, 92 (97.9%) in the program and 90 (94.6%) in standard care remained in care.

Conclusion: The Untold Foundation's food support program significantly enhanced viral load suppression and CD4 counts during the support period. Integrating food support into long-term HIV care strategies is recommended.



Food security; HIV/AIDS; ART adherence; Retention in care; Viral load suppression; Tanzania.



CU08HS: Tailored Methodology for Developing a Disease-Specific Health Literacy Test: The Case of the Swahili Cancer Health Literacy Test

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Background: Theoretical frameworks are essential in developing health literacy tests, but finding a framework suitable for creating a disease- and language-specific health literacy test can be challenging. This issue arose when the need for a cancer health literacy test tailored to an indigenous African population was identified. Swahili is a widely spoken language in Africa. This study presents a tailored methodology for developing a disease-specific health literacy test.

Methods: A synthesis of frameworks informed the multimethod design, with an adaptation of the MEASURE approach guiding eight developmental steps: 1) establishing a clear rationale, 2) creating an empirical framework, 3) developing a theoretical blueprint, 4) constructing an item pool, 5) translating items into Swahili, 6) contextualizing the

item pool, 7) ensuring readability, and 8) validating the final test.

Results: The rationale was the inappropriateness of existing instruments. The framework was informed by the Integrated Model of Health Literacy, Cancer Control Continuum, and a framework for the Sesotho Health Literacy Test. An item pool was established through iterative researchers' discussions, and cancer experts helped contextualize items. Readability was assessed using Flesch-Kincaid Reading Ease and Grade Level. Test validation was conducted among Swahili-speaking populations using internal consistency reliability and confirmatory factor analysis.

Conclusion: This tailored methodology strengthens the rigour of the test and may be applied to other disease-specific health literacy assessments.



Cancer health literacy; Indigenous Language; Swahili-speaking population; Theoretical framework



CU09HS: Achieving accreditation ISO 15189:22: Does Medical Laboratory School Curriculum document all the requirements?

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Background: Clinicians need accurate, reliable and timely laboratory results to provide evidence for clinical decisions. This is achieved by laboratories establishing and implementing agreed clinical laboratory standards. It has been very hard to reach this level besides having the requirements part of laboratory medical school's curriculum. We investigated why this gap continue to exist by reviewing ISO 15189:22 requirements and assessing their documentation in the school teaching guide.

Methods: We explored the Tanzania Teaching Guide for National Technical Award (NTA) level 5 for Medical Laboratory School to investigate if laboratory standard requirements have been properly documented in order to equip students with necessary skills and knowledge to be employed in clinical laboratories. We also investigated if the information provided to students can be

utilized to implement the system in routine laboratory practices.

Results: After the review, we found that laboratory policies, objectives, managerial and governance of laboratories were missing in the curriculum. Other fundamental ISO: 15189:22 requirements that were missing include risk assessment, verification and validation of methods. The development of examination procedures was documented but the assessment of its validity was missing. Other requirements were partially addressed.

Conclusion: Tanzania Teaching Guide for National Technical Award (NTA) level 5 for Medical Laboratory School requires an urgent review to ensure it contains all the minimum requirements needed to achieve ISO 15189:22 standards. Laboratory disciplines are growing, and a periodical review of the curriculum should be undertaken to accommodate ongoing changes.



NTA; Laboratory; Requirements; Accreditation



CU10HS: Holela Holela Itakukosti: Utilizing Collaboration, Learning and Adaptation to implement a National Multisectoral Risk Communication and Community Engagement Campaign for Antimicrobial Resistance and Priority Zoonotic Diseases

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Background: Antimicrobial Resistance (AMR) remains a significant public challenge in Tanzania where significant knowledge gaps exist regarding its implications and preventive measures. Additionally, knowledge of zoonotic diseases, which are transmitted between humans and animals, is notably low despite their role in emerging pandemics. To address these challenges, Breakthrough ACTION collaborated with the Prime Minister's Office and respective sector ministries (Health, Livestock and Fisheries, Agriculture, Environment) to design a national multimedia and multisectoral risk communication and community engagement (RCCE) campaign.

Methods: The campaign aimed to foster the understanding and adoption of health measures to combat AMR and Priority Zoonotic Diseases (PZDs). Throughout the campaign design and implementation, continuous collaboration, learning and adaptation (CLA) approaches were integral factors for success. Feedback from multiple stakeholder engagements during consultative meetings, behaviour prioritization, data synthesis, resources mapping, creative brief development, and

materials review were used to refine campaign messaging and strategies, ensuring technical accuracy, cultural relevance and communication diversity.

Results: The outcome of this collaborative approach was the launch of the "Holela Holela Itakukosti" ("Recklessness is Costly") campaign, endorsed by all sector ministries under the One Health initiative that has reached 24.7 million people through mass media (radio, TV, print) and 23.1 million user accounts through social media during May – August 2024. The campaign has also achieved regional recognition as a best practice demonstrating successful multisectoral engagement to address AMR and zoonotic diseases in the African Union AMR Landmark Report.

Conclusion: The successful implementation of the campaign was influenced by key enabling conditions, particularly the strong emphasis on exchange of current information, teamwork, learning, and open communication. Collaboration with diverse stakeholders results in learning new information to complement efforts in the adaptation of RCCE.



Antimicrobial Resistance; Zoonotic Diseases; Risk Communication; Community Engagement; Tanzania



CU11HS: Depression among Children with Sickle Cell Anaemia: Prevalence and factors associated at Bugando Medical Centre, Mwanza, Tanzania

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Background: Sickle cell anaemia is a chronic condition affecting both children and adults, often leading to a reduced quality of life and a range of psychological challenges, including depression. Children with sickle cell anaemia are particularly vulnerable to mental health issues, with reported depression prevalence rates varying widely, from 4% to 86%. Despite this, routine mental health screening is rarely conducted in sickle cell clinics, resulting in depression frequently being undiagnosed and untreated. This underscores the importance of assessing the prevalence of depressive symptoms and identifying associated factors to facilitate timely mental health referrals and interventions. This study aims to determine the prevalence and factors linked to depressive symptoms among children with sickle cell anaemia at Bugando Medical Centre, Mwanza, Tanzania.

Methods: This was a hospital-based cross-sectional study conducted among children with sickle cell anaemia attending paediatric and medical outpatient clinics at Bugando Medical

Centre, Mwanza, Tanzania from January 2024 to March 2024. Structured questionnaires were utilized to collect sociodemographic data and disease severity while depressive symptoms were determined by using the Children's Depression Inventory tool. Data was analysed using STATA version 17 and a p value of <0.05 was considered statistically significant.

Results: A total of 200 participants were enrolled with median age of 11[IQR 9-13] years and more than half of the participants were male 104 (52.0 %). Depressive symptoms were accounted for 20% of children. Age (OR:5.1 [95% CI:1.4-17.9], p=0.036) and severe sickle cell anaemia (OR:5.4 [95% CI:1.5-19.6], p=0.010) were independently associated with depressive symptoms.

Conclusion: The study found a high prevalence of depressive symptoms among children with sickle cell anaemia. Age and severe sickle cell anaemia significantly increased the risk of depressive symptoms, underscoring the urgent need for targeted mental health interventions.



Depressive symptoms; Sickle cell anaemia; Tanzania



CU12HS: Persistent Depression and Suicidal Ideation in People Living with HIV in Tanzania: A Longitudinal Cohort Study

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Background: Suicidal ideation and depression are common in people living with HIV (PLWH) in sub-Saharan Africa, but longitudinal data on their persistence in the modern antiretroviral therapy era are lacking.

Methods: We examined the prevalence of persistent suicidal ideation and depression symptoms using the PHQ-9 in a well-characterized cohort of PLWH and HIV-uninfected community controls. Multivariable logistic regression models were used to determine the relationship between HIV and persistent depression and suicidal ideation.

Results: Persistent suicidal ideation was more common in PLWH but there was

no difference in persistent depression by HIV status. Approximately one out of five participants with depression at baseline had persistent depression after 12–24 months and only about one out of four participants reporting suicidal ideation at baseline had persistent suicidal ideation after 12–24 months. HIV was associated with suicidal ideation at baseline. Persistent suicidal ideation was significantly associated with HIV immune non-response ($p = 0.022$).

Conclusion: These findings highlight the need for integration of mental health services into HIV care in sub-Saharan Africa with a focus on suicide prevention.



Depression; Suicidal ideation; HIV; Immune non-response; Tanzania



CU13HS: Adherence to Infection Prevention and Control Measures among Health Care Providers at Labor Wards in Public Health Facilities in Mwanza and Shinyanga regions, Tanzania

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Background: Healthcare-associated infections are among the patient safety risks in healthcare worldwide. It is estimated that 15% of patients/clients receiving care in healthcare facilities develop infections that are related to poor adherence to infection prevention and control (IPC) standards including puerperal and neonatal sepsis. Infection control practices include hand hygiene, proper use of personal protective equipment, cleaning and disinfection protocols, isolation precautions, and management of infectious waste. This study was conducted to determine the reported and observed practices of healthcare providers in labour wards in public health facilities.

Methods: Health care providers from three public health facilities (Buzuruga Health Centre, and Nyamagana district hospital, in Mwanza and Kambarage Health Centre in Shinyanga) working at labour wards were involved in this cross-sectional study. Structured questionnaire was used to record the reported practices and observation check list was used to capture actual practices during childbirth care services. Health facility in charge provided permission to observe actual practices at labour wards in all three facilities. Adherence to IPC focusing on

wearing clean gloves, face mask, proper hand hygiene, proper environment hygiene, and proper decontamination was considered acceptable with at least 85% scores. Descriptive analysis was done using STATA v.15.

Results: In this study, 75% of health care providers reported never attended on job IPC training with more than half not always using personal protective equipment such as face mask (53%), and aseptic techniques per guidelines (58%). Other IPC practices were relatively common; proper waste disposal (67%), hand hygiene (70%), and handling of sharp objects (88%). However, the observed practices were slightly different from reported practices with wearing face mask being 32%, and proper waste segregation (32%). Health providers observed wearing clean gloves during childbirth care, but the proper hand hygiene was rarely done (8%). The overall acceptable adherence to IPC was only 32% with 95%CI 22%-43%.

Conclusion: Reported adherence to IPC measures in labour wards considerably differed from the actual practices with most of health providers never attended on job IPC training that signify the need for regular IPC training in public health facilities.



Infection prevention control; Childbirth care; Adherence to IPC



CU14HS: The Effects of Comprehensive Reproductive Health Intervention on Reproductive Tract Infections Symptoms and Management of Menstrual Hygiene: A Mixed Methods Study among Secondary School Adolescent Girls in Mwanza Region

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Background: Poor menstrual hygiene management (MHM) has been implicated in increasing the RTI symptoms. The Partnering to Support Schools to Promote Good Menstrual Health and Well-being (PASS MHW) intervention aimed to address menstrual related challenges, but no analysis has been conducted on the impact of improved menstrual management practices on RTI symptoms. The study examined the effects of a comprehensive reproductive health intervention on RTI symptoms and menstrual hygiene management practices and the association between these practices and RTI symptoms, while evaluating the uptake, usage, and satisfaction with health service referrals for RTIs.

Methods: This was a mixed-methods secondary analysis of the PASS MHW project that involved surveys from 424 secondary school girls and interviews with 20 girls referred for RTI treatment, assessing changes in RTI symptoms, menstrual hygiene practices, and health referral utilization.

Results: The study observed a decrease in thick, white discharge from 33% to 26% ($p = 0.026$) and an increase in fishy-smelling discharge from 6% to 16% ($p = 0.001$). Urban areas reported significant rises in bad-smelling discharge (OR = 2.15, $p = 0.002$), burning sensations while urinating (OR = 1.93, $p < 0.001$), and general itching (OR = 1.67, $p = 0.002$). Hygienic product use increasing from 32% to 77% ($p = 0.001$) and the ability to change products at school rising from 31% to 54% ($p < 0.001$). Referral services faced challenges related to service quality, financial constraints, stigma, and consent issues.


Conclusion: The intervention improved RTI symptoms in older adolescents and rural areas, and menstrual hygiene practices also saw progress. Despite well-utilized referral services, inconsistent quality, stigma, and financial constraints hindered outcomes, highlighting the need for enhanced education and school-based health services.



Reproductive Tract Infections; Menstrual hygiene practices; School based comprehensive reproductive health intervention



CU15HS: Healthcare Providers Perceptions and Practices on the Use and integration of Traditional Herbs Education Session for Pregnant Women in Health Facilities of Ukerewe District, Mwanza Region, Northwestern Tanzania

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Background: In most sub-Saharan African countries, the widespread use of traditional herbs during pregnancy persists despite uncertainties surrounding their pharmacological effects. The utilization of unregulated traditional herbs increases the risks of adverse health outcomes for both mothers and newborns. Despite ongoing efforts and awareness initiatives to sensitise on the risks associated with the use of traditional herbs during pregnancy, its prevalence remains high. This underscores the significant influence that healthcare providers have in either promoting or discouraging the use of traditional herbs by pregnant women, making it crucial to delve into their perceptions of this practice. This study explored the perceptions of health care providers towards the use of TH among pregnant women in health facilities of Ukerewe District, Mwanza region, Northwestern Tanzania.

Methods: This study employed a cross-sectional hospital-based qualitative study. Data was collected using in-depth interviews and focus group discussions while NVivo computer software version

14 was used to facilitate data coding, storage, and retrieval. Content analysis was also conducted to uncover underlying meanings and patterns in the data.

Results: Qualitative interviews and observation revealed a predominantly negative perception among healthcare providers towards traditional herbs, primarily due to concerns about their lack of standardization and quality control. Providers highlighted the potential adverse health outcomes associated with traditional herb use, including complications such as premature delivery and uterus rupture. Cultural beliefs and social influences significantly drive the use among pregnant women, often reinforced by family members and traditional birth attendants.

Conclusion: There is a complex interplay of perceptions, cultural factors and practical considerations that influence the use of traditional herbs during pregnancy. Additionally, economic constraints and limited access to healthcare facilities further contribute to the reliance on traditional herbs.



Perceptions; Traditional herbs; Health care providers; Pregnant women



CU16HS: Healthcare seeking behaviour for under-five children with suspected pneumonia in public health facilities in Mwanza and Shinyanga regions, Tanzania

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Background: Pneumonia is the leading cause of death due to infectious diseases in children under-five globally. It was estimated to cause more than 700000 deaths in children in 2019. Delay seeking healthcare for pneumonia contributes to many deaths in developing countries. Hence, this study aimed to determine seeking care practice and knowledge level on symptoms of pneumonia among caregivers of under-five children attending public health facilities in Mwanza and Shinyanga regions.

Methods: A cross-sectional study was conducted among caregivers of under-five children with suspected pneumonia seeking health care at selected public health facilities in Mwanza and Shinyanga regions. A structured questionnaire was administered among caregivers of admitted pneumonia under-five children and those who received care at outpatient units. A reported delay in seeking care was determined when 24 hours or more hours passed between recognition of any of following symptoms (high fever, cough and flu, difficulty breathing, chest indrawing, grunting/wheezing sound) and decision to seek care. Good pneumonia knowledge was considered when participants scored at least 85% of

the listed symptoms above. Generalized linear model with binomial family was done using STATA v.15 to determine association between delay to care and knowledge adjusting for other variables (child's age, education level, and patient's department).

Results: Overall delay to care was 62%, 95%CI 57.6%-66.8%. Higher proportion of caregivers with children admitted in the hospital delayed to seek care compared to those whose children were attended at outpatient unit (83.7% vs 43.8%). Good knowledge on pneumonia symptoms was only 50.7% with difficulty breathing (72.5%) and wheezing sound (64.9%) commonly mentioned by participants. Those with limited knowledge on symptoms had twice odds of being delayed caring compared to knowledgeable caregivers [OR=2.30, 95%CI 1.33-3.69].


Conclusion: Delay to care was observed in two third of children with suspected pneumonia and was associated with limited knowledge of symptoms among caregivers. This signifies the importance of health education on pneumonia symptoms to pregnant and postnatal women including other caregivers.



Pneumonia; Delayed care; Symptoms; Knowledge



CU17HS: Bullying victimization, Depressive Symptoms, and Suicidal Behaviours among Students at Secondary Schools in Mwanza City, North-Western Tanzania: A cross-sectional study

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Background: Approximately 40% of students worldwide are involved in bullying as either bully, victim or both. Bullying at school happens globally and can have a devastating impact on bullies and victims leading to depression, anxiety, and even suicide. Tanzania is also suffering from bullying at its secondary schools where bullying is found to dehumanize the victim, cause lack of self-esteem and truancy. This study aimed to determine bullying victimization, depressive symptoms and suicidal behaviour among students at secondary schools in Mwanza city, Northern-Western Tanzania.

Methods: An analytical cross-sectional study was carried out, involving four hundred and twenty-seven students at secondary schools in Mwanza city, North-Western, Tanzania. Researchers designed social-demographic questionnaire, the Adolescent Peer Relations Instrument (APRI), Patient health questionnaire- 9 (PHQ-9), and Suicidal Behaviours Questionnaire-

Revised (SBQ-R) was used to collect data.

Results: The study found that 66.75% of students experienced bullying victimization, and 52.45% engaged in bullying behaviour. Depressive symptoms were reported by 42.64% of participants and 18.34% had suicidal thoughts. Gender-based violence was significantly associated with increased risk of bullying behaviour, victimization, and depressive symptoms. Additionally, living with grandparents or other relatives was linked to higher rates of depressive symptoms and suicidal behaviour respectively.

Conclusion: The findings highlight a concerning prevalence of bullying and its associated mental health issues among secondary school students in Mwanza. To address this, comprehensive anti-bullying programs are needed, focusing on gender-based violence, family support, and accessible mental health resources.



Bullying victimization; Depressive symptoms; Suicidal behaviour; Secondary students



CU18HS: Patterns and Mitigation Strategies for Rejected Claims among Health Facilities Providing Services for The National Health Insurance Fund (NHIF) in Mwanza, Tanzania

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Background: Rejected medical claims pose a significant challenge for healthcare facilities accredited by the National Health Insurance Fund (NHIF) in Tanzania. Despite NHIF's role in reducing out-of-pocket costs, claim rejections have been a persistent issue, largely due to factors like documentation errors, coding mistakes, and non-compliance with NHIF regulations. This determined the patterns of rejected claims and the strategies employed by NHIF-accredited hospitals to mitigate these challenges.

Methods: This was a cross-sectional study between July and August 2024 employing both quantitative and qualitative approaches. The study utilized secondary data (August 2023 to January 2024) on the rejected claims from 48 healthcare facilities and key informant interviews from respective selected health facilities. Descriptive data analysis was done using STATA version 15 and qualitative data analysis was done using NViVo2 software.

Results: A total of 46 public (27) and private (19) healthcare facilities (HF) were included in this study. The data revealed significant variation in the average of items rejected per claim across healthcare facilities ranging from 0.21 in Regional referral hospital to 1.21

in a zonal hospital. Non-adherence to standard treatment guidelines (STG) was significantly more ($p < 0.001$) in polyclinics accounting for 17.2% of items rejected and lowest (0.8%) in Zonal hospital. Overutilization (drugs and investigations) was commonly reported in all health facilities ranging from 12.5% in polyclinics to 31.8% in district hospitals ($p < 0.001$). Consultation charge not applicable was only reported in a Zonal hospital. To mitigate these rejections, healthcare facilities implemented strategies such as immediate error verification, regular communication with NHIF, staff training, technology use, and regular supervisions by the internal audit units. Despite these efforts, challenges persist, particularly those stemming from complex NHIF policies, which account for most rejections in zonal health facilities.


Conclusion: There are significant variations of rejection patterns among health facilities with attendance date anomalies, non-adherence to STG, NHIF pricing and overutilization being the most common across all health facilities. Strategies to address the rejections should be tailored to specific health facilities.



Rejected claims; Patterns of rejections; Mitigation strategies



CU19HS: Protocol Adherence and Associated Factors in the Investigation and Management of Suspected Bacterial Meningitis among Pediatric Patients in Two County Hospitals in Kenya

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Background: Meningitis is a serious illness with a high fatality rate and risk of sequelae among children. The management of suspected bacterial meningitis is still a challenge in most Kenyan healthcare facilities which prompted the development of management guidelines. However, evidence of their implementation is lacking. This study investigated protocol adherence, and associated factors in the investigation and management of suspected bacterial meningitis among paediatric patients in two county-level hospitals in Kenya: Thika Level 5 Hospital (TL5H) and Mama Lucy Kibaki Hospital (MLKH).

Methods: This was a comparative study that utilized a mixed-method approach. Quantitative data for June – August 2022 was collected retrospectively from the medical records of children aged 2 months to 5 years with suspected bacterial meningitis in TL5H and MLKH. Key-informant interviews were conducted to collect qualitative data among designated healthcare workers in the two hospitals.

Results: In TL5H, protocol adherence was at 2.8% (n = 71) while at MLKH it was at 9.9% (n=71). The low levels of protocol adherence were mainly attributed to the low number of lumbar punctures done. A correlation analysis to determine the relationship between protocol adherence and the outcome of patients showed that patients who were discharged alive were more likely to have been managed according to the protocol (OR 1.185, p-value .553 and OR .206, p-value .977 for MLKH and TL5H respectively). The main barriers against protocol adherence were similar in both hospitals and included a shortage of staff, different perceptions among clinicians, guardians' hesitancy on lumbar punctures, and poor interdepartmental coordination.

Conclusion: The protocol adherence in both study sites was very poor, below 10%. There is a need for health systems strengthening to effectively address barriers to adherence of guidelines among paediatric populations in public hospitals in Kenya.



Guidelines; Health systems strengthening; Bacterial meningitis



CU20HS: Antimicrobial Resistance: Rendering Invisible Visible in neonatal wards in Tanzania (ARRIVE) project launching capitalizing on data utilization, awareness and advocacy

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Background: Antimicrobial resistance (AMR) is one of the most pressing calamities of our time, and neonates are disproportionately highly affected compared to other patient groups. The Supporting National Action Plan on AMR (SNAP-AMR) project which was conducted from 2018 to 2022 collaboratively between the CUHAS-Bugando, the University of Glasgow, and other institutions laid a foundation for AMR mitigating by building human and diagnostic infrastructural capacities, delineated AMR drivers in the hospital and community settings, and formed a crucial linkage of national to sub-national initiatives to tackle AMR. Despite these, neonatal mortality is still unacceptably high in the neonatal wards in Tanzania.

Methods: Our project proposes multiple cross sectional analytical studies (baseline, intervention, and endline re-assessments) deploying quantitative and qualitative approaches. Co-development, implementation and evaluation of SNAP-AMR Communication Campaign Toolkit

across six wards in two hospitals will be conducted as part and parcel of supporting the Tanzanian National Action Plan on Antimicrobial Resistance 2023-2028. The ultimate expected outcome is to make invisible bacterial pathogens visible, informing targeted infection prevention and control measures, and fostering AMR mitigation awareness and advocacy across all key stakeholders.

Implications: By integrating social science, clinical and microbiological data, we aim to co-design effective strategies for reducing infection transmission and associated neonatal deaths. The Toolkit will include tailored educational materials, guidelines, decision support tools and editable templates. Through local surveillance data feedback, we seek to foster positive behaviour change among healthcare providers, neonates' parents/caretakers and facilitate policy change across the healthcare system to combat AMR effectively in the neonatal wards in Tanzania.



Antimicrobial resistance; Neonatal wards; Tanzania



Knowledge Translation - Expanding Network

Planetary Health Actions



CUPH: PLANETARY HEALTH, CLIMATE CHANGE, AND GLOBAL HEALTH SECURITY



CU01PH: Fostering Interdisciplinary Collaboration for Planetary Health: A Systems Approach to Global Health Security in Eastern Africa

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Background: The pressing environmental crises in Eastern Africa, such as climate change, biodiversity loss, and emerging zoonotic diseases, demand a collective, interdisciplinary response. Planetary Health—a field that emphasizes the interdependencies between human, animal, and environmental health—calls for experts from diverse disciplines to collaborate in addressing these interconnected challenges. The complexity of Planetary Health requires innovative, cross-sectoral partnerships to foster sustainable solutions for global health security, particularly in vulnerable regions like Eastern Africa. This concept seeks to explore the priorities of Planetary Health in Eastern Africa the potential of interdisciplinary collaboration and its role in enhancing resilience and health security.

Methods: This participatory workshop brings together professionals from public health, environmental sciences, veterinary medicine, and other related fields to foster interdisciplinary dialogue. The session will begin in small, facilitated groups with an introductory exercise where participants visualize the relevance of their professions to Planetary Health by connecting themselves to the central theme using cords. This interactive model illustrates the interconnectedness of different fields within the Planetary Health framework. Participants will explore the role of their disciplines in addressing key Planetary

Health challenges. Participants will then engage in discussions within cross-disciplinary groups, identifying Planetary Health priorities, challenges, and knowledge gaps. By mapping out cross-disciplinary relationships, participants will develop new collaborative approaches to mitigate climate-related health risks, prevent zoonotic diseases, and promote ecosystem sustainability. The findings from each group will be shared, promoting a broader understanding of how diverse fields can contribute to strengthening global health security.

Results: Preliminary outcomes will include insights into the priorities of Planetary Health in Eastern Africa as well as identification of potential interdisciplinary partnerships, new research directions, and cooperative strategies for integrating Planetary Health into regional and global health security frameworks. The collaborative mapping exercise will visually capture the connections between disciplines and highlight opportunities for innovative cooperation.


Conclusion: The workshop will showcase the importance of interdisciplinary approaches in advancing Planetary Health in Eastern Africa. By facilitating dialogue and fostering cross-sectoral partnerships, this session aims to strengthen regional capacity to address the health impacts of climate change and environmental degradation.



Planetary Health; Interdisciplinary Collaboration; Global Health Security; Climate Change; One Health; Eastern Africa



CU02PH: Effects of Temperature and Humidity on Transmissibility of SARS-CoV-2: A Systematic Review and Meta-Analysis

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Background: The lessons learned from COVID-19 pandemic remain crucial for understanding the epidemiology of future respiratory infections. Gaining insights on the factors influencing the transmissibility of SARS-CoV-2 remains an important public health issue, especially in the context of climate change. This work aligns with Sustainable Development Goal 13 (SDG 13) on tackling climate change and its impacts. Hence, this systematic review and meta-analysis aimed to determine the correlation and effect size between humidity and temperature on the transmissibility of SARS-CoV-2.

Methods: Relevant articles published between 2019, and 9th of August 2024 were identified from PubMed, Africa Journal Online, Science Direct, Hinari, MedlinePlus, and Google Scholar databases following PRISMA guideline. RAYYAN tool was used for auto duplication and initial screening. The focus was on ecological studies where we retrieved study units, correlation coefficients, regression coefficients and their standard errors. Selected studies for meta-analysis were rigorously assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist tool. The $I^2 >70\%$ indicated the existence of heterogeneity in which random

effect models were preferred. The meta-analysis was done in STATA version 18.5.

Results: A total of 28,629 articles were identified. After removing duplicates and irrelevant studies, eleven studies qualified for systematic review and four for meta-analysis. The study revealed a significant negative correlation between temperature and SARS-CoV-2 transmissibility (R_0) ($r = -0.509$, 95% CI: -0.680 to -0.338, $p < 0.001$). Similarly, a significant but weaker negative correlation was found between humidity and SARS-CoV-2 transmissibility ($r = -0.426$, 95% CI: -0.548 to -0.303, $p < 0.001$). In addition, the negative effects of temperature and humidity on SARS-CoV-2 transmissibility were observed. A unit increase in humidity was associated with a decrease in transmissibility by 0.006 (95% CI: -0.007 to -0.004, $p < 0.001$), while a unit increase in temperature was associated with a reduction of transmissibility by 0.008 (95% CI: -0.030 to -0.030, $p < 0.001$).

Conclusion: This systematic review and meta-analysis found evidence suggesting an inverse relationship of temperature and humidity on SARS-CoV-2 transmissibility. Although, higher temperatures and humidity may have some effect on viral stability and droplet viability, their relationship remain complex.



COVID-19; SARS-CoV-2; Temperature; Humidity; Transmissibility



CU03PH: Youth Engagement in Art for Mental Health and Climate Anxiety

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Background: Youth today face the dual challenge of rising mental health concerns and climate anxiety, exacerbated by social, economic, and environmental pressures. Mental health stigma and a lack of accessible, relatable platforms for self-expression often hinder young people's ability to address these issues. Art has proven to be a powerful medium for emotional expression, healing, and advocacy, making it a promising tool to engage youth in addressing both mental health and climate anxiety.

Methods: This study explored the use of art as a method to engage youth in discussions and interventions around mental health and climate anxiety. Through a series of workshops, focus group discussions, and participatory art projects, we engaged 100 young people aged 15-25. These activities were designed to encourage participants to express their feelings and experiences related to mental health and climate change through visual art, poetry, and music. Data was collected through pre- and post-workshop surveys and interviews to assess changes in mental health awareness, emotional resilience, and attitudes toward climate change.

Results: Through peer-to-peer support and collaboration with other stakeholders we have empowered 50 young people who are continuing with the art and dancing. Preliminary findings indicate a significant reduction in self-reported levels of anxiety and stress among participants. Over 75% of participants reported feeling more empowered to address their mental health and climate-related fears after engaging in art-based activities. Participants demonstrated increased awareness and openness to discussing mental health, as well as a deeper understanding of the intersections between mental health and environmental challenges.

Conclusion: Engaging youth through art-based interventions offers a creative and effective approach to addressing mental health challenges and climate anxiety. This method not only provides a safe space for self-expression but also fosters emotional resilience, community building, and greater advocacy for mental health and climate action. Future programs should further explore the scalability and long-term impacts of such interventions.



Mental Health; Climate Anxiety; Youth Engagement; Art-based Interventions; Emotional Resilience



CU04PH: Exposure to toxic chemical elements (Pb, Cd, and Hg) and its association with high blood pressure among secondary school attending adolescents in Northwestern Tanzania

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Background: Lead (Pb), cadmium (Cd), and mercury (Hg) are common pollutants in low- and middle-income countries and are among the WHO's 10 toxic chemical elements of major public health concern. Adolescents may be at higher risk of exposure to toxic elements due to their behavior (sports activities, eating, hand washing, and hygiene). However, little is known of the risks, and distribution of exposure, and association with high blood pressure (BP) among adolescents.

Methods: We conducted a cross-sectional study. A Swahili translated WHO STEPs instrument was used to collect data on socio-demographic and behaviors risks for high BP. Standard procedures were followed to collect anthropometric, BP measurements, and dried blood spot (DBS) samples. We assessed the DBS samples' total blood chemical element composition using inductively coupled plasma mass spectrometry. Risk factors for exposure to each of the three toxic elements (Pb, Cd and Hg) were assessed using linear regression. Association of high BP and exposure to toxic elements was assessed using logistic regression.

Results: We successfully enrolled 500 adolescents with a median age of 14 years from 3 randomly selected schools. We found high prevalence of elevated blood levels of toxic chemical elements; Pb (47.7%), Cd (17.8%), and Hg (9.8%). Median (IQR) blood levels for Pb, Cd and Hg were 4.74 (2.16 to 8.36) $\mu\text{g}/\text{dL}$, 0.03 (0.00 to 0.32) $\mu\text{g}/\text{dL}$, and 0.31 (0.10 to 0.74) $\mu\text{g}/\text{dL}$ respectively. The commonest co-exposure was for Pb and Cd, 57(11.4%), and most importantly 11 (2.2%) were exposed to all three toxic elements. Exposure was significantly higher among younger, male participants (for Pb); having stunted growth (for Cd); among older, female, and having a lifetime history of drinking alcohol (for Hg). High blood levels of Pb were significantly associated with sustained high BP.

Conclusion: Overall, there is a high burden elevated blood levels of toxic chemical elements particularly lead which is associated with high BP among adolescents in Mwanza City (Tanzania). Further studies to identify common sources of exposure and implement preventive measures are required.



Toxic chemical elements; Dried blood spot; Blood pressure; Adolescents; Tanzania



CU05PH: Exposure to Toxic Chemical Elements and Kidney Function among People Living with HIV/AIDS in Northern Tanzania

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Background: Environmental exposure to toxic chemicals including cadmium (Cd), lead (Pb), and mercury (Hg), are known risk factors for kidney disease. In People living with HIV/AIDS (PLWH), kidney disease is the leading cause of death. Neither traditional risk factors nor markers of HIV infection fully explain such an increased risk. This study aimed to determine the Toxic Chemical Elements exposure and its association with Kidney Function among People Living with HIV/AIDS in Northern Tanzania

Methods: This was a Longitudinal Prospective Parallel-group Cohort study that compares toxic chemical levels (T-Cd, T-Pb, and T-Hg). A total of 500 HIV-infected and 500 non-HIV-infected subjects were analyzed. Spearman's rank correlations were used to examine the relationship between toxic chemical elements by HIV status. Modified poison regression was used to determine the association between exposures and the outcome of interest among study participants.

Results: Irrespective of the HIV status, blood T-Cd, T-Pb, and T-Hg levels were found at levels above the reference value of 5, 50, and 20 µg/L, respectively. Overall, correlates of blood toxic chemical levels included vegetable serving per week, BMI, water

sources, use of alcohol, and HIV status. Among HIV-positive naïve, weekly vegetable serving, provided a protective effect against T-Cd (Coeff=-0.03, 95%CI=-0.06, -0.01) and T-Pb (Coeff=-0.05, 95%CI=-0.09, -0.01) exposure among HIV-infected subjects. Participants with cadmium level of >5(µg/L) had a 7% higher prevalence of kidney disease (aPR=1.07, 95%CI=0.59, 1.91) as compared to their control with cadmium level of ≤5 (µg/L). Participants with Mercury level of >20(µg/L) had a 29% higher prevalence of kidney disease (aPR=1.29, 95%CI=0.92, 1.80) as compared to their control with Mercury level of ≤20 (µg/L). Participants with Cadmium >5(µg/L) and Mercury level of >20(µg/L) had 2 times higher prevalence of kidney disease (aPR=2.12, 95%CI=0.49, 9.03) as compared to their control with Cadmium ≤5 (µg/L) and Mercury level of ≤20 (µg/L).

Conclusion: Individuals in northwestern Tanzania, including PLWH, have higher blood levels for T-Cd, T-Pb, and T-Hg. Correlates of such higher blood levels include water sources, nutrition status as indicated by BMI, use of alcohol, duration of exposure to indoor smoke, and HIV status. Higher levels of toxic chemical elements potentiate kidney disease.



HIV/AIDS; Kidney disease; Cadmium; Lead; Mercury; Biomonitoring; Exposure



CU06PH: Addressing Pharmaceutical Residues in the Environment: Mitigation and Adaptation Strategies for a Sustainable Healthcare Future

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Background: Pharmaceutical residues in the environment pose a significant risk to ecosystems and human health. These pollutants, including antibiotics, hormones, and other active substances, often enter water systems through improper disposal, patient excretion, and wastewater treatment inefficiencies. The growing body of research highlights the urgency of addressing these contaminants, as they contribute to antimicrobial resistance and disrupt aquatic life. Sustainable healthcare practices offer a pathway to mitigate these environmental impacts. Raise awareness, identify key pollutants, assess current practices, promote sustainable solutions, encourage policy development and Inspire future research.

Methods: This presentation is based on a comprehensive literature review of current research on pharmaceutical pollutants, their environmental impacts, and existing mitigation strategies. Sources include peer-reviewed articles, policy reports, and case studies on best practices in sustainable healthcare and pharmaceutical management.

Results: The literature review revealed a range of strategies to reduce pharmaceutical residues in the environment. These include promoting deprescribing and responsible medication use, enhancing wastewater treatment technologies, introducing eco-friendly pharmaceuticals, and implementing take-back programs for unused medications. Interdisciplinary cooperation among healthcare providers, pharmacists, and policymakers emerged as critical to the success of these strategies.

