



Ministry of Health Tanzania in Collaboration with
Muhimbili University of Health and Allied Sciences

ABSTRACT BOOK

The Regional Non-Communicable Diseases Scientific Conference

THEME:

“Strengthening regional collaboration in policy,
research and innovation for prevention, surveillance
and management of Non-Communicable Diseases”



NOV 01 - 03 | 2023

JNICC

Dar es Salaam, Tanzania



Background

The Non-Communicable Diseases Regional Scientific Conference, under the theme "Strengthening Regional Collaboration in Policy, Research, and Innovation for Prevention, Surveillance, and Management of Non-Communicable Diseases," stands as a crucial platform for sharing innovative research and fostering collaborative efforts aimed at tackling the escalating burden of non-communicable diseases in the African region. As the prevalence of NCDs continues to rise, significantly impacting public health, this conference endeavors to bring together a diverse assembly of experts, researchers, and policymakers to collectively explore evidence-based interventions and strategies tailored to the unique challenges encountered by the African population.

Against the backdrop of persistent health disparities, socio-economic complexities, and an evolving healthcare landscape, fostering a comprehensive understanding of the multifaceted nature of non-communicable diseases becomes imperative. This abstract collection serves as a testament to this imperative, presenting a selection of cutting-edge research and insights that provide invaluable contributions to the ongoing discourse on NCDs in the African context. By addressing critical issues such as risk factors, preventive measures, treatment modalities, and policy implications, these abstracts underscore the significance of collaborative, data-driven, and culturally sensitive approaches in combating the prevalence of non-communicable diseases across the region.

We cordially invite you to delve into this abstract collection, representing the spirit of collaboration, innovation, and a shared commitment to driving positive change in the realm of non-communicable disease management and prevention in Africa.

Guest of Honor

Honorable Kassim Majaliwa Majaliwa (MP), the Prime Minister of the United Republic of Tanzania, will officially open the Conference on Wednesday, November 1st, 2023, AT 09:00 AM.

Organization of the abstract book

This abstract book provides a glance of the flow of all events from 1st to 3rd November 2023. It contains the summary of presentations (abstracts) that will be presented during the Regional NCDs conference.

The conference discussions will be conducted in form of plenary, parallel or satellite sessions and this book is organized into different chapters that are reflective of these sessions.

Conference Organization

The organization of this conference was made possible by individuals from different government and private institutions working through the following units and subcommittees for the conference:

1. Coordination unit
2. Scientific subcommittee
3. Finance subcommittee
4. Logistics, ICT and procurement subcommittee.

The following is the list of individuals who facilitated the organization and preparation of the conference including this abstract book.

Prof. Appolinary Kamuhabwa (MUHAS)	Ms. Perpetua Mwambingu (MOH)
Prof. Bruno Sunguya (MUHAS)	Dr. Agness Jonathan (MUHAS)
Dr. Nahya Salim Masoud (MUHAS)	Dr. Bakari Salumu (PORALG)
Prof. Kaushik Ramaiya (TDA)	Mr. Hamis Kamandwa (MUHAS)
Prof. Anna Kessy (MUHAS)	Mr. Deogratias Chale (PM Office)
Dr. Omary Ubuguyu (MOH)	Ms. Judith Ngoda (MOFA)
Ms. Valeria Millinga (MOH)	Dr. Crispine Kahesa (ORCI)
Dr. Doreen Mloka (MUHAS)	Dr. Belinda Jackson (MUHAS)
Dr. Rachel Samweli (TDA)	Mr. Pius Victor Msekwa (MUHAS)
Dr. Mary Mayige (NIMR)	Dr. Harrieth Peter (MUHAS)
Ms. Asha Gembe (MOH)	Dr. Alfatheresia Mwasagama (MUHAS)
Dr. Martin Chikelea (MUHAS)	Ms. Rebecca Rabach (MUHAS)
Prof. Emmanuel Balandya (MUHAS)	Ms. Daisy Lwetaka (MUHAS)
Prof. Paschal Ruggajo (MOH)	Dr. Naiz Majani (JKCI)
Dr Edward Kija (MUHAS)	Dr. Nyanda Elias (NIMR-MMRC)
Dr. Davis Amani (MUHAS)	Ms. Nachene Nana Mgimwa (MUHAS)
Dr Amani Kikula (MUHAS)	Dr. Ndekya Oriyo (NIMR)
Dr. George Msengi (TDA/TANCDA)	Mr. Castory Munish (MUHAS)
Ms. Happy Nchimbi (TANCDA)	Dr. Kasusu Nyamuryekung'e (MUHAS)
Dr. Jackline Ngowi (MUHAS)	Prof. Blandina Mmbaga (KCRI)
Dr. Emilia Kitambala (MUHAS)	Prof. Said Kapiga (MITU)
Dr. Anzibert Rugakingira (MOH)	Mr. Baraka Kingwande (MUHAS)
Ms. Hellen Mtui (MUHAS)	Dr. Lucy Mrema (NIMR)
Ms. Gloria Minja (MUHAS)	Mr. Eric Mutemi (NIMR)

CONFERENCE STRUCTURE

1. OPENING CEREMONY

The Regional Non-Communicable Diseases (NCDs) Scientific Conference is attended by individuals with diverse backgrounds in health and non-health disciplines including policy makers, academicians, health care personnel, students in different academic levels, reporters, and other stakeholders. The opening ceremony, in addition to providing welcoming gestures, is aimed at establishing tone and the ground into which discussions and deliberations will be based upon. Specifically, the trends in the burden of these diseases will be highlighted, strategies and solutions in place briefly elaborated, role and contributions of stakeholders discussed, and the position and commitment of the government of Tanzania and Regional Communities will be made clear. Furthermore, participants in this session are made aware of what is expected to result from all discussions and activities scheduled for this conference. To this end the opening ceremony will consist of two main components, speeches and keynote addresses. H.E. Honorable Kassim Majaliwa Majaliwa, the Prime Minister of the United Republic of Tanzania will officiate the Opening Ceremony.

1. KEYNOTE ADDRESS

Keynote addresses in addition to setting the tone and directions for the whole conference, it provides a ground and raises important questions that are to be answered and discussed further in panel session(s). These are usually delivered by experts of disciplines such as health systems, policies, health financing, academia, treatment and care and others depending on the contexts of the set questions. Two keynote speeches will be presented in this conference: ***“Toward Establishing a Tanzania-USA Regional Comprehensive Cancer Center of Excellence”, and “Air Pollution And CVD”.***

2. PARALLEL SESSIONS

Non-communicable diseases result from complex interaction of individual and environmental factors, and they affect nearly all aspects of life. Such diversity and complexities are a threat to existing mitigation strategies which are focused on prevention, health promotion, NCDs care and treatment. This calls for innovative, focused, contextualized, adaptive and responsive solutions. To this end, the conference organizing committee in collaboration with various stakeholders have developed specific subthemes, which are in line with the main theme, which will serve as guide to streamline presentations and discussion that will culminate to generating actionable recommendations. Similar presentations and deliberations will be grouped in one of the seven developed subthemes and will be held concurrently in parallel sessions distributed across the three days of the conference.