Conclusion: Pharmaceutical residues are a pressing environmental issue, yet viable solutions exist. By integrating mitigation and adaptation strategies into healthcare systems, we can significantly reduce the environmental burden of pharmaceuticals while maintaining patient care standards. This work aims to provide participants with a deeper understanding of the issue and practical solutions for fostering more sustainable healthcare practices.



Pharmaceutical residues; Environmental pollution; Sustainable healthcare; Mitigation strategies; Eco-friendly pharmaceuticals



CU07PH: Assessment of Lead and Cadmium Bioavailability in Mining-Impacted Regions of Kedougou-senegal and western Kenya Using *Xenopus laevis* as a Sentinel Organism

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Background: Artisanal and Small-Scale Gold Mining (ASGM) is one of the main causes of increased potentially toxic elements concentrations in the soil and resulting exposure. Frequently, Potentially Toxic Elements (PTEs) are introduced into the circulatory system in mining areas through ingestion of dust, water or food. ASGM process can modify the mobility, bio-accessibility and bioavailability of potentially toxic elements in a gold mine set up resulting in unpredictable health risk. Modelling of environmental pollution and health risks associated with mining activities can be achieved through the use of sentinel organisms like *Xenopus laevis*. At the initial stages of growth of *Xenopus*, the majority of genes, signalling pathways, biological processes, and organ systems are highly conserved between man and *xenopus*.

Methods: This study utilized *Xenopus laevis* as a sentinel organism to assess the bioavailability of Lead and Cadmium. The bioavailability of these PTEs from mine wastes collected from the two regions were tested in the

gastrointestinal tract and notochord of *Xenopus laevis*, providing insight into their potential for absorption in living organisms and related bioactivities.

Results: Bioavailability tests using *Xenopus laevis* revealed a positive correlation between the total concentrations of Pb and Cd in mine waste samples and their bioavailable fractions within the organism. Specifically, correlation values (R^2) for Pb ranged from 0.02 to 0.66 in both the GIT and notochord, while Cd showed a stronger correlation with values between 0.80 and 0.96 in GIT and notochord respectively. These results indicate that *Xenopus laevis* is a useful model for assessing the bioavailability of toxic elements in polluted environments.

Conclusion: The findings highlight *Xenopus laevis* as a valuable bioindicator and a sentinel organism for environmental monitoring, particularly in regions affected by mining activities. It is a super laboratory model and as proxy species for scientific studies of human related health issues associated with the effects of mining pollution to the various environmental matrices.



Xenopus laevis; Lead and Cadmium; Bioavailability; Biomonitoring; Sentinel Organism



CU08PH: Planetary Health Visibility in Kenya: The Role of Campus Ambassadors

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Background: Planetary Health, an emerging field with global attention. There is a potential influence that the social, political, economic and other complex interaction has on human health and natural systems. In Kenya, several planetary health emergency issues are connected to human-nature interaction. There is an increasing need to bring to people's understanding, the interconnectedness between humans and nature. Planetary health campus ambassadors (PHCAs) in Kenya, from different professional backgrounds, have played a pivotal role in driving this urgent need. This is aimed at stimulating mind-set change towards interdisciplinary and multi-sectoral understanding of human health from natural systems.

Methods: With respect to planetary health, this method involves integrating knowledge and expertise from various fields such as environmental and social science, public health, education and policy. Significantly, the ambassadors have used the different avenues to educate, organizing workshops, seminars, and campaigns to achieve the urgency of Planetary Health; the intricate link between human health and nature.

Results: A great existence of strong networks and partnerships within different

campuses, learning institutions, community-based organizations, and government bodies, creating a united force for positive transformation. Contribution to research and innovation in planetary health, planetary health education, Planetary Health Young Professionals, global cross cutting courses and seminars, exchange programs, community engagements, grassroots projects on water resources conservation, wetlands, solid waste management, green spaces, mental health, sports and arts. PHCAs have Leverage online platforms and social media to effectively disseminate information, inspiring a broader audience to participate in finding solutions to present-day planetary health concerns in Kenya.

Conclusion: PHCAs in Kenya are influential agents of change, exemplifying the visibility of planetary health concept in their areas of coverage; there is a clear understanding of the connection between human well-being and the environment through a multifaceted approach. There is further need to strengthen collaboration, expand research efforts, prioritize community engagement, and sustain educational programs, policies, and use of online platforms for maximum impact. By building on success stories and implementing more activities, the visibility of Planetary Health can extend to broader coverage.



Planetary Health Emergency; Visibility; Planetary Health Campus Ambassadors; Multidisciplinary approaches



CU09PH: Occupational Health Hazards, Safety Knowledge, and Contributing Factors among Pump Attendants in Mwanza City, Northwestern Tanzania

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Background: The safety of petrol pump attendants is a critical concern globally, with various factors influencing their knowledge of safety practices. Petrol pump attendants face a variety of occupational health hazards, including exposure to flammable liquids, toxic fumes, and musculoskeletal strain.

Objective: This study aimed to assess occupational health hazards (namely VOC, noise, and PM_{2.5}), safety knowledge, and contributing factors among petrol pump attendants in Mwanza City, Northwestern Tanzania.

Methods: This was an analytical cross-sectional study. A total of 150 participants were analyzed. Modified poisson regression was used to determine the association between exposures and outcomes of interest among study participants.

Results: More than half (67.3%) of the participants were aged between 25-34 years. Their Median age was 27(IQR: 25-30) years. About 42.7% of the participants reported experiencing noise effects. Participants with at least secondary education had a 70% higher chance of Knowledge of safety practices (aPR= 1.70, 95%CI=1.06-2.69) as compared to their reference group with

primary education; participants with working duration of greater than 5 years had a 41% higher chance of Knowledge on safety practices (aPR=1.41, 95%CI=1.35-1.91). Participants with occupation health risk had a 45% higher chance of noise effects (aPR=1.45, 95%CI=1.01-1.97); participants with excessive working hours had a 83% higher chance of noise effects (aPR= 1.83, 95%CI=1.56-4.24) as compared to their counterparts with normal working hours. Participants with breathing problems in the last six months had a 42% higher chance of noise effects (aPR= 1.42, 95%CI=1.21-1.87) as compared to their counterparts. Participants with Skin rashes, eye irritation, and chest pain had two times higher chance of noise effects (aPR= 2.04, 95%CI=1.66-4.64) as compared to their control.

Conclusion: The knowledge on occupational safety practices is still poor among participants. The rates of reported occupational health hazards are still high in the studied population. This calls for the need to design targeted interventions to increase the knowledge of occupational safety practices among participants and hence reduce the risk of occupational health problems in Mwanza City.



Petrol Pump Attendants; Occupational health hazards; Tanzania



CU10PH: Implementation of adaptation in the health sector in Southern and Eastern Africa

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Background: Many countries in Africa are likely to experience an aggravated impact of climate change on infectious diseases and other climate-sensitive health illnesses and outcomes. Adaptation planning in the health sector is necessary to increase resilience. Several African countries are developing national policies that include health adaptation priorities – others have developed adaptation plans specific to the health sector. Evidence is scarce regarding how health is addressed in current policies, and the level of implementation of health adaptation response measures. This study aims to identify health adaptation priorities in East and Southern Africa; map stakeholders working on climate and health adaptation, their interlinkages and evidence needs and identify the key factors influencing climate and health adaptation.

Methods: Key informant interviews were conducted with 16 climate and health stakeholders in five countries between July and September 2022. In addition, adaptation policies, and strategies of 14 countries in East and Southern Africa were reviewed, including national/health adaptation plans, climate change and response strategies, and nationally determined contributions. A thematic analysis was conducted using NVivo to identify factors that influence climate-health adaptation in the region.

Results: The emerging themes from the key informant responses regarding implementing capability for adaptation strategies included the power and mandate of health adaptation institutions, the formation of partnerships, the presence of departments and multidisciplinary working groups, the policy environment, and the availability of resources (finance, information, and human resources). Evidence identified were the need to improve access to local/regional climate and health research, to conduct health risks and vulnerability assessments, and to develop national adaptation plans for health. Analyses of adaptation strategies and plans found that health is recognized as a vulnerable sector in all countries, and in all recent national adaptation strategies or plans. A few countries had prepared health sector-specific national adaptation plans or conducted health risk and vulnerability assessments.


Conclusion: Policy development on climate health adaptation is increasing in Eastern and Southern Africa, and it is well understood from both an environmental and a public health perspective. Adaptation support should focus on developing disease-specific adaptation strategies, and heat-health plans, and identifying additional funding mechanisms



Climate change; Health, policies; Health adaptation; Adaptation strategies; Climate adaptation priorities



CU11PH: HIV-Exposed Uninfected children: The Impact of pesticides exposure on Neurodevelopment disorder in Southern and Eastern Africa. A systematic review and Meta-analysis among smallholder horticulture growers

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Background: There is evidence that neurodevelopment disorders can be attributed to environmental exposures such as pesticides, On the other side evidence suggests that antiretroviral (ART) exposure is associated with neurodevelopmental delays in (HIV)-exposed uninfected (HEU) children, but little is known among the community with exposures, especially among horticulture growers.

Methods: The study was conducted by the use of public databases whereby it was conducted according to PRISMA standards. Only studies on pesticides exposed or HEU children aged 0-15 years in Southern and Eastern Africa. Africa, both quantitative and qualitative, we included studies which have been conducted from 2008 to July 2024 which are cohort, case-control, and cross-sectional. Before the systematic review, the study was pre-registered in PROSPERO 2023 CRD42023467206. Databases such as Science Direct, PubMed, Scopus, Medline, SID, Conference website, Web of Science (WOS), AJOL, Grey literature, and Google Scholar from 2008 to July 2024 were searched to find related studies using various algorithms and Boolean logic. Data were analyzed using Comprehensive Meta-Analysis software (Version 2).

Results: Out of 1497 studies, 28 were included in the systematic review and seven in the meta-analysis. Pesticide use in Southern and Eastern Africa poses health and environmental risks. Six studies linked various pesticides to neurodevelopmental disorders in children, affecting cognitive, motor, and emotional development, emphasizing the need for regulation and monitoring. Studies spanned from 2008 to 2024 done in eastern and southern Africa on HIV/ART and Pesticides with Neurodevelopment. The pooled risk estimate was 0.11 (0.02-0.20) and 2.01 (1.2-13.02) for Pesticide and HIV/ART exposures accordingly. When all the studies included in this study in eastern and southern Africa were compared it was shown that areas or countries with High cases of Neurodevelopment because of pesticides had also some cases that have resulted due to exposure to HIV/ART among exposed children.

Conclusion: Overall, although further research is needed, current evidence in eastern and southern Africa suggests HEU children may be at risk of delayed neurodevelopment in the early years of life, particularly in LMIC settings who are posed with co-exposures with Pesticides



Neurodevelopmental disorders (NDDs); autism spectrum disorder; Pesticides Exposure; HIV-Exposed Uninfected (HEU); Horticulture growers



CU12PH: Exploring the Complexity of Climate Change: Climate Fresk Experience from Summer School Planetary Health 2024 - Methodological Approach for Medical Students

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Background: Climate change is the most significant health threat globally. To effectively respond, it is crucial to first understand its underlying causes and impacts. The Climate Fresk is a science-based tool, used in 3-4-hour workshops to help participants grasp the causes and consequences of climate change. Sourced from IPCC reports, the tool promotes collective intelligence to explore solutions for both mitigation and adaptation, making it a powerful tool for climate education. It is accessible and scalable across communities and organizations.

Methods: In September 2024, a group of medical students from Mwanza participated in a Climate Fresk Workshop at the Summer School on Planetary Health in Würzburg, Germany. Following an online facilitator training in October, they organized a workshop at the CUHAS 2024 pre-conference. Participants were divided into small groups for a 3-hour session, where they used 42 illustrated cards to explore climate systems under facilitator

guidance, ensuring active involvement and understanding.

Results: The 42 evidence-based cards are an effective tool for educating professionals on the links between climate, environment, and health within the framework of Planetary Health. By training students as facilitators, peer-to-peer education is fostered, allowing them to teach fellow students cost-effectively. The cards can be printed at no cost, and online training is affordable, making this intervention easily implementable in various settings, particularly in Africa.

Conclusion: By developing a shared understanding of climate change mechanisms, the Climate Fresk enabled 40 participants to engage in constructive discussions about climate solutions. The workshop fostered strong connections among participants, equipping them to pursue the climate actions they identified.



Climate Fresk; Planetary Health; Climate Change; Climate Crisis



CU13PH: The AMR Ambassadors Program for Young People in Africa: Lessons Learned from Multidisciplinary Engagement in Antimicrobial Resistance Mitigation

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Background: Antimicrobial Resistance (AMR) is a dire threat to global health security. To help mitigate this threat, the AMR Ambassadors Program for Young People in Africa which was launched in July 2022, was designed. The program aimed to address AMR through education, advocacy, innovation, and grassroots interventions across 14 African Countries through a One Health Approach. The Program's objective was to create a multidisciplinary network of tertiary-level students and early career professionals to lead in AMR awareness and intervention. The implementation of the program was done in three phases: AMR education; leadership empowerment and acquisition of project management skills; and development of sustainable AMR mitigation initiatives. The program was ring-fenced and involved open-access webinars, mentorship, social media campaigns, and the establishment of AMR clubs and outreach programs in tertiary institutions.

Methods: Empowering youth with knowledge and skills and creating supportive networks can potentially catalyze sustained change in our communities. The program employed a multidisciplinary approach, with students recruited from diverse academic backgrounds, including non-medical courses as we believe everyone

has a role in the mitigation of AMR. This approach encouraged collaboration, innovation, and the establishment of sustainable structures such as community engagement projects and university-based AMR clubs.

Results: Key lessons learned included the significance of a multidisciplinary approach, intentional mentorship, and contextualizing project activities to the local needs to enhance targeted interventions. Best practices noted include the use of contextualized educational materials, strategic partnerships establishment, and the significance of monitoring and evaluation in refining and scaling up successful initiatives.

Conclusion: The AMR Ambassadors Program shows the potential harbored by youth-led, multidisciplinary initiatives to address global health challenges from the local scale. This program has laid a foundation for continued AMR mitigation efforts across Africa through the empowerment of young people. This model can be tailored to another community setting, replicated, and adapted to other public health challenges, making it highly significant for addressing global health security issues.



Antimicrobial Resistance; Youth Engagement; Global Health Security



CU14PH: Planetary Health and Nutrition: Addressing Child Under-Nutrition in Zambia

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Background: Child undernutrition remains a pervasive global challenge, with low- and middle-income countries disproportionately bearing the burden. Within the Planetary Health framework, addressing malnutrition requires a clear understanding of how environmental degradation, climate change, and socio-economic inequalities converge to impact human health. Sub-Saharan Africa continues to face alarming rates of chronic undernutrition, with Zambia among the most affected nations. According to the 2018 Zambia Demographic and Health Survey (ZDHS), 35% of children under five years are stunted. This study analysed the distribution and determinants of stunting in Zambia.

Methods: We utilized Bayesian distributional regression to examine the relationships between socio-economic factors, remotely sensed environmental characteristics, and anthropometric outcomes among children under five years. The analysis was conducted on georeferenced data from 25,852. We assessed the linear, non-linear, and spatial effects of covariates on the height-for-age z-score with a particular focus on environmental and socio-economic factors aligned with planetary health considerations.

Results: Between 2014 and 2018, the mean height-for-age z-score improved from -1.59 (credible interval (CI): -1.63; -1.55) to -1.47 (CI: -1.49; -1.44), reflecting a modest but important reduction in stunting. Non-linear associations were identified between maternal education, household wealth, and child nutritional outcomes, with higher maternal education (beyond eighth grade) significantly reducing stunting variation. While environmental factors derived from remote sensing explained minimal variance, the results underscore the Planetary Health perspective: socio-economic factors, particularly maternal education and wealth, play a critical role in mitigating the adverse impacts of environmental change on nutrition.


Conclusion: Despite incremental progress, stunting remains unacceptably high in Zambia, with pronounced regional disparities. Tackling undernutrition in Zambia requires comprehensive policies that promote resilient food systems, enhance maternal education, and mitigate the effects of environmental and climate-related stressors. Achieving SDG 2 will depend on policies that align health interventions with sustainable environmental and socio-economic strategies.



Under-five; Nutrition; Environmental Change; Maternal Education; resilient food systems



CU15PH: A Tree at a Time: A Nature-Based Approach Towards Climate Change Mitigation

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Background: Climate change poses a critical global challenge, with severe health, environmental, and socio-economic consequences. In Kenya, forest cover currently stands at around 8.83%, below the recommended global minimum of 10%. Deforestation and land degradation have contributed to reduced carbon sequestration capacity, exacerbating the effects of climate change, such as unpredictable weather patterns, droughts, and soil erosion. Tree planting has emerged as one of the most effective nature-based solutions to mitigate climate change, and conserve biodiversity conservation, and ecosystems restoration. This study examines the role of community-based tree planting initiatives in improving forest cover in Kenya, as a climate change mitigation approach.

Methods: This study focused on a community-led afforestation campaign conducted over a year. A total of 1,000 trees were planted in urban and rural areas, with priority given to indigenous tree species that are well adapted to local climates. Participants from the community, including schools and local organizations, were involved in planting and caring for the trees. Basic data on tree

survival rates and community participation were collected through tree head-counting and participants' feedback surveys.

Results: 80% of the trees planted survived after the first six months. These trees are expected to absorb around 20 tons of CO₂, annually upon maturity. Additionally, the campaign increased community awareness, with 85% of participants reporting a better understanding of climate change and the importance of trees. The project also helped improve local biodiversity.

Conclusion: Tree planting is a simple yet powerful solution for mitigating climate change. However, its success depends on active community involvement. This study highlights that community engagement not only improves tree survival rates but also raises environmental awareness. For tree planting efforts to have a lasting impact, ongoing care and participation from local communities are essential. Expanding such initiatives with strong community support can significantly contribute to carbon reduction and ecosystem restoration. Empowering communities to take ownership of climate actions is key to building a sustainable future.



Climate Change Mitigation; Tree Planting; Carbon Sequestration; Community Engagement; Ecosystem Restoration



CU16PH: Geo-spatial Epidemiological Modelling of Selected Climatic and Environmental Factors Correlating to COVID-19 Infection in Zambia

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Background: The role environmental and climatic-related conditions play in the transmission of infectious diseases cannot be disputed. There has been growing evidence for some time now that many respiratory viruses such as MERS, SARS, and COVID-19 have a distinctly seasonal pattern of incidence. COVID-19 is an emerging disease known for less than three years and its correlation with climatic variables is not well articulated. This study aimed to investigate the role of Environmental and Climatic factors in the transmission of COVID-19 in three ecological regions of Zambia. The study considered environmental and climatic factors of importance in the transmission of respiratory diseases (COVID-19) temperature, humidity, and wind speed.

Methods: A cross-section study was conducted in Zambia at the National level. The COVID-19 cases were obtained from the Zambia National Public Health Institute with data from March 2020 to September 2021 from the repository database with mapped GIS waypoints. The climatic and environmental data was obtained from Accu Weather for the period between March 2020 and September 2021. Correlation coefficients were used to determine the relationship

between COVID-19 and humidity, temperature, wind speed, Carbon monoxide, Nitrogen dioxide, and Sulfur dioxide at 95% Confidence Interval (CI). The data were analysed in a Python program. Spatial COVID-19 incidence maps were developed using Arc GIS Version 10. Results: The following were significantly correlated with COVID-19 cases: at the national level, temperature ($r=-0.096$, 95% CI, -0.143-0.048, $p < 0.001$), Wind speed ($r=-0.124$, 95% CI, -0.171-0.076, $p < 0.001$). Environmental variables: Carbon monoxide ($r=-0.116$, 95% CI, -0.163-0.069, $p < 0.001$). We observed a distinct spatial distribution with a high prevalence of COVID-19 cases along the line of rail and trade areas in Zambia.

Conclusion: Our results contribute to a better understanding of the mechanistic inter-relationships between COVID-19 transmission and the climatic and environmental factors at the national and regional levels in Zambia. There is a need to have improved remote sensing data stations for improved disease surveillance and modeling of climatic impacts on health. Trade areas play a significant role in COVID-19 disease transmission therefore, surveillance systems and interventions should take this into account.



Environmental factors; Climatic factors; Climate change; Remote sensing



CU17PH: Magnitude of work-related ergonomic hazards and Perceived ergonomic health-related challenges among artisanal and Small-Scale Gold Miners in Northwestern, Tanzania

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Background: Artisanal and Small-scale Gold Mining (ASGM) in Tanzania involves millions of workers and often lacks proper measures leading to significant ergonomic hazards. While chemical exposures are well documented, ergonomic risks and related health issues are not well studied in our setting.

Objective: To understand the magnitude of ergonomic hazards and perceived ergonomic health-related challenges among artisanal and Small-Scale Gold Miners in northwestern, Tanzania.

Methods: This was an analytical cross-sectional study. A total of 410 participants were analyzed. A modified poisson regression model was used to determine the association between exposures and outcomes of interest among study participants. The Cox regression model was conducted to assess the hazard ratios among study participants.

Results: The majority of participants were aged between 35-72 years, with a median age of 35. Most had primary education (57.7%). Around 52.9% worked in limited visibility, and 54.9% worked in excessive heat. Over half (57.3%) had less than 5 years of mining experience. Participants involved in amalgamation and burning activities experienced significantly higher ergonomic

hazards over about 12 years compared to those involved in digging, pulverization, transport, and washing. Participants with a duration of 5 to 10 years in the mining had a significantly 50% higher prevalence of good safe practice (aPR=1.50, 95%CI=1.21, 2.90). Participants who were involved in transport and washing had 64% higher prevalence of ergonomic health hazards (aPR=1.64, 95%CI=1.09, 1.67) as compared to participants involved in digging and personalization. New ASGM miners were likely to acquire ergonomic health challenges (P-value <0.0001, 95% CI). Encountering ergonomic hazards were significantly higher in participants dealing with amalgamation and burning (p-value <0.0001, 95% CI).

Conclusion: Higher work-related ergonomic hazards prevail among artisanal and Small-Scale Gold Miners. A clear awareness of the ergonomic-related health challenges ASGM miners face, with many reporting musculoskeletal issues like back pain. There is a need to set evidence-based and targeted interventions to alleviate the rate of work-related ergonomic hazards among Gold Miners.



Ergonomic hazards; Perceived health problems; Artisanal and small-scale gold mining



CUCND: COMMUNICABLE AND NON-COMMUNICABLE DISEASES INTERACTIONS AND GLOBAL HEALTH SECURITY



CU01CND: Menstrual chart patterns and its associated clinical profile, fertility changes and outcomes among women with hormonal-related infertility at Bugando Medical Centre, Mwanza, Tanzania

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Background: Infertility is a global public health issue, affecting one in six individuals at some point in their lives. Menstrual cycle patterns serve as indicators of reproductive health, and tracking these patterns is a simple, non-invasive, and cost-effective method that all women should consider. This study aimed to analyse menstrual chart patterns, clinical profiles, interventions among women with hormonal infertility at Bugando Medical Centre.

Methods: A prospective longitudinal study that involved 230 women with hormonal infertility aged between 18 and 44 years, was carried out at Bugando Medical Centre from March 2023 to March 2024. A structured questionnaire was used to collect participants demographics and clinical history. Mothers were instructed to chart their menstrual cycle. Data analysis was done according to the objectives using STATA version 15 and Pearson's χ^2 test or Fisher's Exact test was used to measure the association between menstrual

patterns and clinical profiles. The significance level was determined at p-value <0.05.

Results: The mean age was 32.2 ± 5.7 years. The years of infertility ranged from 1 to 20 with a median age of 4 [IQR=2-7] years. Participants with normal HbA1c conceived more than those with abnormal HbA1c; 34.7 % (41/118) versus 22.3 % (25/112), p-value 0.037, while those without signs of thyroid hormone (31.1%) 61/196 conceived more compared to those with signs of thyroid hormone (14.7%) 5/34, p-value 0.035). At the end of three months, most of them were ovulating. Among those who ovulated 28.7% conceived within three months.

Conclusion: Answers to infertility are hidden within the menstrual cycle patterns. Menstrual cycle charting and lifestyle changes should be incorporated as tools in managing women with infertility.



Menstrual patterns; Infertility; Basic hormonal profile; Lifestyle changes



CU02CND: Abdominal aortic aneurysm in a 64-year-old male patient: A Case Report

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Background: Abdominal aortic aneurysm (AAA) is an abnormal dilatation of the abdominal aorta measuring >5 cm in maximum diameter. Majority of AAAs are asymptomatic and are detected as an incidental finding on imaging. The most feared complication is rupture of the AAA, which presents with severe abdominal pain, hypotension and shock.

Case report: A 64-year-old male with hypertension on irregular medication presented with abdominal pain worsening with time and 3 days history of blood in stool. Known patient with hypertension, brachial plexus injury on physiotherapy, newly diagnosed internal haemorrhoids and diverticulosis via colonoscopy. He had a blood pressure of 170/132 mmHg, pulse rate of 93 bpm and an oxygen saturation of 93%. The laboratory markers were unremarkable. On clinical examination, a pulsating

swelling was seen in the anterior abdominal wall peri-umbilical region.

Imaging: Ultrasound showed a rounded peri-umbilical retroperitoneal mass measuring 8.6 cm x 7.3 cm with turbulent blood flow arising or continuous with the abdominal aorta with eccentric to the right mixed iso-hypoechoic mural thrombus suggesting an abdominal aorta aneurysm. CT Angiography confirmed the abdominal aorta aneurysm arising from abdominal aorta at the level of L2 extending to the right common iliac artery.

Management: Patient was referred to Jakaya Kikwete Cardiac Institute (JKCI), Dar es Salaam and scheduled for Endovascular Aneurysm Repair (EVAR).

Conclusion: Abdominal aortic aneurysm (AAA) has high mortality rate if ruptured. Screening for individuals at risk using imaging is recommended.



Abdominal aortic aneurysm; Case report



CU03CND: Occipital Meningoencephalocele in a 5 Day Old Male Patient: A Case Report

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Background: Meningoencephalocele is the most congenital form of neural tube defect and a type of encephalocele where brain tissue and overlying meninges herniate through a defect in the bony cranium. It appears as direct continuity through a defect in the calvaria. It occurs in one of every 4000 live birth. Imaging modalities include ultrasound, brain CT and MRI. Treatment option depends on associated anomalies.

Case study: A 5-day old baby delivered term at home by SVD with Apgar score of 9/10, weighed 2.8kg. He presented with swelling on the back of the head leaking clear fluid.

Imaging: Ultrasound was not done because of risk of sepsis. CT Brain showed a midline occipital skull defect seen on occipital bone measuring 3.78cm

in maximum diameter with an extracranial mixed soft tissue and cystic mass in direct continuity with the occipital brain parenchymal tissue measuring 3.55cmx6.43cmx5.83cm on anterior posterior, transverse and craniocaudally diameters respectively. There was significant posterior midline shift of 0.9cm towards the defect.

Management: Patient underwent surgery (encephalocele repair). Currently the patient is doing well on iv antibiotics, wound dressing and neonatal care.

Conclusion: The prognosis of meningoencephalocele is variable depending on the presence of associated anomalies and the presence of microcephaly carries a much poorer prognosis. A caesarean delivery may be considered to allow for a less traumatic birth.



Meningocele; Encephalocele; Cerebrospinal fluid



CU04CND: Progressive Massive Fibrosis in a 55 year old male patient with Silicosis

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Background: Progressive massive fibrosis (PMF) refers to the formation of large mass-like conglomerates, predominantly in the upper pulmonary lobes, associated with radiating strands. These classically develop in the context of certain pneumoconiosis (especially coal worker's pneumoconiosis and silicosis). Progressive massive fibrosis (PMF) develops from long-term inhalation of harmful dust particles, causing scarring and mass-like fibrosis in the lungs.

Case study: A 55-year-old male presenting with shortness of breath, cough and exertional dyspnea for 6months, denied a history of chest pain but has a positive history for productive cough with whitish sputum, fever and night sweat also a positive history of smoking for more than 10 years and he was a miner for more than 20 years, but denied the history of pulmonary TB and cardiac diseases. Laboratory results showed raised Serum C -Reactive protein but sputum culture was negative.

Imaging findings: Chest X-ray showed conglomerate mass-like opacification in bilateral middle upper lung zones with fibrotic changes with a right sided blunting of the costo-phrenic angle. CT chest demonstrated diffuse confluent mass-like opacification within the bilateral lower lobes superior segments. Also noted mediastinal and hilar lymphadenopathy with eggshell calcifications. This was suggestive of progressive massive fibrosis secondary to silicosis.

Management: Treatment modality requires removal of the exposure, although silicosis may progress despite removal of the cause. In acute silicosis particularly, the clinical course is usually progressive and ends in death due to cor-pulmonale and respiratory failure.

Conclusion: Progressive massive fibrosis (PMF) is the most severe form of dust-induced lung diseases such as silicosis and coal worker's pneumoconiosis (CWP).



Progressive Massive Fibrosis; Silicosis; Mining



CU05CND: Hemangiopericytoma in a 21-year-old male: A Case Report

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Background: Hemangiopericytomas of the meninges are rare, aggressive tumors now classified as a form of solitary fibrous tumors of the dura. They typically present as large, locally invasive masses that can extend through the skull. On imaging, they are often difficult to differentiate from meningiomas. Treatment generally involves surgical removal, sometimes followed by radiotherapy to minimize the high risk of recurrence. Hemangiopericytoma is an aggressive, highly vascularized tumor originating from the vascular pericytes. The tumor is growing fast, tends to recur and develop distant metastases along the neuronal axis. Hemangiopericytomas have a more multilobular appearance with sometimes irregular margins, a strong enhancement, including the adjacent meningeal structures.

Case study: A 21-year-old male present with a swelling on the head for 1 years

increased with time associated with convulsion and headache but no fever no vomiting.

Imaging findings: Cranial ultrasound showed a mass with serpiginous structures with vascular flow on Doppler suggestive of a vascular mass. CT Brain showed an avid contrast enhancing mass within the right parietal lobe measuring 5.8 x 7.1 x 5.5 cm in AP, TV and CC diameters with surrounding vasogenic edema and associated mass effect, midline shift of 2.6cm. Subcutaneous tissues of the scalp demonstrated multiple tortuous dilated enhancing vessels. Features are suggestive of a hemangiopericytoma.


Conclusion: These tumors are aggressive, with a tendency to recur and metastasize, also can be difficult to treat, making early diagnosis and close follow-up critical.

Cranial Ultrasound; CT Brain; Hemangiopericytoma





CU06CND: Exposure to pornographic material and perpetration of intimate partner violence among young men in Mwanza, Tanzania

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Background: Intimate partner violence (IPV) is a public health concern that negatively impacts women's health. Preliminary evidence from high-income countries suggests that IPV perpetration is linked with exposure to pornographic materials among men, by encouraging negative norms of masculinity. This study examined the relationship between frequent exposure to pornography and IPV perpetration among young men in Mwanza city, northwestern Tanzania.

Methods: We conducted across-sectional survey among 1002 randomly selected young men aged between 18 and 24 years living in the city of Mwanza, Tanzania. Data was collected using tools previously piloted and used by other similar studies.

Results: Of the 828 ever-partnered young men included in the study, 396

(47.8%) reported to have been exposed to pornography in the past 12 months, with 14.1% of them reporting to have been exposed at least once a week. In the last 12 months, 21.4% of participants perpetrated sexual IPV, while 43.2% and 15% reported to have perpetrated emotional and physical IPV respectively. After adjusting for covariates, exposure to pornography was significantly associated with sexual (aOR=2.77 95% CI 1.51 – 5.08), emotional (aOR = 1.84 95% CI: 1.01 – 3.37) and physical (aOR= 1.65 95% CI 1.00 – 2.74) IPV perpetration. Frequent exposure to pornography was associated with sexual, emotional, and physical IPV perpetration in this study population.

Conclusion: Interventions aiming at reducing exposure to pornography could help to reduce perpetration of IPV among young men in these settings.



Intimate partner violence; Pornography; Young men; Tanzania



CU07CND: Improved gonadal hormones levels following anti-retroviral therapy initiation among men with human immunodeficiency virus infection

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Background: Male hypogonadism is commonly reported in HIV-infected males with a prevalence of up to 89% and shown to decrease in the antiretroviral therapy (ART) era as compared to pre-ART era. Data regarding the effect of ART on gonadal hormones levels are scarce. Therefore, this study determined changes in gonadal hormones levels in HIV males following ART initiation.

Methods: This was a longitudinal study involving newly diagnosed ART naïve HIV-infected men in Mwanza, Tanzania. All enrolled participants underwent thorough clinical and physical examination including anthropometric measurements. A pre-structured questionnaire was used to collect socio-demographic and clinical data. Serum total testosterone (TT), follicle stimulating hormone (FSH), luteinizing hormone (LH) and estradiol were estimated at baseline, six and twelve months after ART initiation. Serum TT < 300 ng/dl, or ≥ 300 ng/dl with high LH and FSH were taken as markers of hypogonadism.

Results: The medians levels of TT and LH after six and twelve months were found to be significantly higher while estradiol was significantly lower than at baseline ($p < 0.001$). Between after six and twelve months, only median estradiol levels showed significant change with levels being lower after twelve months ($p < 0.001$). The change in FSH was not statistically significant. Of the 89 participants who had hypogonadism at baseline, 44 (49.4%) normalized and had higher median testosterone than those who did not normalize. Furthermore, there was a statistically significant association between testosterone change and initial viral load ($p = 0.049$), WHO clinical stage ($p = 0.031$) and baseline hypogonadism status ($p = 0.014$).

Conclusion: Gonadal hormones improved significantly following ART initiation with half of the HIV-infected males who had initial finding of low TT normalized TT. Baseline TT values seem to be predictive of the future evolution of the disease.



HIV; ART; Gonadal hormones; Hypogonadism



CU08CND: Testing for Digital Voice and Speech Markers of Brain Health in a Population Sample from Two Regions of Tanzania

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Background: While there has been extensive research on digital and plasma markers of Alzheimer's disease and related dementias (AD/ADRD) in many high-income countries (HIC), there is little known on the population prevalence of these markers in Tanzania.

Methods: We utilized a 2023 population survey for genetic resistance to anti-malaria drugs, in areas of high and low malaria transmission in Tanzania. We collected blood samples and voice recordings from participants living in two regions of Tanzania, Arusha and Songwe. After malaria testing, left over blood from 2244 participants (median age 18 years, Interquartile range=(8,42), 55% females) was centrifuged to produce 5ml of plasma, transported to NIMR Mwanza Centre and stored in -80°C freezers. Samples will be tested for AD plasma-based biomarkers, including plasma A β 40 and A β 42, p-tau 181, p-tau 217, neurofilament light (NfL) and glial fibrillary acidic protein (GFAP) and APOE genotype. The population prevalence will be compared to previous studies in Framingham Heart Study (FHS, a community cohort in USA)

Results: 976 participants (median age 23 years, 55% females) were asked for informed

consent for a 5-minute voice recording in Swahili, using Android mobile phones, using a standard protocol with pictures and specific questions as triggers. Voice recordings are being processed using open-source toolkits, such as OpenSmile for extracting acoustic features, and an AI-tool, Whisper, for transcribing speech to text for extracting linguistic features. The acoustic and linguistic patterns for the Swahili samples will be compared to those of the English speakers from the FHS. The analyses will include: (1) correlation analysis between acoustic and linguistic features and (2) exploratory factor analysis to understand and compare the underlining correlation structures of those features across languages. Once the blood markers are available, we will examine the associations between voice/speech markers and plasma biomarkers for AD.

Conclusion: We aim to collect repeat measures of voice and speech markers longitudinally from the same cohort in Tanzania, to identify people with cognitive change and at high risk of AD. The results from this study will be useful to develop policies for ADRD diagnosis and management in Tanzania and other Sub-Saharan African countries.