SUBTHEME 1: DISPARITIES, RISK FACTORS AND DETERMINANTS OF HEALTH FOR NCDs.

This subtheme aims to shed light on the disparities that exist in NCD prevalence and outcomes among different populations. It explores the various risk factors that contribute to the development of NCDs, including lifestyle choices, genetics, and environmental factors, and seeks to understand the determinants of health that can either exacerbate or mitigate the impact of NCDs on individuals and communities. By examining these dimensions, the subtheme seeks to pave the way for more equitable and effective strategies to prevent, diagnose, and manage NCDs, with a focus on addressing health disparities and improving the overall well-being of diverse populations.

Here, researchers, healthcare professionals, policymakers, and public health experts are provided with a unique opportunity to collaborate and exchange knowledge on the latest research findings, evidence-based interventions, and best practices in the field of NCDs. By fostering a comprehensive understanding of the complex interplay between disparities, risk factors, and determinants of health, the conference aims to develop holistic approaches to combat NCDs, reduce health inequities, and promote healthier communities in the Region. Through this subtheme, attendees will gain insights into the nature of NCDs and explore innovative solutions to improve public health outcomes and address the pressing global health challenge of non-communicable diseases.

SUBTHEME 2: ROLE OF URBANIZATION, MIGRATION, CLIMATE CHANGE AND POLLUTION IN NCDs.

This subtheme delves into the interplay between urban development, human migration, environmental changes, and the prevention, development, management, and progression of Non-Communicable Diseases (NCDs). Urbanization, with its rapid expansion and lifestyle shifts, has a profound impact on health, and this subtheme is aimed at highlighting how the growth of cities and urban living influence NCD prevalence and risk factors. It also explores the connection between migration patterns, both rural to urban and international migration, and the epidemiology of NCDs. Additionally, the subtheme considers the repercussions of climate change and pollution on public health, showing how environmental factors contribute to the rise of NCDs. Understanding these complex relationships is crucial for formulating policies and interventions that address the global health challenges presented by NCDs in an increasingly urbanized and interconnected world.

Within this subtheme, participants will engage in interdisciplinary discussions, share research findings, and explore innovative strategies for mitigating the impact of urbanization, migration, climate change, and pollution on NCDs. By gaining insights into the complex dynamics at play, attendees will be better equipped to develop sustainable and evidence-based solutions to prevent and manage NCDs. This subtheme offers a platform for experts in urban planning, environmental

science, healthcare, and public policy to collaborate, fostering a holistic approach to addressing the health implications of our rapidly changing world.

SUBTHEME 3: DIGITAL TECHNOLOGIES FOR PREVENTION, SURVEILLANCE AND MANAGEMENT OF NON-COMMUNICABLE DISEASES.

The subtheme aims to highlight the transformative role that digital technologies play in addressing the global health challenge posed by non-communicable diseases (NCDs). In an era marked by increased urbanization and sedentary lifestyles, NCDs such as cardiovascular diseases, diabetes, cancer, and respiratory disorders have become a leading cause of morbidity and mortality worldwide. Digital technologies, including wearable health monitoring devices, mobile applications, and telehealth solutions, are at the forefront of preventive strategies, enabling individuals to monitor their health proactively, track lifestyle habits, and receive real-time guidance. Additionally, digital platforms have revolutionized disease surveillance, offering the ability to collect and analyze health data on a massive scale, aiding in the early detection of disease outbreaks and helping public health organizations make informed decisions.

Moreover, these technologies are instrumental in the management of NCDs, offering personalized treatment plans and enhancing patient-doctor communication. They facilitate remote consultations, ensuring that patients have access to healthcare services even in remote areas. Overall, this sub-theme will explore the innovative ways in which digital technologies are reshaping the landscape of NCD prevention, surveillance, and management, and how stakeholders from healthcare professionals to policymakers can leverage these tools to create a healthier future. With a focus on cutting-edge research, practical applications, and policy implications, this sub-theme promises to be a crucial part of the conference for those dedicated to improving public health in the digital age.

SUBTHEME 4: NCDS INTEGRATION, HEALTH SYSTEM CHALLENGES, AND OPPORTUNITIES FOR UNIVERSAL HEALTH COVERAGE.

This conference sub-theme serves as a platform for healthcare professionals, policymakers, and researchers to explore the complexities of seamlessly incorporating NCD services into existing healthcare systems while confronting the multifaceted challenges they present. Furthermore, it underscores the symbiotic relationship between addressing NCDs and achieving UHC, highlighting how the integration of NCD management into healthcare systems can enhance the effectiveness and accessibility of healthcare services, ultimately advancing the realization of UHC as a fundamental health and equity goal. Through insightful discussions and collaborative efforts, this sub-theme aims to shape the future of healthcare, making it more comprehensive, inclusive, and responsive to the growing NCD crisis while ensuring that healthcare for all remains an essential global aspiration.

SUBTHEME 5: NCDS EMERGENCE PREPAREDNESS.

This subtheme aims to delve into the aspects of NCD emergence preparedness. It encompasses discussions on early warning systems, epidemiological surveillance, public health campaigns, and interventions that can be deployed to address NCDs in their nascent stages, thereby reducing the substantial healthcare and economic burden they impose.

The "NCDs Emergence Preparedness" sub-theme also underscores the importance of interdisciplinary collaboration and the integration of digital health technologies, data analytics, and innovative interventions to effectively monitor and respond to the emergence of NCDs. By fostering a dialogue among stakeholders, the conference aims to generate insights and best practices that can guide healthcare systems and policymakers in devising pre-emptive strategies to confront NCDs, thereby striving towards a healthier and more resilient global population. This sub-theme serves as a reminder that the battle against NCDs extends beyond the treatment phase, emphasizing the significance of being prepared to tackle the emergence of these diseases as an essential component of the global health agenda.

SUBTHEME 6: NCDS RESEARCH GAP TO ATTAIN UNIVERSAL HEALTH COVERAGE.

This sub-theme seeks to address the crucial research gap in NCDs, emphasizing the need for innovative research approaches and collaborative efforts to bridge the existing knowledge deficit. By fostering discussions and sharing the latest insights and findings, this sub-theme aims to accelerate progress towards the goal of providing accessible and affordable healthcare for all, with a particular emphasis on tackling NCDs.

Within the "NCDs Research Gap to Attain Universal Health Coverage" sub-theme, experts, researchers, and policymakers will convene to explore various aspects, including epidemiological trends, novel interventions, health system strengthening, and data-driven approaches to NCD management. By identifying gaps in our current knowledge and highlighting opportunities for further research, this sub-theme plays an important role in advancing the global agenda for Universal Health Coverage and ultimately ensuring that individuals and communities receive equitable healthcare services that effectively address the challenges posed by Non-Communicable Diseases. With the collaboration and insights shared at this conference, it is expected that the world will come closer to achieving UHC in the context of NCDs, leading to better health outcomes and improved quality of life for populations across the globe.

SUBTHEME: NUTRITION AND NCDS.