Brain health; Alzheimer's disease; Acoustic features; Population survey



CU09CND: Congenital diaphragmatic hernia in a 3-week-old male neonate: A Case Report

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Background: Congenital diaphragmatic hernia (CDH) is a developmental defect where abdominal contents herniate into the thoracic cavity due to an incomplete diaphragm fusion via. The most common type is Bochdalek hernia, usually occurring posterolaterally on the left side, while Morgagni hernia is less common, occurring anteromedially. CDH has a multifactorial etiology, involving genetic, environmental, and nutritional influences, along with various chromosomal anomalies and teratogenic exposures. It affects about 1 to 4 per 10,000 live births, with a slight male predominance. Pathologically, CDH results in significant lung hypoplasia.

Case study: A 23-day old male neonate came in with complaints of sudden onset of difficulty in breathing since day 3 of life, on and off pattern with associated chest tightness. Not associated with

cough, no cyanosis, vomiting. No history of fever reported.

Imaging findings: Chest x-ray showed Left hemithorax large radiolucent lesion displacing the mediastinum. There is also burring of the left costo-phrenic angle and CDH was suspected with differential diagnoses of congenital cystic lung disease. **CT Chest** confirmed Bochdaleck hernia with a posterolateral defect on left hemi-diaphragm with visualized air fluid level of the stomach and bowel loops herniated into the left thoracic cavity.

Conclusion: There is a need for early detection or diagnosis of CDH for better outcomes of the affected infants. The prognosis is variable depending on associated anomalies. Medical follow ups are required as the patient grows is vital due to minimize complications.



Bochdalek hernia; Congenital; Hemithorax; Associated defect; Mediastinum



CU10CND: Short-term functional outcomes and their associated factors for posterior lumbar spine decompression in patients with degenerative lumbar spine stenosis attended at Bugando Medical Centre, Mwanza - Tanzania

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Background: Decompression surgery in patients with degenerative lumbar spine stenosis is considered when symptoms causing pain and disability to the patient are resistant to non-operative treatment. In well selected patients for decompression surgery, it is an effective treatment modality. Familiarity of the associated factors for good outcome may help surgeons in prognosis evaluation when they consider lumbar spine decompression surgery in these patients.

Methods: The prospective cohort study was conducted in the orthopaedics and trauma wards, neurosurgery wards and surgical outpatient clinic. Diagnosis for degenerative lumbar spine stenosis was made based on patient's clinical presentation and confirmed with Magnetic Resonance Imaging (MRI) results documented by a radiologist. Patients who met the inclusion criteria were enrolled in the study after signing a written consent form. The associated factors of functional outcome were documented. Pain status and the level of disability was evaluated before decompression surgery, and after 6 weeks post-surgery using Visual Analog Scale (VAS) Oswestry Disability Index (ODI) and respectively. Data were collected and analysis using STATA version 16 was done.

Results: 29 patients (22 female, 7male) with degenerative lumbar spine stenosis who underwent posterior lumbar spine decompression surgery were enrolled into this study. The mean age was 54 years. The patient mean pre-operative low back pain and leg pain VAS score was 9.14 ± 1.16 while the mean preoperative level of disability ODI score was 66.65 ± 9.41 . The commonly affected and decompressed level was L4/L5. Postoperative functional outcome evaluated at 6 weeks showed the mean score for pain measured by VAS was 4.82 ± 1.67 and disability measured by ODI was 43.10 ± 18.98 . Age played a key role in determining the post-operative level of pain improvement whereas anatomical level of the lumbar spine stenosis was associated with improvement in post-operative level of disability.

Conclusion: Decompression surgery provides improvement in functional outcome in patients with degenerative lumbar spine stenosis. Age plays significant role in pain improvement post-surgery whereas the level of stenosis is an important factor in determining post-operative improvement in level of disability.



Short term functional outcome; Degenerative lumbar spine stenosis; Posterior lumbar spine decompression



CU11CND: Prevalence of Renal Dysfunction and Associated Factors among HIV Infected Individuals on Tenofovir Disoproxil Fumarate Based Regimen in Mwanza, Tanzania

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Background: Tenofovir disoproxil fumarate (TDF) is a cornerstone combined antiretroviral therapy (cART) for human immunodeficiency virus (HIV) in Tanzania, but concerns exist regarding its potential nephrotoxic effects. This study determined the prevalence of renal dysfunction and associated factors following TDF use among people with HIV/AIDS in a tertiary care center in Mwanza, Tanzania.

Methods: A cross-sectional study involving 3000 adults on TDF-based cART conducted. Sociodemographic and clinical information were collected and analysed. Renal function was assessed using serum creatinine and eGFR (estimated glomerular filtration rate). All individuals having eGFR less than 90 ml/min/1.73m² were considered to have renal dysfunction.

Results: The prevalence of renal dysfunction associated with TDF based regimen was 54.0%, significantly higher than the pre-TDF prevalence (38.3%). Multivariate analysis identified older age (36 years and above: AOR = 1.76, 95% CI: 0.73-4.23, P = 0.041), longer HIV duration since diagnosis (3 months and above: AOR = 1.18, 95% CI: 0.54-2.59, P = 0.042), and higher viral load (above 1000 copies/ml: AOR = 1.14, 95% CI: 0.53-2.45, P = 0.000) as independent risk factors for renal dysfunction.

Conclusion: This study highlights a high prevalence of renal dysfunction following TDF use. The use of TDF based cART should be avoided in individuals with renal dysfunction or have pre-existing risk factors for renal dysfunction.



TDF; Renal dysfunction



CU12CND: Shock Index and Its Association to Postpartum Blood Loss among Women Delivering at Bugando Medical Centre

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Background: Postpartum haemorrhage is the leading cause of maternal mortality in Tanzania accounting up to 29% of direct cause of maternal death. Sub-optimal management attributed to inaccuracy visual underestimation or overestimation of blood loss has resulted in delays in diagnosis and treatment of PPH ending in adverse outcomes. Shock index is an emerging strategy that is currently replacing visual estimation of blood loss in the developed world, its applicability at our setup is yet to be examined. This study aimed at determining the association of shock index and postpartum blood loss among women delivering at Bugando Medical Centre

Methods: From August 2023 to April 2024, 840 pregnant women who delivered at Bugando Medical Centre participated in this cross-sectional study. Structured questionnaire was used to collect social demographic and clinical characteristics, physical examination done, and vital signs recorded. Data were entered in Excel and coded then STATA version 18 was used to analyse the data as per

study's objectives. Statistical significance was assigned to outcomes with a p value of less than 0.05.

Results: a total of 840 participants were recruited. The prevalence of Postpartum haemorrhage based on abnormal shock index and visual estimation of blood loss were 10.4% and 3.2% respectively. Abnormal shock index was highly associated with abnormal blood loss with an AOR of 6.45 (95% CI, 1.12-37.13, p=0.037). Abnormal obstetric shock index and delivering an overweight baby of more than 3.5kg increased the risk of having abnormal blood loss with an AOR of 10.47 (95% CI, 1.48-74.54, p=0.018).

Conclusion: The study found that about one in every ten women delivered vaginally at Bugando Medical Centre had an abnormal obstetric shock index immediately postpartum. Obstetric shock index has been found to be important as a predictor of abnormal blood loss and hence hemodynamic derangement. It is high time that we integrate the use of obstetric shock index in our daily practice in postpartum management.



Obstetric shock index; Visual estimation of blood loss; Postpartum haemorrhage



CU13CND: Pattern of Histopathological and Clinical Features of Head and Neck Malignancies Among HIV-Positive and HIV-Negative Patients at Bugando Medical Centre, Mwanza, Tanzania

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Background: Head and neck malignancies are a major health concern, particularly among HIV-positive individuals. With the use of highly active antiretroviral therapy (HAART), cancer incidence in HIV-positive patients has decreased, and their malignancies are now more closely resemble those of HIV-negative patients. This study examined clinical and histopathological patterns of these malignancies at Bugando Medical Centre.

Methods: A cross-sectional study was conducted from March to July 2024, involving 75 patients with histologically confirmed head and neck cancers. Clinical data, including HIV status, were collected. Histopathological analysis and HIV testing were done using National guidelines. Data was analyzed using Stata version 15.

Results: HIV prevalence was 17.33%. HIV-positive patients had more distant metastasis (76.92%) and advanced stages of cancer. Squamous cell carcinoma (SCC) was the most common malignancy in both groups, with high proportions among HIV-positive patients. Lymphomas were also more common in the HIV-positive group.

Conclusion: HAART has shifted cancer patterns toward non-AIDS-defining malignancies. These findings highlight the importance of routine HIV screening and the need for tailored treatment strategies for HIV-positive individuals. Public health initiatives should promote awareness of increased cancer risks in HIV-positive patients and emphasize regular screenings. Further studies and standardized HIV screening in oncology settings are recommended to optimize care.



Head and neck malignancies; HIV; Squamous cell carcinoma; histopathology; Tanzania



CU14CND: Prevalence of High Disease Activity and associated Factors among Patients with Rheumatoid Arthritis attending Bugando Medical Centre in Mwanza, Tanzania

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Background: Rheumatoid arthritis (RA) is a chronic, symmetrical, inflammatory autoimmune disease that initially affects small joints then progresses to larger joints, and eventually the skin, eyes, heart, kidneys, and lungs. Management of RA involves initiating disease-modifying anti-rheumatic drugs and regular assessment of disease activity. High disease activity is associated with morbidity and mortality.

Methods: This was a hospital-based cross-sectional study that was carried out from April 2024 to June 2024 in MOPD at Bugando Medical Centre. A consecutive sampling technique was used to enroll 134 rheumatoid arthritis patients aged 18 years and above. A structured questionnaire was used to collect all demographic information. An observation checklist was used to collect clinical information. The DAS-28 tool was used to document all parameters needed for the calculation of disease activity, and blood samples were drawn for ESR. Data entry and cleaning were done using Microsoft Excel and exported to STATA version 16 for analysis. Univariate logistic regression analysis was performed and all variables with p-value < 0.25 were subjected to the multivariate logistic regression analysis and factors with

p-value <0.05 were considered statistically significant.

Results: A total of 134 participants were found to have confirmed rheumatoid arthritis (RA), with 74 of them exhibiting high disease activity. This means that the prevalence of high disease activity was 55.2%. Additionally, 29.10% had moderate disease activity, 6.7% had low disease activity, and 9.0% were in remission. After adjusting for the effect of other covariates, participants with HTN, heart failure, and overweight were significantly associated with high disease activity on multivariable logistic regression analysis (AOR =1.98; 95%CI=1.32-4.13; p-value<0.001), (AOR =.1.76; 95%CI=1.54-2.66; p-value<0.034) and (AOR=1.54; 95%CI=2.11-4.43; p-value<0.003) respectively.

Conclusion: In our study, 55.2% of participants had high disease activity with few being in remission. Hypertension, overweight, and heart failure, which are the main cardiovascular diseases, were associated with high disease activity. Treating to target all patients with RA can be adopted so that we attain disease activity to remission, hence improving the cardiovascular complications.



Rheumatoid arthritis; Disease activity



CU15CND: The Utility of Hematoxylin and Eosin Stain and S100 Compared to Calretinin on Tissue Blocks Suspected with-Hirschsprung's Disease at Bugando Medical Centre, Mwanza, Tanzania

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Background: Hirschsprung's disease is a congenital disorder characterized by the absence of ganglion cells in the part of the bowel leading to functional obstruction. Accurate and timely diagnosis of this condition is crucial for appropriate management and patient outcomes. H&E staining, S100, and Calretinin staining are commonly used techniques for the diagnosis of HD. Calretinin is a gold standard and has better accuracy in the diagnosis of HD, but its availability and cost make it a limiting factor compared to routinely available H & E and S100 stains in histopathology laboratories. This study aimed to establish the utility of H & E, and S100 on the diagnosis of HD compared to the gold standard Calretinin, at BMC.

Methods: Retrospective cross-sectional study 106 cases stained for both H&E, Calretinin IHC and S100 IHC. The slide reviewed by resident and then by two pathologists and the diagnostic value of H&E and S100 was determined in comparison with Calretinin IHC in the diagnosis of HD. A statistical analysis by STATA version 15v1 was done to assess the agreement, sensitivity, and specificity of

H&E, S100 IHC compared to Calretinin IHC in the diagnosis of HD

Results: The overall concordance of S100 and Calretinin IHC was 65.1 % and the discordance of 34.9 with Cohen's Kappa agreement of 0.59 (moderate agreement). The sensitivity of S100 was 38%, and specificity of 92%, with a PPV of 84% and NPV 59%, while concordance of H&E and Calretinin was 83.9 % and the discordance rate was 16.1%, sensitivity 85%, specificity 82%, PPV 83.6%, NPV 84% with Cohen's Kappa agreement of 0.67(substantial agreement).

Conclusion: H&E staining showed high sensitivity and specificity 85% and 82% respectively compared to S100 IHC with sensitivity and specificity of 38% and 92% respectively when both compared to the gold standard Calretinin IHC in the diagnosis of HD. Therefore H&E can still be used in the diagnosis of HD over S100 in the absence of the gold standard Calretinin IHC. S100 should be used to demonstrate nerve bundles and when the ganglion cells are inconclusive or sparse due to highly specificity.



Immunohistochemistry; Haematoxylin and Eosin; Hirschsprung's disease; Bugando Medical Centre



CU16CND: The patterns and factors associated with severity of chronic pelvic pain in women of reproductive age attending Bugando Medical Centre, Mwanza-Tanzania

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Background: Chronic pelvic pain is a major Gynaecological health problem in women. In Tanzania, as in other countries in sub-Saharan Africa, chronic pelvic pain is a gynaecological health problem. When untreated, chronic pelvic pain leads to reduced work capacity, social withdrawal and impaired quality of life, its diagnosis and treatment are challenges for gynaecologist and physicians. There is a gap in knowledge on how to diagnose, treat and manage chronic pelvic pain.

Methods: This was a cross-sectional hospital-based study assessing the severity of chronic pelvic pain using both the Verbal Rating Scale, the Visual Analogue Scale and laparoscopy procedure among women of reproductive age attending the gynaecological clinics at Bugando Medical Centre from June 2023 to May 2024. A structured questionnaire was

used to collect data. Data management and analysis was performed using STATA version 15.

Results: A total of 250 women were included in the study. The most commonly reported characteristic of pain was intermittent (47.2%), followed by cramping (30.8%), pelvic adhesions (45.6%), uterine fibroids (15.25%), endometriosis (8.7%), appendicitis (7.5%), and no pathological lesion diagnosed at laparoscopy (22.5%).

Conclusion: The study shows that the pattern of chronic pelvic pain in women of reproductive age is intermittent pain followed by cramping pain. Factors associated with the severity of chronic pelvic pain in women of reproductive age are pelvic adhesions, endometriosis, uterine fibroids and appendicitis. This leads to early detection and effective treatment.



Chronic pelvic pain; Women of reproductive age



CU17CND: Prevalence and factors associated with intraventricular haemorrhage among premature neonates admitted at Bugando Medical Centre, Mwanza Tanzania

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Background: Intraventricular haemorrhage (IVH) is a common neurological complication in premature neonates, especially those born before 32 weeks of gestation or weighing less than 1500g. It involves bleeding into the brain's ventricular system from the fragile capillaries of the germinal matrix. Clinically, mild cases are often asymptomatic, while severe cases may have neurological deficit associating with high mortality rate. According to World Health Organization, 13.4 million babies are born prematurely every year, with limited data in sub-Saharan Africa. This study aimed at determining the prevalence and factors associated with intraventricular hemorrhage among premature neonates admitted at Bugando Medical Centre (BMC).

Methods: A hospital-based cross-sectional study with conducted from February to June 2024 at BMC. Cranial ultrasound (CUS) was performed on premature neonates within 72 hours and

day 7 of life to detect and grade IVH. Data was analysed by STATA version 15 using logistic regression with a p value <0.05 considered statistically significant.

Results: The prevalence of IVH among the 410 enrolled premature neonates was 23.4%; CUS <24 hours (OR(95%CI)=4.3[1.2-15.8], p=0.028), very and extremely low birth weight (OR(95%CI)=7.1[1.5-33.5], p=0.013) and (OR(95%CI)=10.1[2.0-51.5], p=0.006) respectively, hypothermia (OR(95%CI)=0.4[0.2-0.7], p=0.002) and respiratory distress syndrome (OR(95%CI)=2.0[1.1-3.8], p=0.023) were independently associated with increased risk of IVH.

Conclusion: The prevalence of intraventricular haemorrhage among premature neonates was high with very low birth weight, extremely low birth weight, hypothermia, and respiratory distress syndrome being the modifiable risk factors.



Intraventricular haemorrhage; Premature neonates



CU18CND: Perceived Barriers of Uptake of Cataract Surgical Services Among Patients with Cataracts Attending Eye Clinics in Mwanza Region, Northwestern Tanzania: A Multi-Methods Study

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Background: Cataracts constitute a significant global health concern, with a substantial impact on visual impairment worldwide, particularly in sub-Saharan Africa. Despite being a highly successful treatment, cataract surgeries remain underutilized in many Low and Middle-Income Countries (LMICs), including Tanzania. Various barriers, hinder patients from accessing cataract surgery, contributing to a rise in blindness and visual impairment cases. This study aimed to determine the uptake of cataract surgical services and explore perceived barriers among cataract patients attending eye clinics in Mwanza Region.

Methods: Multi methods were employed in a cross-sectional design. The 148 cataract patients' data was extracted by a standardized checklist for the quantitative component and complemented by 8 focus group discussions for the qualitative component.

Results: The majority of the participants were aged 45 years and above. The study revealed that cataract surgery uptake among diagnosed patients in Mwanza Region was low (40%), with less

than half of those diagnosed undergoing the procedure. Major barriers identified include fear of surgery, driven by myths of misinformation, and financial constraints. One participant said that "It is just the issue of cost and fear; you might find a person is just afraid when they hear surgery, they feel like the eye will be removed. So, it is just fear, and perhaps you find a person has not reached the point of completely losing sight; they see a little and continue with their activities" (P4, Male Bugando). These factors lead to patients delay or completely avoid treatment, exacerbating the burden of preventable blindness and highlighting the need for targeted interventions to improve access to cataract surgery.

Conclusion: Fear of surgery, fuelled by myths and misinformation, along with financial constraints, are significant barriers preventing access to cataract surgery. Addressing these issues through targeted public health interventions, including educational campaigns and financial support, is essential to improving patient outcomes.



Perceived barriers; Cataract; Cataract surgery services



CU19CND: Molecular Characterization of Acute Lymphoblastic Leukaemia in Tanzania

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Background: Acute lymphoblastic leukemia (ALL) cancer diagnosis may be improved by using targeted therapies of tyrosine kinase inhibitor (TKI) management for gene translocation for p190 Philadelphia (BCR-ABL) positive and somatic mutations referred to as single nucleotide variants (SNVs). Molecular diagnosis has led to targeted therapies of specific molecular profiles. The frequency of somatic pathogenic mutations related to ALL in both adult and pediatric patients, the uniformity of p190 Philadelphia q-PCR methods with Next Generation Sequencing (NGS), and the clinical presentation and behavior of ALL patients in relation to the noticed mutations.

Methods: A cross-sectional study from Muhimbili National Hospital and Bugando Medical Centre was conducted using samples that were initially suspected of being ALL cancers based on cellular morphology from August 2023 to June 2025. A panel of monoclonal antibodies conjugated to fluorochromes (FITC, PerCP, and PE) and the proper isotype controls in accordance with the Euroflow panel guidelines and practice flow cytometry was used. Library preparation

was performed using the AmpliSeq for Illumina Myeloid Panel sequencing. Genome Aggregation Database (gnomAD) database was used to filter out variants with a higher likelihood of being common benign variants. This filtering step helped to prioritize potentially pathogenic variants for analysis.

Results: Preliminary findings 21(48%) ALL patients currently recruited, 17(39%) ALL samples currently sequenced. Translocations identified in 5(11%) samples BCR - ABL1 rearrangement from the NGS against 3(7%) from q-PCR of the same group patients. Target ID T00653 breakpoint A chr22:23524426, breakpoint B chr9:133729451, patient currently on going with TKI management. 10(22.7%) had pathogenic mutation deletion variant out of 17 sequenced, the somatic variants where JAK2, CREBBP.

Conclusion: Describe the most common somatic pathogenic mutations in acute lymphoblastic leukemia that are presently unidentified in Tanzania and the molecular profile that determines whether or not these mutations are associated with poor or favorable outcomes for targeted therapy in ALL.



Acute lymphoblastic leukaemia; BCR - ABL1; Tanzania



CU20CND: 3-year Survival Outcomes and related factors in patients who had radical hysterectomy for early-stage cervical carcinoma at Bugando Medical Centre Mwanza Tanzania

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Background: Radical hysterectomy is the surgical removal of the uterus, cervix, upper vagina, parametria, and paracervical tissues, together with bilateral pelvic lymph node resections. Since 2014, Bugando Medical Centre (BMC) has operated on more than 110 patients with early-stage cervical cancer, but their long-term survival outcome has not been evaluated. This study was designed to determine the 3-year survival outcomes and related factors among patients who had radical hysterectomy for early-stage cervical carcinoma at Bugando Medical Centre.

Methods: This was a retrospective cohort study involving women who had radical hysterectomy for early-stage (IA1-IIA1) cervical cancer at BMC between 2014- 2020. Data were retrieved from patients' electronic databases and hard copy files and coded in the data collection tool. Missing histological results were retrieved from the BMC histopathology archive. Epi-info TM software was used for data entry, and data were exported to STATA version I3 for analysis. The Kaplan-Meier method was used to determine the survival outcomes, and the log-rank test was used to determine

association between related factors and survival outcomes.

Results: The study enrolled 86 patients of which the majority were less than 60 years (80.2%) with a mean age of 51±10.0. The 3-year Overall Survival was 96.5%, the disease-free survival was 79.1%, and the recurrence rate among study participants was 20.9%.

Factors associated with 3-year disease recurrence among patients who had radical hysterectomy were Tumour size of ≥4cm (p<0.001), poorly differentiated tumour grade (p=0.004), adenocarcinoma type of histology (p<0.001), vaginal vault lesion (p<0.001) and surgical margins involvement (p<0.001).

Conclusion: Radical hysterectomy for early-stage cervical cancer had a good 3-year survival outcomes. The overall survival was 96.5%, disease free survival was 79.1% and the recurrence was 20.9% which is within the acceptable range. Factors associated with survival outcomes are tumour size, tumour grade, histological type of tumour, vaginal vault lesion, and surgical margins involvement.



3-year survival outcomes; Radical hysterectomy; Early-stage cervical cancer



CU21CND: Unilateral Microtia in a 6-year-old male patient: A Case Report

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Background: Microtia is a congenital anomaly of the ear that ranges in severity from mild structural abnormalities to complete absence of the ear. Microtia can occur as an isolated birth defect or as part of a spectrum of anomalies or a syndrome. Microtia is often associated with hearing loss. When it is completely absent it is termed anotia. Microtia is graded as I (slightly smaller ear than normal but all other structures are normal; II (small ear with some structures are abnormal); III (absence of the external ear with a small deformed vestigial structure with no recognizable features, often associated with external acoustic canal atresia); IV (complete absence of the external ear (anotia) “vegetation-like” structure with micrognathia as a complication. Differential Diagnosis would include congenital deafness, inner ear agenesis, craniofacial microsomia, Bixler (hyperthyroidism-microtia-clefting). High resolution computed tomography

(HRCT) imaging of temporal bone plays an important role in planning appropriate management. all grades of microtia.

Case study: 6-year-old boy with history of smaller than normal right ear since birth. Physical exam demonstrated absence of the right pinna with a visible sausage-shaped skin remnant right side.

Imaging findings: HRCT showed vestigial right pinna with the external auditory canal is absent and there were no recognizable ossicles in the right middle ear.

Management: Surgical reconstruction may be either allographic with the use of costal cartilage or alloplastic with the pinna cartilage remnant.

Conclusion: Imaging plays a vital role on evaluating the grades and prognosis of microtia.



Congenital ear anomalies; Microtia; HRCT



CU22CND: Unravelling Prognostic Significance: Long-Read Nanopore Sequencing of TP53 and IgHV in Chronic Lymphocytic Leukaemia Patients in Tanzania

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Background: Chronic lymphocytic leukaemia (CLL) exhibits considerable clinical heterogeneity, necessitating the identification of reliable prognostic markers for disease stratification. Key among these is *TP53* and *IgHV* mutational status, which have significant implications for disease prognosis and therapeutic decision-making. Conventional sequencing approaches may lack the resolution needed to capture the full spectrum of genomic alterations present in CLL. Leveraging long read nanopore sequencing technology offers an avenue for the characterization of *TP53* mutations and *IgHV* status in Tanzanian CLL patients. We aim to enhance prognostic accuracy and inform the development of targeted therapeutic interventions.

Methods: The cohort comprised thirty-one (31) CLL patients. *TP53*(exon1-11) & *IgHV* locus was amplified from genomic DNA using modified primers, with modifications to cooperate Oxford Nanopore barcoding tails. Sequencing was carried on MinION Mk1C. Bioinformatics pipeline comprises with different tools (Minimap2, Samtools v1.7, VarScan v2.3.9 and Nanopolish v0.11.0) were used to perform bioinformatics analysis.

Results: In our analysis of samples from 31 patients, we identified two prominent

hotspot mutations within the DNA binding domain of the *TP53* protein. Specifically, the R273C missense variant was prevalent, detected in 18 patients with a high variant allele frequency (VAF) of $\geq 60\%$. Additionally, the R249G missense variant was observed in one patient, exhibiting a VAF of $\geq 30\%$. These variants are notably classified as pathogenic, damaging, and deleterious, as validated by 21 different mutation scores retrieved from the *TP53* database. Regarding *IgHV* mutation status, our findings revealed that 10 patients exhibited unmutated *IgHV* sequences, showcasing $\geq 98\%$ homology with respect to the germline. Conversely, 2 patients displayed mutated *IgHV* sequences, demonstrating $\leq 98\%$ homology with respect to the germline. Among the frequently rearranged *IgHV* genes, *IGHV1-69*, *IGHV3-21*, and *IGHV3-23* were notably prominent.


Conclusion: By delineating mutations within the *TP53* gene and uncovering diverse *IgHV* mutation profiles, we have gained invaluable prognostic insights despite inherent resource constraints. These findings underscore the pivotal role of advanced sequencing technologies in informing clinical decision-making and enhancing patient outcomes in the management of CLL, even in resource-limited environments.



Chronic Lymphocytic Leukaemia (CLL); TP53 Mutations; IgHV Mutation Status; Long-Read Nanopore Sequencing; Prognostic Markers



CU23CND: Non-alcoholic Fatty Liver Disease: Prevalence, Predictors and Diagnostic Utility of Surrogate Serum Markers among Patients with Type 2 Diabetes Mellitus in a Tertiary-level Hospital in North-Western Tanzania.

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Background: Type 2 diabetes mellitus (T2DM) is among the risk factors for developing non-alcoholic fatty liver disease (NAFLD). If untreated, NAFLD can progress to chronic liver disease, with three-fold increase in mortality among patients with T2DM. Despite its significantly high prevalence, routine screening of NAFLD is not usually done among T2DM patients in Tanzania. We aimed to determine the prevalence and predictors of NAFLD among adults with T2DM, and to establish the diagnostic correlation between transient elastography (TE) and other markers; triglyceride index (TyG-I), TyG-body mass index (TyG-BMI) and TyG-waist circumference (TyG-WC).

Methods: A cross-sectional study was conducted among 254 outpatients attending diabetic clinic at Bugando Medical Centre in Mwanza, Tanzania. Demographic, clinical and laboratory data were collected and analysed. Fatty liver was diagnosed using TE. A receiver operating characteristics (ROC) curve analysis without covariates was used to determine the optimal cut-off points for Tyg-I, Tyg-BMI and Tyg-WC for

diagnosis of NAFLD. A two-by-two table was used to calculate the sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV).

Results: The prevalence of NAFLD was 62.6% (159/254). NAFLD was best predicted by obesity (p -value <0.003), high waist circumference (>96 cm) (p -value=0.028) and elevated blood pressure (SBP >130 and / or DBP >80mmhg) (p -value <0.001). The best cut-offs for predicting NAFLD for TyG-I was 4.8 (AUC 0.525; sensitivity 66.66 %, specificity 37.89%, PPV 64.24% , and NPV 40.45%), for TyG-BMI was 139.85 (AUC 0.6192; sensitivity 62.89%, specificity 63.16%, PPV 74.07% and NPV 50.42%) and for TyG-WC was 442.2 (AUC 0.676; sensitivity 67.30%, specificity 52.63%, PPV 70.39% and NPV 49.02%).

Conclusion: Our study showed that majority of T2DM patients attending the clinic had NAFLD and all predictors were modifiable. Other surrogate markers for detection of NAFLD showed poor accuracy. We recommend all patients with T2DM to be screened for NAFLD by using TE for early detection and intervention.



Non-alcoholic fatty liver; Diabetes mellitus; Transient elastography; Tanzania



CU24CND: Fundoscopic ophthalmic structural patterns and its association to preeclampsia severity in pregnant women attending Bugando Medical Centre Mwanza Tanzania

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Background: Physiological changes of pregnancy appear to affect all body systems. Pregnant-related conditions like HDP and Diabetes mellitus are reported to alter the physiological changes of pregnancy. In almost all pregnant-related conditions, 16% of maternal deaths are attributed to hypertensive disorders. In Tanzania, the incidence of PE at Bugando Medical Centre was reported to be 1.4% with a fatality rate of 7.89 %. Eyes involvement though quite common, is rarely investigated however visible retinal vascular changes occur in 30-100 percent of preeclamptic patients and visual symptoms are reported in 25-50 percent.

Methods: This is a cross-sectional study for a period of 6 months from June 2023 to November 2023 of all pregnant women attending Bugando Medical Centre. The Fundoscopy examination was performed, and results were recorded.

Results: A total of 480 participants were included in this study. The mean age of study participants was 28 ± 5 years. Macula exudates were the most common fundoscopic changes that occurred in 6/120 (5%) of women with PE-E followed by Papilledema 4 patients (3.33%), arteriolar narrowing in 2 (1.6%) patients, macula edema, not clear cornea and vitreous media occurred only in 1 patient. We found significant association between the severity of preeclampsia and gestational age with fundoscopic changes. We found an insignificant association between parity, gravidity and maternal age with fundoscopic changes ($p\text{-value} > 0.05$).

Conclusion: Incorporation of fundoscopic examination in women with PE-E through regular examination of the eyes will provide a simple tool that can access the degree of structural ophthalmic patterns with HDP compared to biochemistry markers which are expensive and sometimes are not available in lower facilities.



Fundoscopy ophthalmic structural patterns; Preeclampsia severity



CU25CND: Identification and Referral Practices of Retinopathy of Prematurity (ROP) among Health Workers in Mwanza, Tanzania

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Background: Retinopathy of prematurity (ROP) is a leading cause of preventable childhood blindness, globally and in low and middle-income countries like Tanzania, where healthcare resources are limited. The relatively high prevalence of preterm births, and improved neonatal services, further exacerbates the risk of retinopathy of prematurity. Despite efforts to integrate ROP screening into the management of neonatal and childhood illness, challenges persist, resulting in an increased incidence of ROP cases in Tanzania.

Methods: This was a cross-sectional study design utilizing a standardized structured questionnaire for data collection among health workers working in health facilities with KMC services in Mwanza, Tanzania. Hundred and ten health practitioners were enrolled in the study. Data was analysed using SPSS Version 25.0. Continuous variables were summarized as means and standard deviations. Categorical variables were described using frequencies, percentages, and proportions. Bivariate logistic regression was initially performed to assess independent variables for potential inclusion in a multivariate logistic regression. The results were analysed with a

95% confidence interval, using a significance level of less than 0.05.

Results: A total of 110 health practitioners were enrolled in the study. Their median age was 32 years, and 57.3% were aware of Retinopathy of Prematurity (ROP). Of the 30 health facilities with KMC services studied, only 4 (12.7%) had ROP screening programs. The availability of ROP screening was overall low at 12.7%, with 37.3% of facilities having written clinical practice guidelines for ROP screening, but only 9.8% using these guidelines in practice. Knowledge levels varied, with 22.7% having high knowledge of ROP case identification and referral, 37.3% having average knowledge, and 40.0% having low knowledge. Key challenges of ROP case identification and referral practices included a lack of resources and time constraints.

Conclusion: The study highlights significant gaps in ROP screening programs, training, and resource availability in Mwanza, Tanzania. Despite awareness of ROP among health practitioners, limited confidence and insufficient resources hinder effective ROP identification and referral. Addressing these issues through enhanced training and resource allocation is crucial for improving neonatal care.



Retinopathy of prematurity; Case identification; Referral practices; Knowledge; experience



CU26CND: Uterine Scar Thickness, Associated Factors, and Predictors among Pregnant Women with Previous Caesarean Scars at Bugando Medical Centre, Mwanza, Tanzania

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Background: In developed countries, uterine scar thickness of more than 2.5mm has been associated with successful vaginal birth after caesarean section. The use of ultrasound has practical application on measuring uterine scar thickness for pregnant women with previous caesarean delivery. This study aimed to identify associated factors and predictors of uterine scar thickness for women with prior caesarean section at Bugando Medical Centre.

Methods: This was an analytical cross-sectional study which enrolled pregnant women in their third trimester (≥ 36 weeks) attending antenatal care at Bugando Medical Centre. Uterine scar thickness was measured in women with prior caesarean deliveries by ultrasound. Data was analyzed using STATA version 15. Chi-square (χ^2) or Fisher's exact test assessed the associations, and logistic regression identified predictors, with p-

values < 0.05 considered statistically significant.

Results: Among 400 pregnant women with previous caesarean scars, 72% had thick scars, while 28% had thin scars (< 2.5 mm). Significant associations were observed between thick uterine scars and factors such as inter-pregnancy interval (≥ 18 months), absence of wound infection, normal estimated fetal weight (EFW), normal amniotic fluid index (AFI), and anterior placental location ($p < 0.05$). Multivariate logistic regression revealed that a longer inter-pregnancy interval and normal AFI were significant predictors of thick uterine scars (AOR=2.3, 95% CI=0.10-0.60, $p=0.001$; AOR=0.2, 95% CI=0.10-0.60, $p=0.002$).

Conclusion: Inter-pregnancy interval, amniotic fluid index, and gestational age were significantly associated with and predicted uterine scar thickness in women with previous caesarean deliveries.



Uterine scar thickness; Caesarean section; Predictors; Ultrasound; Inter-pregnancy interval



CU27CND: Prevalence, Pattern of Cervical Intraepithelial Lesions, and its Associated Factors Among Pregnant Women Attending Bugando Medical Centre, Mwanza-Tanzania

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Background: Cervical cancer is the fourth most common cancer among women worldwide, with an estimated, 604,000 new cases of cervical cancer, and 342,000 deaths in 2020. Intraepithelial lesions of the cervix are considered precursors of invasive cervical cancer and are common among sexually active women. At least 1% of the childbearing women screened annually for cervical cancer using the Papanicolaou (Pap) staining method are diagnosed with cervical squamous intraepithelial lesion (SIL).

Methods: A cross-sectional study was conducted at Bugando Medical Centre in Tanzania from August 2023 to February 2024 in which 300 pregnant women were recruited for the study. Pap smear was done on all participants and the sample were taken to the pathology Lab for interpretation. STATA version 15 was used to analyze the data to meet the study's objectives. Statistical significance was considered with a p-value of less than 0.05.

Results: More than half of the study participants (57.3%) were in age range 25-34

years old. The overall prevalence of SIL was 11%. Low-grade cervical interepithelial lesions (LGSIL) accounted for 8.67% of the participants, while High-grade cervical interepithelial lesions (HGSIL) accounted for 2.33%. Majority of pregnant women living with HIV had Low-grade intraepithelial lesions (LGSIL) compared to high-grade intraepithelial lesions (26.1% vs 13.0%). There was an association between age (OR=1.1:95%CI: 1.03-1.2; p =0.003), HIV status (AOR=6.5: 95%CI:1.0,38.6; p = 0.039), and parity (OR=1.47 95%CI: 1.04,2.03; p =0.027) with HGSIL, and age (OR=1.09 95%CI:1.01,1.18: p=0.023) and HIV status (AOR=6.5 95%CI:1.14,10: p=0.028)was associated with LGSIL.