The sub-theme is a critical and timely focus area at this conference, reflecting the growing recognition of the profound impact of nutrition on Non-Communicable Diseases (NCDs). Nutrition is undeniably one of the most influential modifiable risk factors for NCDs, encompassing a broad spectrum of conditions, such as diabetes, obesity, hypertension, and certain types of cancer. This sub-theme serves as a nexus for experts and stakeholders to explore the intricate connections between dietary patterns, macronutrients, micronutrients, and NCDs. It aims to foster an

understanding of the role of nutrition in the prevention and management of NCDs and to highlight innovative strategies for promoting healthier dietary choice.

In this sub-theme, participants will engage in discussions and knowledge sharing related to evidence-based interventions, public health policies, and community-level initiatives that can combat NCDs through improved nutrition. This sub-theme also seeks to address disparities in access to nutritious food and the global challenge of overnutrition and undernutrition. By bringing together researchers, healthcare professionals, policymakers, and nutrition advocates, the conference endeavors to generate practical solutions that can promote healthier eating habits and reduce the burden of NCDs, ultimately contributing to improved population health and well-being.

3. SATELLITE SESSION

Each year during the NCDs conference preparations, some topics are proposed, scrutinized, and vetoed for extensive discussions in special parallel sessions at the time of conference. These are referred to as satellite sessions. The decision on what topics to be included is usually informed by experts' opinions and recommendations, existing body of evidence on NCDs burden, strength and resilience of health systems, and critical appraisal of existing strategies, initiatives and multisectoral collaborations. Six satellite sessions have been planned for the regional NCDs conference. They will be chaired and attended by experts from different institutions within and outside member states of East Africa and Southern Africa Development Communities.

4. POSTER PRESENTATIONS AND EXHIBITION

The conference also provides an important platform for individuals and institutions to share their research, innovations, initiatives, and services in the form of posters and exhibitions. Early morning and late in the evening (before and after oral sessions) and times for breakfast and lunch are also dedicated to viewing posters, visiting and interacting with different exhibitors. However, posters will be left for display and booths will be open and attended to throughout the days, including when other sessions are going on. At least 80 posters will be presented and over twenty national and international stakeholders are expected to showcase their products and services using booths.

5. CLOSING CEREMONY

The structure of the conference allows individuals to attend, attentively, one session at a time. It was therefore deemed wise and eventually became a tradition to develop a concrete summary of important findings and recommendations which are usually shared with all participants at the end of the conference, during the closing ceremony. The government through the Ministry of Health often takes this session as an opportunity to formally accept the recommendations and at the same time, shares its stance and directives on set of activities, research and initiatives that are needed to tackle the rising burden of NCDs in the country. Regional perspectives on the conference and recommendations will also be provided. Lastly, the session also serves to acknowledge individual and institutional support and efforts in organizing the conference, and/or sharing the best research evidence.

POSTER PRESENTATION

1. Assess the opportunities for improving the identification of people with the risks of having a child affected by sickle cell disease in Rural Parts Mbeya.

Authors: Aman Twaha, Deocles Donatus, Khanafi A. Said, Moshi Moshi Shabani, Marygladness Ngeme, Maryjesca Mafie, Stamily A. Ramadhani, Abdulrahman Hussein, Bernard Mbwele

Affiliation: Mbeya Zonal Referral Hospital, University of Dar Es Salaam.

Background: Tanzania is the fifth country in the world to have the highest prevalence of SCD. 11,000 children being born with SCD Yearly and 90% of them don't reach to see their 5th birthday. However, very few SCD patients. Sickle cell disease patients are facing low quality of life, financial burden, psychological torture, and stigmatization mainly caused by demographic factors.

Objective: The main objective of the study was to assess the opportunities for improving the identification of people with the risks of having a child affected by Sickle Cell Disease in Rural Parts Mbeya, Tanzania and the Prevalence of the disease in the remotest places of Chunya.

Methodology: For the Introduction of the study, A special campaign for awareness creation was done by a volunteering team of medical school students and raised awareness in secondary schools, hospitals and in the community on the availability of screening activity and blood testing for Sickle cell traits and Sickle cell disease to be conducted in Chunya through onsite and radio and social media campaigns in all over Mbeya Region with a target of up to 20,000 individuals. The Pre-execution's phase of the project Involved training medical students on Fundal Mental Knowledge about Sickle Cell Disease and Latter stake holders' meetings for the Pitching of the Idea and to get support for the transport and Equipment for testing Sickle Cell Disease. Then creating a Quality Testing team from MZRH for the verification of the testing kits before mass Testing to the community. All participants who volunteered were asked for consent and accent (Parent or guardian) to be interviewed for the Knowledge Attitude and Practices about SCS and test for Sickle Cell traits and Sickle Cell Disease using Sickle Scan® Rapid test devices. Descriptive and analytical analysis were done using STATA version14. Multivariable regression was done using demographic factors and knowledge on sickle cell disease with outcomes of Sickle cell traits and SCD.

Results: A total of 523 participants were studied in Chunya by February 2020 but the Awareness Campaign covered over 20,000 People in Mbeya Tanzania. The prevalence of SCD (HbSS) was

10 out of 523 (1.91%) and the prevalence of Sickle Cell trait (HbAS) was 44 out of 523 (8.41%). There were 282 (53.92%) female and 241 (46.08%) males. In general, the respondents' age ranged from 4 days to 64 years. A total of 49 tribes were studied (48 mother tribes and 49 father's tribes) from four facilities (Chunya District Hospital, Chalangwa Health Centre, Chalangwa Secondary School and Kiwanja secondary school). The tribes were grouped into 3 main zones lake zone, southern zone and other zones (Eastern, Northern and central). There were 3 main factors associated with having sickle cell traits identification. These are, Mother's zonal tribe ($\chi^2 (2) = 69.98$ p value < 0.001), Fathers zonal tribe ($\chi^2 (2) = 63.85$ p value < 0.001), Having a sibling with SCD ($\chi^2 (2) = 22.7$ P value < 0.001). Having a father (OR= 10.06, P value= 0.01) or a sibling with SCD (OR= 10.7, P value= 0.02) was a serious risk for SCD inheritance.

Conclusion: There is a high prevalence of SCD and higher risk of SCD inheritance in Mbeya, Southern highland but also the patterns of SCD has changed due to Migration and Urbanization in these areas, this bears an important alarm for creating a health support system to address such difference and minimize the gap to care for those in rural areas of the country taking Chunya as a case study.

Recommendation: The finding of this study act as a pilot study to give picture of the situation in Mbeya as representative in Southern Highlands, many areas have left unexplored hence need of supporting such effort and conduct more studies in Sickle Cell disease with focus on remotest areas. There is a need to equip the Sickle Cell Unit at Mbeya Zonal referral hospital and transform it into a sickle cell center because the burden of the sickle cell disease is high is southern Zone and the hospital needs more modern equipment to suffice the need.

2. Impact of self-monitoring blood glucose on glycemic control in insulin-treated patients with diabetes at KCMC.

Authors: Sophia Muhali, Nyasatu Chamba, Fatma Muhali.

Affiliation: Kilimanjaro Christian Medical University College (KCMC).

Background: Monitoring blood glucose levels is essential in managing diabetes. While self-monitoring of blood glucose (SMBG) is well-established in high-income countries, its feasibility and impact in rural Sub-Saharan Africa are understudied.

Objective: To assess SMBG, its associated factors and impact on glycemic control in insulin-treated diabetes patients.

Methodology: Participants (n = 85) were randomly assigned to intervention (n = 43) and control (n = 42) groups. The intervention group received glucose meters, test strips, logbooks, and extensive structured SMBG training. Control group received usual care. Primary outcomes: adherence to SMBG schedule, logbook data recording, and change in glycated hemoglobin (HbA1c). Analysis: descriptive statistics and paired t-tests.

Results: 61.5% in the intervention group showed good adherence to SMBG. Education on SMBG significantly influenced adherence. Structured SMBG improved glycemic control (HbA1c reduction of -1.01; CI -1.39, -0.63) compared to controls ($p < 0.001$). There was also a significant statistical difference in the fasting blood glucose between the two groups at the end of the study. Higher formal education was associated with increased HbA1c by 1.21 units.

Conclusion: Structured SMBG positively impacted glycemic control with a significant reduction in HbA1c levels in insulin-treated diabetes patients.

Recommendation: Customize SMBG education, explore patient views, conduct long-term trials, assess healthcare professionals, and establish Tanzania SMBG guidelines.

3. Adherence to dialysis therapy and associated factors among insured patients with end stage renal disease attending dialysis centers in Kilimanjaro and arusha regions, Tanzania.

Authors: Cesilia Charles, Baraka Moshi, Kajiru Kilonzo, Florida Muro.

Affiliation: Kilimanjaro Christian Medical University College (KCMC).

Background: End stage renal disease is an alarming public health concern increasing the need of dialysis therapy. Following a recommended dialysis schedule reduces chances of disease complication and deaths. Despite national health insurance fund covers most of the medical costs including dialysis therapy, adherence to dialysis therapy among the insured patients is still low in Tanzania.

Objective: To determine adherence to dialysis therapy and associated factors among insured patients with end stage renal disease attending dialysis centers in Kilimanjaro and Arusha regions, Tanzania.

Methods: Hospital based cross-sectional study using both mixed methods of data collection was conducted between May and June 2023. We conducted interviews using questionnaires and in-depth interviews to eligible participants. Quantitative data were analyzed using STATA version

15.0 software. Multivariable logistic regression was used to determine factors associated with adherence to dialysis therapy. Qualitative data were analyzed using thematic analysis.

Results: Of 251 insured patients with ESRD included in the analysis, mean (SD) age was 59.8 (± 11.6) years. Overall adherence to dialysis therapy was 55%. In sub-analysis, 77.7% and 72.7% adhered to dialysis session and duration respectively. Factors significantly associated with adherence were age above 60 years (AOR: 8.32; 95% CI: 1.41, 49.15), higher education level (AOR: 2.68; 95% CI: 1.13, 6.35), unemployment (AOR: 2.26; 95% CI: 1.28, 4.00), > 5 years in dialysis (AOR: 4.08; 95% CI: 1.28, 13.06), availability of transport (AOR: 2.43; 95% CI: 1.12, 5.28) and receiving health information frequently (AOR: 5.22; 95% CI: 1.33, 20.54).

Conclusion: More than half of insured patients with ESRD adhered to dialysis therapy. Older age, higher education level, unemployment, >5 years in dialysis, receiving health information frequently and transport availability were significant factors for higher odds of adherence to dialysis therapy.

Recommendation: Strong support relationship between patients, family members and HCWs is essential. Health systems should consider accessibility of dialysis services by focusing on transport availability as well as maintain continuous education and counseling sessions to patients.

4. Barriers and facilitators to enforcing performance accountability mechanisms for quality improvement in maternal health services.

Authors: Francis August, Tumaini Nyamhanga, Deodatus Kakoko, Sirili Nathanaeli and Gasto Frumence.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Tanzania experiences a high burden of maternal mortality and morbidity. Despite the efforts to institute accountability mechanisms, little is known about quality improvement in delivering maternal health services.

Objective: This study aimed to explore barriers and facilitators to enforcing performance accountability mechanisms for quality improvement in maternal health services

Methodology: A case study design was used to conduct semi-structured interviews with thirteen key informants. Data were analyzed using thematic analyses.

Results/Progress: The findings were linked to two main performance accountability mechanisms: maternal and perinatal death reviews (MPDRs) and monitoring and evaluation (M&E). Prioritization of the maternal health agenda by the government and the presence of maternal death review committees were the main facilitators for MPDRs. At the same time, negligence, inadequate follow-up, poor record-keeping, and delays were the main barriers facing MPDRs. M&E was facilitated by the availability of health management information systems, day-to-day ward rounds, online ordering of medicines, and biometrics. Non-use of data for decision-making, supervision being performed on a basis ad-hoc, and inadequate health workforce were the main barriers to M&E.

Conclusion: The findings underscore that barriers to the performance accountability mechanisms are systemic and account for limited effectiveness in the improvement of quality of care.

Recommendation: Instituting appropriate and corrective measures, positive and negative reinforcements together with developing a fully functioning M&E system as well as going beyond collection and feeding of maternal and newborn data into the HMIS, but also performing the analysis and presenting the analytics to Management to guide planning, decision-making and evaluation.

5. Prevalence, pattern and predictors of cardiovascular events in people living with HIV attending clinic and admitted at tertiary hospital in Mwanza region, Tanzania.

Authors: James Chrispin, Robert Peck.

Affiliation: Weill Bugando School of Medicine, Catholic University of Health and Allied Sciences, Tanzania.

Background: HIV has contributed to over 39 million deaths worldwide. Sub-Saharan Africa has accounted for more than 70% of the global HIV burden, with an estimated total of 1.4 million People living with HIV (PLHIV) in 2013. Worldwide, it is estimated that 17.9 million people died from cardiovascular diseases (CVDs) in 2015, while PLHIV are 1.5 -2 times more likely to develop CVDs compared to non-infected individuals.

Objective: To determine the prevalence, pattern and predictors of cardiovascular events in PLHIV at Bugando Medical Center (BMC).

Methodology: A cross-section hospital-based study was conducted on January 2023 at BMC involving both outpatients and inpatients. A simple random sampling technique was used to recruit

203 participants with a minimum estimated sample size of 103. The study population was adult HIV-infected patients above 18 years old attending the CTC clinic and admitted at BMC. The participants were interviewed using a semi-structured questionnaire. Weight, height, abdominal circumference and blood pressure were measured.