Conclusion: SIL is common among pregnant women, and antenatal screening of pregnant women, particularly those with risk factors including HIV-infected women, multiparous, and advanced age can be a strategized for early detection and management these lesions.



Prevalence; Patterns; Preinvasive cervical intraepithelial lesion



CU28CND: Clinical-Pathological Features and Overexpression of Her-2 Receptors in Patients with Prostate Cancer at Bugando Medical Centre, Mwanza, Tanzania

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Background: Overexpression of the human epidermal growth factor receptor 2 (HER-2) has been associated with aggressive progression and high mortality in patients with prostate cancer. HER-2-targeted therapy has been suggested to be of therapeutic importance in prostate cancer patients who do not respond to a commonly used treatment modality. Therefore, this study aims to determine HER-2 overexpression in prostate cancer and its association with clinical-pathological.

Methods: This was a retrospective laboratory-based, cross-sectional study involving 97 patients diagnosed with prostate adenocarcinoma. Tissue blocks were retrieved for immunohistochemistry (IHC) staining of HER-2 on which tissue microarray was done. Monoclonal antibodies to HER-2 (ref no: A0485, lot no: 4140026 (DAKO) used.

The IHC staining scores of +2 and +3 were considered positive.

Results: A total number of 97 cases were included in this study, the median PSA level was 102ng/ml (range, 60 - 400ng/ml). HER-2 membrane overexpression was observed in 50 of 97 (51.55%) of the patients, while 47 patients (48.45%) were negative. There was a significant association of HER-2 overexpression with PSA level ($p=0.006$) and Gleason grade ($p=0.012$).

Conclusion: Prostate cancer in our setting showed a high level of HER-2 overexpression. These findings recommend further studies including clinical trials to be done for all patients with a high Gleason score and elevated PSA for HER-2 overexpression so that they can benefit from targeted therapy (trastuzumab).



Prostate; Adenocarcinoma; HER-2 over-expression; Gleason score; PSA level



CU29CND: Prevalence and Factors Associated with Glomerular Hyper filtration among People Living with Human Immunodeficiency Virus at Bugando Medical Centre, Mwanza, Tanzania

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Background: Glomerular hyper filtration (GHF) is an early marker of kidney damage, and if left untreated precedes decline in glomerular filtration rate (GFR), and progression to chronic kidney disease (CKD). The aim of this study was to determine the prevalence and associated factors of GHF in people living with human immunodeficiency virus (PLHIV) at Bugando Medical Centre.

Methods: This was a hospital-based cross-sectional study which involved 376 PLHIV attending the BMC CTC. The patients were randomly enrolled and screened for GHF and associated factors by collecting their demographic, clinical, and laboratory information. The CKD-EPI formula was used to estimate GFR, and $eGFR \geq 125 \text{ mL/min/1.73m}^2$ was used to define GHF. Data were analysed with STATA version 15, and significant association was considered when the p value was less than 0.05.

Results: Of the 376 participants enrolled, 195 (51.9%) had GHF. Factors associated with GHF in multivariate analysis included proteinuria (OR 3.16; 95% CI [1.8 - 5.55]; $p < 0.001$), hypertension (OR 3.02; 95% CI [1.63 - 5.59]; p -value < 0.001), diabetes mellitus (OR 5.63; 95% CI [2.84 - 11.17]; $p < 0.001$), being a past smoker (OR 2.19; 95% CI [1.01 - 4.76]; $p = 0.048$), using a TDF-based regimen (OR 1.77; 95% CI [1.0-2 - 3.09]; $p = 0.043$), and low-level aerobic activity (OR 5.14; 95% CI [2.8 - 9.44]; $p < 0.001$). Female sex and age > 55 years reduces the risk of developing GHF.


Conclusion: GHF was highly prevalent among PLHIV in Tanzania. This highlights the critical and appreciated need to monitor renal function in HIV-infected individuals in Sub-Saharan Africa, particularly those with proteinuria, hypertension, diabetes mellitus, history of smoking, low level aerobic activity, and use of TDF based regimens in first-line ART regimens.



Glomerular hyper filtration; HIV; Antiretroviral therapy; Tanzania



CU30CND: The prevalence, associated factors, and in-hospital outcome of left ventricular systolic dysfunction in patients with acute stroke admitted at Bugando Medical Centre, Mwanza, Tanzania

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Background: In Tanzania, the mortality of stroke is as high as 33.3%. At BMC there is a mortality rate of 30%. About 25% of all ischemic stroke occurrences are caused by cardiac disorders, and the prevalence of left ventricular systolic dysfunction (LVSD) among patients with stroke is 9.6% in developed countries. Despite high prevalence and mortality of stroke, there is a paucity of published data on the prevalence, associated factors and in-hospital outcome among patients with LVSD and stroke. This study aimed to determine prevalence, associated factors and in-hospital outcome of left ventricular systolic dysfunction in acute stroke admitted at Bugando Medical Centre in Mwanza.

Methods: This prospective cohort study was conducted at BMC from January 2024-May 2024. A total of 132 stroke patients aged > 18 years were confirmed with acute stroke by a Non-Contrast CT- Scan or Brain Magnetic resonance Imaging. Data was collected using questionnaire and patients were followed up till day of discharge, and data analysis was done by STATA version 15. Categorical variables were summarized in frequency and percentages, all continuous variables were summarized as mean and median. both the binary and multivariable logistic regression analyses were performed to reveal the factors associated with left

ventricular systolic dysfunction. Significant association was considered when the p value was less than 0.05.

Results: One thirty-two (132) stroke patients were enrolled, and 70(53) were female with mean age of 61 year. Total number of 45(34.1) patients had history of smoking, 52(39.5) of the patients had history of alcohol use, and 133(85.6) patients had hypertension. The prevalence of LVSD by ECHO was 15.9%. Factors associated with LVSD were being male (COR=6.81, 95% CI=1.90-3.4, p=0.008), LVH (AOR=1.9, 95%CI=1.7-3.9,p=0.04), Atrial fibrillation and atrial flutter (AOR=2.6, 95% CI=0.769.12, p=0.021), Coronary heart disease (AOR=0.14, 95% CI=0.0-0.22, p=0.003), and Diabetes mellitus (AOR=0.21,95% CI=0.04-0.98, p=0.04).Patients with LVSD had increased likelihood of being discharged with mRS score > 3 (AOR= 3.4 95% CI=1.2-9.7, p=0.008) and longer length of hospital stay (AOR=5.3,95%CI=1.86-9.5, p=0.002).

Conclusion: The prevalence of LVSD in acute stroke patients is coupled with an increase in in-hospital stay. Therefore, we recommend early screening, treatment, and control of risk factors for LVSD and stroke and the urgent need of promoting interventions to reduce morbidity and mortality from stroke.



Left ventricular systolic dysfunction; Stroke; In-hospital outcome



CU31CND: Cardiovascular abnormalities among children with sickle cell anemia attending Bugando Medical Centre, Mwanza, Tanzania

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Background: Sickle cell anaemia (SCA) imposes a global burden, especially in Africa. Annually, about 400,000 infants are born with the condition, and 75% of them live in sub-Saharan Africa. Northwestern Tanzania in particular reports a high burden of sickle cell anaemia, contributing to substantial morbidity and mortality, including severe Cardiovascular complications. Therefore, we designed the study to determine the magnitude, patterns, and factors associated with cardiovascular abnormalities in children with Sickle cell anaemia attending Bugando Medical Centre, Mwanza, Tanzania.

Methods: A hospital-based cross-sectional study that was conducted from March to May 2024 at Bugando Medical Center, involving 341 children with known sickle cell anaemia aged 2-17 years. The study included history, physical examination pertaining cardiovascular system, blood analysis and Echocardiography. In Echocardiography, valvular regurgitation was first determined, then cardiac chambers were assessed whereby; Left ventricular dilatation (LVD) was established by: Left ventricular end diastolic volume (LVED)/Body surface area (BSA)-graded into Z score chart as per American society of echocardiography. Left atrium dilatation (LAD) was established by:

Left atrium (LA)/Aortic root diameter (AO), ratio >2, left ventricular end diastolic dysfunction (LVEDD) =E/A, Ratio>2, & Tricuspid regurgitation velocity (TRV) >2.8cm/sec was Elevated Pulmonary pressure (PHTN). Data were analysed using STATA version 15.0, and significant association was considered when the p value was less than 0.05.

Results: Of the 341 eligible patients, 52.49% were male, 60.12% were aged over 6 years, and 51.32% had haemoglobin levels ≤ 8 g/dl. The prevalence of cardiovascular abnormalities detected by echocardiography was 26.7%. Significant associations were found between cardiovascular abnormalities and hemoglobin levels ≤ 8 g/dl ($p=0.001$), age >6 years ($p=0.001$), presence of cardiac murmurs ($p=0.001$), scleral jaundice, and splenomegaly ($p=0.003$), with most cases involving dilated left ventricular chamber with normal left ventricle function & ejection fraction.

Conclusion: Cardiovascular abnormalities are highly prevalent in children with SCA, particularly among those with severe anaemia, older age, with cardiac murmurs, recurrent blood transfusion history and splenomegaly. Early detection and management are crucial for improving outcomes in this population.



Cardiovascular abnormalities; Sickle cell anaemia; Northwestern Tanzania



CU32CND: Placenta accreta spectrum, and its immediate maternal outcome among pregnant women with previous uterine scar attending Bugando Medical Centre, Mwanza, Tanzania

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Background: The prevalence of placenta accreta spectrum (PAS) disorders and its aftereffects has been rising globally, with an overall prevalence of rate of 0.17%. In developed nations, PAS disorders affect about 1 in 500 pregnancies which is significantly higher than the prevalence rate in the 1980s mainly because of the rising trend in the rate of caesarean sections. In lower middle-income countries (LMICs), though not much research has been done on PAS, it is reported to have increased recently by 5–10 times, primarily as a result of significant rise in the number of caesarean sections. The aim of this study was to determine the prevalence of PAS disorders and its associated immediate maternal outcomes among pregnant women with a previous uterine scars delivering at Bugando Medical Centre BMC.

Methods: Pregnant women with previous uterine surgery due to caesarean delivery and/ or dilatation and curettage were enrolled from the gestation age of 36 weeks and then were evaluated prospectively with ultrasound for sonographic features of PAS. The features for PAS were then assessed during delivery using the FIGO

clinical diagnostic criteria for the possibility of the presence of PAS.

Results: A total of 385 pregnant women with previous uterine scars due caesarean section and /or D&C were enrolled into the study in the study for a period of 12 months. Of the 385 participants, 2.3% of the participants were prenatally diagnosed to have PAS and during delivery 66.7% of the predicted cases had confirmed features of PAS. The risks factors for PAS that showed the statistical significance ($p < 0.001$) includes previous history of caesarean scar ≥ 3 , previous history of uterine scar with concurrent placenta previa and parity ≥ 3 . Furthermore, 33.3% ($p < 0.001$) of those prenatally diagnosed to have PAS sustained severe haemorrhage necessitating blood transfusion in 11.1% ($p < 0.001$) underwent peripartum hysterectomy.

Conclusion: The proposed prenatal sonography for PAS assessment in our study has shown a significant role in PAS in patients at risk. Thus, by incorporating routine third trimester ultrasound among pregnant women at risk, will allow adequate multidisciplinary team approach for planning and timing of the delivery among pregnant women with PAS disorders.



Placenta accreta spectrum; Maternal outcome



CU33CND: Intradialytic hypertension: associated factors and short-term clinical outcome among adult patients on chronic haemodialysis at Bugando Medical Centre, Mwanza, Tanzania

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Background: End stage kidney disease is increasingly diagnosed in our set up with several patients being initiated on haemodialysis. Blood pressure elevation poses a greater risk of morbidity and mortality whereby cardiovascular disease accounts for >50% of deaths. Intradialytic hypertension (IDH) is defined as an increase of blood pressure of more than 10 mmHg rise in SBP between pre- and post-dialysis in at least four of six consecutive dialysis sessions in the hypertensive range. Despite its adverse cardiovascular events, IDH is less considered. This study was conducted to determine the factors associated with IDH and short-term clinical outcomes.

Methods: A cross-sectional study with 90-day follow-up period was conducted among 92 chronic haemodialytic patients attending Bugando Medical Centre in Mwanza, Tanzania. Convenient sampling was used to enrol participants aged ≥ 18 years. Demographic, clinical and laboratory information were collected and analysed using SPSS

version 20. Blood pressure was measured using automated cuff attached on haemodialysis machine for six consecutive dialysis sessions (pre and post dialysis) for each participant. Fluid status assessed using bioimpedance. Echocardiography and resting electrocardiography were done to assess for cardiovascular disease.

Results: The majority of the patients were male 61 (66.3%), and the median age was 59.5 (IQR=46.5-69) years. Factors found to affect IDH were large dry weight ($p=0.001$), large ultrafiltrate volume ($p=0.013$), intradialytic blood transfusion ($p=0.016$), serum calcium($p=0.027$), and albumin($p=0.003$).

Conclusion: IDH is common among chronic haemodialytic patients and was associated with large dry weight, large ultrafiltrate volume removal, intradialytic blood transfusion, serum calcium and albumin. Coronary artery disease and arrhythmia was the main outcome.



Intradialytic hypertension; Haemodialysis; Chronic kidney disease



CU34CND: Prevalence and Associated Factors for Glomerular Hyperfiltration among Patients with Diabetes Mellitus attending Bugando Medical Centre, Mwanza, Tanzania

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Background: Glomerular filtration rate is commonly elevated in early diabetes. Patients with this symptom are arbitrarily considered to have hyperfiltration as an adaptive response, and compensatory mechanism for renal injury when there is a decrease in nephrons number. Glomerular hyperfiltration (GHF) is an early marker of kidney damage that precedes a decline in GFR progressing to chronic kidney disease (CKD) in diabetes. It is estimated to occur in up to 70% of patients with type 1 and 50% of those with type 2 diabetes at the time of diagnosis or in the early stages of disease. The prevalence of GHF in sub-Saharan Africa was from the Seychelles Islands study, which defined GHF as a GFR greater than 140 ml/min and was found to be 52.8% for diabetes patients. The use of drugs such as SGLT2i has been showing a decrease in glomerular hyperfiltration in diabetes.

Methods: We analysed cross-sectional data from 385 subjects with diabetes mellitus and estimated glomerular filtration rate (eGFR) >60 ml/min/1.73 m² attending a clinic at Bugando Medical Centre, Mwanza following their consent.

Data was collected using a designed data extraction tool and analysed using STATA 17. Blood samples were collected for laboratory analysis. Glomerular hyperfiltration was defined as an estimated glomerular filtration rate (eGFR) ≥125mL/min/1.73m².

Results: Out of 385 participants included 230 (59.74%) were female with (mean age 61±1years), and the prevalence of GHF was 8.3%. Factors associated with GHF were Age ≥65 OR 0.92 (95% CI: 0.85-0.99, p=0.04), shorter duration of diabetes defined as < 5 years OR 0.7(95%CI:0.61-0.95, p=0.01) and poor glycaemic control measured by glycated haemoglobin ≥7%, OR 10 (95% CI: 1.0-101, p=0.04),

Conclusion: Our findings show a low prevalence of Glomerular hyperfiltration and were associated with Age, duration of diabetes mellitus and poor glycaemic control. Regardless of the low prevalence due to the different methodology used compared to the other studies, routine assessment of Glomerular hyperfiltration among patients with diabetes mellitus is recommended.



Glomerular hyperfiltration; Diabetes mellitus; Bugando Medical Centre



CU35CND: Mounier Kuhn syndrome in a 44-year-old female patient: A case report

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Background: Mounier-Kuhn Syndrome is a condition characterized by significant dilation of the trachea and main bronchi, often linked to tracheal diverticulosis, recurrent respiratory infections, and bronchiectasis. This condition affects middle aged men than female. Diagnosis is made through radiological imaging, revealing a normal trachea just below the glottis that expands as it extends towards the carina, often continuing into the bronchi. On CT scans, a tracheal diameter greater than 3 cm, measured 2 cm above the aortic arch, along with bronchi measurements of 2.4 cm for the right and 2.3 cm for the left, is diagnostic. Other findings may include tracheal scalloping or diverticula, especially along the posterior wall. Management is typically conservative, involving physiotherapy and postural drainage. Acute exacerbations are managed with antibiotic therapy. In rare cases, tracheal stenting is applied.

Case report: A 44-year-old female with a long history of cough for more than 20

years which was productive in nature and produced yellowish sputum associated with chest tightness and on and off fever with history of weight loss but no excessive night sweat, no history of TB contact reported. On physical examination, there was a crepitations in the lungs predominantly in the lower zones, and the sputum culture was done and showed normal upper respiratory tract normal flora despite of raised C-Reactive protein. CT lungs showed marked dilatation of the trachea and bilateral main bronchi with posterior diverticula. CT also found bilateral lower lobes bronchiolar mucus plugging of the dilated bronchi with areas of pneumonic consolidation.

Conclusion: Mounier-Kuhn syndrome is a rare condition that should be considered in patients with recurrent lower respiratory tract infections and chronic productive cough, though asymptomatic cases may also occur. The gold standard for diagnosis is chest CT with three-dimensional reconstruction.



Mounier-Kuhn; Tracheobronchomegaly; Diverticula; CT scan



CU36CND: Patterns, treatment options, and outcomes of hip fractures among patients managed at Bugando Medical Centre, Mwanza Tanzania

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Background: Hip fractures, a significant global source of disability and deaths, are escalating globally, particularly among the aging population due to an increase in life expectancy. Intertrochanteric fractures are commonest in literature, primarily caused by low energy trauma in the elderly and high energy trauma in the young, with 30-day mortality rates ranging from 10% to 13%. Assessing local hip fracture patterns, treatment options, and outcomes is crucial for identifying patients who may need therapeutic intervention. Therefore, this study aimed to determine the patterns, treatment options and outcomes of hip fractures among patients managed at Bugando Medical Centre (BMC).

Methods: An analytical ambi-directional study involving 98 patients aged 40 and above with hip fractures at BMC from July 2022 to April 2024. The retrospective data was collected from orthopaedic wards, inpatient registry, and completed by phone calls to the closest relative, and prospective part from same wards and outpatient clinics.

Results: A total of 98 hip fracture participants met inclusion criteria with a 2:1 M:F ratio and 73.1 years' mean age.

Low energy injury contributed to 70.41% of fractures, with intertrochanteric fracture being the most common. The majority of hip fractures 64.3%(63/98) were surgically managed, while 20.41% (20/98) refused hospital treatment and were discharged on request due to various reasons. Hip osteosynthesis was performed in 76.19% of fractures, whereas hip replacement was performed in 23.81% (15/63) of fractures. The average hospital stay was 14.34 days, with a 30days' mortality of 19.39%. Female gender showed higher mortality odds than males (OR=3.8, p=0.009), with 11.22% experiencing clinical venous thromboembolism, and 34.69% developed decubitus ulcers after a hip fracture.

Conclusion: Male contributed two times more hip fractures than females. The majority of hip fractures were due to low energy injury mechanism, and the commonest pattern being intertrochanteric hip fractures. This study found higher 30-day mortality rates, clinical venous thromboembolism, and decubitus ulcers in hip fractures There is a need for further research, and to develop management protocols, and to increase theatre space to reduce hospital stay and related outcomes.



Hip fracture patterns; Treatment option; 30 days mortality; Venous thromboembolism; Decubitus ulcer



CU37CND: Pediatric Foreign Bodies in Tanzania - A Preventable Cause of Aerodigestive Morbidity and Mortality

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Background: Aerodigestive foreign bodies (AEFB) are important cause of preventable morbidity and mortality in paediatrics age group and pose diagnostic and therapeutic challenges. Data regarding this subject is limited in our setting. This study was conducted to describe our own experiences regarding the management and outcomes of AEFB in pediatric patients at Bugando Medical Centre (BMC) in Mwanza, Tanzania.

Methods: A descriptive longitudinal study was conducted among children aged less than 18 years of age with suspected AEFB and admitted to BMC between February 2019 and May 2019. Socioeconomic, clinical presentation, interval from presentation to intervention, type of intervention, post-operative complication rates, and length of stay data were assessed.

Results: A total of 81 patients presented with AEFB within the 4 months. The median age was 4 years. The majority of patients, 44 (54.3%) were aged 5 years

and less. Forty-five (55.6%) were males and 36(44.4%) were females (M: F ratio = 1.3:1). Coins were the most common type of foreign body (FB) ingested in 39 (73.6%) patients, whereas groundnuts were the most common type of FB aspirated in 15 (53.6%) patients. The majority of patients (n= 54, 66.7%) presented to the hospital within 24 hours after aspiration/ingestion. Majority (91.4%) of AEFB were successfully removed. Age < 5 years ($p = 0.021$), time elapsed since FB ingestion/aspiration ($p = 0.002$), and a lower saturation of oxygen ($p = 0.040$) were factors significantly associated with complications following esophagoscopy. Mortality rate was 2.4%. Delayed presentation beyond 24 hours was significantly associated with prolonged length of hospital stay ($p < 0.001$).

Conclusion: AEFB is common at BMC that calls for early diagnosis and intervention for avoidance of lethal complications.



Autodigestive foreign bodies; Morbidity; Mortality



CU38CND: Clinical Profile, SOFA score and its association with outcome for critically ill obstetric patients admitted in Critical Care Unit at Bugando Medical Centre Mwanza Tanzania

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Background: A critically ill obstetric patient represents a challenge that usually requires a multidisciplinary approach. The ICU admission rate in developed countries has been shown to range from 0.1–1.7% and higher in developing countries. Hence, understanding these complications can help in preventing these outcomes and optimize care by assessing the severity and prognosis using SOFA scoring system.

Methods: This was a prospective cohort study involving 134 obstetric patients admitted to the critical care unit (CCU) at BMC from June 2023 to February 2024. SOFA scoring system and Criteria for CCU admission were used to identify critically ill patient. Data were analysed using STATA v20. Predictors were considered statistically significant at a p-value less than 0.05.

Results: The mean age was 28.1 ± 7 years. Preeclampsia/eclampsia (56.31%) was the most common obstetric indication of admission followed by obstetric

haemorrhage (36.89%). Non-obstetric causes for CCU admission included sickle cell disease, haematological malignancy and anaesthesia complications. Blood transfusion was required in 62.7% of the patients, and mechanical ventilator was applied in 30.6% patients followed by an oxygen face mask in 20.1% of the patients, and dialysis was needed in 19.4% of the patients. The mean SOFA score was 5 ± 4 points. Increase in SOFA score (AOR=1.5;95%CI;1.2-1.8: p=0.000) were associated with maternal mortality. The higher the SOFA score the worse the outcome

Conclusion: SOFA score is associated with maternal death; this score can be applied in our setting. Early identification of the need for intensive care unit (ICU) care, sufficient pre-ICU resuscitation and supportive care, and timely referral of critical patients will help to improve the outcome of these patient.



SOFA score; Clinical profile; Maternal outcome



CU38CND: Exclusive breastfeeding and stunting among children aged 6-24 months attending reproductive and child health units in public health facilities in Mwanza region

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Background: Stunting remains a public health concern affecting 25% children under-five years of age with 156 million impacted globally. It results from chronic undernutrition, primarily due to diets lacking essential nutrients. The WHO aims to reduce stunting rates by 40% by 2025. Proper feeding practices including exclusive breast feeding nourish health and prevent morbidity among under-five years children. We aimed to determine level of stunting and exclusive breastfeeding practices among 6-24 months children attending selected public health facilities for growth monitoring and routine child immunization services in Mwanza Tanzania.

Methods: A cross-sectional study was conducted at three public health facilities in Mwanza focusing on high-attendance reproductive and child health units. Data were collected using structured questionnaire during exit survey among 500 child-mother pairs and observational checklists for 20 health education sessions provided by health care providers. Stunting was determined using WHO Anthro software and exclusive breastfeeding considered time in which complementary foods were introduced (such as rice porridge, maize porridge, cassava porridge, animal or formula milk, mashed potatoes) to a child in first six months of life.

Data analysis was done using STATA version 15.

Results: Prevalence of stunting was 15.4% (95% CI 12.6%, 18.9%) among children aged 6-24 months with significantly higher prevalence observed among male children compared to female children (19.5% vs 11.4%; $p = 0.012$). Almost all children (97%) were breastfed within 24 hours after birth although the exclusive breastfeeding remained low at 37.3% (95% CI 32.9%, 41.3%), and the commonest soft food provided to children being maize/cassava porridge (65.2%), and few provided their children with formula/cow milk (14.2%) but more than a half of mothers (54%) gave their children factory juice. A significant association was observed between stunting and exclusive breastfeeding after adjusting for birthweight and mothers' education level with OR=1.69 (95% CI 1.01, 2.84). During health education sessions, less information was covered on breastfeeding issues (30%) but slightly more on complementary food such as protein, fat, fruits, and carbohydrates.

Conclusion: Despite high proportion of early breastfeeding initiation, the premature introduction of complementary food was reported. This study also underscores the missed opportunities on health education during immunization services.



Stunting; Exclusive breastfeeding; Health education sessions; Under-five children



CU39CND: Sociocultural and Factors associated with the delay in diagnosis and care of Cleft Lip and Cleft Palate among children in Geita Region, Northwestern, Tanzania

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Background: Cleft Lip and Palate (CLP) is a prevalent global birth defect with significant implications for affected individuals. Tanzania, with a prevalence of 39.2% is experiencing a growing burden of CLP. Although not a primary cause of mortality among the children, CLP places substantial psychological and financial strains on affected individuals, families, and society. Despite advancements in health, education, and technology in Africa, prevalent misconceptions persist regarding the birth of a child with CLP. This leads to delays in seeking early health care services. These delays often result in suboptimal outcomes for CLP repair. Therefore, this study aims to explore sociocultural beliefs and other factors associated with delayed CLP treatment in the Geita region, Tanzania.

Methods: This community-based qualitative study used a phenomenological approach, focusing on 15 families with children affected by CLP. Families were identified from registries in secondary and tertiary health facilities across five districts in Geita. Data were

collected through in-depth interviews with key informants. NVivo 12 software facilitated data coding and content analysis to uncover underlying patterns and meanings.

Results: Inadequate knowledge and misinformation emerged as a significant factor contributing to delayed seeking treatment for CLP. Stigma arose as another factor with some parents hiding their children to avoid societal embarrassment. Financial constrain was another barrier for families to access the services. Although cultural beliefs and superstitions were not universally held, they still influenced care-seeking behaviour in some cases. Additionally, systemic barriers such as inconsistent availability of surgical services further exacerbated delays.

Conclusion: Addressing these delays requires public education, strengthen health systems, financial support, and cultural sensitization. Future research should include long-term follow-up, cultural studies in diverse regions, and evaluations of public awareness initiatives.



Sociocultural beliefs; Delayed care; Cleft lip and palate



CU40CND: Epidemiologic and clinical characteristics of patients undergoing coronary angiography procedure at Bugando Medical Centre Mwanza, Tanzania

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Background: In recent years, the importance of coronary CT angiography (CCTA) as a diagnostic and therapeutic tool for patients with suspected coronary artery disease (CAD) has grown significantly despite being underutilized in most of the Sub-Saharan African (SSA) countries. Understanding the prevalence, risk factors and clinical presentation of the patient undergoing this procedure is crucial for increasing its utilization and hence improving outcomes.

Methods: This study employed a retrospective review of medical records taking data from January 2018 to June 2023, multiple regression analyses using STATA v15 were used to determine predictors of

CAD and a p-value <0.05 was considered statistically significant.

Results: Total of 252 patients underwent CCTA with the mean age 61yrs ±18, females 62.1% (157) and chest pain 49.6% was the commonest presentation while hypertensive were 70% (176) and diabetics 28% (70).141 (56%) of patients who underwent CCTA procedure had CAD. Hypertension (OR=2, 95% CI= 1.1-3.5 p= 0.02), and chest pain (OR=1.8, 95% CI 1.04- 3 p= 0.04) were associated with CAD after adjusting for age and sex.

Conclusion: In hypertensive patients with chest pain, a coronary angiography should be added to other routine cardiac investigations for a better evaluation of the coronary arteries and hence dictating the right treatment modality.



Coronary angiography; Chest pain; Mwanza; Tanzania



Schistosomiasis - Transmission



CUHSCH: SCHISTOSOMIASIS



CU01SCH: Presence of an invasive exotic freshwater snail, *Pomacea canaliculata* (Gastropoda: Ampullaridae) in Mwea Irrigation Scheme: Towards a natural elimination of schistosomiasis in Central Kenya

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Background: The apple snail, *Pomacea canaliculata*, a native of South America, was recently reported to be present in Mwea irrigation scheme, Central Kenya. This invasive freshwater snail is considered a devastating agricultural and ecological pest, and a potential public health threat. A recent malacology survey was done in Mwea irrigation scheme to assess the spread of this snail in the area and the impact it has on population of native *Biomphalaria pfeifferi* snails and prevalence of *Schistosoma mansoni* in communities living in the irrigation scheme.

Methods: Snail sampling was done using a standard snail scoop in 18 freshwater habitats within the Mwea rice irrigation scheme. The snails and snail egg masses collected were identified using snail taxonomic keys based on morphological features, with the aid of a dissecting microscope. Human stool samples were screened using Kato-Katz for presence of *S. mansoni* ova.

Results: The presence of a thriving population of *P. canaliculata* in canals, ponds and rice paddies was confirmed, and numerous *Pomacea* egg masses observed. After 18 months of follow up survey, no *Biomphalaria* snail was recovered in the sampling sites. Initial prevalence of *S. mansoni* among children and adult was 12% and 38% respectively before treatment. Follow up screening 10 months post treatment; all the individuals were negative for *S. mansoni*.

Conclusion: Presence of *Pomacea* has resulted to complete displacement of *Biomphalaria* snails. The absence of vector snails in Mwea provides an excellent opportunity for the interruption of *S. mansoni* lifecycle at the intermediate host level, which if complimented by mass drug administration (MDA) using Praziquantel, can lead to elimination of intestinal schistosomiasis in the area, which previously was a transmission hotspot.



Schistosoma mansoni; Pomacea canaliculata; Biomphalaria



CU02SCH: Schistosome infections in cattle of the Magba sub-division in the West Cameroon region: importance in implementing a one-health strategy to achieve schistosomiasis elimination goals

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Background: Schistosomiasis is a neglected tropical disease that affects more than 250 million people and millions of livestock worldwide. Although human schistosomiasis has been more studied in some schistosomiasis-endemic areas, there is little information about the epidemiology of livestock schistosomiasis. Nevertheless, this disease has a negative impact on livestock farming, agriculture production, and the economic development of affected areas. Furthermore, the elimination of human schistosomiasis can be slow down in the area where human and animal schistosomiasis coexist. This coexistence can lead to the development of hybrid species with zoonotic potential and can also promote the hosting of human schistosomes by livestock.

Methods: This study was designed to determine and map schistosome infections in cattle of the Magba Sub-division in the West region of Cameroon and therefore comparatively assess the Kato Katz and the sedimentation technique for the

diagnosis of livestock schistosomiasis. We collected fecal material by rectal swab from 264 cattle across 4 sub-districts of the Magba sub-division in the west region of Cameroon during a cross-sectional study.

Results: Using the Kato-Katz, 116 cattle (43.93%: 116/264) were identified as carrying schistosome eggs; the sedimentation technique revealed additional 95 animals with schistosome eggs. The overall prevalence of schistosome infections was 79.92% (95% CI: 69.5-92.4). Kappa coefficient index between the two techniques was 0.32 (95% CI: 0.24-0.40). Mambonkor village (98.4%, 95% CI: 75.6-125) had the highest infected rate among the sample areas. The prevalence of schistosomes varied significantly between sub-districts. Young cattle were significantly more infected by schistosomiasis than others.


Conclusion: This study highlighted the high prevalence of schistosome infections in cattle underscoring a need to control these infections in order to improve cattle health and breeders' economies.



Livestock schistosomiasis; Cameroon; Microscopic techniques; One health



CU03SCH: Control and elimination of *Schistosoma mansoni* infection in adult individuals on Ukerewe island, Northwestern Tanzania: Baseline results before implementation of intervention measures

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Background: Schistosomiasis remains endemic in communities along the shores and islands of Lake Victoria, northwestern Tanzania. Mass drug administration (MDA) programs primarily target school-aged children, excluding adult populations. This study aims to address this gap by involving adults in the schistosomiasis control program. We present baseline findings on *Schistosoma mansoni* infection, hepatosplenic morbidities, and associated risk factors before implementing project activities.

Methods: A cross-sectional study involved 4,043 adult participants (≥18 years) from 20 villages on Ukerewe Island. Stool and urine samples were analysed using the Kato-Katz technique and point-of-care circulating cathodic antigen (POC-CCA). Ultrasound evaluations were performed to assess hepatosplenic morbidities. Rapid diagnostic tests were employed to detect HIV, hepatitis B, and hepatitis C. Demographic data and clinical symptoms were collected using questionnaires.

Results: Of 4,043 participants, 49.7% were male. The prevalence of *S. mansoni* infection

was 30.4% using the Kato-Katz technique and 84.7% with POC-CCA test. The geometric mean eggs per gram of faeces (GMepg) was 105.3, with infection intensity categorized as light (53.9%), moderate (32.4%), and severe (13.7%). Prevalence of hepatitis C, HIV, and hepatitis B was 0.4%, 2.2%, and 4.7%, respectively. Hepatosplenic morbidities were prevalent, with splenomegaly (40.5%), periportal fibrosis (48.1%), hepatomegaly (66.2%), and portal vein dilation (67.7%). Other ultrasound-detected conditions included ascites (1.7%), collateral veins (18.3%), and gallbladder wall thickening (40.4%). Age, gender, non-use of praziquantel, and place of residence were independently associated with *S. mansoni*-related morbidities.


Conclusion: This population exhibits a high prevalence of *S. mansoni* infection and related hepatosplenic morbidities. Effective control measures, including MDA programs targeting all community members, are crucial to reducing disease burden.



Schistosoma mansoni; Hepatosplenic morbidities; Risk factors, Adult; Ukerewe; Tanzania



CU03SCH: Status report on intermediate host snails of trematodosis in the Nakanbé and Mouhoun basins of Burkina Faso: diversity, habitats, seasonal dynamics

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Background: The socioeconomic consequences of trematodosis force us to integrate our control strategies. Currently, all control strategies tend to include the control of intermediate hosts, as recommended by the World Health Organization. However, integrating the control of intermediate host snails into the general snail strategy is not yet effective in Burkina Faso. The aim of this study was to assess current knowledge of the specific richness, spatial distribution and the seasonal dynamics of intermediate host snails of trematodosis in the Nakanbé and Mouhoun basins.

Methods: A survey campaign was carried out between November 2020 and September 2021, considering the seasons and habitat types. The manual collection technique was used at a rate of 15 min per sampling station at each site. The Ekman grab was used for finer sediments.

Results: Nine snail species of medical interest were identified during this study. These were: *Bulinus truncatus*, *Bulinus globosus*, *Bulinus senegalensis*,

Bulinus forskalii, *Bulinus jousseaumei*, *Lymnaea natalensis*, *Biomphalaria pfeifferi*, *Melanoides tuberculata*, and *Cleopatra bulimoides*. Both basins were home to almost the same species of snails of medical interest. The rivers, irrigated plains and reservoirs offer favorable conditions for snails. A high abundance of snails was observed in both the cold and hot dry seasons, with the exception of *Bulinus forskalii*, which was abundant in the rainy season. *Melanoides tuberculata*, an exotic snail recently reported in Burkina Faso freshwaters, is spreading rapidly across the basins and requires more monitoring.

Conclusion: This study showed the presence of 9 species of snails of medical importance in the Nakanbé and Mouhoun basins. The diversity of these snails varied according to habitat type and season. This study provides information on the diversity, habitats types, and seasonal dynamics of snail's population of medical importance, which could guide control programs in these two basins.