Results: Participants enrolled 25% (n=51) were male and 75% (n=152) were female, with female to male ratio of 3:1. The overall prevalence of cardiovascular diseases among this population was 4.9% and the pattern of distribution was 4(40%) stroke, 3(30%) hypertensive heart diseases, 2(20%) heart failure and 1(10%) coronary artery disease. The prevalence of hypertension was 11.8%, BMI was related to hypertension with $P<0.001$, where overweight was 25.1% (n=51) and obesity 22.2% (n=45). Alcohol consumption was linked to hypertension $P=0.038$ and more than half of the study population consumed alcohol 59.6% (n=121). History of hypertension is related to the development of cardiovascular diseases with $P=0.000$ where 25.1% (n=51) had a history of hypertension and 66.7% (n=34) which the majority were not on regular medication, 8(15.7%) seen a traditional healer for treating hypertension.

Conclusion: Stroke and hypertensive heart disease were leading CVDs and hypertension, alcohol consumption and obesity were risk factors.

Recommendation: To integrate NCD into HIV care and services, community screening and awareness programs.

6. Activities in NCDs week: Approaches and lessons.

Authors: Belinda J Njiro, Jackline E Ngowi, Harrieth P Ndumwa, Davis E Amani, Castory Munishi, Erick A Mboya, Doreen Mloka, Amani I. Kikula, Emmanuel Balandya, Paschal Rugajo, Emilia Kitambala, Anna T. Kessy, Omary Ubuguyu, Bakari Salum, James Kiologwe, James T. Kengia, Ntuli Kapologwe, Appolinary Kamuhabwa, Kaushik Ramaiya, Bruno F. Sunguya.

Affiliation: Muhimbili University of Health and Allied Sciences, Ministry of Health, President's Office Regional Administration and Local Government, Tanzania Non-Communicable Diseases Alliance, Tanzania Diabetes Association, Shree Hindu Mandal Hospital.

Background: In addressing the non-communicable diseases (NCDs) burden, Tanzania invested in prevention and advocacy activities, uniquely focusing on a multisectoral and multi-stakeholder approach. This paper highlights activities conducted during NCDs week to share the approaches and provide lessons for other countries with similar contexts.

Objective: This paper aimed to highlight activities conducted during NCDs week to share the approaches and provide lessons for other countries with similar contexts.

Methodology: We conducted a mixed method study that involved a desk review of the official reports on NCDs prepared by the Ministry of Health (MoH) and NCDs collaborators during the 2019 to 2021 NCDs week commemoration. Narrative synthesis and descriptive analyses were conducted to examine the approaches to, content, and lessons drawn from the NCDs week in Tanzania since its inauguration.

Results: NCD weeks are commemorated annually throughout Tanzania. The main activities included are community awareness, participatory activities, community-based preventive, and advocacy activities. Health service provision and exhibitions involved screening for hypertension, diabetes, obesity, and alcohol use, where a significant burden of NCDs was identified for the first time. Physical activities and sports festivals were promoted through actual walkathons, also, developing and renovating infrastructures for sports and recreation. The national NCDs scientific conferences provided an avenue for sharing scientific evidence on NCDs and recommending strategies to mitigate NCDs burden. NCDs week has been a cornerstone in advocacy and evidence sharing for NCDs control and prevention in the country. The multi-stakeholder and multi-sectoral approaches have made the implementation of these activities feasible and impactful.

Recommendation: Our approach and findings set an example for the united efforts toward NCDs control and prevention at national, regional, and global platforms while considering contextual factors during adoption and implementation.

7. Clinicopathological characteristics of prostate cancer diagnosed between 2015-2021 in Northern Tanzania: analysis from a population-based cancer registry data.

Authors: Bartholomeo Nicholas Ngowi, Alex Mremi, **Mshangama Juma Seif**, Modesta P Mitao⁴, Mramba Nyindo, Kien Alfred Mteta, Blandina Theophil Mmbaga.

Affiliation: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical Centre, Kilimanjaro Clinical Research Institute.

Background: Prostate cancer is among the common causes of mortality in Tanzanian men. However, there is limited prostate cancer data. Therefore, there is no enough evidence to advise the authorities on the need to combat it.

Objective: The study aimed to assess the clinicopathological characteristics of prostate cancer in northern Tanzania from 2015-2021.

Methodology: Retrospective cross-sectional study utilizing northern Tanzania cancer registry data from 2015-2021 was performed. Age, symptoms, and prostate-specific antigen at presentation, Gleason score, and metastatic statuses were retrieved. Risk stratification was done as per the American Society of Medical Oncology into; low, intermediate, and high risk. Analysis was done by STATA version 17. The study obtained ethical clearance from the institutional review board.

Results: A total of 5097 male cancer cases were recorded from 2015-2021. Of these, prostate cancer was the most common cancer by 1619(31.76%) with a mean age of 73.9(\pm 10.1). The majority of subjects were from Kilimanjaro region 1200(74.1%). About 714(44.1%) subjects had histologically retrievable data and case notes, of these 710(99.4%) were symptomatic at presentation with lower urinary tract symptoms being the most common presentation 548(76.8%). The median prostate-specific antigen at presentation was 109(36.2-263) ng/ml and the majority 426(60.7%) had a Gleason score of \geq 8, metastatic disease was prevalent at 178(24.9%). About 152 subjects were risk-stratified, whereby 147(96.7%) had high-risk and 94.6% had androgen deprivation therapy only, with bilateral total orchiectomy accounting for the majority 293(63.0%).

Conclusion: There is a high burden of prostate cancer in Northern Tanzania and almost all cases have a high-risk disease with androgen deprivation therapy mostly by bilateral total orchiectomy being the commonest treatment approach.

Recommendation: Prostate cancer screening needs to be emphasized in northern Tanzania for early diagnosis and treatment.

8. Prevalence of prostate cancer and its correlation with PSA among African men in Northern Tanzania

Authors: Bartholomeo Nicholas Ngowi, Alex Mremi, Orgeness Jasper Mbwambo, Mshangama Juma Seif, Modesta P Mitao, Mramba Nyindo, Kien Alfred Mteta, Blandina Theophil Mmbaga.

Affiliation: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical Centre, Kilimanjaro Clinical Research Institute.

Background: The critical PSA cut-off of 4 ng/mL, commonly used for Pca screening, was questioned because it originated from non-African populations with assumed higher normal PSA levels.

Objective: The study aimed to determine the correlation between prostate-specific antigen (PSA) levels and prostate cancer (Pca) diagnosis in a Northern Tanzanian community.

Methodology: From May to October 2022, a community based Pca screening included men aged ≥ 40 years. PSA levels were measured from venous blood samples, and those with PSA > 4 ng/mL were invited for a biopsy. Independent pathologists evaluated biopsy samples. PSA levels were categorized as > 4 -10, > 10 -20, > 20 -50, 50-100, and > 100 ng/mL. Each PSA category was assessed for its correlation with positive biopsy, sensitivity, specificity, positive predictive value, negative predictive value, and area under the receiver-operating characteristic (AuROC) curve. Significance was set at $p < 0.05$.