Trematodosis; Intermediate host snails; Nakanbé and Mouhoun basins; seasonal dynamics



CU04SCH: Gene Expression in the Cervical Mucosa of Women with *Schistosoma haematobium* Infection: a longitudinal pilot study

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Background: *Schistosoma haematobium* is a parasitic worm that infects over 110 million people worldwide, laying eggs that migrate into host urinary and reproductive tracts. Eggs lodged in the female genital tract mucosa cause lesions that are refractory to praziquantel treatment even after multiple doses and increase risk of transmucosal viral infections. In depth understanding of molecular effects of the parasite eggs in genital tissue is needed to identify biomarkers and inform insights into newer targeted mucosal therapy. Our objective was to characterize cervical transcriptional profiles in women with or without active *S. haematobium* infection and after anti-schistosome treatment.

Methods: We collected cervical cytobrush samples from women living in rural villages of North-western Tanzania endemic for *S. haematobium* and extracted RNA for transcriptome analysis. mRNA was isolated using poly(A) selection and sequencing was performed on an Illumina Hi-Seq4000 platform. Transcript alignment to the human hg19 reference genome and counting were accomplished using the HTSeq package. Genes were assessed for differential expression using DESeq2 and Limma. Ingenuity Pathway Analysis (IPA) was employed to identify gene networks altered

in the presence of *S. haematobium* infection and following cure.

Results: We enrolled 20 participants with and 19 without *S. haematobium* infection. After adjusting for multiple comparisons, we identified 9 differentially expressed genes in women with versus without infection, 23 in women who cleared the infection post-treatment versus with infection, and 29 in those who cleared the infection versus without infection. Most genes were associated with heightened oncogenesis in both women with infection and in those who cleared the infection after treatment. Using IPA, we identified pathways involving inflammation and compromised epithelial integrity as well as cancer-related networks and pathways in women who cleared the infection compared to women with and without infection.

Conclusion: Women with *S. haematobium* infection and those recently treated had altered cervical mucosal gene expression associated with compromised mucosal integrity and oncogenic potential. Our findings suggest a possible temporary increase in susceptibility to secondary infections and cervical cancer risk post-treatment. Further longitudinal research is necessary to ascertain whether altered gene expression after treatment of *S. haematobium* resolves over time.



Schistosoma haematobium; Female Genital Schistosomiasis; Gene expression; Cervical mucosa; Praziquantel



CU05SCH: High treatment coverage and compliance to mass preventive chemotherapy using praziquantel against intestinal schistosomiasis among adult individuals on Ukerewe Island, North-western Tanzania

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Background: Control and elimination of schistosomiasis as a public health challenge depends primarily on mass preventive chemotherapy (PC) using praziquantel. The World Health Organization recommends covering at least 75% of the target population to significantly reduce disease prevalence and intensity. The schistosomiasis control project is implementing annual mass preventive chemotherapy in 25 villages targeting adult (≥ 15 years) community members. Here we report the coverage for four rounds of mass preventive chemotherapy.

Methods: Before each treatment round, a population census was conducted by the

Results:

PC Round	No of villages	Targeted	Treated	Coverage	Compliance
1	15	38,757	32,071 (M:51.0%, F:49.0%)	82.7%	80.8%
2	20	53,513	46,250 (M:49.1%, F:50.9%)	86.4%	78.4%
3	20	44,509	43,855 (M:54.8%, F:45.2%)	98.5%	82.0%
4	25	65,430	59,433 (M:52.0%, F:48.0%)	90.8%	87.8%

Conclusion: Acceptance and compliance to mass PC against intestinal schistosomiasis is high, partly, the involvement of the community organization structures in implementation of mass PC and the public health education increases community participation in treatment campaigns. High compliance contributes to reduction in the disease prevalence, intensity of infection and in disease-related morbidities.

community drug distributors (CDD). The community mass PC was implemented by the CDD by house-to-house or fixed post. Two weeks post mass PC, cross-sectional surveys as described by WHO were conducted among selected participants from the randomly selected households to assess the coverage/compliance to treatment. Treatment coverage was assessed as a total number of individuals that swallowed the drugs divided by the total number of populations recorded during population census. Treatment compliance was assessed by taking a total number of interviewed individuals that reported to swallow praziquantel.



Intestinal schistosomiasis; Mass preventive chemotherapy; Treatment coverage; Treatment compliance; Adult, Ukerewe; Tanzania



CU06SCH: Impact of maternal schistosomiasis on low birth weight and preterm delivery in endemic regions of sub-Saharan Africa. A systematic review and meta-analysis

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Background: Maternal schistosomiasis is highly prevalent in sub-Saharan Africa and has been associated with adverse pregnancy outcomes such as low birth weight (LBW) and preterm delivery. However, there are inadequate studies on knowledge and causality, particularly biological mechanisms linking schistosomiasis to these adverse pregnancy outcomes. Despite extensive global efforts to control schistosomiasis, vulnerable populations, particularly pregnant women, are mostly excluded from treatment initiatives. This systematic review aimed at synthesizing the association between maternal schistosomiasis (*S. haematobium* and *S. mansoni*) and low birth weight or preterm delivery in sub-Saharan Africa.

Methods: In adherence to the PRISMA guidelines, we executed an extensive literature search across multiple databases. These databases were PubMed, HINARI, Web of Science, MedlinePlus, African Journal Online, and Google Scholar. Six cohort studies satisfied the inclusion criteria for

systematic review, while three studies met the criteria for meta-analysis. The meta-analysis employed a random-effects model to aggregate risk ratios (RR) reported with 95% confidence intervals (CI). Data was synthesized using both narrative and meta-analytic methods. The risk of bias was assessed by using the Newcastle-Ottawa Scale.

Results: The study revealed a statistically significant association between maternal schistosomiasis and LBW with a risk ratio of 1.60 95% CI (1.27-2.03). However, the association between maternal schistosomiasis and preterm delivery with a risk ratio of 1.22 95% CI (0.83-1.80) was not statistically significant.

Conclusion: Maternal schistosomiasis, especially *S. haematobium*, correlates with low birth weight in sub-Saharan Africa, emphasizing the necessity for MDA interventions. Inclusive involvement of pregnant women in schistosomiasis control initiatives is imperative for enhancing maternal and neonatal health outcomes in endemic areas.



Schistosomiasis; Maternal schistosomiasis; Low birthweight; Preterm delivery



CU07SCH: Seasonal Distribution and Cercarial Shedding of *Bulinus* spp. Snails: Implications for Urogenital Schistosomiasis Control in the Simiyu Region, Northwestern Tanzania

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Background: Urogenital schistosomiasis is a neglected tropical disease of significant public health concern caused by the trematode species *Schistosoma haematobium*. Its transmission is localized and heterogeneous, with seasonal occurrences in Tanzania primarily facilitated by *Bulinus* spp. snails, which serve as intermediate hosts. To plan effective, data-driven control measures, it is crucial to understand the epidemiology of these snails. This study aimed to investigate the seasonal distribution, abundance and cercarial shedding of *Bulinus* spp. snails in the Simiyu region of Tanzania.

Methods: Malacological surveys were conducted at each study site in the Simiyu region, specifically once in the rainy season and once in the dry season. Snails were collected using a standard scoop and hand-picking technique by two people for 15 minutes at each site. The collected snails were morphologically identified and subjected to a cercarial shedding experiment. Water physicochemical characteristics were recorded simultaneously with snail collection using a portable multiparameter water meter. The data were analysed using STATA version 15.

Results: A total of 4996 *Bulinus* spp. snails were collected from 90 sites in two districts. Of these,

91.4% (95%CI: 90.5-92.1) were morphologically identified as *Bulinus nasutus*, while 8.6% (95%CI: 7.8-9.4) were identified as *Bulinus globosus*. *Bulinus* spp. snails were almost evenly distributed across seasons, with 50.3% (95%CI: 48.9-51.7) collected during the dry season and 49.6% (95%CI: 48.2-51.0) collected during the rainy season. Water temperature and pH were significantly negatively correlated with the abundance of snails during the dry season ($r=-0.4097$, $P=0.003$) and the rainy season ($r=-0.2540$, $P=0.02$), respectively. *Schistosoma* spp. cercarial shedding was significantly greater during the rainy season, 3.9% (95%CI: 3.2-4.8) than during the dry season 2.5%, (95%CI: 1.9-3.2).

Conclusion: *Bulinus nasutus* was the most abundant freshwater snail distributed at nearly all the study sites during the rainy and dry seasons. The cercarial shedding of *Bulinus* spp. snails follows a seasonal pattern. Additionally, factors such as water temperature and pH are negatively associated with the abundance of snails. Therefore, appropriate snail control strategies are crucial to complement ongoing schistosomiasis control strategies in the Simiyu region.



Urogenital schistosomiasis; Bulinus snails; Schistosoma haematobium; Seasonality; Tanzania



CU08SCH: Performance of a Rapid Point of Care Lateral Flow Device for Detection of Schistosome Circulating Anodic Antigen in Urine

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Background: Over 250 million people are infected by *Schistosoma* parasites. The infection is widespread in tropical regions, where it causes morbidity and mortality. Diagnosing schistosome infection relies on microscopic detection of eggs in urine or stool and/or detecting schistosome-specific antigens, such as circulating cathodic antigen (CCA) and circulating anodic antigen (CAA) by immunochromatography assays. A rapid point-of-care test for CCA detection in urine was developed specifically for infections with *S. mansoni* but may not have sufficient sensitivity for low-intensity infections and doesn't perform well with other species. In contrast, the CAA is detected in all schistosome species infections with high sensitivity but currently, tests are unsuitable for POC use. Therefore, a rapid, sensitive point-of-care test for detecting CAA in schistosome infections would improve the management of this neglected tropical disease.

Methods: We evaluated a novel Flow-*Schistosoma* (Flow-S) device that incorporates both the pre-concentration of CAA from urine and CAA quantitation using Up-Converting reporter Particle (UCP) technology with Lateral Flow (LF). Sample to result time is <2 hours suitable for field

procedures. We nested this study in the ongoing cohort recruited from *S. haematobium* endemic area. We collected urine and blood samples from 158 individuals between January and May 2024. Urine egg count and Flow-S were tested in the field. Results obtained with the Flow device were evaluated against high-sensitivity Serum CAA (SCAA500) and Urine CAA (UCAA417) assays by standard UCP-LF laboratory-based testing.

Results: Compared to the current gold standard assay serum CAA (SCAA500), the Flow-S device had a sensitivity of 93% and a specificity of 96% using a threshold of 0.27 pg/mL. CAA values from the Flow-S device were 40% lower than those determined by UCAA417 probably due to incomplete flow of >90% of urine samples or omission of the trichloroacetic acid (TCA) extraction used in the laboratory-based SCAA500 test.


Conclusion: This innovative, deployable device achieved WHO target product profile specifications of >65% sensitivity and >95% specificity for field diagnosis of schistosome infection by CAA. We are planning for additional optimization to improve flow and further field testing among populations with a range of ages and *Schistosoma* spp. infections.



Schistosoma; Circulating anodic antigen; Point-of-care; Diagnosis



CU09SCH: Changes in prevalence and intensities of *Schistosoma mansoni* infection following implementation of three rounds of mass preventive chemotherapy and complementary interventions among adult population on Ukerewe Island, north-western Tanzania

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Background: Between 2020 and 2023, a schistosomiasis control project on Ukerewe Island targeted community members aged ≥ 15 years through mass preventive chemotherapy (MDA). Over 100,000 adults from 20 villages received three rounds of MDA, aiming to reduce *Schistosoma mansoni* prevalence and infection intensity. This study assesses the impact of these interventions.

Methods: A cross-sectional study was conducted in 20 villages, involving 2,041 randomly selected adult participants. Stool samples were collected and analysed using the Kato-Katz technique to detect *S. mansoni* eggs. The questionnaire gathered demographic data and participants' history of MDA participation.

Results: The post-MDA follow-up study involved 2,041 adult participants (M:975(47.5%), F:1,066(52.2%)) from 20 villages, with mean age 48.6 ± 16.7 years. The prevalence of *S. mansoni* was 9.5% (95% CI:8.3-10.8) and the geometrical mean egg intensity of infection was 79.9 eggs per

gram (epg) of faeces (95% CI:71.2-89.8), with no significant difference between male and female. At baseline, the prevalence of *S. mansoni* infection was 30.4% by Kato Katz technique (95% CI:29.0-31.9), which is decreased by 20.9%. The geometrical mean eggs per gram of faeces (GMepg) was 105.3 GMepg (95% CI:98.7-112.3). There was a significant variation in prevalence of *S. mansoni* infection between villages ($\chi^2=68.33771$, $P=0.001$). Seven villages had prevalence of *S. mansoni* of $>10\%$ and remaining thirteen (13) villages of $<10\%$.


Conclusion: Three rounds of mass preventive chemotherapy led to significant reductions in *S. mansoni* prevalence and infection intensity. However, schistosomiasis remains a significant public health issue on Ukerewe Island. Additional rounds of MDA are needed before implementing the new World Health Organization guidelines on schistosomiasis control.



Schistosoma mansoni; Prevalence; Intensity; Mass preventive chemotherapy; Adult; Ukerewe; Tanzania



CU10SCH: *Schistosoma mansoni* among adults in five villages of Ukerewe island: Prevalence, intensity of infection and hepatosplenic morbidities

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Background: The adult community members in schistosomiasis endemic areas are equally at-risk of the infection and associated chronic morbidities yet excluded in mass preventive chemotherapy. The Ukerewe schistosomiasis project covers this gap by implementing community mass preventive chemotherapy targeting adults. This study reports the baseline findings before implementation of interventions in five additional villages.

Methods: Community-based cross-sectional surveys were conducted at Busangumugu, Busiri, Bwasa, Chabilungo and Kaseni on Ukerewe island. A single stool sample was collected and screened for *S. mansoni* eggs using Kato Katz technique. Hepatosplenic morbidities were assessed by abdominal ultrasonographical examination. Questionnaire was administered to collect demographic information and related clinical features.

Results: Out of 997 participants, 62.3% were male. The prevalence of *S. mansoni* was 24.3%(95%CI:21.7-27.0), with no significant difference between sex and age groups,

though the age 15-25 years had the highest prevalence (34.3%). The overall Geometrical Mean Eggs per gram (epg) of faeces was 130.4epg(95%CI:111.9-151.8), with male having the highest geometrical mean egg per gram of faeces than female [t=-2.4115, P=0.02]. The prevalence of periportal fibrosis (PPF) was 31.9%(95%CI:29.1-34.9), with males having the highest prevalence than female participants ($\chi^2=104.0692$, P=0.001). No significant difference in PPF was observed between the age groups, though PPF prevalence increased by age (21.2% in age group 15-25 years to 34.5% in the age group ≥ 56 years). In term of liver image pattern, 51%, 11.2% and 5.2% had patterns D, E and F.


Conclusion: Intestinal schistosomiasis and its related hepatosplenic morbidities remain a public health problem in the adult population on Ukerewe island. Expanding MDA to include adults and integrating hepatosplenic morbidity management is important for controlling the disease.



Schistosoma mansoni; Hepatosplenic morbidity; Adult; Ukerewe; Tanzania



CU11SCH: The current status of *Schistosoma mansoni* infection on Ijinga island after eight years of repeated rounds of mass preventive chemotherapy and integration of clean water supply

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Background: Ijinga island on the southern shoreline of the Lake Victoria lies within the intestinal schistosomiasis endemic areas. The island has received eight rounds of mass preventive chemotherapy and clean tape-water system has been installed to complement control efforts. Here we report the current status of *S. mansoni* infection on Ijinga island.

Methods: A cross-sectional survey was conducted among adults and SAC on Ijinga Island. Stool samples were collected and processed using the Kato Katz technique. Participants' demographics were obtained using a questionnaire.

Results: The study involved 168 adults aged ≥ 14 years (mean age: 48.8 ± 18.5), 54% being male. The prevalence of *S. mansoni* was 21.4% (95%CI:15.8-28.3), with no difference between sex ($\chi^2=2.8837$, $P=0.1$) and age groups ($\chi^2=1.7677$, $P=0.8$). The Geometrical Mean eggs per gram of faeces was 77.1epg(95%CI:52.1-114.2) with no

difference between sex ($t=0.1394$, $P=0.8$) and age groups ($F=0.6$, $P=0.6$). 91% and 8.3% had low and moderate intensity of infection. Out of 502 SAC (mean age: 9.8 ± 2.6 years), 51.4% were female. The prevalence of *S. mansoni* was 30.7% (154/502, 95%CI:26.8-34.9), with male having significantly high prevalence than female ($\chi^2=13.7474$, $P=0.001$), with no difference between the age groups ($\chi^2=1.9517$, $P=0.2$). The geometrical mean eggs per gram of faeces was 74.7epg(95%CI:63.5-87.8), with 63%, 29.9% and 7.1% having low, moderate, and heavy intensity of infections.


Conclusion: Prevalence and intensity of infection have significantly declined among adults and SAC. For adult, from 54.7% in 2016 to 21.4% in 2024 and in SAC from 86.1% in 2017 to 30.7% to 2024. Ijinga experiences moderate transmission of *S. mansoni* infection and annual mass preventive chemotherapy is recommended.



Schistosoma mansoni; Prevalence; Intensity; Mass preventive chemotherapy; Ijinga island



CU12SCH: Epidemiology of *Schistosoma mansoni* in Ethiopia after a decade of mass drug administration: Prevalence, infection intensity and praziquantel efficacy

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Background: *Schistosoma mansoni* infection has been a public health problem all over Ethiopia. Despite the fact that Ethiopia has been intensively implementing school-based praziquantel (PZQ) mass drug administration (MDA) since 2013. Here we report the current prevalence, infection intensity and efficacy of praziquantel drug.

Methods: A cross-sectional study was conducted from February to June 2023 in 14 schools and 14 villages among randomly selected 634 SAC and 558 adults. Prevalence of *S. mansoni* infection was determined using stool Kato Katz (KK) and urine point of care circulating cathodic antigen (POC-CCA) tests. 130 SAC tested positive by both KK and POC-CCA at baseline were treated with 40mg/kg PZQ and retested with both tests after three weeks. Data were analysed using SPSS version 21. Good knowledge, a positive attitude and good practice were declared if percentage scores were $\geq 80\%$, $\geq 90\%$ and $\geq 75\%$, respectively.

Results: A total of 664(55.7%) participants comprising 401(63.2%) SAC and 263(47.1%) adults were positive for *S. mansoni* at least by one of the diagnostic methods. The prevalence among SAC was 41.2% and 62% by the KK and POC-CCA tests, while it was 24.6% and 43.9%, respectively, among adults. The proportion of infected individuals with light, moderate and heavy infection intensity were 266(66.8%), 100(25.1%) and 32(8.1%). The cure rate and egg reduction rate after PZQ treatment were 88.2% and 93.5% respectively, by KK. The CR based on POC-CCA was 70.9%.

Conclusion: Schistosomiasis is still a public health problem in Ethiopia. Praziquantel is efficacious and safe for the treatment of *S. mansoni* infection. However, an inclusive and comprehensive control strategies focusing on MDA, health education, vector control, clean water supply and sanitation should be reinforced.



Schistosoma mansoni; Schistosomiasis; Prevalence; Efficacy



CU13SCH: Harnessing crayfish, *Procambarus clarkii*, to eliminate schistosome transmitting snails in the Mwea Irrigation scheme, Kenya

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Background: The human burden of environmentally transmitted parasitic diseases can depend strongly on ecological factors, including the presence or absence of natural enemies. Red swamp crayfish first appeared in Lake Naivasha, Kenya, in 1970 and quickly spread across the region, overlapping with the distribution of freshwater snails that serve as the intermediate host of schistosomiasis. It has been observed that crayfish are malacophagous against schistosome-competent snails, schistosome transmitting snails in Africa phylogenetically trace their origin from America, paradoxically, and the red swamp crayfish are also from North America, making both the predator and prey alien in Kenya. We compare snail populations prior to and 2 years following predator introduction and scale-up.

Methods: We used a method akin to conservation biological control, where the use of molluscivorous predator was explored for biological control of snail intermediate hosts of schistosomiasis.

This study aimed to map the natural distribution of *P. clarkii* in the canals where rice is cultivated and the overall implication on schistosomiasis transmission in lotic habitats. A baseline survey was conducted to map out canals with and without both the predator and prey using a snail scoop and baited crayfish traps.

Results: A total of 2,703 schistosome-transmitting snails were detected in the 5 sampled sites in Mwea in August 2021 before the introduction of crayfish. High snail infection rates were observed in Mianya (12.3%), followed by Nguka (12.3%), Murinduko (6.3%), and Nineveh (5.0%), while Nice had no snails. After the introduction of crayfish, the prevalence of snails decreased significantly ($p=0.001$) in some habitats.

Conclusion: The *Procambarus clarkii* fish is a potential biological predictor which can support biological control of potential snail intermediate host of Schistosome species in Mwea irrigation scheme.



Biological control; Schistosomiasis; Procambarus clarkia; Molluscivorous



CUBBR: BASIC BIOMEDICAL RESEARCH AND GLOBAL HEALTH SECURITY



CU01BBR: Changes in traditional risk factors for cardiovascular diseases in people living with HIV in Tanzania

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Background: Since the wide coverage of antiretroviral therapy (ART) globally, people living with HIV (PLWH) are living longer and are face with non-AIDS related comorbidities such as cardiovascular diseases (CVD) due to traditional, HIV-specific, and lifestyle factors. Understanding the changes of cardiovascular health profiles (CVH) after initiation of ART is therefore crucial to guide primary prevention efforts. In our previous study we demonstrate that naïve PLWH have better CVH than HIV negative, and that they had higher prevalence of Ideal BMI, Blood Pressure, Total Cholesterol and lower prevalence of Ideal Smoking than HIV-negative counterparts. The American Heart Association's Life's Simple 7 (LS7) scale was employed in PLWH receiving ART, and there is limited data on the changes of CVH. Therefore, we applied LS7 scale to compare CVH between PLWH after 5 years of ART and HIV-negative adults in Tanzania.

Methods: A cross-sectional analysis was conducted using the HTN& HIV Datasets with PLWH and HIV-negative adults recruited from HIV clinics in Mwanza. Modified Life's Simple 7 (LS7) definitions were applied to the cohorts. Ordinal

regressions were employed to investigate associations between HIV status and each individual LS7 metric adjusting. Poisson regressions to evaluate relationship between HIV status and Total LS7

Results: The finding revealed that PLWH on ART had higher prevalence of ideal blood pressure than HIV uninfected (56.5% vs 46.7%, OR= 1.49 [1.13- 1.96], p=0.005), on contrast, PLWH had lower prevalence of Ideal physical activity (37.3% vs 46.2%, OR= 0.60 [0.46- 1.20], p<0.001) than those with HIV negative. Compared to the baseline, more ART-naïve PLWH had ideal BMI (75.6% vs 65.4%, OR= 1.55 [1.18 to 2.03], p=0.002), ideal blood pressure (56.3% vs 35.2%, OR= 2.26 [1.77- 2.87], p<0.001) and ideal total cholesterol levels (76.8% vs 62.8%, OR= 1.93 [1.47- 2.54], p<0.001). On the other hand, less PLWH had ideal smoking status (83.5% vs 89.6%, OR= 0.60 [0.41-0.88], p=0.008), ideal physical activity (39.0% vs 45.1%, OR= 0.65 [0.51-0.82], p<0.001).

Conclusion: Studies on the changes of traditional cardiovascular risk factors among PLWH after initiation of antiretroviral therapy should show the need for primary prevention strategies such as promotion of physical activity and weight management.



Non-communicable diseases; Cardiovascular Health; HIV; Prevention



CU02BBR: Insulin resistance and beta-cell dysfunction in adults with different patterns of diet: a cross-sectional study in North-western Tanzania

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Background: The diabetes burden in sub-Saharan Africa is on the rise but data on the relative importance of insulin resistance and beta-cell dysfunction is scarce. We investigated the association between dietary patterns with insulin resistance and beta-cell dysfunction among HIV-infected and HIV-uninfected adults in Mwanza, Tanzania.

Methods: In a cross-sectional study, insulin resistance and beta-cell function were measured from plasma insulin and glucose during an oral glucose tolerance test. Diet data were collected using a validated food frequency questionnaire and dietary patterns were derived by principal component analysis and reduced rank regression. Socio-demographics, smoking, alcohol taking, and physical inactivity data were collected using structured questionnaires. Logistic regression analysis was used to assess the association between insulin resistance, beta-cell dysfunction with dietary patterns adjusting for potential confounders.

Results: Of 462 participants, the mean age was 42 (± 12) years, 58% were females, and

60% were HIV-infected. The proportion with insulin resistance was 43% and 35% by Matsuda index and HOMA-IR, respectively. Beta-cell dysfunction was present in 37%, 43%, and 43.3% by the insulinogenic index, HOMA- β , and oral disposition index, respectively. Higher adherence to carbohydrates-dense diet pattern was associated with more insulin resistance by HOMA-IR (aOR 3.7, 95% CI 2.2; 6.3) and Matsuda index (aOR 6.2 3.4; 11.2), and less beta-cell dysfunction by HOMA- β (aOR 0.4 0.2; 0.6) and insulinogenic index (aOR 0.5 0.3; 0.9). Higher adherence to the vegetable-rich pattern was associated with insulin resistance by the Matsuda index (aOR 2.2 1.3; 3.7).


Conclusion: Carbohydrate-dense pattern increases risk of insulin resistance and increases insulin secretion. Higher adherence to vegetable-rich pattern increases the risk of insulin resistance. Further studies to look on the metabolism of glucose and why a vegetable-rich pattern has an odd effect in sub-Saharan Africa are warranted.



Diet; Insulin resistance; Beta-cell dysfunction; HIV



CU03BBR: Comparative assessment on the adherence and effectiveness of Dolutegravir versus Lopinavir-based regimens among children with HIV infection and associated factors in Tanzania: a retrospective cohort

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Background: Tanzania faces a significant HIV burden, with approximately 85,000 children living with the virus. The global 95-95-95 targets aim for high rates of diagnosis, treatment, and viral load suppression by 2030. Objective: To compare the adherence and effectiveness of a Dolutegravir 10mg based regimen versus Lopinavir based regimen among HIV-infected children in Tanzania.

Methods: A study was conducted from January 2020 to October 2023 at three clinics including Muhimbili National Hospital, Mbeya Zonal Referral Hospital and Baylor College of Medicine at Bugando. This retrospective cohort study included 340 children on Dolutegravir (DTG) and Lopinavir/ritonavir (LPV/r) regimens for at least 6 months up to 12 months. Adherence was measured through medication refill schedules, while effectiveness was defined as viral load suppression of VL <50 copies/ml. SPSS version 23 was used for data analysis whereby categorical variables were summarized using the frequency and proportion while continuous variables

were summarized using median. Inverse probability treatment weighting (IPTW) was used for balancing the baseline characteristics and making the two groups comparable.

Results: Significantly good adherence was seen in the DTG group (95.9%) compared to the LPV/r group (85.1%) $P < 0.001$. Adverse drug events (ADEs) were also lower in the DTG group (8.7%) compared to the LPV/r group (22.0%) with $P < 0.001$. Factors linked to better adherence included being aged ≥ 5 years, having an active caregiver, and the absence of ADEs. The DTG group demonstrated higher viral load suppression rates at both 6 and 12 months.

Conclusion: DTG regimen offers improved adherence and effectiveness among pediatric patients. The Ministry of Health needs to consider DTG based regimen as a better option over Lopinavir based regimen and include it in the HIV treatment guideline. There is a critical need to emphasize caregiver support to pediatric children on HIV therapy.



HIV; Dolutegravir based regimen; Lopinavir based regimen; paediatrics; Viral load suppression



CU04BBR: Prevalence, patterns and associated factors of lung function abnormalities among patients with heart failure attending outpatient medical clinics at Bugando Medical Centre in Mwanza, Tanzania

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Background: Lung function abnormalities frequently occur in heart failure patients, yet spirometry and other lung function tests are underutilized in sub-Saharan Africa, including Tanzania. The current treatment guidelines do not incorporate these tests for heart failure diagnosis, highlighting a gap in managing co-occurring lung function issues.

This study aimed to determine the prevalence, patterns, and associated factors of lung function abnormalities in heart failure patients at Bugando Medical Centre in Mwanza, Tanzania.

Methods: A cross-sectional study was conducted from April to June 2024, enrolling 208 heart failure patients aged over 18 years through systematic sampling. A structured questionnaire and extraction tools gathered data on socio-demographic characteristics, medical history, and echocardiographic findings. Spirometry was performed to assess lung function, and data were analysed using SPSS version 25.

Results: The prevalence of abnormal lung function was 67%, with a restrictive

spirometry pattern observed in 63% of cases, particularly among patients with reduced ejection fraction (80%). Logistic regression identified significant associations for restrictive patterns with female sex (COR = 2.06, 95% CI = 1.159-3.669; P < 0.014), older age (COR = 1.02, 95% CI = 1.001-1.042; P < 0.041), occupation (COR = 5.23, 95% CI = 2.223-12.311; P < 0.0001), and biomass exposure. For obstructive patterns, age (COR = 1.03, 95% CI = 1.00-1.05; P < 0.045) and biomass use were significant, with heart failure's reduced ejection fraction also linked (COR = 3.22, 95% CI = 1.46-7.11; P < 0.004).

Conclusion: High prevalence of lung function abnormalities, predominantly restrictive patterns, exists among heart failure patients at Bugando Medical Centre. Significant associations were found with older age, female sex, and exposure to biomass. These abnormalities are often underdiagnosed and undertreated, indicating a critical need for integrating lung function assessments into heart failure management.



Lung function test; Spirometry; Restrictive pattern; Obstructive pattern; Heart failure



CU05BBR: Erythropoietin Response and its Associated Factors among Chronic Kidney Disease Patients with Anaemia on Haemodialysis Attending Bugando Medical Centre, Mwanza, Tanzania

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Background: Chronic kidney disease (CKD) is a growing global public health issue and a significant contributor to the non-communicable disease burden. Anaemia is a common complication in CKD, with its incidence and severity increasing as renal function declines. More than 90% of patients with end-stage renal disease develop anaemia, primarily due to inadequate production of endogenous erythropoietin (EPO). Although erythropoietin-stimulating agents (ESAs) are the mainstay of treatment, some patients exhibit inadequate response to therapy, resulting in persistent anaemia. This leads to increased blood transfusions, hospitalizations, cardiovascular complications, and mortality.

Methods: A cross-sectional study was conducted at Bugando Medical Centre from December 2023 to March 2024, involving 92 CKD patients on haemodialysis. A structured questionnaire captured patients' demographic and clinical information, and laboratory data were obtained from the hospital's electronic medical record system. Blood samples were taken to assess haemoglobin, ferritin, iron, and transferrin levels.

Haemoglobin change was assessed at recruitment and four weeks prior. A haemoglobin increase of at least 1 g/dL over four weeks was considered an adequate erythropoietin response. A modified Poisson regression model was used to identify factors associated with inadequate response.

Results: The median haemoglobin change was 0.6 g/dL (IQR: -1 to 1.6 g/dL). More than half (55.4%) of participants exhibited an inadequate erythropoietin response. Significant factors associated with inadequate response included being underweight (APR 1.51; $p = 0.02$), iron deficiency (APR 2.58; $p = 0.002$), short-term proton pump inhibitor use (APR 3.12; $p = 0.01$), and long-term proton pump inhibitor use (APR 4.47; $p = 0.001$).

Conclusion: Inadequate erythropoietin response remains prevalent among CKD patients on haemodialysis. Modifiable factors such as underweight status, iron deficiency, and PPI use were significantly associated with poor response, highlighting the need for targeted interventions to improve anaemia management in this population.



Chronic kidney disease; Anaemia; Erythropoietin; Adequate response



CU06BBR: Prevalence and Factors Associated with Hyperglycaemia among Adolescents Living with HIV on Dolutegravir Based Regimen at Bugando Medical Centre Paediatrics HIV Clinic, Mwanza, Tanzania

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Background: The introduction of Dolutegravir-based therapy has offered a powerful treatment choice for children and adolescents with human immunodeficiency virus (HIV). Nevertheless, there is increasing evidence suggesting that prolonged use of dolutegravir in pediatric population and adults can lead to hyperglycaemia. The prevalence of dolutegravir-induced hyperglycaemia among adolescents living with HIV on Dolutegravir regimen remains uncertain. The aim of this study was to determine prevalence and factors associated with hyperglycaemia among adolescents living with HIV on a dolutegravir based regimen at Bugando Medical Centre Pediatric HIV clinic, Mwanza Tanzania.

Methods: This was a cross-sectional study that took place at Bugando Medical Centre Pediatric HIV clinic, involving adolescents living with HIV on a dolutegravir based regimen, with estimated sample size of 345. Data were collected using standard questionnaire. Hyperglycaemia was diagnosed after measuring fasting blood glucose levels

(FBG). Data analysis was performed using STATA version 15, factors associated with hyperglycaemia were assessed using logistic regression.

Results: Among 345 adolescents, 178/345 (51.6%) were females and the median age was 13 years old [10-15]. The prevalence of hyperglycaemia was 9.0%. In multivariate logistic analysis, factors that were significantly associated with hyperglycaemia among adolescents on DTG regimen; report on missing ARTs dose(s) within past 30 days (OR 0.02; 95% CI 0.06-0.73; P=0.014), history of using Nevirapine (OR 8.67; 95% CI 2.86-26.29; P<0.001) and history of using Zidovudine (OR 0.02; 95% CI 0.00-0.40; P=0.011).

Conclusion: This study observed a high prevalence of hyperglycaemia among adolescents living with HIV on Dolutegravir based regimen attending Bugando Medical Centre Pediatric HIV Clinic. It recommends regular blood glucose monitoring, especially for adolescents with irregular intake of ARTs and those with history of using Nevirapine.



Hyperglycaemia; Dolutegravir; Tanzania



CU07BBR: Prevalence of Vitamin B₁₂ Deficiency, Associated Factors and Patterns of Anaemia among Patients with Chronic Kidney Disease attending Bugando Medical Centre in Mwanza, Tanzania

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Background: Vitamin B₁₂ deficiency and high mean corpuscular volume (MCV) in chronic kidney disease (CKD) have been associated with poor clinical outcomes. We aimed to determine the prevalence of vitamin B₁₂ deficiency, associated factors, and patterns of anaemia among patients with chronic kidney disease attending Bugando Medical Center in Mwanza (BMC), Tanzania.

Methods: A hospital-based cross-sectional study involving 190 patients with CKD was conducted at BMC between May and June 2024. Sociodemographic and clinical information were collected and analysed. We defined malnutrition as having a Subjective Global Assessment-Dialysis Malnutrition Score ≥ 11 . Anaemia was defined according to gender-based WHO criteria for diagnosis and anaemia severity classification, and those with MCV ≥ 100 fl were defined as having macrocytosis. Vitamin B₁₂ deficiency was diagnosed by serum levels < 200 pg/ml.

Results: The median age was 61 [IQR: 51-70] years, median duration of CKD was 15.5 [IQR: 6-36] months, and 45.3% were on maintenance haemodialysis. We found the

prevalence of vitamin B₁₂ deficiency to be 31.1%, and age of 65 years or above (OR 2.30; 95% CI [1.09-4.85]; p-value = 0.029), history of ever using alcohol (OR 2.71; 95% CI [1.20-6.16]; p-value = 0.017), having moderate malnutrition (OR 2.52; 95% CI [1.14-5.55]; p-value = 0.022), duration of CKD for 24 months or more (OR 2.41; 95% CI [1.14-5.10]; p-value = 0.021), having CKD stage 5 (OR 6.53; 95% CI [3.10-16.55]; p-value < 0.001), and being on haemodialysis (OR 7.06; 95% CI [3.49-14.27]; p-value < 0.001), were associated with vitamin B₁₂ deficiency. Anaemia was found in 68.9% of the study participants, 70% had normocytic red blood cells, and macrocytosis was found in 6.3% of patients.

Conclusion: This study found that one-third of patients with CKD had vitamin B₁₂ deficiency. Age of 65 years or above, being moderately malnourished, a history of alcohol use, longer duration of CKD, having stage 5 CKD, as well as being on haemodialysis were associated with vitamin B₁₂ deficiency. Macrocytosis was found in almost 2 out of 30 patients with CKD. We recommend periodic screening of serum vitamin B₁₂ in high-risk patients with CKD.



CKD; Vitamin B₁₂ Deficiency; Bugando Medical Centre



CU08BBR: Iron Status and Factors Associated with Iron Deficiency among children with Congenital Heart Defects attending Bugando Medical Center Mwanza Tanzania

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Background: Iron deficiency (ID) is a public health concern worldwide with children being the most vulnerable. In children with Congenital Heart Defect (CHD), iron deficiency carries a poor prognosis due to exacerbation of left ventricular dysfunction and subsequent heart failure. This study determined iron status and factors associated with iron deficiency among children with congenital heart defects in Mwanza Tanzania.

Methods: This was a hospital-based cross-section study involving 333 children aged 6 months to 12 years. The study was conducted from February 2024 to May 2024 at the cardiac clinic in the department of Paediatrics and Child Health. Data collection tools were used to obtain social demographics, and a detailed physical examination was done on every enrolled patient. A blood sample was taken for a full blood picture, C-reactive protein, and iron status assessment. A stool sample was taken from every enrolled child. Data were analysed by using STATA version 15 to assess iron status and factors associated with iron deficiency.

Results: The median age of the enrolled children was 22 (IQR 11-48) months. Among the 333 studied population, 246

(73.87%) had normal iron status, and 87 (26.13%) participants had iron deficiency. The prevalence of anaemia, iron deficiency, and iron deficiency anaemia was 46.2% at 95% (40.8-51.6), 26.1% at 95% CI (21.4-30.8), 12.9% at 95% (9.2-16.5) respectively. By multivariate logistic regression, residing in rural areas, consumption of cow's milk, and abnormal stool findings such as participants with both worms and red blood cells (RBC), and those with only red blood cells in stool (only RBC) had (AOR=2.4[1.2-4.8] P=0.013), (AOR=6.3[2.0-19.6] P=0.001), (11.3[2.2-59.4] P=0.004) and (9.3[4.4-19.5] P=0.001) respectively were found to predict iron deficiency among children with congenital heart defects.


Conclusion: The prevalence of iron deficiency among children with congenital heart defects is high in Mwanza. Living in a rural area, consumption of cows' milk and abnormal stool findings (worms and red blood cells) were independent predictors of iron deficiency. Therefore, clinicians should have a high index of suspicion of iron deficiency in children with CHD who consume cows' milk, reside in rural areas and with worm infestation for timely and appropriate management.



Children; Congenital heart defects; Iron deficiency



CU09BBR: The utility of prostate-specific antigen density and its correlation with Gleason grade groups in patients with Prostate-related urinary symptoms at Bugando Medical Centre Mwanza, Tanzania

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Background: Prostate cancer is one of the most common cancers in men worldwide. Serum prostate-specific antigen has been used for screening and decision-making for prostate biopsy, although its use is still controversial. Prostate specific antigen density has been reported to increase the accuracy in prostate cancer prediction. The study was designed to determine the utility of prostate specific antigen density in prediction of prostate cancer and its correlation with Gleason grade groups in patients with prostate-related urinary symptoms.

Methods: A total of 287 patients who met the inclusion criteria were included in this cross-sectional study done from October 2023 to May 2024. Serum prostate-specific antigen levels, prostate volume by transabdominal ultrasound and prostate-specific antigen density were determined. STATA v.15 was used for data analysis. Receiver operating characteristic curve to determine, area under the curve, optimal cut-off value of

prostate specific antigen density for prediction of prostate cancer.

Results: Of the 287 patients, 99 (34.5%) were diagnosed with prostate cancer. The median prostate-specific antigen density was 0.45 (0.26 - 3.34) ng/ml². The area under the curve for prostate specific antigen density was 0.9094 (0.8761 - 0.9426), with an optimal cut-off of 0.228ng/ml², giving a sensitivity, specificity, positive predictive value, negative predictive value and accuracy of 86.9%, 82.4%, 72.2%, 92.3% and 84.0% respectively for prostate cancer prediction. Using this cutoff reduces unnecessary biopsies by 45.7%. There was a weak positive correlation between prostate specific antigen density and Gleason grade groups.

Conclusion: The prostate-specific antigen density of 0.228ng/ml² used alone or with prostate-specific antigen in the algorithm for prostate biopsy in prostate-related symptomatic patients improves the prostate cancer diagnostic accuracy.



Gleason grade groups; Prostate cancer; Prostate-specific antigen; Prostate-specific antigen density



CU10BBR: Prevalence and Associated Factors of Metabolic Acidosis Among Non-Dialysis Chronic Kidney Disease Patients Attending Outpatients Clinic at Bugando Medical centre, Mwanza Tanzania

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Background: Impaired acid base homeostasis is one of the most common complications in patients with chronic kidney disease (CKD) which result in acid retention, decrease in serum bicarbonate and overall causing metabolic acidosis (MA), it usually occurs with eGFR <60 ml/min/1.73m². MA in CKD is linked with Mineral bone disease, exacerbating muscle catabolism, CKD progression and increase mortality. In Tanzania there is paucity of data on the burden of MA and its associated factors among patients with CKD.

Objective: To determine the prevalence and associated factors of MA among non-dialysis CKD patients attending outpatient clinic at Bugando medical centre.

Methods: Hospital based cross-sectional study design which was conducted at Bugando Medical Centre between December 2023 to April 2024. Structured questionnaire were used to obtain social demographic and clinical information. Blood samples were collected for assessment of CKD, MA and associated factors. CKD and MA were defined as per KDIGO guidelines. For identification of factors associated with MA, modified Poisson regression was used. All covariates with a *p*-value of < 0.2 in bivariable

analysis were included in the multivariable analysis model.

Results: Among 362 patients the prevalence of MA was 58.0% among patients with non-dialysis CKD. The prevalence was increasing with stage of CKD were by stage 3a, 3b, 4 and 5 had 11.4%, 45.5%, 77.5%, 91.3% respectively. Factors associated with MA include Stages of CKD, hyperphosphatemia, hyperkalaemia and Proteinuria. MA was 34% more prevalent among those with hyperphosphatemia, 48% more prevalent among those with hyperkalaemia and 76% more prevalent among those with proteinuria >1+ compared to those with normal phosphate, potassium and proteinuria ≤1+ respectively. For stages of CKD, those with stage 3b,4 and 5 were more prevalent to have MA compared to those with 3a.

Conclusion: Our finding shows high prevalence of MA in CKD patients not on dialysis attending outpatient clinic at BMC, in which about two-third of CKD patient had MA. For those with stage 5, nine out of ten had MA. Therefore, routine determination of MA in non-dialysis CKD patients might help in identifying patients that would benefit from bicarbonate supplementation.



Metabolic acidosis; Chronic kidney disease



CU11BBR: Host serum biomarkers to screen for active tuberculosis in non-healthcare seeking household contacts of tuberculosis patients

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Background: There is a need for non-sputum based rapid tests to screen for active tuberculosis (TB) amongst household contacts of TB patients. Previously reported biomarkers have been evaluated amongst individuals who present at healthcare facilities with symptoms requiring investigation for TB. In the current study, we evaluated the usefulness of selected host biomarkers in the early identification of TB amongst household contacts that were screened for TB using an active case finding approach.

Methods: We enrolled 867 household contacts of TB positive patients regardless of signs and symptoms of active TB in communities situated within Mwanza, Tanzania and screened them for active TB. Using a multiplex platform, we evaluated the concentrations of 43 biomarkers in serum samples collected at enrolment in all 67 (17.6%) participants that yielded positive TB test results and 303 randomly TB negative controls and assessed their abilities to diagnose active TB.

Results: The mean age of all 370 participants evaluated was 38.6 ± 8 years, 213 (58%) were males and 13% (47) were HIV positive. Out of 43 host-serum biomarkers investigated, 32 revealed statistical significance between the groups $p < 0.05$, with IL2Ra being the most promising individual marker to diagnose TB amongst household contacts of TB patients with sensitivity of 75% (95% confidence interval (CI), 63-85) and specificity of 76% (95% CI, 72-82). We found a 5-markers biosignature (I309, Ferritin, IL-1 β , IL-2Ra and TNF- α which diagnosed TB with sensitivity of 73% (95% CI, 62-84) and specificity of 86% (95% CI, 82-90) during substitution classification.


Conclusion: Previously reported biomarkers as TB diagnostic candidates in patients with serious TB symptoms recruited at the health facilities can be applied to screen TB amongst household contacts of TB patients. These results need to be validated in future studies.



Tuberculosis; Biomarkers; Diagnosis; Household; Contacts



CU12BBR: Host urine biomarkers to screen for active tuberculosis in non-healthcare seeking household contacts of tuberculosis patients

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Background: There is a need for non-sputum based rapid tests to screen asymptomatic patients especially in groups at risk of acquiring TB. Previous studies evaluated hospital self-presenting patients with serious symptoms seeking for TB investigations. It is therefore unknown, whether such biomarkers can also be useful to screen TB among individual who do not feel sick enough to self-present at health care facility for medical care. In the current study, we investigated the usefulness of selected biomarkers for early identification of TB among household contacts of TB patients recruited through active case finding approach.

Methods: We enrolled 867 household contacts of known TB patients within communities in Mwanza, Tanzania and screened them for active TB. Participants were recruited regardless of signs and symptoms and laboratory examination of sputum samples were done to rule out or diagnose TB. We evaluated the concentration of 27 biomarkers in urine samples collected at enrolment in all 65 (18.3%) that had TB positive results and 291 randomly selected negative controls (3

control per TB case, total N=356) and evaluated their abilities to diagnose active TB.

Results: The mean age of study participants was 35 ± 6.5 years, 216 (60.7%) were males and 39 (11%) were diagnosed to have HIV. Out of 27 urine-host biomarkers investigated, 21 were statistically significant different between the groups p <0.05. The best performing single marker in urine was achieved by MCP-1 sensitivity 61% (95% CI, 47-72) and specificity 75% (95% CI, 70-80). Combination of 5-markers in urine (IL-1ra + IL-7 + IL-17 + MCP-1 + MIP-1α) diagnosed TB with AUC 75, sensitivity 62% (95% CI, 48-75) and specificity 74% (95% CI, 68-79) during the substitution classification.


Conclusion: Some biomarkers and biosignature achieved the desired specificity but unable to attain sensitivity as recommended by WHO. However, during the continuous effort of searching for a urine-based biosignature. There is a need of taking biomarkers evaluated in this study into consideration for future studies.



Biomarkers; Biosignature; Tuberculosis; Household contact



CU13BBR: Effectiveness of Phytotherapy (Uriphytol) versus Tamsulosin in management of benign prostatic obstruction at Kilimanjaro Christian Medical Centre: A Randomized, open-label, phase 2, non-inferiority trial

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Background: This study compared the effectiveness of Uriphytol, a phytotherapy from *Cucurbita pepo* and *Curcuma longa*, with Tamsulosin in managing benign prostatic obstruction (BPO).

Methods: This was a 6-months, parallel-designed, randomized, open-label, phase 2 non-inferiority trial conducted at Kilimanjaro Christian Medical Centre in Tanzania. It included men aged 40 years and above with benign prostatic features and PSA density less than 0.15ng/ml². Participants were block randomized using computer-generated numbers in sealed envelopes into intervention or control arms, receiving either Uriphytol 500mg three times daily or Tamsulosin 0.4mg once daily. The primary outcome was the change in the International Prostate Symptom Score (IPSS) with a 3-point non-inferiority margin. Secondary outcomes included changes in post-void residual volume (PVR) and the International Index of Erectile Function (IIEF-5). The trial,

PACTR202304488683045 (Pan African Clinical Trials Registry) is completed.

Results: Between August 2023 and July 2024, 87 participants were recruited (43 in the intervention arm, 44 in the control arm), with 82 completing the study (40 on Uriphytol, 42 on Tamsulosin). Two participants in the intervention and one in the control arm experienced urine retention, and one participant in each arm was lost to follow-up. After 6 months, there was no significant difference in IPSS reduction, but Uriphytol showed a significant improvement in quality of life (QoL) [Uriphytol vs Tamsulosin, mean change in IPSS: 16.20 ±7.38 vs. 15.52 ±5.38, p=0.206; mean change in QoL: 5.45 ±0.99 vs. 4.81 ±1.17, p=0.0049]. No significant difference in PVR changes was noted, but erectile function improved significantly in the Uriphytol group.

Conclusion: Uriphytol was not inferior to Tamsulosin for managing BPO, offering better erectile function and quality of life.



Phytotherapy; Tamsulosin; Benign prostatic obstruction



CU14BBR: Adherence to Insulin Treatment and Glycaemic Control among Diabetic Patients Attending Diabetic Clinic at Bugando Medical Centre Mwanza, Tanzania

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Background: Diabetes mellitus is still one of the most public health problems affecting over 537 million people worldwide. Tanzania is the leading country in Sub Saharan Africa for age – adjusted prevalence (20 – 79 years) of people living with diabetes, which was 12.3% in 2021. Insulin therapy is more commonly used in DM patients and good adherence to insulin therapy makes it easy for a diabetic individual to have good treatment outcomes. This research aims to assess diabetic patient’s adherence to insulin therapy and their glycaemic control.

Method: A cross-sectional study was conducted through convenience selection of 150 diabetic patients at Bugando Medical Centre from 2nd April to 28th April 2024. Data was collected using questionnaires. Data was entered and cleaned using Microsoft Excel then analysed using STATA version 15. Logistics regression was used to obtain

how the predictor variables were associated with non- adherence to insulin therapy and glycaemic control.

Results: Among 150 diabetic patients who were recruited into this study, the median age of the participants was 60[IQR: 47-67] years and most of the participants were female, 84(56.00%). Majority, 82.00% of the participants had low adherence to insulin therapy. Male gender and poor glycaemic control ($p<0.05$) were significantly associated with non-adherence to insulin therapy.

Low adherence to insulin therapy had a significant association with poor glycaemic control ($p<0.05$).

Conclusion: The findings from this study showed low level of adherence among the majority of the study participants. Male patients and those with poor glycaemic control had significant nonadherence to insulin therapy in this study. Patients with low adherence to insulin therapy were more likely to have poor glycaemic control.



Insulin adherence; Glycaemic control; Diabetes mellitus



CU16BBR: The Effect of Beetroot Juice Flavoured with Pineapple as Nutritional Supplement in Improving Haemoglobin Level and Factors Associated with Change in Haemoglobin Level Among Cancer Patients

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Background: Anaemia in cancer patients is common so, sufficient haemoglobin (Hb) level is essential before treatment initiation or continuation. Blood transfusion, hematenics and nutritional support are used to boost Hb levels. Beetroot has been reported to improve haemoglobin in anemic individuals. Published data is missing regarding its effect in anemic cancer patients. **Objectives:** To assess the effect of beetroot juice flavoured with pineapple (BJFP) as nutritional supplement and factors associated with change in haemoglobin level among cancer patients at Ocean Road Cancer Institute (ORCI).

Methods: This was a quasi-experimental study with repeated measurements with control groups Participants were divided into three categories; Patient with low Hb who did not qualify for CT or RT initiation; Patients with Hb adequate enough to receive RT or CT and Post-treatment patients with complications including low Hb. In both categories the patients were assigned to 2 arms, the intervention group that received standard of care plus BJFP and the control group that received standard of care alone; Baseline Hb level were recorded

and subsequently monitored after seven days interval. Structured questionnaires were used to collect patients information that was analysed using SPSS. Balancing of baseline characteristics and inverse probability treatment weighting (IPTW) was used. The effect of BJ was assessed by differences-in-differences (DID) method, and factors influencing hemoglobin changes were analyzed using generalized estimating equations (GEE), with $p < 0.05$ considered statistically significant.

Results: It was observed that 68.8% had hemoglobin levels < 8 g/dl, with 54.6% requiring transfusions. BJFP significantly increased hemoglobin levels by 1.25 g/dl to 2.46 g/dl between day 7-28 post juice use ($p < 0.005$). Factors that affected hemoglobin levels included age, Not yet exposed to CT/RT, being on CT/RT and post RT/CT, blood transfusions, and cancer stage.

Conclusion: BJFP significantly improves hemoglobin levels in cancer patients with anemia when used alongside standard of care. We recommend the continued use of BJFP among cancer patients at ORCI and expanding the practice to other hospitals alongside collecting additional data to validate our findings.



Beetroot juice; Haemoglobin level; Cancer patients; Nutritional supplement



CU17BBR: Prevalence and Factors Associated with Abnormal Oral Glucose Tolerance Test and Insulin Resistance Among Women with Infertility Attending Bugando Medical Centre, Mwanza, Tanzania

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Background: Infertility is a condition that significantly contributes to psychological distress, social stigma and financial constraints. The condition is prevalent worldwide, and studies have shown a link between insulin resistance, poor glucose metabolism and reproductive factors as indicators of infertility. Despite this link, the evaluation of abnormal glucose and insulin resistance as the causes of infertility in our local setting has not been assessed. Furthermore, there is limited information regarding the magnitude and factors associated with abnormal glucose and insulin resistance among women with infertility BMC.

Methods: A cross-sectional study was carried out between August 2023 and May 2024. A total of 170 women with infertility were enrolled. Each participant who consented to participate in the study was interviewed. Socio-demographic information and past medical history, Physical examination findings were recorded in excel sheet. Furthermore, the respondents were requested to come the following day after a t least 8 hours of fasting for oral glucose tolerance tests (OGTT) and measuring blood insulin levels. Data collected were entered

into Epi Info version 7.2.6.0. Continuous variables, data were reported in median \pm inter-quartile range (IQR) and categorical variables were summarized into frequency and percentages. Chi-square test or Fisher's exact test was used to determine the association between various categorical variables and abnormal OGTT or insulin resistance. Results were deemed statistically significant if their p-value was less than 0.05.

Results: One hundred and seventy women with infertility, with a median age of 32 years were recruited into this study. The majority 52.7% of participants were obese and most of them presented with symptoms such as acne and painful menses. The prevalence of abnormal OGTT among these women was 41.8%, while insulin resistance was present in 48.2% of the participants. Obesity was significantly associated with both abnormal OGTT ($p = 0.002$) and insulin resistance ($p = 0.01$), with 11.3 and 3.9 more likely to cause abnormal glucose test and insulin resistance respectively.

Conclusion: Abnormal glucose tolerance tests and insulin resistance were found to be highly prevalent among women with infertility. Obesity was associated with both abnormal OGTT and insulin resistance.



Insulin resistance; Oral glucose tolerance test; Infertility



CU18BBR: The association between hypomagnesemia and hypocalcemia among children with seizures in Mwanza, Tanzania

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Background: Convulsion is a significant clinical manifestation of an underlying central nervous system disorder brought on by systemic or biochemical disturbances such as serum electrolyte disorders. The association between hypocalcemia, and hypomagnesemia with convulsions is uncertain. This study was designed to determine the prevalence and associated factors of hypocalcemia and hypomagnesemia as well as to assess the association of hypocalcemia and hypomagnesemia in children aged 6 months to 6 years with seizures attending Bugando Medical Centre and Sekou Toure Regional Referral Hospital.

Methods: This was a cross-sectional study to determine the prevalence of hypocalcemia and hypomagnesemia and the factors associated with it, as well as a matched case-control study to determine the association of convulsions with hypomagnesemia and hypocalcemia. Data was collected using a standardized, pre-tested, and coded questionnaire, then entered into a computer using Microsoft Excel, and analyzed using STATA version 15, with a p-value of less than or equal to 0.05 considered statistically significant.

Results: A total of 444 children were enrolled to participate in this study. The median age was 48 months [IQR, 14-72], males were 54.9%. The median duration of convulsions was 2 minutes [IQR, 1-2] and the median number of recurrent convulsions within 48 hours was 2 [IQR, 1-2]. Among children with convulsions, the prevalence of hypomagnesemia was 1.4%, while for hypocalcemia was 9.5%. Despite the insignificant odds, children aged 2 years and above were more likely to have hypocalcemia with a COR of 4.05 (95% CI, 0.87-18.82, p=0.074). While female children were less likely to have hypocalcemia with a COR of 0.46 (95% CI, 0.14-1.55, p=0.214). Likewise, children with physical signs of hypocalcemia were more likely to have hypocalcemia with a COR of 1.29 (95% CI, 0.34-4.92, p=0.703). In assessing the influence of magnesium and calcium on the risk of convulsions among children it was found that children with hypocalcemia were more likely to have convulsions with an AOR of 2.39 (95% CI, 1.05-5.44, p=0.037).

Conclusion: Hypocalcemia is significantly associated with seizures; therefore, close monitoring of calcium levels, in children with seizures is of paramount importance.



Hypocalcemia; Hypomagnesemia; Seizures; Convulsions



CU19BBR: Prevalence, Patterns and Associated Factors of Undiagnosed Dysglycemia among Hypertensive Patients Attending Bugando Medical Centre, Hypertension Clinic, Mwanza, Tanzania

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Background: There's bidirectional interaction between hypertension and dysglycemia. Dysglycemia synergistically affects the development or worsening of hypertension complications. Dysglycemia can be asymptomatic. The proportion of masked dysglycaemic individuals who are hypertensive usually leads to miss opportunities for further prevention of other micro and macro vascular complications. The aim of the study was to determine the prevalence, patterns and associated factors of undiagnosed dysglycemia among hypertensive patients.

Methods: In this cross-sectional study 301 hypertensive patients attending BMC outpatient hypertension clinic were enrolled. Fasting blood glucose test was done, and blood samples were collected to assess glycated haemoglobin. Dysglycemia was defined as either FPG 5.6mmol/L and above or as A1C 5.7% and above, while dysglycemia patterns were defined according to ADA 2023 as ranges of FPG 5.6mmol/L to 6.9mmol/L

and FBG of >6.9mmol/L, while when using the A1C the patterns were defined as either ranges from 5.7% - 6.4% or A1C>6.4%. Associated factors of Dysglycemia among hypertensive were explored through binary logistic regression model. Variables with p-value < 0.25 in the univariate analysis were included in the multivariable analysis model. Significance level was set as p-value of < 0.05. Data were analysed using STATA version 15.

Results: Dysglycemia was found in 57.5% of hypertensive patients. Among these dysglycaemic patients, 74.6% had a prediabetic pattern, and 25.4% had a diabetic pattern. Dysglycemia was associated with advanced age, a history of obesity in the family, and the duration of hypertension.

Conclusion: Our findings showed a high prevalence of dysglycemia among hypertensive patients. Therefore, routine screening for dysglycemia should be done and even focused on the elderly population and those with a history of hypertension for more than 3 years.



Dysglycemia; Dysglycemia patterns; Hypertension



CU20BBR: Clinical Profile and Metabolic Markers among Adolescents with Menstrual Irregularities in Mwanza City, Tanzania

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Background: Accumulated evidence shows that 33% of adolescents suffer menstrual irregularities, the major attributable factor being immaturity of the hypothalamic-pituitary axis. The regulation of the menstrual cycle, fertility, and development of secondary sexual characteristics solely depends on the integrity of metabolic markers. Unnoticed metabolic markers are a major risk for hypertension, diabetes mellitus, infertility, and reduced quality of life. This study was designed to determine the clinical profile and metabolic markers among adolescents with menstrual irregularities in Mwanza city, Tanzania.

Methods: This was a cross-sectional analytical study for a period of 1 year from March 2023 to March 2024. Simple random selection was done and total of 6-day scholar secondary schools were selected with 331 adolescents. Adolescents were screened for menstrual irregularities using a structured

questionnaire and those who met inclusion criteria were enrolled into the study. On the next day, blood sample was collected and sent to BMC for analysis. Results were recorded and using STATA version 17 did the analysis.

Results: A total of 331 adolescents were enrolled into the study with median age of 17 years. Out of 331 adolescents 74% had hyperprolactinemia, 0.6% had hypothyroidism, 26.6% had abnormal Oral glucose tolerance test and no participants had hyperthyroidism. There was an association between hyperprolactinemia and polymenorrhoea with P value 0.038, and hypothyroidism with oligomenorrhoea with P value 0.021.

Conclusion: Although menstrual irregularities in adolescents are likely caused by the hypothalamic pituitary ovarian axis immaturity, hyperprolactinemia and hypothyroidism are involved in some cases and therefore require further evaluation.



Menstrual irregularity; Metabolic markers; Adolescents



CU21BBR: Prenatal Selenium Potential Protective Effect against Adverse Pregnancy Outcomes Associated with Higher Toxic Chemical Elements Among Exposed Pregnant Women in Geita District Tanzania

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Background: Prenatal selenium levels and its potential protective effects against adverse pregnancy complications following prenatal exposure to toxic chemical elements is an under-explored yet salient public health issue. Available evidence on toxic chemical elements exposed to individuals does not explain existing Selenium (Se) blood levels to guide public health interventions.

Objective: To investigate the Se-potential protective effect against adverse pregnancy outcomes associated with higher toxic chemicals (i.e., As, Cd, Pb, and Hg) among exposed women in Geita District, Northwestern Tanzania.

Methods: This prospective cohort study included a total of 844 pregnant women from the Tanzania Mining and Health Cohort. Modified poison regression was used to determine the association between outcomes and exposure variables among study participants. Spearman correlation coefficients were used to assess the relationships between chemical elements.

Results: The majority of the participants were aged between 14-34 years; their median (IQR) was 25(20-29). The majority

of study participants had selenium blood levels below the reference value of <70µg/L (50.7%), and the median (116.64µg/L) Se levels were above the reference value. There was a positive correlation between selenium and toxic chemical elements. Selenium had a protective effect on adverse pregnancy outcomes in a linear format against preterm birth, spontaneous abortion, stillbirth, and composite adverse birth outcomes. At Selenium levels above 70µg/L, Pb, Cd, Hg, and as indicated less toxic effect on pregnancy. For example, Cadmium had a 55%, 13%, and 32% lower prevalence of preterm birth, spontaneous abortion, and stillbirth respectively compared to low Se levels. Lead showed a 12% and 24% lower prevalence of preterm birth and spontaneous abortion with Se levels above 70µg/L. Mercury had a 25%, 11%, and 30% lower prevalence of preterm birth, spontaneous abortion, and stillbirth respectively.


Conclusion: The association of adverse birth outcomes and heavy metals considering the modulation effect of selenium element shows a potential protective effect as Selenium increases to >70 µg/L.



Prenatal selenium levels; Toxic chemical elements; Gold mining; Pregnancy outcomes



CU22BBR: Prevalence clinical correlates and outcomes of cardiorenal Anaemia syndrome among patients with heart failure attended a tertiary hospital in Dodoma, Tanzania: A prospective observational cohort study

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Background: Cardiorenal anaemia syndrome (CRAS) poses significant complications in patients with heart failure, often leading to unfavourable outcomes; however, the published data from medical registries are limited. This study assessed the prevalence, clinical correlates, and outcomes of CRAS among patients across heart failure phenotypes attended the Benjamin Mkapa Hospital in Dodoma, Tanzania.

Methods: A prospective observational cohort study was carried out at BMH between 18th August 2023 and 18th April 2024. Adult patients aged 18 years or above who had been diagnosed with heart failure and confirmed by 2-dimensional transthoracic echocardiography (2D-TTE) were recruited. Both descriptive and inferential analyses were used to summarise the data and to examine clinical correlates, primary and secondary outcomes. A two-tailed p-value of less than 0.05 was considered statistically significant.

Results: A total of 298 participants were recruited with a median age of 57 (IQR 42-72) years, and 60% were females. At baseline, 224 (75%) had hypertension; 153

(51%) had diabetes mellitus; 169 (57%) were anaemic and 193 (64%) had iron deficiency; 156 (60%) were overweight or obese and 163 (54.7%) had HFREF. Furthermore, 227 (76.2%) had CKD and the majority had median eGFR of 47 (IQR 33-60) ml/min/1.73m². The prevalence of CRAS was 46.3%. The clinical correlates of CRAS were iron deficiency (OR: 2.5; 95% CI, 1.5-4.1; $p = 0.001$) and diabetes mellitus (OR 2.1; 95% CI, 1.2-3.4; $p = 0.006$). Heart failure rehospitalisation was higher among patients with CRAS than non-CRAS (HR: 3.8; 95% CI, 2.4-6.0; $p < 0.001$). Our cohort displayed, 1 out of 4 with CRAS had worsening renal function and 5.1% of the patients required dialysis. Additionally, 1 out of 3 had worsening of anaemia.

Conclusion: In Dodoma, CRAS was considerably prevalent among patients with heart failure and was clinically correlated with iron deficiency and diabetes mellitus. Additionally, CRAS is associated with increased odds of rehospitalization due to worsening of heart failure. Worsening renal function and worsening of anaemia were also displayed significantly among patients with CRAS.



Cardiorenal anaemia syndrome; chronic kidney disease; Heart failure; Dodoma



CU23BBR: Does aerobic activity matter in reduction of blood pressure among hypertensive adults in Africa? A systematic and meta-analysis

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Background: Sub-Saharan Africa is faced with the increasing prevalence of high blood pressure with estimating 216.8 million cases by 2030. Physical exercise, specifically, aerobic activity has been recognized for its cardiovascular benefits. However, the role of aerobic exercises remains under-explored with inconsistent findings in Africa. We aimed to synthesis and estimate the effect size of aerobic activity among hypertensive adults on medication in Africa.

Methods: We included published randomized clinical trials conducted in Africa between 2000 and September 2024 that included adults ≥ 18 diagnosed with hypertension. The search was conducted using PubMed, African Journal Online, Hinari, and Science Direct databases. The Cochrane Risk of Bias tool was used for quality assessment. The outcome was assessed by mean difference (MD) and the exposure by volume of oxygen (VO_2Max), frequency per week and duration. Meta-analysis was performed using R (v.4.3.2).

Results: We identified 683 articles, 8 qualified for qualitative assessment with 1,112 participants on antihypertensive medication (625 in intervention group and 487 in control group). Adherence to medication was more

than 70% in both groups. Follow up of participants ranged from 6 weeks to 16 weeks with different aerobic modality; brisk walking, bicycle ergometer, and aerobic dance which were done either continuously or three times per week that lasted between 30 minutes and 60 minutes. Intensity of the training was based on VO_2Max (64% to 79%) and VO_2Peak (40% to 79%). Overall findings suggest a significant pooled reduction in systolic blood pressure, MD: -5.40 mmHg, [95%CI: -9.05 – -1.75] and a modest reduction in diastolic blood pressure, MD: -1.90 mmHg, [95%CI: -3.81 – 0.01]. In subgroup analysis based on training duration, 6-8 weeks observed to reduce both systolic and diastolic blood pressure but not with follow up > 8weeks; systolic blood pressure, MD= -8.56 [95%CI: -13.64 – -3.48] vs -3.56 [95%CI: -7.69 – 0.56] whereas diastolic blood pressure, MD is -1.17 [95%CI: -1.97 – -0.36] vs -2.38 [95%CI: -6.04 – 1.29].

Conclusion: Adherence to anti-hypertensive medication together with aerobic activity effectively reduced blood pressure among hypertensive adults in Africa, particularly at 8 weeks with slightly diminished effect in prolonged weeks, which calls for more research on this.



Aerobic activity; Hypertension; Reduced blood pressure; Physical exercise



CU24BBR: Arrhythmogenic electrocardiographic abnormalities among chronic kidney disease patients attending tertiary hospital in Mwanza, Tanzania

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Background: Cardiac diseases attributed to arrhythmic mechanisms are major causes of death among dialysis naïve and dialysis-experienced patients. A resting electrocardiogram (ECG) can detect some arrhythmogenic abnormalities associated with the risk of cardiovascular disease morbidity and mortality in chronic kidney disease (CKD) patients. This study aimed to determine the prevalence, patterns, and associated factors of arrhythmogenic electrocardiographic (ECG) abnormalities among CKD patients in Mwanza.

Methods: A hospital-based cross-sectional study was conducted among 162 CKD patients attending medical outpatient clinics in Bugando Medical Centre between November 2023 and March 2024. Demographic, clinical, laboratory, ECG, and echocardiographic findings were recorded and analysed.

Results: 83 patients on regular haemodialysis and 79 patients with CKD stage 3–5 were included with a median age of 61. 103 (63.4%) were male and 107 (66%) of the study participants were

asymptomatic during enrolment. ECG abnormalities were found in 134 (82.7%) of study participants with arrhythmogenic ECG abnormalities constituting 79.8% of all abnormalities. The most prevalent abnormalities were Prolonged QTc (46.9%), LVH (24.1%), Ischemic changes (23.5%), Atrioventricular blocks (AVB) (12.4%) and Intraventricular conduction defects (5.6%). Factors associated with arrhythmogenic ECG abnormalities included having comorbid conditions, reduced ejection fraction (EF<50%), and advanced CKD stage. In subgroup analysis, elevated BP during enrolment was associated with AVB, and the use of Calcium channel blockers and proton pump inhibitors was associated with Long QTc. Electrolyte abnormalities, dialysis status, and anaemia had no statistically significant associations.

Conclusion: Arrhythmogenic ECG abnormalities are prevalent in the CKD population in our setting. We recommend regular ECG screening to detect arrhythmogenic changes in this population.



ECG abnormalities in CKD; ECG changes in CKD; Arrhythmogenic ECG change



CU25BBR: MEF2C exons sequencing reveals novel non-synonymous mutations in patients with congenital heart diseases among the Tanzanian population

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Background: Congenital heart disease (CHD) is the structural malformation of the heart and/or the great vessels present at birth. It is the most prevalent birth defect in humans. The aetiology of congenital heart disease is highly heterogeneous, including genetic factors and environmental factors. Nonetheless, most of the causes of CHD remain elusive, especially in resource-limited settings.

Methods: In this study, 62 unrelated cases with CHD and 124 unrelated healthy controls were enrolled. The coding regions of exon 1 and 11 of the myocyte enhancer factor 2C (MEF2C) gene that encodes a transcription factor essential for appropriate cardiovascular development were sequenced. The obtained nucleotide sequences were subjected to the Basic Alignment Search Tool (BLAST). Mutational taster characterized the functional effects of the

identified MEF2C mutation. Swiss computational modelling was used to characterize the secondary protein structures.

Results: Novel, non-synonymous mutations were identified in 8-month-old male infant with pulmonary atresia, Patent ductus arteriosus, and Truncus atresia (c.185T>A equivalent to p.M62K) and in 8-month-old female patient with tetralogy of Fallot (c.64_65insA equivalent to p. T22N). The mutations were predicted to be pathogenic, not previously reported and absent among the control group.

Conclusion: This study associated MEF2C mutation with congenital heart diseases, providing a novel insight into molecular mechanisms underpinning CHD and signifies the likely implications of genetic counselling in MEF2C related CHD.



Congenital Heart Disease; MEF2C; Transcription Factor; Mutations



CU26BBR: Effect of the incubation time on blood culture results and bacterial pathogens causing bloodstream infections among children attending Sekou Toure Regional Referral Hospital in Mwanza, Tanzania

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Background: One-hour delay in initiating appropriate antimicrobial treatment increases the mortality rate of patients with bloodstream infections by 2%. This highlights the risk associated with manual blood culture methods, as they tend to have long turn-around time with initial incubation period of 18-24 hours which leads to delays in obtaining diagnostic results. This study examined the impact of incubation time on blood culture results and analyzed the patterns of the pathogens causing bloodstream infections (BSIs) among children attending Sekou Toure Regional Referral Hospital, Mwanza, Tanzania

Methodology: A hospital-based, descriptive cross-sectional study was conducted at Sekou Toure Regional Referral Hospital from May to July 2024. The conventional blood culture method, using in-house prepared brain heart infusion broth with slight modifications on the initial time of the blind subculture (at 8 hours, 24 hours and 120 hours) was done to isolate the pathogens causing BSIs. Descriptive data analysis was performed using STATA software version 15.

Results: The study enrolled 302 children with clinical diagnosis of BSI. Of these, 160 (53%) were male, with a median age of 6 years (IQR: 1-7 years). Fever was the predominant clinical sign reported in 259 (85.8%) children.