Results: The study involved 6164 African men with an average age of 60 ± 11 years. Among them, 912 (14.8%) had PSA > 4 ng/mL, 581 (63.7%) underwent biopsy, and 179 (30.8%) were diagnosed with Pca. High Gleason scores (8-9) were present in 46 (25.7%) of cases. Over 2/3 (64.7%) of participants with PSA > 20 ng/mL had prostate cancer, reaching nearly 100% at PSA > 100 ng/mL. A positive correlation between PSA levels and Pca as well as aggressive disease was observed. The optimal PSA cut-off was found at > 10 ng/mL. PSA demonstrated 84% overall ability to distinguish Pca from non-cancer cases and a 71% ability to differentiate aggressive from non-aggressive disease.

Conclusion: Thirty percent of biopsied participants had prostate cancer, indicating the need for control measures. PSA showed excellent potential in distinguishing prostate cancer among African men aged ≥ 40 year.

Recommendation: In cases where biopsy is impractical, treatment can be initiated for those with PSA levels > 100 ng/mL. This study underscores the importance of considering population-specific PSA thresholds for prostate cancer screening.

9. Nightmare of clopidogrel resistance in Tanzania: A case of consecutive STEMI following stent thrombosis.

Author: Smita V. Bhalia, Pedro Pallangyo, Makrina Komba, Zabella S. Mkojera, Henry A. Mayala, Engerasiya Kifai, Peter R. Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI).

Background: Stent thrombosis, a life-threatening complication of percutaneous coronary intervention (PCI) continues to occur despite effective antiplatelet regimens and improved stenting

methods. Clopidogrel resistance is increasingly evoked with elevated risk of arteriothrombotic events particularly in the setting of stent implantation.

Objective: In this case report, we present a case of subacute stent thrombosis associated with clopidogrel resistance in a resource-constrained setting.

Results: A 60-year-old man with a long-standing history of hypertension presented with a 6-month history of progressive shortness of breath. Initial electrocardiogram (ECG) revealed T-wave inversion on lateral leads and echocardiogram revealed akinetic basal lateral wall and hypokinetic mid lateral wall with reduced systolic functions. An elective coronary angiography (CAG) revealed a 90% stenosis of mid left anterior descending (LAD) artery and an 80% stenosis on the proximal left circumflex (LCx) artery. He underwent a successful PCI with a drug-eluting stent (DES) implantation to mid LAD. He was discharged in a stable state 48 hours post revascularization with dual antiplatelet (clopidogrel and acetylsalicylic acid). Seven days later, he presented with a crushing substernal chest pain. Cardiac enzymes were elevated, and ECG revealed anterior ST-elevation MI. An emergency CAG revealed a high thrombus burden with 100% occlusion of mid LAD. Following unsuccessful ballooning, intravenous and intracoronary thrombolysis with tenecteplase was given. A TIMI II flow was achieved, and the patient was sent to the coronary care unit (CCU). However, 14 hours later there was yet a new onset of severe chest pain. A 12-lead ECG previewed anterior ST-elevation MI and the cardiac enzymes were high. Urgent CAG revealed in-stent thrombotic total occlusion of mid LAD. A stent in stent was then implanted and TIMI III flow was restored. Clopidogrel resistance was suspected, and the patient was transitioned to ticagrelor. There were no further ischemic events during the remainder of hospitalization and the patient was discharged in a hemodynamically stable state three days later. During follow-up after one and three months, he was stable without any further cardiac events.

Conclusion: Owing to clopidogrel resistance, stent thrombosis in the setting of dual antiplatelet therapy compliance may occur. While in a situation of clopidogrel resistance newer and more potent antiplatelet drugs should be used, their availability and cost remain a significant barrier particularly in the developing world. Nonetheless, a high index of suspicion and timely revascularization is fundamental to restore patency of the thrombosed vessel and confer better risk-adjusted survival rates.

10. Prevalence, patterns, risk factors and outcomes of cardiovascular complications among adult patients with chronic kidney disease in Dodoma, Tanzania

Authors: Mohamed Mbalazi, John Meda, Alfred Meremo

Affiliation: University of Dodoma, Benjamin Mkapa Hospital.

Background: Chronic kidney disease (CKD) is associated with high rates of cardiovascular complications. CKD and cardiovascular disease patients are at increased risk for premature deaths, declining quality of life, and healthcare costs. Thus, early identification of cardiovascular diseases in CKD for better patient care is necessary.

Objective: To determine the prevalence, patterns, risk factors and outcomes of cardiovascular complications among adult patients with chronic kidney disease in Dodoma, Tanzania.

Methodology: A prospective observational study was carried out in patients with CKD stage three confirmed by eGFR < 60 ml/min/1.73 m² for the previous three months or markers of kidney injury or both from October 2022 to June 2023 at Benjamin Mkapa Hospital. Demographic, laboratory and clinical data were collected at baseline, filled in a questionnaire, and cardiovascular complications were identified. Blood and urine samples were collected for laboratory investigations as the standard of care, and six six-month follow-ups identified secondary cardiovascular complications. Data were descriptively and inferentially entered into an Excel spreadsheet and analyzed using SPSS PC version 25. Binary logistic regression analysis was used to identify cardiovascular complication variables among CKD patients.

Results: A total of 234 CKD patients were enrolled in the prospective observational study with a median age of 59 (IQR 51-67) years; of whom 143 (61.11%) were females. The prevalence of cardiovascular complication among CKD patients was 76% and the pattern of cardiovascular complications were as follows; 53.42% had LVH, 38.03% had HF, 28.21% had pericarditis, 7.30% had IHD and 3.85% had atrial fibrillation. Notably, 21.37% had both HF and pericarditis, 19.99% had both LVH and HF, and 13.25% had LVH and pericarditis. The median BMI was 26.54 (IQR 25.25-28.35), median creatinine was 165 (IQR 141.0-198.0) μ mol/l, median blood urea nitrogen was 6.35 (IQR 5.6-8.0) mmol/l and median eGFR was 34 (IQR 26-42) ml/min/1.73m². Factors associated with cardiovascular outcomes were age >65 (AOR: 1.74, 95% CI: 1.08-3.89, p=0.0386), obesity (AOR: 2.47, 95% CI: 1.75-8.07, p=0.0352), elevated T cholesterol (AOR 1.66, CI: 1.27-2.62 p=0.0469), elevated LDL (AOR 1.87, 95% CI: 1.38-2.97 p=0.0390) and CKD stage 4 (AOR 4.21, 95% CI: 1.45-12.22, p=0.0082). Six months follow-up, 49 (32.9%) worsening heart failure, 7 (4.7%) had stroke and two (1.34%) of the patients died.

Conclusion: This study showed a high prevalence of cardiovascular complications among CKD patients. Its pattern showed that the majority had LVH, Heart failure, pericarditis and a

combination of Heart failure and pericarditis. Age over 65; obesity, elevated total cholesterol, elevated low-density lipoprotein levels and Stage 4 CKD were associated with cardiovascular complications. A common unfavorable outcome was worsening heart failure.

Recommendation: Reductions of modifiable risk factors like obesity dyslipidemia and enhanced early detection and timely intervention of cardiovascular complications will enable CKD patients to experience fewer cardiovascular complications.

11. Prediabetes, diabetes, and associated factors among young first-degree relatives of type 2 diabetes mellitus patients attending referral hospitals in Dar-es-Salaam.