Microbiologically confirmed bloodstream infections were detected in 90 (29.8%) children. Among them, 51.1% (46/90) were detected through blind subculture after 8 hours of initial incubation. An additional 31 (34.4%) were detected after 24 hours, and 13 (14.4%) were identified after 120 hours of incubation. The most frequently isolated pathogens were *Klebsiella pneumoniae* (25.6%, 23/90) and *Staphylococcus aureus* (24.4%, 22/90). Gram-negative bacteria formed the majority, (71.1% 64/90) of the isolated pathogens, with 62.5% (40/64) showing resistance to third-generation cephalosporins. Additionally, 45.5% (10/22) of the *Staphylococcus aureus* strains were methicillin-resistant (MRSA).

Conclusion: Blind subculture after 8 hours of initial incubation correctly detected more than half of the children with microbiological confirmed bloodstream infections. Incorporating blind subculture on MacConkey agar supplemented with cefotaxime 2µg/ml (MCA-C) after 8 hours of incubation resulted in the correct treatment of half of the children with bloodstream infections caused by Gram-negative bacteria within 24 hours. In areas with high prevalence of third-generation cephalosporin resistance, blind subculture within 8 hours should include MacConkey agar supplemented with cefotaxime 2µg/ml for appropriate treatment within 24 hours.



Blood culture; Incubation time; Bloodstream infection; Antimicrobial



CU27BBR: The Insight from the Morgue: Data-Driven Postmortem Analysis and Future Directives

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Background: Postmortem examinations, commonly referred to as autopsies, are crucial for determining the cause of death, providing detailed information on disease mechanisms, and assessing the accuracy of medical treatments and diagnoses. Although globally recognized as the gold standard for identifying causes of death, autopsy rates have dramatically declined, particularly in low- and middle-income countries (LMICs) and no available data in Tanzania. This study aims to determine the autopsy rate, analyze the patterns of causes of death, identify the types of postmortem examinations performed, and assess the prevalence of ancillary diagnostic testing, such as histopathology, toxicology, and microbiology, in postmortem cases at Bugando Medical Centre between July 2022 and July 2024.

Methods: A two-year descriptive cross-sectional study was conducted at Bugando Medical Centre, including all postmortem cases performed between July 2022 and July 2024. Data were obtained from electronic health records and postmortem registers using a structured data collection tool. Key information, including demographics, type of autopsy (clinical or forensic), and additional diagnostic tests (histopathology,

toxicology, microbiology, and radiology), were recorded. Data analysis was done using SPSS version 20 and Descriptive statistics, such as means and percentages, were used for analysis.

Results: Of the 7077 deceased bodies received, autopsies were performed on 1143, representing an overall autopsy rate of 16%. Out of 1143, 985 postmortem cases were included in the study. The mean age of the deceased was 34±19 years, with males comprising the majority (83%). Medico-legal cases dominated the autopsies (99.6%), while clinical autopsies, all related to maternal deaths, accounted for only 0.4% of cases. A small number of cases underwent toxicology (3%) and histopathology (0.7%) testing. Trauma was the leading cause of death, accounting for 59% of cases, followed by medical causes (6.2%) and severe burns (4.7%). In 13.2% of cases, the cause of death was undetermined.

Conclusion: Autopsies remain a critical yet underutilized tool for medical research, offering valuable insights into disease diagnosis, treatment outcomes, and public health risks. Promoting higher autopsy rates and integrating advanced diagnostics can enhance the understanding of disease patterns and improve healthcare delivery.



Autopsy; Autopsy rate; Medico-Legal; Cause of death



CU28BBR: Utility of symptoms-dipstick diagnosis algorithm in detection of urinary tract infections using culture as gold standard among symptomatic patients in Mwanza, Tanzania

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Background: Urinary tract infections (UTIs) are significant global health concern, with over 404.6 million cases and nearly 236,786 deaths reported in 2019. In Tanzania, the prevalence of urinary tract infections (UTIs) spans from 16.4% to 41% among various population, encompassing both children and adults. UTI diagnosis typically relies on urine culture which is expensive, have long turnaround time and often unavailable in lower-tier healthcare facilities. This study aimed at establishing a Symptoms-Urine Dipstick Diagnostic (USDD) algorithm to improve the UTI diagnosis in lower health facilities of resource-limited settings.

Methods: This cross-sectional study was conducted at Buzuruga and Igoma Health Centers, involving 1,005 adult patients. Data on demographic characteristics, reported UTI symptoms, and urinalysis findings were collected using pretested data collection tool. Urine samples were analyzed using dipstick tests for leukocyte esterase (LE), microscopic examination for pyuria, and standard urine culture. The predictive model was done to establish Symptoms-dipstick-algorithm.

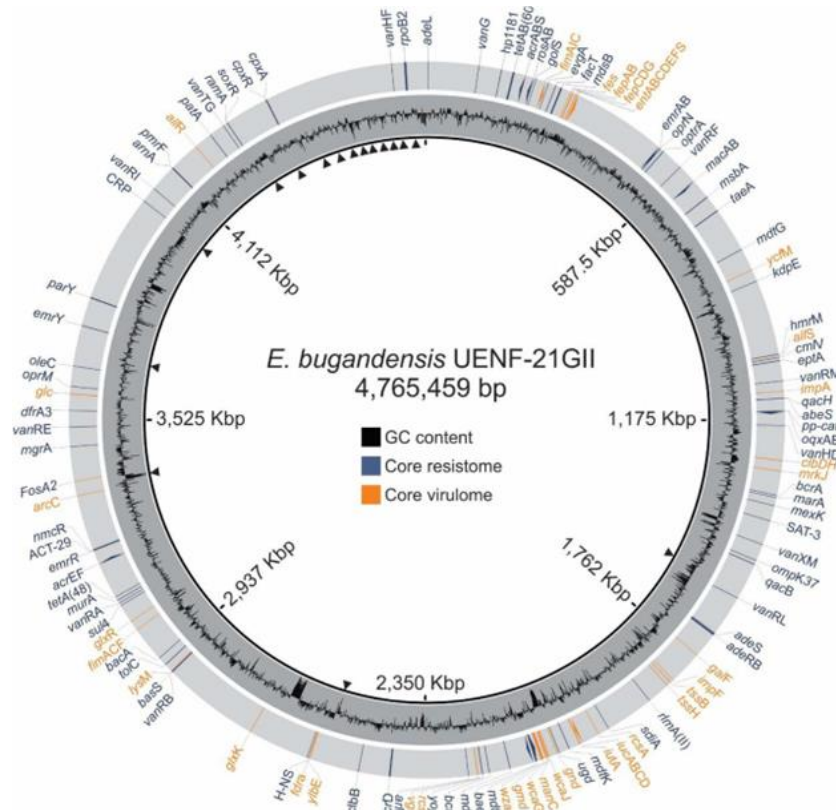
Results: The study involved 1005 patients with a median age of 32 years (IQR 23-49), with majority of patients being female 72.3% (727). Most of patients were married 59.3% (596). The most commonly reported symptoms were fever 58.5% (588), lower abdominal pain 50.9% (512) and

Urinary tract infections (UTIs), dysuria 25.3% (554). The prevalence of UTI was 22.5% (227) based on culture results, with *Escherichia coli* 66(25.2%), *Staphylococcus aureus* 49(18.7%) and *Candida* spp. 38 (14.5%) being the most frequently isolated pathogens. The decision tree algorithm for detecting urinary tract infections (UTIs) suggested the use LE, dysuria, fever and past history of UTI. It has moderate performance (sensitivity of 47.1% and specificity of 89.5%), in detecting patients with UTIs when compared with culture as gold standard. The positive predictive value was 56.2% and negative predictive value was 84.7%. Microscopic pyuria showed a sensitivity of 59.9% and specificity of 77.2%, with a positive predictive value (PPV) of 43.4% and a negative predictive value (NPV) of 89.9% while the dipstick leukocyte esterase (LE) method had a higher sensitivity of 77.5% but lower specificity at 62.2%, with a PPV of 37.3% and NPV of 90.5%

Conclusion: The developed algorithm offers a practical approach for the early detection of UTIs, particularly in lower health facilities located in resource-limited settings. The algorithm offers a relatively low sensitivity and high specificity with ability to reduce unnecessary use of antimicrobial among patients with clinical symptoms of UTI in lower health facilities. To further validate the algorithm's generalizability, it is recommended to test it on diverse data sets from different populations and healthcare settings.




Urinary tract infections (UTIs), Symptoms-Dipstick Diagnostic Algorithm; Urine Culture; Resource-Limited Settings; Predictive Model



CUPPH: PATHOGENS OF PUBLIC HEALTH IMPORTANCE, SURVILLANCE, EPIDEMIC CONTROL AND GLOBAL HEALTH SECURITY



CU01PPH: A changing hepatitis B virus genetic diversity pattern in Northern-Western Tanzania: Is it a concern for Tanzania?

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Background: Frequent evaluation and understanding of the molecular diversity of the HBV virus in different affected global settings is essential towards the elimination of infection by 2030. In this regard, HBV molecular diversity evaluation is scarcely done in Tanzania, imposing a crucial knowledge gap. We characterized the HBV from 21 chronically HBV-infected patients attending Bugando Medical Centre to determine the HBV genetic diversity.

Methods: This cross-sectional study was conducted on the selected 21 plasma samples with high HBV-deoxyribonucleic acid (DNA) levels of >300,000IU/mL. DNA extraction was done using Qiagen DNA Blood Mini Kit (Qiagen, Hilden, Germany). The Partial amplification of HBV DNA, sequencing and analysis was done at Institute of Virology, Giessen Germany.

Results: The mean age of 21 HBV chronically infected patients was 41±11 years with HBV-DNA median of 979 [185.5 - 8457.5] IU/mL. Majority (85.7% =18/21) were males from Mwanza. The genotypes detected were HBV/A; 76.2% (16/21), all being A1, followed by HBV/D; 19% (4/21), all being D4 and lastly HBV/G, 4.8% (1/21). The

HBV/A1 serotypes were Adw2; 81.3% (13/16), followed by Ayw2; 12.5% (2/16) and all 4 HBV/D4 genotypes were serotype Ayw2. Overall, 19% (4/21) of the patients had HBV escape mutations (T123V, Y134N, P120T and T123A). The HBV/A identified in this study were distributed randomly among other HBV/As from all Zones of Tanzania reported previous. On the other hand, HBV/D identified in this study were distributed among HBV/Ds from the Lake Zone and Northern Tanzania identified previously. However, most of the HBV/As and all of the HBV/Ds identified in this study did not mix-up with HBV/As and HBV/Ds from other parts of the world.


Conclusion: HBV/A (HBV/A1) is predominant over time in Tanzania. Most HBV/A1 and all HBV/D are unique to Tanzania as had been previously reported. However, the molecular epidemiology of HBV in this region is changing with occurrence of HBV/G as a new genotype and increasing HBV escape mutations which are mostly not due to drug pressure selection. The observation of HBV escape mutations threatening the future efficacy of serologic diagnostic tests and HBV vaccination in Tanzania underscoring the continuous monitoring of these mutants.



Chronic HBV infection; HBV genotypes; HBV-escape mutations; Northern-Western Tanzania



CU02PPH: Carbapenem-resistant Gram-negative bacterial colonization among patients with skin and soft tissue infections admitted at Bugando Medical Centre in Mwanza, Tanzania

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Background: Carbapenem-resistant Gram-negative bacteria (CR-GNB) colonization pose a significant risk for endogenous skin and soft tissue infections (SSTIs) associated with high morbidity and mortality. However, there is limited data on CR-GNB colonizing skin and soft tissue patients admitted at BMC. This study determined the prevalence of CR-GNB colonization among patients with SSTIs admitted at Bugando Medical Centre (BMC), Mwanza, Tanzania.

Methods. A cross-sectional study was conducted from May 2024 to August 2024 involving 202 patients with SSTIs at BMC. Rectal swabs and stool samples were collected from eligible patients with SSTIs, and processed to detect CR-GNB. Data was analyzed using STATA version 15.0.

Results: A total of 202 patients with SSTIs with median age of 30 [18-49] years admitted

at BMC were enrolled in this study. The majority of patients were males 129 (63.8%). The prevalence of rectal colonization with the 3rd generation cephalosporin resistance GNB (3GC-R-GNB) was 95.53% (n=193), notably, *E. coli* 63.97% (158/247) and *K. pneumoniae* 23.48% (58/247) were most frequently detected. The prevalence of patients with SSTIs colonized with ESBL-PE phenotypes was 76.24% (154/202) while the proportion of CR-GNB phenotypes colonization was 12.96% (32/247).

Conclusion: The study found 14.85% CR-GNB colonization among patients with SSTIs admitted at BMC, emphasizing the need for enhanced infection prevention and control measures to prevent and minimize subsequent endogenous MDR - SSTIs by CR-GNB.



Skin and soft tissue infections; Carbapenem resistant-gram negative bacteria



CU03PPH: Epidemiology and Antimicrobial Resistance Trends of Bloodstream Infections during and after the Implementation of the National Action Plan on Antimicrobial Resistance (2017-2022) in Mwanza, Tanzania

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Background: Bloodstream infections (BSIs) by pathogens with antimicrobial resistance (AMR), particularly the WHO-Bacterial-Priority-Pathogens (WHO-BPP), are associated with high mortality. This study determined the epidemiology and AMR trends of bacteria causing BSIs during and after implementing the National Action Plan on AMR (NAP-AMR) in Mwanza, Tanzania.

Methods: This cross-sectional study was conducted among patients with clinical diagnosis of sepsis at District, Regional, and Zonal Referral Hospitals between June 2019 and June 2020 (during NAP-AMR) and between March and July 2023 (after NAP-AMR). Bacterial pathogens were isolated by conventional blood culture, and their identification and antibiotic susceptibility were determined using Vitek MS (MALDI-TOF-MS) and Vitek 2, respectively.

Results: A total of 1842 patients, with a median age of 7 [IQR: 1 – 38] years, were enrolled before (n=1076) and after (n=766) NAP-AMR. Females comprised 51.4% (946/1842) of the patients. The prevalence of laboratory-confirmed BSIs was 14.7% (271/1842), slightly increased after NAP-AMR (13.7% vs. 16.1%, p=0.169). A total of

306 bacterial isolates were detected, with the predominance of the Gram-negative bacteria (GNB) before (92.4%, 157/170) and after (73.5%, 100/136) NAP-AMR. *E. coli* (31.2%, 53/170) predominated during, while *K. pneumoniae* (43.4%, 59/136) predominated after NAP-AMR. Resistance of *Klebsiella pneumoniae* to cephalosporins (e.g., cefotaxime; 65.3% vs. 93.2%, p=0.001), gentamicin (63.3% vs. 94.9%, p=0.001), and ciprofloxacin (28.6% vs. 76.3%, p=0.001) increased significantly. BSIs by WHO-BPP increased significantly (43.5% vs. 76.1%, p<0.001), notably Extended-spectrum beta-lactamase-producing Enterobacterales (ESBL-PE; 58.3% vs. 91.5%, p<0.001). Patients in higher-tier hospitals (OR: 6.18; 95%CI: 1.64 – 23.25; p=0.007) and enrolled after NAP-AMR (OR: 2.87; 95%CI: 1.49 – 5.53; p=0.002) were associated with significantly higher risk of BSIs by WHO-BPP.

Conclusion: We report a high prevalence of BSIs and an increased proportion of BSIs by WHO-BPP which were notably common in higher-tier hospitals and after NAP-AMR. We recommend enhancing targeted surveillance and AMS efforts to prevent the further escalation of AMR.



Antimicrobial Resistance; Bloodstream infections; Epidemiology; National Action Plan; WHO bacterial priority pathogens



CU04PPH: Incidence of surgical site infections and their association with preoperative serum albumin following major abdominal surgery at Bugando Medical Centre, Mwanza, Tanzania

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Background: Despite the fact that major abdominal surgery is among the most frequently performed surgical procedures worldwide, its association with surgical site infection (SSIs) has been a major cause of morbidity and mortality. The incidence of SSIs following major abdominal surgery has been reported to be high in developing countries including Tanzania, and its association with serum albumin has not been explored.

Methods: A prospective cohort study, involving 138 adult patients who underwent major abdominal surgeries from March 2024 to June 2024. Patients who met inclusion criteria were enrolled and followed up for 30 days. Patients' and operative characteristics were recorded using standard structured questionnaires and serum levels of albumin measured. Pus/wound swabs were collected from patients with clinical evidence of SSI for culture and sensitivity. Descriptive data analysis was performed using STATA version 15.

Results: A total of 138 patients with a median age of 52[IQR: 30-58] years were

enrolled. Out of 138 patients, 105 (76.1%) had normal serum albumin levels. Intestinal obstruction was the most common indication of abdominal surgery. Among the 138 patients enrolled, 35 developed SSIs resulting in an overall cumulative incidence of 25.4 % (35/138). Most frequently isolated bacteria were *Escherichia coli* 12(38.7%). The majority of the Gram-negative isolates demonstrated multi-drug-resistant phenotypes. On multivariate logistic regression, only serum albumin was found to predict SSIs (OR: 33.3; 95%CI: 12.5-100; P value<0.001).

Conclusion: A quarter of patients undergoing major abdominal surgery at BMC developed SSIs with multi-drug-resistant Gram-negative bacteria being the most frequently isolated pathogens. Low serum albumin was found to be significantly associated with SSIs. Evidence-based treatment approach using culture and sensitivity, and pre-operative measuring of the serum albumin is recommended.



Major abdominal surgery; Surgical site infection; Incidence; Bacteriological profile; Tanzania



CU05PPH: Extended spectrum beta-lactamase and carbapenemase producing gram-negative bacteria contaminating inanimate laboratory surfaces at Bugando Medical Centre in Mwanza, Tanzania

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Background: Inanimate laboratory surfaces contamination acts as potential exogenous sources for transmission of beta lactamase and carbapenemase producing Gram negative bacteria (GNB) in the hospital settings. The study aimed at investigating the Extended spectrum beta lactamases (ESBL) and Carbapenemase producing GNB contaminating inanimate laboratory surfaces at Bugando Medical Center (BMC) in Mwanza Tanzania.

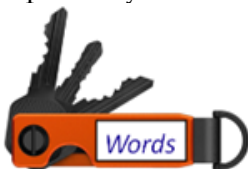
Methods: A cross-sectional hospital-based study was conducted by swabbing laboratory surfaces such as doorknobs, floors, sinks, shelves and working benches at BMC between May and July 2024. Using a Stuart transport media, all swabs collected from inanimate surfaces were transported to CUHAS Microbiology laboratory for processing. Culture was done on MacConkey agar supplemented with cefotaxime for ESBL-GNB and MCA supplemented meropenem for CR-GNB and bacterial identification to a species level was done using biochemical tests. Combination disk method was used for phenotypic confirmation of ESBL-GNB and CR-GNB, respectively. Data was

entered into Microsoft excel and analyzed using STATA version 15.0.

Results: The overall prevalence of inanimate surfaces contamination by MDR-GNB was 9.5% (19/200). The proportion of inanimate surface contamination was high during morning hours by 10/19 (52.6%). Sinks 14 (73.7%) was frequently contaminated surface, furthermore, the contamination was high on parasitology department by 8 (42.1%). From 19 positive swab samples, a total of 29, 3GC-R-GNB were predominated by *Enterobacter aerogenes*, *Enterobacter cloacae* and *Klebsiella oxytoca* we. Result showed that 12 (41.4%) had positive ESBL phenotypes. A total of 2 CR-GNB were isolated of which 2(6.8%) were Carbapenemase containing bacterial isolates.

Conclusion: The current study demonstrates that laboratory inanimate surfaces such as shelves, floor, doorknobs, working benches and sinks at BMC tertiary Hospital were contaminated with ESBL by 41.4% and CR-GNB by 6.9%. Therefore, potentially serving as reservoirs for multidrug-resistant healthcare-associated infections in hospital at our local setting

ESBL; CR-GNB; BMC; Mwanza; Tanzania





CU06PPH: Incidence, bacteriological profile and predictors of surgical site infections following limb amputation at Bugando Medical Centre and Sekou Toure Referral Regional Hospital, Mwanza, Tanzania

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Background: Surgical site infections (SSIs) after limb amputations have been associated with increased patient morbidity, mortality and costs. This study aimed to determine the incidence, bacteriological profile and predictors of SSIs following limb amputation at Bugando Medical Centre (BMC) and Sekou Toure Regional Referral Hospital (SRRH).

Methods: The longitudinal study was conducted among patients undergoing limb amputations between March and July 2024 at BMC and SRRH. Pre-tested structured questionnaire was used to collect sociodemographic and clinical data. Clinical diagnosis of SSIs was done using Centre for Disease Control and Prevention criteria followed by collection of wound/pus swab for culture and susceptibility testing. Descriptive data analysis was done using STATA version 15.0.

Results: A total of 120 patients with a median (IQR) age of 58 [43.5-66.5] years were enrolled. The commonest indications for limb amputations were diabetic foot

ulcers 50.8% (61). The incidence of SSIs was 30% (36/120), with *Escherichia coli* (36.7%; 11/30) and *Staphylococcus aureus* (23%; 7/30) being the most frequently isolated pathogens. More than half of the Gram-negative isolates were resistant to third and fourth generations cephalosporins which were commonly used as prophylactic antibiotics in the study settings. Advanced age (OR=0.21, 95% CI: 0.05-0.95, p=0.043), smoking (OR=14.3, 95% CI: 1.33-10.00, p=0.027), ASA Class III (OR=13.33, 95% CI: 2.82-63.14, p=0.001) and longer surgery duration (≥ 2 hours) (OR=4.09, 95% CI: 1.30-12.89, p=0.016) were independently associated with SSIs.

Conclusion: About one third of the patients developed SSIs following limb amputation. SSIs were significantly more in patients with low age, smoking, high ASA score, prolonged surgery and who received blood transfusion. This highlighted the need to update the management protocol of limb amputation in relation to antibiotics prophylaxis among patients with increased risk of SSIs.



Limb amputation; Surgical site infection; Incidence; Bacteriological profile; Tanzania



CU07PPH: Prevalence and factors associated with HIV viral load rebound among HIV clients with previous viral load suppression in Mwanza, Tanzania

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Background: Viral load rebound in HIV positive people refers to the recurrence of detectable quantities of HIV RNA in the circulation following initial suppression with antiretroviral therapy. Despite the efficacy of antiretroviral therapy (ART) in decreasing viral replication, rebound poses a substantial obstacle to HIV treatment outcomes and transmission control. The lack of knowledge about the epidemiology of rebound in Mwanza demands further research to better understand its causal effects. The study's goal was to identify prevalence and factors that contribute to rebound so as to suggest possible interventions and ultimately minimize transmission rates in the region.

Methods: Retrospective hospital-based study was conducted at Bugando Medical Centre-Clinic and Treatment Centre from May to August, 2024 using the archived data stored between July 2020 and June 2023. The stored medical records of 416 HIV clients were reviewed

from client's files and CTC 2 database and then abstracted by using well prepared abstraction form/checklist. Statistical analysis was performed using STATA version 15 software to obtain the factors associated viral loads rebounds.

Results: Prevalence of HIV viral load rebound among clients with previous viral suppression was found to be 11.78% (CI, 8.4-13.1) with poor ART adherence (OR=2.211, CI=1.046-4.677, p=0.038) and comorbid diseases (OR=17.852, CI=6.548-48.664, p=0.001) as factors independently associated with viral load rebound.

Conclusion: The findings indicate that some clients who previously achieved viral load suppression may still encounter viral loads rebounds despite substantial breakthroughs in HIV treatment and care, emphasizing the need for enhanced ART adherence support and comprehensive management of comorbid conditions as part of HIV care.



HIV; Viral load rebound; Mwanza; CTC; Tanzania



CU08PPH: Prevalence of Hepatitis B viral infections among type two diabetic mellitus patients attending at Sekou Toure Regional Referral Hospital in Mwanza-Tanzania

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Background: The hepatitis B virus is a significant public health challenge, particularly among high-risk population like diabetic's patients. This study was aimed to determine the prevalence of hepatitis B among type two diabetics mellitus attending at Sekou Toure Regional Referral hospital in Mwanza-Tanzania.

Methods: A cross-sectional study involving 177 diabetics patients was conducted between May to August 2024 at Sekou Toure Regional Referral Hospital in Mwanza. Social demographic information and medical history of study participants were collected by using convenience analysis tool. About 2-4ml of blood sample for each participant was collected in a plain tube followed by serum analysis. Detection of HbsAg was done using HbsAg rapid test kit. Data analysis was done using Stata software version 15.

Results: Out of 177 types two diabetic mellitus patients 9 (5.1%) were positive for hepatitis B virus. Unprotected sex (OR=0.903, CI=0.0825-0.988, p=0.027), needle stick injury (OR=0.988, CI=0.976-0.999, p=0.037), intravenous drug use (OR=1.073, CI=1.014-1.131, p=0.014), and blood splash (OR=1.207, CI=1.067-1.367, p=0.003) were independent predictors of hepatitis B infection.

Conclusion: This study showed that the prevalence of the hepatitis B virus among type two diabetics mellitus in this study area is of intermediate endemicity (5.1%). Based on observed prevalence focus on strengthening hepatitis B vaccination for unvaccinated diabetics patient, Advocate for supportive policies guideline that supports prevention, treatments and awareness emphasizing on the importance of addressing the diseases in areas of intermediate endemicity.



Diabetes Mellitus; Hepatitis B; Mwanza; Tanzania



CU09PPH: Prevalence and patterns of multidrug resistance bacteria isolates on the surface of motorcycle parts in Nyamagana, Mwanza, Tanzania

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Background: One of the greatest challenges in the health system is the rise of pathogenic species resistant to antibiotics, mainly multidrug resistance bacteria (MDR). The recent rise in the use of motorcycles as means of transport pose a challenge in transmission and them being the prime breeding ground for many microorganisms such as MDR (Methicillin resistant *S.aureus* (MRSA), Extended Spectrum Beta lactamase containing bacteria(ESBL) and Carbapenamase carrying Enterobacterales (CRE)). The study aimed to determine the prevalence of multidrug resistance bacteria isolated on motorcycle surfaces.

Methods: Cross sectional study was conducted by swabbing different motorcycle surfaces in Nyamagana, Mwanza from April to August 2024. The sterile swabs containing storage media were used for swabbing the surfaces. The swab samples were cultured on MacConkey agar supplemented with cefotaxime (MCA-C) for screening of ESBL and confirmation was done per

CLSI guideline (2022). Phenotypic screening for CRE was done by seeding plain meropenem disc (MEM) on Mueller Hinton Agar (MHA) that was lawned with organism of interest, followed by confirmation test performed per CLSI (2022). Detection of MRSA was done using cefoxitin disc on *S. aureus* lawn on MHA.

Results: A total number 390 swab samples were collected with 411 bacteria isolates identified. The commonly isolated Gram-positive bacteria was *Staphylococcus aureus* 99 (24.1%) while *Enterobacter aerogenes*, 59(14.4%) was the most common Gram-negative bacteria. Out of 411 isolates, 79 were multidrug resistant phenotypes which accounts for 19.2% prevalence. Out of 79 MDR phenotypes, ESBL phenotype, CRE phenotype and MRSA phenotype were 41.3%, 5.7% and 6.06% respectively.

Conclusion: This study showed contamination of the motorcycle' surfaces of motorcycle parts MDR bacteria pathogens. This could pose as vehicle for MDR bacteria transmission.



MDR; Motorcycles surfaces; Mwanza; Tanzania



CU10PPH: Cholera outbreak and its transmission risk factors in Northwestern part of Tanzania during flooding, January 2024: A matched case control study

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Background: Cholera is an acute diarrhea disease caused by *Vibrio cholerae*. Cholera infection spread rapidly resulting into high morbidity and mortality. Environmental factors such as flooding have contributed to Cholera outbreak in Northwestern part of Tanzania, other includes poor infrastructure, social, cultural and economic factors. Mwanza region in early January 2024 reported cases of cholera during heavy rains and flooding, hence an outbreak.

Methods: A matched case control study was conducted in three districts that were first affected by cholera in January 2024. Standardized questionnaires were administered to both participants (cases and control). Controls were matched to the cases in the 2:1 ratio based on sex, neighborhood and age. Chi-square was used to test the significances of the differences of proportions among different variables. The P-value <0.05 was considered to be statistically significant.

Results: Of 168 participants recruited, 56 were cases and 112 were controls with the median age of 18.5 years and 28 years respectively. Individuals who had primary (adjusted Odds Ratio [aOR] 0.19, 95% CI:

0.01-0.69) and secondary (aOR 0.13, 95% CI: 0.18-0.95) education were likely to be protected from cholera as compared to those who never attended to school. Eating away from home was significantly associated with contracting cholera (aOR 11.95, 95% CI: 3.29-43.35). Having contact with a cholera case had 29 times risk of contracting cholera (aOR 29.43, 95% CI: 4.62-187.58). The use of Lake Victoria water for domestic purposes 20 times risk of contracting cholera (aOR 20.22, 95% CI: 1.32-309.78). Individuals who received health education on diarrheal diseases before outbreak occurred were protected from contracting cholera (aOR 0.19, 95% CI: 0.05-0.71).

Conclusion: Partnership and collaboration between government, local and international organizations on public health education, to minimize cholera contraction at the community level and enable individuals to take appropriate preventive measures. Infrastructure improvements, such as expanding clean water systems and promoting proper waste disposal. Individuals should ensure safe food practices, especially when eating outside their homes.



Cholera; Outbreak; Mwanza



CU11PPH: Insecticidal resistance and kdr status of *Anopheles gambiae* s.l (Diptera: Culicidae) to pyrethroid and organophosphate insecticides in Osun State, Nigeria

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Background: The scourge of insecticide resistance by *Anopheles* mosquitoes still remains a public health menace globally. This study evaluates the resistance status of adult female *Anopheles gambiae* s.l to pyrethroids (permethrin, deltamethrin and alpha-cypermethrin) and organophosphate (pirimiphosmethyl) insecticides and knockdown resistant (kdr) gene detection in six locations across the three senatorial districts in Osun State, Nigeria.

Methods: Larva sampling was done between 0700hr and 1100hrs weekly between January and December 2022. Collected larvae were reared to adult stage in the Department of Animal and Environmental Biology laboratory of Osun State University, Osogbo, Nigeria and then identified morphologically using morphological keys. Insecticide bioassay was conducted with Permethrin (0.75%), deltamethrin (0.05%), alpha-cypermethrin (0.05%) and pirimiphosmethyl (0.25%) using WHO procedure. The mosquitoes were subjected to molecular analysis to detect the kdr gene.

Results: Pirimiphosmethyl had a higher knockdown (KD₆₀) and mortality than the pyrethroids tested ($p < 0.05$). There was also no resistance to Pirimiphosmethyl across the study areas. However, susceptibility was highest in Ila (63) and lowest in Inisa (40) ($p < 0.05$). There was resistance to the pyrethroids tested with a mortality of 90-97% across the study area. However, Ila showed a confirmed resistance to Permethrin, Ejigbo to Alpha-cypermethrin and Deltamethrin with a % mortality of 86%, 60% and 40% respectively ($p < 0.05$). In addition, there was the detection of kdr gene across the study areas.

Conclusion: The present study reveals the insecticidal efficacy of pirimiphosmethyl against female *Anopheles gambiae* s.l and the inefficacy of pyrethroids. Therefore, the need to intensify efforts on *Anopheles* insecticide resistance surveillance through the use of pirimiphosmethyl in indoor residual spray (IRS) and interchanging frequently the pyrethroid type used in insecticides treated nets (ITNs) with a view to breaking their resistance potential.



Anopheles; Insecticide; Knockdown; Pyrethroid; Organophosphate



CU12PPH: Seroprevalence of *Toxoplasma gondii* (IgG) among children attending Bugando Medical Centre in Mwanza, Tanzania

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Background: In children, subclinical presentation of congenital toxoplasmosis can cause long-term neurological sequelae. Despite the parasite being common in Tanzania, there is a paucity of information on the prevalence of *T. gondii* among children in Mwanza.

Methods: A hospital-based cross-section study was conducted from September 2017 to April 2018. Sociodemographic and clinical information were collected using a pretested data collection tool. *T. gondii* antibodies in the sera were detected by indirect enzyme-linked immunosorbent assay. Data analysis was done using Stata 15.

Results: A total of 223 children were enrolled with a mean age of 4.4 ± 3.4 months. The seroprevalence of *T. gondii* specific (IgG) antibodies was 37.2% (95% CI:30 – 43). The odds of having a positive

IgG test among the non-employed and peasants were twice higher than those whose caregivers were employed: (OR = 2.41, 95% CI (1.08- 5.37): p= 0.031), (2.47, 95% CI (1.16 - 5.26): p= 0.01) and (OR = 2.47, 95% CI (1.16- 5.26): p= 0.019) respectively. After adjusting for confounders, there was still a high odds of being *T. gondii* specific (IgG) seropositive among children whose their parents/guardians the peasants (AOR = 2.39 95% CI (1.11 – 5.16): p= 0.026).

Conclusion: A significant proportion of children in this setting are *T. gondii* (IgG) seropositive, predicted by living with an unemployed or a peasant caregiver. The findings highlight the importance of continuous education to the community on transmission pathways and preventive measures, especially among pregnant women.



Toxoplasma gondii; Seroprevalence; Children; Mwanza



CU13PPH: Prevalence of advanced HIV disease, one-month mortality, and associated factors among newly diagnosed HIV positive patients in Mwanza Region, Tanzania

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Background: Advanced HIV disease (AHD) is a persistent problem in SSA in the setting of the test and treat and starting cART regardless of the CD4 cell count on presentation. Studies done in rural Tanzania highlight a high mortality rate of people with AHD with one person in five deaths in six months and the majority of these deaths occurring during the first month of follow-up. **Objective:** This study aimed to determine the prevalence of AHD, one-month mortality, and associated factors among newly diagnosed HIV-positive patients in Mwanza City.

Methods: This was an analytical cross-sectional study with longitudinal follow-up. A total of 159 participants were analyzed. Logistic regression was used to determine the association of mortality as an outcome of interest among study participants. The Cox regression model was conducted to assess the hazard ratios among study participants.

Results: More than half (73.0%) of the participants were aged between 35 and 75. Their median (IQR) was 40 (33-49). The overall prevalence of AHD was 22%. The mortality rate was 82 per 1000 people per month. The mortality among AHD patients was significantly associated with CD4 count less than 100 cells/ml (aOR=1.22,

95%CI=1.08,1.87;p<0.001), WHO clinical stage 3 or 4 (aOR=1.87,95%CI=1.42,2.52;p<0.001), definitive pulmonary TB (aOR=2.35,95%CI=1.16,4.78;p<0.001), definitive severe bacterial infection (aOR=1.46,95%CI=1.05,3.38;p=0.02), definitive CNS toxoplasmosis (aOR=1.23,95%CI=1.07,4.08;p<0.001), definitive recurrent severe bacterial pneumonia (aOR=1.99,95%CI=1.23,4.33;p<0.001), hepatitis B (aOR=2.67, 95%CI=1.35,5.25;p<0.001), definitive extrapulmonary TB (aOR=1.79,95%CI=1.38, 7.79;p<0.001), Cryptococcal infection (aOR=1.85, 95%CI=1.37, 2.49;p<0.001) and Cryptococcal meningitis (aOR=1.65,95%CI=1.21,3.45;p=0.003). AHD patients with CD4 count <100 cells/ml and WHO stage 3 or 4 had higher mortality rates and therefore a poor survival prognosis.

Conclusion: The prevalence of AHD among newly diagnosed HIV-positive in Mwanza city is very high. Individuals with AHD were likely to present with more than one opportunistic infection. A high rate of mortality among patients with AHD was attributed to preventable diseases. Therefore, the provision of a full AHD package cannot be overemphasized.



Advanced HIV Disease; Mortality; Antiretroviral treatment; Survival



CU14PPH: Prevalence, associated factors, and infection control practices of Hepatitis B Virus infection among barbers and beauty salon workers in Mwanza, Tanzania

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Background: Hepatitis B Virus is a public health concern in Tanzania. The rising number of barbershops and beauty salons has raised worries about their role in Hepatitis B Virus transmission, often through contaminated tools. Despite the risks, there is limited data on HBV prevalence among beauty salon workers and barbers. This study aimed to determine HBV prevalence, assess associated risk factors, and evaluate infection control practices among these workers in Mwanza, Tanzania.