Authors: Herieth F. Hyera, Patricia Munseri.

Affiliation: Muhimbili University of Health and Allied Sciences.

Background: Type 2 diabetes is a pandemic following an exponential rise in the number of cases. Current trends indicate that younger individuals have a three-fold increased risk for diabetes in first-degree relatives of type 2 diabetes. The prevalence and associated factors for dysglycemia (prediabetes and diabetes) among first-degree relatives of type 2 diabetes patients aged 40 years and below is unknown in Tanzania.

Objective: To determine the prevalence of dysglycaemia and associated factors among young first-degree relatives of type 2 diabetes patients.

Methodology/Project Plan: This cross-sectional study recruited 18-40 years old first-degree relatives of type 2 diabetic patients from four diabetes clinics in Dar-es-Salaam: Muhimbili National Hospital, and Referral Hospitals at Temeke, Amana, and Mwananyamala. Data collected included socio-demographics, clinical characteristics, and risk factors for dysglycaemia using a structured questionnaire. Dysglycaemia was defined by either a FBG reading of ≥ 5.6 mmol/l OR 2 hours RBG after 75g glucose ingestion of ≥ 7.8 mmol/l. Associations between dysglycaemia and different risk factors were analyzed using modified Poisson regression analysis model.

Results: We recruited 540 first-degree relatives of 540 diabetic patients. The prevalence of dysglycaemia was 230 (37.6%) whereby the prevalence of diabetes and prediabetes was 21 (3.9%) and 182 (33.6%) respectively. Risk factors for dysglycaemia were age ≥ 35 years (aRR 1.75, 95% CI 1.19 – 2.59), lack of physical activity (aRR 1.39, 95% CI 1.02-1.90), and obesity (aRR 1.77, 95% CI 1.34-2.34).

Conclusion: The prevalence of dysglycaemia among young first-degree relatives of diabetic patients is high.

Recommendation: Regular glucose screening coupled with exercising will reduce the level of obesity and dysglycaemia and will curb this pandemic in this young population at risk for other NCDs

12. Hypertension awareness, antihypertensive use, and blood pressure control among Tanzanians: A multiregional study.

Authors: Janeth Mmari, Pedro Pallangyo, Zabella Mkojera, Makrina Komba, Loveness Mfanga, Saad Kamtoi, Smita Bhalia, Henry Mayala, Peter Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI).

Background: Population ageing, rapid urbanization and unhealthy lifestyles continue to transform global health. The prevalence of hypertension, which currently affects over a billion people globally, is rapidly increasing while the rates of its awareness, treatment and control remain low especially in developing nations.

Objective: We aimed to determine the prevalence, awareness, control and associated factors for hypertension across Tanzania.

Methodology: We conducted a cross-sectional, community-based screening across 12 regions of Tanzania between August 2022 and August 2023. Physical activity was assessed using the physical activity vital sign scale (PAVS) and alcohol dependence was assessed by the CAGE questionnaire. Trained personnel measured and recorded blood pressure and anthropometric measures. Hypertension was defined according to the 8th Report of the Joint National Committee (JNC 8) or use of blood pressure lowering medications. Multivariate logistic regression analyses were performed to assess for factors associated with high blood pressure.

Results: The mean age of participants was 43.6 years and 63.5% were women. 4.7% were current smokers, 5.3% were alcohol dependent, 64.3% had excess body weight, and 67% were physically inactive. 63.3% of individuals had hypertension, and 51% of these were unaware of their hypertensive status. Among those with hypertension awareness, 43.2% were on regular use of antihypertensive drugs and 17.5% had their blood pressure controlled. Age ≥ 40 , male sex and BMI ≥ 25 was strongly associated with a newly diagnosed hypertension status, (OR 5.7, 95% CI 4.2-7.8, $p < 0.001$; OR 1.6, 95% CI 1.1-2.2, $p < 0.01$; and OR 2.9, 95% CI 2.1-4.1, $p < 0.001$ respectively).

Conclusion: Our findings suggest that excess body weight is a single modifiable risk factor strongly associated with high blood pressure. The majority of persons with high blood pressure were undetected and thus unaware of their hypertensive status. Furthermore, hypertension treatment and control rates are disturbingly low.

13. Standardizing the safe handling of chemotherapy across Tanzania – A collaborative approach.

Authors: Jackson Mbwimbe, Zawadi Phares Secha, Haji Mgonanze, Trish Scanlan.

Affiliation: Muhimbili National Hospital, Ocean Road Cancer Institute, Tumaini la Maisha, Global Hope.

Background: Chemotherapy is a group of medications that are now widely available at more than 15 hospitals across Tanzania. To avoid occupational hazards – standardized precautions are essential.

Objective: To assess the standard operating procedures available across all sites handling chemotherapy and standardizing these various SOPs to one national SOP.

Methodology: Pharmacists from all sites across Tanzania who have access to chemotherapy were contacted and asked to submit their institutional SOPs for review. Those with SOP's were invited to attend an in person 3-day review and workshop to develop a National standard SOP for the safe handling of chemotherapy.

Results: 15 sites across Tanzania were contacted. 6 sites confirmed to have some form of safe chemotherapy handling SOP and 4 submitted these for review. 12 topics were considered essential. No site had an SOP for all 12 topics. ORCI and MNH/TLM covered 9 topics; KCMC and BMH covered 7 topics. BMH had adopted the ORCI protocols while MNH and KCMC had unique documents. 14 pharmacists (from ORCI, MNH, KCMC, BMC, and BMH) met over 3 days. All topics deemed essential were reviewed and a standardized National SOP for identified topics was agreed – including modifications for sites with and without safety cabinets.

Conclusion: Prior to this review there were many differences in recommendations for the safe handling of chemotherapy across various sites which has now been standardized.

Recommendation: The consensus reached should be adopted nationally and it will standardize chemotherapy handling across the country

14. Lifestyle behaviors and knowledge of non-communicable disease risk factors of 7000+ Tanzanians: A multiregional study.

Authors: Loveness Mfanga, Pedro Pallangyo, Makrina Komba, Zabella S. Mkojera, Janeth Mmari, Saad Kamtoi, Henry Mayala¹, Smita Bhalia, Peter R. Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI).

Background: Health literacy on cardiovascular diseases (CVDs) plays an effective role in preventing or delaying the disease onset as well as in impacting the efficacy of their management. Several studies have addressed the growing burden and pattern of CVD risk factors; however, there is dearth of information regarding public knowledge of CVD risk factors in SSA region particularly Tanzania.

Objective: In view of the projected low health literacy in Tanzania, we conducted this cross-sectional survey to assess for CVD risk knowledge and its associated factors among community members across various regions of Tanzania.

Methodology: A total of 7463 caretakers were consecutively enrolled from 11 regions in a countrywide community screening conducted by Jakaya Kikwete Cardiac Institute. An adopted questionnaire consisting of 22 statements assessing various CVD risk behaviors was utilized for assessment of knowledge. Logistic regression analyses were performed to assess for factors associated with poor knowledge of CVD risks.