Methods: A community-based cross-sectional study was conducted, involving a random selection of salons. The mystery client method assessed infection control compliance in 60 barbershops and beauty salons. Data collection involved structured questionnaires and blood samples for Hepatitis B Virus surface antigen testing.

Data were analyzed using SPSS version 25.

Results: A total of 310 participants were enrolled, with a mean age of 26.2 ± 4 years. Over half (54.8%) worked in beauty salons. The average working duration was 2 ± 1.8 years. The Hepatitis B Virus prevalence among barbers and beauty salon workers was 3.9% (95%CI, 1.72-6.02). Most salons (90%) did not use disposable gloves, 91.7% did not wear face masks, and 98.3% did not educate clients on infection control. Only 50% of salons had clean towels. Regular use of sterilizers, sharp disposable containers, and middle-class establishments were protective factors against Hepatitis B Virus infection.

Conclusion: The prevalence of Hepatitis B Virus infection among barbers and beauty salon workers in Mwanza reflects WHO intermediate endemicity. Infection prevention and control (IPC) practices remain poor in this population.



Prevalence; Factors; Hepatitis B; Barbers; Beauty Salon Workers



CU15PPH: Improving pathogen detection and diagnostics in acute febrile children under suspicion of vector-borne infections in the Mwanza Region

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Background: Vector-borne diseases pose a major threat, with malaria alone causing over 400,000 deaths globally. Additionally, arboviral diseases are likely to spread due to climate change and urbanization. Accurate diagnostics are crucial for guiding adequate treatment decisions.

Methods: Between 2016 and 2023, 1224 blood samples were collected from pediatric patients with acute fever presenting at health facilities of Mwanza Region. The samples were analysed using a multiplex-RT-PCR combined with a microwell hybridization assay (m-RT-PCR-ELISA). This assay is able to detect dengue, West Nile, Zika, yellow fever, Semliki Forest, O'nyong-nyong, chikungunya, and Rift Valley fever viruses as well as *P. falciparum*, *P. vivax*, and *P. malariae*.

Results: Out of 1224 samples, 242 tested positive for *Plasmodium falciparum*, with no viral pathogens detected in any of the

samples. Additionally, in 2017 serological tests were performed by the Fraunhofer Institute for Cell Therapy and Immunology (Leipzig) on 60 serum samples from study participants. Dengue IgM, dengue IgG, and chikungunya IgG antibodies were found in 28, 5, and 11 samples, respectively. Of these, 24 out of 28 patients with positive dengue IgM, all 5 with positive dengue IgG, and 10 out of 11 with positive chikungunya IgG also had acute malaria, suggesting an increased probability of false positive serological results among malaria-infected patients.

Conclusion: The m-RT-PCR-ELISA is a well-established, low-cost method, capable of detecting 9 vector-borne diseases, it is time-consuming and labour-intensive. Available serological methods exhibit cross-reactions and are affected by coexisting malaria infections. Optimizing further cost-effective detection methods is recommended.



Mosquito-borne diseases; Infectious diseases; Pathogen surveillance; real-time RT-PCR; NGS



CU16PPH: Antimicrobial susceptibility results' utilization and its implications for antimicrobial stewardship program at Bugando Medical Centre, Mwanza, Tanzania

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Background: Bugando Medical Centre (BMC) is contributing 35% - 40% of antimicrobial resistance (AMR) surveillance data to the National Public Health Laboratory and WHO-GLASS since 2020, and generated data are used to inform hospital antibiograms for priority infectious diseases. However, utilization of culture and antimicrobial susceptibility testing (AST) results to guide specific patients' management remain to be explored.

Methods: A cross-sectional analytical study was conducted at BMC in April 2024. Positive culture results and AST were obtained from BMC Clinical Microbiology Laboratory, and tracked in the electronic hospital management information system (eHMIS) to assess utilization, and conformity to antimicrobial stewardship (AMS) program targets.

Results: The median age (IQR) of 359 patients enrolled was 38 (13-61) years. Female and outpatients accounted for 59.3% and 54.0%, respectively. Empirical antibiotic prescription was 64.0%, and out of 250 antibiotic encounters; access, watch and reserve groups

of antibiotics were 46.8%, 50.0% and 3.2%, respectively. The most common samples were urine (46.8%), pus (28.7%), blood (12.0%) and sputum (10.6%), and a total of 470 bacteria species were isolated with predominance of *Escherichia coli* (21.7%), *Klebsiella pneumoniae* (14.9%), *Enterococcus spp* (13.4%) and *Acinetobacter spp* (10.6%). The overall laboratory results utilization was 42.1% (151/359), and was significantly more among inpatients ($p=0.001$) and patients with lower median age group ($p=0.042$). Of note, while cephalosporins contributed to 27.2% of all antibiotics prescribed, resistance to this group among Gram negative bacteria was 59.0%.

Conclusion: Four out of every 10 patients' results are utilized to guide management. Empirical prescriptions largely involve access and watch groups, with only reserve group conforming to the WHO target of <12.0%. Comprehensive AMS measures should be strengthened at patient-, prescriber- and system-levels to conform to country and global AMS targets.



Antimicrobial susceptibility testing; Antimicrobial resistance; Mwanza



CU17PPH: A comparative analysis of extended spectrum beta-lactamase and carbapenemase producing Gram-Negative bacteria in wastewater plants pre- and post-treatment in Mwanza, Tanzania

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Background: Emergence and re-emergence of water borne diseases around Lake Zone poses a public health concern especially when these infectious diseases are caused by multidrug resistant bacteria like Extended spectrum beta lactamase producing and Carbapenemase producing Gram-Negative bacteria (ESBL and CR GNB). Information on the contamination of wastewater treatment plant (WWTP) is limited in Mwanza, and hence, a critical need to execute this study.

Methods: A cross-sectional study was conducted from June to August 2024 involving 244 wastewater samples in Mwanza, Tanzania. Water samples were collected in a 10 ml sterile syringe from receiving station, followed by sequential collection at natural stabilization ponds, and entry to receiving Lake Victoria. Wastewater samples were put into cool transport box for transportation to CUHAS Research Laboratory for culture on MacConkey agar supplemented with cefotaxime (MCA-C) 2µg/ml, followed by bacterial biochemical identification tests. Disk combination methods were used for phenotypic confirmation of ESBL-GNB and CR-GNB.

Results: A total of 17 sites were mapped for sampling from receiving station to wastewater treatment plant (5 sites before, 7 sites during and 5 sites after treatment). Positive growth on MCA-C was 57.38% (140/244), predominant bacteria species were *Escherichia coli* 55% (112/203), *Klebsiella* species 30% (60/203) and *Pantoea agglomerans* 5% (10/203). The prevalence of ESBL and CR-GNB were 34.43% (84/244) and 5.33% (8/244) respectively. Bacteria growth load was decreasing with treatment phases 1.068×10¹⁰ CFU/ml before treatment, 1.4×10⁸ CFU/ml during treatment and no bacteria growth after treatment. Co-resistance to non-beta lactam antibiotics like Trimethoprim sulfamethoxazole, Ciprofloxacin, Tetracycline, and Gentamicin was remarkable.

Conclusion: The current study revealed appealing functionality of WWTP in Mwanza, Tanzania by effective elimination of ESBL and CR-GNB isolates prior to discharge to Lake Victoria. Incorporation of routine environmental AMR surveillance in the WWTP by Mwanza regional government authorities is recommended.



Wastewater Treatment plant; Extended spectrum beta-lactamase; Carbapenemase producing Gram-negative bacteria



CU18PPH: Optimal HIV viral load suppression and associated factors among adolescents 10-17 years on first line art at Baylor clinic, Mwanza, Northwest Tanzania

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Background: Improving child survival for Human immunodeficiency virus (HIV) infected children is a critical health agenda. Viral load suppression (VLS) among adolescents living with HIV (ALHIV) is significantly low. In SSA and Tanzania, in particular, data on optimal viral load suppression (OVLS) ≤ 50 copies/ml among HIV-positive adolescents on 1st line Antiretroviral Therapy (ART) are limited. This study investigated the proportion and factors associated with OVLS in adolescents receiving 1st line ART, attending Baylor clinic Mwanza.

Methods: This cross-sectional study was conducted from June to July 2024, utilized questionnaire survey and secondary data from the Baylor BMC database. Included all adolescents aged 10 to 17 years LHIV on 1st line ART for not < 6 months. A consecutive sampling of participants was performed to minimum sample size of 385. Data was analyzed using STATA version 15. The

study was conducted after the approval by joint the BMC-CUHAS CREC.

Results: Of 385 participants enrolled, 74.8% (288/385) had attained OVLS. Participants had mean age of 13.89 SD \pm 2.10 years. Each additional year on ART increased the Odds of OVLS (aOR = 1.23, 95% CI: 1.09-1.38, p-value = 0.001). Good nutritional status had significantly 6 times higher Odds of OVLS (aOR = 6.04, 95% CI: 2.64-13.79, p-value $<$ 0.001). The high adherence to ART was 21 times strongly associated with OVLS (aOR = 21.71, 95% CI: 9.94- 47.42, p-value $<$ 0.001).


Conclusion: It is evident that adolescents aged 10-17 years attending Baylor BMC clinic have shown promising progress in achieving OVLS. Factors associated with OVLS being longer ART duration, normal nutritional status and good adherence to ART. Therefore, caregivers and clinicians should prioritize addressing nutritional needs, facilitate good adherence to ART and promoting longer duration on ART for ALHIV.



Optimal HIV viral load suppression; Adolescent's HIV viral load suppression; Dolutegravir



CU19PPH: Seroprevalence of Dengue and Chikungunya virus infections in children living in Sub-Saharan Africa: Systematic Review and Meta-Analysis

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Background-Dengue and chikungunya viruses are frequent causes of malarial-like febrile illness in children. The rapid increase in virus transmission by mosquitoes is a global health concern.

Methods: This is the first systematic review and meta-analysis of the childhood prevalence of dengue and chikungunya in Sub-Saharan Africa (SSA). A comprehensive search of the MEDLINE (Ovid), Embase (Ovid), and Cochrane Library (Wiley) databases was conducted on 28 June 2019, and updated on 12 February 2022. The search strategy was designed to retrieve all articles pertaining to arboviruses in SSA children using both controlled vocabulary and keywords. The pooled (weighted) proportion of dengue and chikungunya was estimated using a random effect model.

Results: The overall pooled prevalence of dengue and chikungunya in SSA children was estimated to be 16% and 7%,

respectively. Prevalence was slightly lower during the period 2010–2020 compared to 2000–2009. The study design varied depending on the healthcare facility reporting the disease outbreak. Importantly, laboratory methods used to detect arbovirus infections differed.


Conclusion: The present review documents the prevalence of dengue and chikungunya in pediatric patients throughout SSA. The results provide unprecedented insight into the transmission of dengue and chikungunya viruses among these children and highlight the need for enhanced surveillance and controlled methodology. Questions regarding viral burden, misdiagnosis, and the availability of diagnostic tests need to be addressed. Proper surveillance systems, laboratory testing facilities, clinician diagnostic training to recognize dengue and chikungunya, and vector control strategies are urgently needed.



Dengue virus; chikungunya virus; Sub-Saharan Africa; Children; Systematic review



CU20PPH: Prevalence, patterns and factors associated with bloodstream infections in Children with malignancies at Bugando Medical Centre, Mwanza, Tanzania

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Background: Patients with malignancies are prone to bloodstream infections (BSI) making them at an increased risk of morbidity and mortality. Blood culture often takes a long time delaying the initiation of antibiotic therapy. Appropriate treatment requires availability of the local data to guide empirical treatment. In view of this, we conducted this study to determine the magnitude of BSI, patterns of the bacteria and factors associated with BSI among children with malignancies.

Methods: A hospital based cross sectional study was conducted from January to May 2024 among 182 children aged 0 to 18 years with malignancies attending and admitted at Bugando Medical Centre. Physical examination, complete blood count, blood culture and drug susceptibility testing were done. Data analysis was performed using STATA version 15.

Results: More than half 53.8% (98/182) of enrolled children were male with

median age of 6 [IQR 3-12] years. The prevalence of BSI was found to be 6.0% (11/182, 95% CI: 2.5-9.4) in which more than half 54.5% (6/11) was due to Gram-positive bacteria. Predominant Gram-positive bacteria isolates was *Staphylococcus aureus* 50.0% (3/6) while predominant Gram-negative bacteria was *Acinetobacter* spp. 40.0% (2/5). Gram-positive bacteria were uniformly susceptible to vancomycin and linezolid while Gram-negative bacteria were all susceptible to meropenem, amikacin and ceftriaxone sulbactam. Neutropenia (OR-12.2[95% CI:1.0-144.3], P=0.047) was significantly associated with BSI.

Conclusion: Gram-positive bacteria were commonly found to cause BSI which was significantly associated with neutropenia. There is a need for routine blood culture among cancer patients to provide more data to guide appropriate antibiotic treatment in this vulnerable population.



Children; Malignancies; Bloodstream infections



CU21PPH: Prevalence and factors associated with carbapenem-resistant gram-negative bacteria causing skin and soft tissue infections among inpatients at Bugando medical centre, Mwanza, Tanzania

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Background: Skin and soft tissues infections (SSTIs) caused by carbapenem-resistant Gram-negative bacteria (CR-GNB) is associated with high morbidity and mortality. Currently, limited information exists on SSTIs by CR-GNB from low- and middle-income countries including Tanzania, a resistant mechanism to the last resort antibiotic for severe and invasive infections underscoring this study.

Methods: This cross-sectional hospital-based study was conducted on 202 inpatients with SSTIs at Bugando Medical Centre (BMC) in Mwanza, Tanzania. Data was collected using a structured questionnaire, pus swab samples were collected and analyzed to identify bacteria pathogens and their respective antimicrobial susceptibility pattern (including CR in GNB). Data were analysed using STATA software version 15 according to the study objectives.

Results; The median age of patients was 30 [18-49] years, with the majority being male 129 (63.8%). A total of 141 (69.8%) samples

were culture positive, resulting into a total of 186 bacteria isolated. Pathogens isolated were mostly Gram-negative bacteria [167 (89.8%)], notably *P. aeruginosa* (n= 45) and *E. coli* (n=42). Predominant Gram-positive bacteria was *S. aureus* (n=14). The prevalence of CR-GNB causing SSTIs was found to be 18.3% and was predominantly caused by *Acinetobacter* spp. 14 (37.8%) and *P. aeruginosa* 13 (35.1%). Long hospital stays 22[8-40] days and prolonged use of treatment antibiotics 15[5-29] days were significantly associated with CR-GNB causing SSTIs [p=0.0037 and p=0.0068, respectively].


Conclusion: SSTIs by CR-GNB were found to be relatively higher among inpatients at BMC and were found to be associated with longer hospital stays and longer duration of antibiotic use. Strategic interventions focused on these factors are urgently needed to control SSTIs by CR-GNB among inpatients at BMC, including fostering antimicrobial stewardship programs.



Skin and soft tissue infections; Carbapenem resistant-Gram negative bacteria



CU22PPH: Delayed diagnosis in household contacts of tuberculosis patients in Mwanza Tanzania: A follow-up community case finding cross-section study

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Background: The burden of TB in Tanzania is based on estimates; because most cases remain undiagnosed and where diagnosis is done, cases are not documented and reported accordingly. Active case finding is not prioritized in the Tanzanian population, apart from being effective in reducing missed cases and detecting contacts at risk of TB infection and those with potential to progress to TB disease.

Objective: We conducted TB case finding, determined delayed diagnosis and assessed measures related to the exposure of household contacts to TB index cases in Mwanza City Tanzania.

Methods: This was cross-sectional study of household contacts of tuberculosis index cases diagnosed in Mwanza city between November 2019 and March 2022. Contacts were traced and screened

for active TB. Sputum samples were tested at Bugando TB laboratory using sputum smear microscopy, GeneXpert/MTB RIF and culture.

Results: A total of 867 household contacts from 213 index cases were screened for active TB. Overall, 8.4% of the contacts were diagnosed with active TB. Among the TB cases, 96.3% reported to visit health facilities more than two times before the disease could be diagnosed. Among 54 cases interviewed, 89% took other antibiotics before they were diagnosed and put on TB drugs.

Conclusion: Our data suggests that eight out of a hundred contacts living in the same house with TB patients develop TB. There is a need for more intensified active case finding by changing the approaches that are currently being used.



Tuberculosis; Household contacts; Diagnosis delays



CU23PPH: Five-year tuberculosis trends analysis in eight districts of Mwanza region, Tanzania; (2017-2021)

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Background. In Tanzania, TB detection is hindered by totally missed, late notification and delayed diagnosis of active cases which is the main cause of bacteria propagation in the community. We are unaware of tuberculosis's existing burden and trends for the previous five years in Mwanza region. This study aimed at determining trends of tuberculosis in Mwanza region Tanzania for a period of five years, from 2017 to 2021.

Methods: We conducted a cross-sectional analysis by extracting routine TB diagnostic data from 2017 to 2021 from eight districts of the Mwanza region of Tanzania from the electronic TB database. We estimated TB case detection rate per 100,000 population.

Results. A total of 6,414 laboratory-confirmed tuberculosis cases were detected in eight districts of Mwanza

region in Tanzania during the year 2017 to 2021. The average tuberculosis detection rate in five years was 34.7 per 100,000 population. Overall, the TB detection rate was two times higher in people without HIV (30.5 per 1000 population) compared to those infected with HIV; 13.4 per 100,000 population. Of the 15 rifampicin resistant TB cases detected, 66.7% (10/15) were uninfected with HIV compared to 33.3% (5/15) that were detected in year 2018.


Conclusion: The TB case detection rate decreased in Mwanza region from 43.9 in 2017 to 21.4 per 100,000 population in 2021. Other parameters were missing in the data base which highlight remarkable gaps in the established database to monitor TB management in the region. The program may consider investigating and improve on barriers hindering fully documentation of cases information's which are very necessary for the program to attain its goals.



Tuberculosis; Trends; Detection rate



CU24PPH: Host urine biomarkers to screen for active tuberculosis in non-healthcare seeking household contacts of tuberculosis patients

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Background: There is a need for non-sputum based rapid tests to screen asymptomatic patients especially in groups at risk of acquiring TB. Previous studies evaluated hospital self-presenting patients with serious symptoms seeking for TB investigations. It is therefore unknown, whether such biomarkers can also be useful to screen TB among individual who do not feel sick enough to self-present at health care facility for medical care. In the current study, we investigated the usefulness of selected biomarkers for early identification of TB among household contacts of TB patients recruited through active case finding approach.

Methods: We enrolled 867 household contacts of known TB patients within communities in Mwanza, Tanzania and screened them for active TB. Participants were recruited regardless of signs and symptoms and laboratory examination of sputum samples were done to rule out or diagnose TB. We evaluated the concentration of 27 biomarkers in urine samples collected at enrolment in all 65 (18.3%) that had TB positive results and 291

randomly selected negative controls (3 control per TB case, total N=356) and evaluated their abilities to diagnose active TB.

Results: The mean age of study participants was 35 ± 6.5 years, 216 (60.7%) were males and 39 (11%) were diagnosed to have HIV. Out of 27 urine-host biomarkers investigated, 21 were statistically significant different between the groups p <0.05. The best performing single marker in urine was achieved by MCP-1 sensitivity 61% (95% CI, 47-72) and specificity 75% (95% CI, 70-80). Combination of 5-markers in urine (IL-1ra + IL-7 + IL-17 + MCP-1 + MIP-1α) diagnosed TB with AUC 75, sensitivity 62% (95% CI, 48-75) and specificity 74% (95% CI, 68-79) during the substitution classification.


Conclusion: Some biomarkers and biosignature achieved the desired specificity but unable to attain sensitivity as recommended by WHO. However, during the continuous effort of searching for a urine-based biosignature. There is a need of taking biomarkers evaluated in this study into consideration for future studies.



Tuberculosis; Biomarkers; Household contacts; Mwanza



CU25PPH: Deciphering colistin resistance among carbapenem resistant Gram-negative bacteria from human, animals and environmental premises in Mwanza, Tanzania: preliminary insights to foster One-Health responsive actions

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Background: Colistin (Polymyxin) antibiotics are reserve antibiotics for the treatment of severe and invasive infections caused by Gram-negative bacteria and are used as alternative antimicrobial therapeutic options to Carbapenem-resistant Gram-negative bacteria (CarbR-GNB) infections in Tanzania. While Colistin is a reserved antibiotic in the human sector, it is widely used as a first line antimicrobial agent in veterinary sector, calling for an urgent need to evaluate the burden of Colistin resistance (ColR) among CarbR-GNB isolates using a One-Health approach to guide holistic and specific interventions.

Methods: A cross-sectional analytical study was conducted in Mwanza city from January to August 2024 involving patients attending Bugando Medical Centre (clinical samples), domestic animals (rectal and cloaca samples) and environmental premises samples (wastewater and River Mirongo water). Culture and antimicrobial susceptibility testing were done, and all phenotypically ColR-GBN were subjected to multiplex polymerase chain reaction for eight mobile colistin resistance genes (*mcr-1* to *mcr-9*).

Results: A total of 290 CarbR-GNB isolates were identified across three interfaces [patients (229, 79.0%), domestic animals [livestock (21, 7.2%) and poultry (16, 5.5%)] and environment (24, 8.3%)]. *Acinetobacter baumannii* and *Pseudomonas aeruginosa* CarbR-GNB isolates were predominant in patients, whereas CarbR *Escherichia coli* was predominant across three interfaces. The overall proportion of ColR among CarbR-GNB was 25.8% (75/290). The distribution of 75 ColR isolates in patients, livestock, poultry and environmental premises were 24.9% (57/229), 33.3% (7/21), 50.0% (8/16), and 12.5% (3/24), respectively, and the ColR was significantly more in poultry (OR: 95% CI = 7.0 (1.2-48.8), p-value=0.01). Multiplex PCR based typeability of *mcr* genes was 14.7% (11/75).

Conclusion: A quarter of CarbR-GNR isolates in the three interfaces in Mwanza Tanzania expressed ColR co-existence underscoring an urgent need to strengthen One-Health AMR surveillance systems. Multiplex PCR for *mcr* genes typing was low, calling for more robust molecular typing methods.

Carbapenem resistance, colistin resistance, Gram negative bacteria, One-health, Tanzania



Carbapenem-resistant; Colistin resistance; Colistin; *Acinetobacter baumannii*



CU26PPH: Prevalence and associated factors for carbapenem-resistant gram-negative bacteria colonizing livestock and poultry in Mwanza, Tanzania

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Background: Carbapenem-resistant Gram-negative bacteria (CR-GNB) present a growing threat to food safety and veterinary medicine, posing severe risks to human health due to their role in hard-to-treat infections. Understanding the colonization of animals by CR-GNB is essential in managing antimicrobial resistance, particularly as part of the One Health initiative. This study aimed to assess the prevalence and factors associated with CR-GNB colonization among livestock and poultry in Mwanza, Tanzania.

Methods: A cross-sectional study was conducted from April to August 2024, involving 427 samples from cloacal (n=211) and rectal (n=216) swabs of poultry and bovine, respectively, in Ilemela and Nyamagana districts. MacConkey agar supplemented with cefotaxime was used for bacterial isolation. Carbapenem resistance was assessed via the disc diffusion method with meropenem, while phenotypic confirmation was done using the double

disc synergy test. Data analysis was performed using STATA version 15.0.

Results: Among the 427 samples analyzed, 3rd-generation cephalosporin-resistant Gram-negative bacteria (3GC-R-GNB) carriage were observed in 42.18% and 20.35% in bovine and poultry, respectively. *Escherichia coli* was the most predominant bacterial species isolated (62%), followed by *Acinetobacter spp.* (12.2%), and *Klebsiella pneumoniae* (5.29%). A high resistance rate to tetracycline (55.39%) was detected. The overall prevalence of CR-GNB was 8.19%, with poultry exhibiting a higher colonization rate (7.8%) compared to bovine (1.98%). Colonization was significantly associated with backyard livestock rearing and residing in Ilemela district.


Conclusion: This study highlights high 3GC-R-GNB and low CR-GNB in Mwanza, emphasizing targeted interventions in the identified risk factors to mitigate antimicrobial resistance in the veterinary sector.



Carbapenem-resistance; Colonization; Livestock; Poultry; Mwanza



CU27PPH: Performance characteristics of the RADI COVID-19 IgG rapid test for SARS-CoV-2 Anti-S IgG detection compared to an ELISA assay

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Background: The infection with severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) and the development of coronavirus disease 2019 (COVID-19) represents a global health care challenge. WHO suggests the use of SARS-CoV-2 antibody-rapid diagnostic tests that meet the least performance prerequisites of $\geq 80\%$ sensitivity and $\geq 97\%$ specificity. We, therefore, validated a SARS-CoV-2 antibody rapid detection test against ELISA as reference which itself had already been validated against the diagnostic gold standard for antibody testing.

Methods: We collected blood participants during regional wide serological survey in three districts in Mwanza. The samples were tested directly after sample asservation for Anti-SARS-CoV-2 IgG using RADI COVID-19 IgG rapid test kits (KH Medics, Republic of Korea). The results were compared to quantitative ELISA (SERION ELISA *agile* SARS-CoV-2 IgG, Germany, using manufacturer's thresholds (<10.0 U/ml (21.0 BAU/ml) for

negative, ≥ 10.0 U/ml to <15.0 U/ml for results at the borderline and ≥ 15.0 U/ml as positive) performed later at the Institute of Hygiene and Microbiology, Würzburg.

Results: A total of 710 samples were evaluated. Out of the 368 samples which were positive for RADI COVID-19 IgG rapid test kits, 312 were concordant positive for both RADI rapid test and Serion IgG ELISA, giving a sensitivity of 97.2% (95 CI, 93.1- 99.3%). Out of 342 samples which tested negative for the RADI rapid test, 333 were concordant negative for both SARS-CoV-2 both RADI rapid test and Serion IgG ELISA, giving a specificity of 85.6% (95 CI, 83.2- 87.9%). The positive predictive values and negative predictive values of the tests were 84.7% and 97.4% respectively.

Conclusion: The performance characteristics of the RADI COVID-19 IgG rapid test kits when compared to the Serion IgG ELISA shows high sensitivity however the specificity of the test falls below the recommended set values.



SARS-CoV-2; ELISA; RADI COVID-19 IgG



ABSTRACTS SELECTED FOR ORAL PRESENTATION

Communicable and non-communicable diseases interactions and global health security

1. Improved gonadal hormones levels following anti-retroviral therapy initiation among men with human immunodeficiency virus infection. Shabani Iddi; shabsizya2007@yahoo.co.uk
2. Prevalence of Renal Dysfunction and Associated Factors among HIV Infected Individuals on Tenofovir Disoproxil Fumarate Based Regimen in Mwanza, Tanzania: Ahmed Mohamed; ahmedshahar73@gmail.com
3. Shock Index and Its Association to Postpartum Blood Loss among Women Delivering at Bugando Medical Centre. Richard Kiritta; kiritta2002@yahoo.com
4. Pattern of Histopathological and Clinical Features of Head and Neck Malignancies Among HIV-Positive and HIV-Negative Patients at Bugando Medical Centre, Mwanza, Tanzania: Sonia Kimera; sonykimera@gmail.com
5. Prevalence and factors associated with intraventricular haemorrhage among premature neonates admitted at Bugando Medical Centre, Mwanza Tanzania: Immaculate Benedict Ndawi; maccu04@gmail.com
6. Non-alcoholic Fatty Liver Disease: Prevalence, Predictors and Diagnostic Utility of Surrogate Serum Markers among Patients with Type 2 Diabetes Mellitus in a Tertiary-level Hospital in North-Western Tanzania. Semvua B. Kilonzo; sekipcb@yahoo.com
7. Prevalence, Pattern of Cervical Intraepithelial Lesions, and its Associated Factors Among Pregnant Women Attending Bugando Medical Centre, Mwanza-Tanzania. Henry Kiwango; henrykiwango@gmail.com
8. The prevalence, associated factors, and in-hospital outcome of left ventricular systolic dysfunction in patients with acute stroke admitted at Bugando Medical Centre, Mwanza, Tanzania. Lilian Venance; Nyonyovenance66@gmail.com
9. Pediatric Foreign Bodies in Tanzania - A Preventable Cause of Aerodigestive Morbidity and Mortality: Cecilia Protas; cecyprotas@yahoo.com
10. Exclusive breastfeeding and stunting among children aged 6-24 months attending reproductive and child health units in public health facilities in Mwanza region. Eveline Konje; ekonje28@yahoo.com
11. Cardiovascular abnormalities among children with sickle cell anemia attending Bugando Medical Centre, Mwanza, Tanzania: Eliada J Tanda; eliada.tanda@gmail.com
12. Abdominal aortic aneurysm in a 64-year-old male patient: A Case Report. Alina Murji; alinamurji@gmail.com
13. Menstrual chart patterns and its associated clinical profile, fertility changes and outcomes among women with hormonal-related infertility at Bugando Medical Centre, Mwanza, Tanzania: Albert Kihunrwa; akihunrwa@gmail.com
14. Short-term functional outcomes and their associated factors for posterior lumbar spine decompression in patients with degenerative lumbar spine stenosis attended at Bugando Medical Centre, Mwanza - Tanzania. Edrey Yonah Tibelerwa; edreyy20@gmail.com



Planetary health, climate change, and global health security

1. Fostering Interdisciplinary Collaboration for Planetary Health: A Systems Approach to Global Health Security in Eastern Africa. Given Moonga; moonga.given@gmail.com
2. Youth Engagement in Art for Mental Health and Climate Anxiety. Mary Mwai; marymwai940@gmail.com
3. Exposure to toxic chemical elements (Pb, Cd, and Hg) and its association with high blood pressure among secondary school attending adolescents in Northwestern Tanzania. Mussa K. Nsanya; mussa.nsanya@mitu.or.tz
4. Exposure to Toxic Chemical Elements and Kidney Function among People Living with HIV/AIDS in Northern Tanzania. Elias C. Nyanza; elcnyanza@gmail.com
5. Addressing Pharmaceutical Residues in the Environment: Mitigation and Adaptation Strategies for a Sustainable Healthcare Future. Muna Khalil; khalilmuna@gmx.de
6. Assessment of Lead and Cadmium Bioavailability in Mining-Impacted Regions of Kedougou-senegal and western Kenya Using *Xenopus laevis* as a Sentinel Organism. Agano Leonard; leonardagano@gmail.com
7. Planetary Health Visibility in Kenya: The Role of Campus Ambassadors. Agan Leonard; leonardagano@gmail.com
8. Occupational Health Hazards, Safety Knowledge, and Contributing Factors among Pump Attendants in Mwanza City, Northwestern Tanzania. Jackline N Kamuntu; kamuntujackline@gmail.com
9. Implementation of adaptation in the health sector in Southern and Eastern Africa. Caroline Muthoni; caroline.muthoni@aku.edu
10. HIV-Exposed Uninfected children: The Impact of pesticides exposure on Neurodevelopment disorder in Southern and Eastern Africa. A systematic review and Meta-analysis among smallholder horticulture growers. Peter Chilipweli; chilipwelipeter64@gmail.com
11. Exploring the Complexity of Climate Change: Climate Fresk Experience from Summer School Planetary Health 2024 - Methodological Approach for Medical Students. Sospeter Berling Sospeter; slukanazya@gmail.com
12. The AMR Ambassadors Program for Young People in Africa: Lessons Learned from Multidisciplinary Engagement in Antimicrobial Resistance Mitigation. Gathai Mundia; gathaimundia@gmail.com
13. Planetary Health and Nutrition: Addressing Child Under-Nutrition in Zambia. Given Moonga; moonga.given@gmail.com
14. A Tree at a Time: A Nature-Based Approach Towards Climate Change Mitigation. Mariam Hassan Marsa; maryamhassanm6@gmail.com
15. Geo-spatial Epidemiological Modeling of Selected Climatic and Environmental Factors Correlating to COVID-19 Infection in Zambia. Mwiinde Mayaba; mayabamwiinde@gmail.com
16. Magnitude of work-related ergonomic hazards and Perceived ergonomic health-related challenges among artisanal and Small-Scale Gold Miners in Northwestern, Tanzania. Yacintha Mashimba; yacinthamashimba@gmail.com
17. Prenatal Selenium Potential Protective Effect Against Adverse Pregnancy Outcomes Associated with Higher Toxic Chemical Elements Among Exposed Pregnant Women in Geita District Tanzania. Wivina Modest; byeshulilomw@gmail.com
18. Effects of Temperature and Humidity on Transmissibility of SARS-CoV-2: A Systematic Review and Meta-Analysis. Eveline Konje; ekonje28@yahoo.com



Schistosomiasis

1. Presence of an invasive exotic freshwater snail, *Pomacea canaliculata* (Gastropoda: Ampullaridae) in Mwea Irrigation Scheme: Towards a natural elimination of schistosomiasis in Central Kenya. Martin Mutuku; mmutuku@kemri.go.ke
2. Schistosome infections in cattle of the Magba sub-division in the West Cameroon region: importance in implementing a one-health strategy to achieve schistosomiasis elimination goals. Simo Gustave; gsimoca@yahoo.fr
3. Control and elimination of *Schistosoma mansoni* infection in adult individuals on Ukerewe island, Northwestern Tanzania: Baseline results before implementation of intervention measures. Humphrey D. Mazigo; humphreymazigo@gmail.com
4. Status report on intermediate host snails of trematodosis in the Nakanbé and Mouhoun basins of Burkina Faso: diversity, habitats, seasonal dynamics. Salam Sankara; sankarasalam849@gmail.com
5. Gene Expression in the Cervical Mucosa of Women with *Schistosoma haematobium* Infection: a longitudinal pilot study. Jane K. Maganga; jane.k.maganga@gmail.com
6. High treatment coverage and compliance to mass preventive chemotherapy using praziquantel against intestinal schistosomiasis among adult individuals on Ukerewe Island, North-western Tanzania. Crecencia E. Chiombola; crecencia.edward@yahoo.com
7. Impact of maternal schistosomiasis on low birth weight and preterm delivery in endemic regions of sub-Saharan Africa. A systematic review and meta-analysis. Eveline T Konje; ekonje28@yahoo.com
8. Seasonal Distribution and Cercarial Shedding of *Bulinus* spp. Snails: Implications for Urogenital Schistosomiasis Control in the Simiyu Region, Northwestern Tanzania. Nyanda C. Justine; justinenyanda9@gmail.com
9. Performance of a Rapid Point of Care Lateral Flow Device for Detection of Schistosome Circulating Anodic Antigen in Urine. Loyce Mhango; mhangoloyce@gmail.com
10. Changes in prevalence and intensities of *Schistosoma mansoni* infection following implementation of three rounds of mass preventive chemotherapy and complementary interventions among adult population on Ukerewe Island, north-western Tanzania. Crecencia E. Chiombola; crecencia.edward@yahoo.com
11. *Schistosoma mansoni* among adults in five villages of Ukerewe island: Prevalence, intensity of infection and hepatosplenic morbidities. Crecencia E. Chiombola; crecencia.edward@yahoo.com
12. The current status of *Schistosoma mansoni* infection on Ijinga island after eight years of repeated rounds of mass preventive chemotherapy and integration of clean water supply. Humphrey D. Mazigo; humphreymazigo@gmail.com
13. Epidemiology of *Schistosoma mansoni* in Ethiopia after a decade of mass drug administration: Prevalence, infection intensity and praziquantel efficacy. Getaneh Alemu; getanehmlt@gmail.com
14. Harnessing crayfish, *Procambarus clarkii*, to eliminate schistosome transmitting snails in the Mwea Irrigation scheme, Kenya. Geoffrey M Maina; gmaina@kemri.go.ke



Pathogens of public health importance, surveillance, epidemic control and global health security

1. A changing hepatitis B virus genetic diversity pattern in Northern-Western Tanzania: Is it a concern for Tanzania? Mathias Mlewa; mathiasxn12021@gmail.com
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