Results: The mean age was 40.5 years and women predominated (59.6%). Over two-thirds had excess body weight, 26.5% were alcohol drinkers, 5.2% were current smokers, and 59% were physically inactive. The mean score across the regions ranged between 42% and 78% with just 4 regions i.e., Dar es Salaam, Arusha, Kilimanjaro, and Iringa displaying a satisfactory CVD knowledge. Moreover, five regions i.e., Geita, Lindi, Mtwara, Unguja and Pemba displayed low than average knowledge of CVD risks. It was observed that presence of NCD risk factors was similar irrespective of CVD knowledge.

Conclusion: A CVD knowledge disparity was observed across the regions. Moreover, individual's knowledge and self-care practices were incongruent. These findings reflect alarming public health concerns and underscore the urgent need to establish and implement wide-spread and effective educational initiatives aiming at mitigating the community's practices towards cardiovascular risk factors.

15. The impact of musculoskeletal disorders on quality of life in Tanzania: Results from a community-based survey

Subtheme: Disparities risk factors and determinants of health for NCDs

Authors: Nateiya M Yongolo, Eleanor Grieve, Manuela Deidda, Stefanie J Krauth, Sanjura M Biswaro, PH Hsieh, Jo Halliday, Kiula P Kiula, Rose Kolimba, Kajiru Gad Kilonzo, Elizabeth F. Msoka, Stefan Siebert, Clive Kelly, Richard Walker, Blandina T. Mmbaga and Emma McIntosh, on behalf of the NIHR Global Health Research Group on Musculoskeletal Disorders and Arthritis.

Affiliation: 1. Kilimanjaro Clinical Research Institute, Box 2236, Moshi, Tanzania, 2. Kilimanjaro Christian Medical Centre, Box 3010, Moshi, Tanzania, 3. University of Glasgow, Glasgow, Scotland, G12 8QQ, 4. Newcastle University, Newcastle upon Tyne, NE1 7RU.

Background: There is little available data on the prevalence, economic, and quality of life impacts of musculoskeletal disorders in Sub-Saharan Africa (SSA). This lack of evidence is wholly disproportionate to the significant disability burden of MSK disorders (as reported in High-income countries).

Objective: Identify, measure, and value the health impact of MSK conditions in the Hai, Kilimanjaro, Tanzania.

Methodology: A community-based cross-sectional survey was undertaken in 2021 in the Hai District, Kilimanjaro region, Tanzania. A two-stage cluster sampling method was used to administer economic and health-related quality of life (HRQOL) questionnaires in selected households. To establish a reference population, a detailed health economics questionnaire was completed by those who screened positive for MSK disorders using the Regional Examination of the Musculoskeletal System (REMS) instrument and age and gender-matched controls without MSK conditions.

Results: There is a statistically significant (25%) reduction in HRQOL for those with MSK disorders as determined by positive REMS screening. The attributes 'pain' and 'discomfort' were the major contributors to this reduction in HRQOL.

Conclusion/ Lesson learned: There is a significant impact of MSK conditions on HRQOL in Hai and likely the wider region.

Recommendation: The evidence will be used to guide intervention, service provisions, and health promotion and awareness.

16. Public knowledge of heart attack and stroke signs in Dar es Salaam: Are the educational endeavors sufficient?

Authors: Makrina Komba, Pedro Pallangyo, Zabella S. Mkojera, Loveness Mfanga, Saad Kamtoi, Janeth Mmari, Husna Y. Faraji, Smita V. Bhalia, Henry A. Mayala, Genofeva Matemu, Anna Nkinda, Engerasiya Kifai, Peter R. Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI).

Background: Knowledge of the predisposing risk factors and prompt recognition of the warning signs for heart attack and stroke is fundamental in modification of lifestyle behaviors and an imperative precursor to health-seeking behavior.

Objective: In view of an existing knowledge gap amidst increasing incidence of heart attack and stroke in Tanzania, we conducted this community-based cross-sectional study among residents of Dar es Salaam city.

Methodology: A random pre-selection of specific blocks was utilized to select a random sample of 1759 households based on the 2022 Tanzania Demographic and Health Survey census frame. This study utilized a validated standardized questionnaire that was developed by Ahmed et al. We defined a priori eleven risk factors for heart attack/stroke, eight heart attack warning signs and six typical symptoms of stroke. A respondent could therefore score between 0 and 11, 0 and 8, and 0 and 6 respectively depending on the correctly identified parameters. Pearson Chi square and Student's T-test were employed in comparison of categorical and continuous variables respectively. Factors associated with respective knowledge were assessed by bivariate analyses. All tests were 2-sided and $p < 0.05$ was used to signify statistical significance.

Results: The mean age was 45.4 years, females constituted over a half of participants and over two-thirds had attained at least secondary school education. About three-quarters had excess body weight, a third were hypertensive, nearly 7% had history of diabetes, and over one-tenth had a positive history of dyslipidemia. Regarding risk factors, just over 2% of participants displayed satisfactory awareness and only stress was recognized by at least half of participants. With regards to warning signs, barely 1% of participants had satisfactory knowledge for either of the conditions while nearly three-quarters of participants failed to mention even a single warning sign for heart attack. Recognized by about two-thirds of respondents, sudden numbness or weakness in face, arm or leg was the most acknowledged stroke symptom; however, other symptoms were familiar to less than a third of participants. Although over a half of respondents acknowledged going to a hospital as their first resort, over one-tenth of respondents expressed

inappropriate reactions towards heart attack and stroke victims including prick the toes to bleed, hit the victim's head with slippers, rub the patient with toilet dirt, run away, giving fluid sips and visit a witch doctor. Old age, higher level of education, positive history of heart attack or stroke, high blood pressure and history of dyslipidemia showed association with both risk factors and warning signs knowledge during bivariate analyses.

Conclusion: Public knowledge of common risk factors and typical warning signs for heart attack and stroke was critically suboptimal. These findings herald an utmost need for public health efforts to increase community awareness of risk factors and typical signs of the two conditions to curb the rising prevalence and associated morbimortality. A comprehensive mass media campaign, targeted education of high-risk groups, and tailored eHealth interventions will be rewarding in this setting. Moreover, educational endeavors should also target healthcare professionals, particularly the primary care providers.

17. Patterns of lipid abnormalities and associated factors among chronic kidney disease patients at tertiary hospital in northwestern zone of Tanzania.

Authors: Kaiza Bananga, Deodatus Mabula and Namanya Basinda.

Affiliation: Catholic University of Health and Allied Sciences, Department of Internal Medicine, Bugando Medical Center, Department of Public Health, Catholic University of Health and Allied Sciences.

Background: Chronic Kidney Disease (CKD) is a growing problem in Sub-Saharan Africa, and this may be attributed to an increased burden of diabetes and hypertension in the region. Dyslipidaemia with its resultant atherosclerosis in patients with chronic kidney disease is associated with an increased risk of ischemic heart disease and cerebrovascular disease which predisposes them to recurrent acute heart attack and strokes.

Objective: To determine the patterns of lipid abnormalities and associated risk factors in patients with CKD at BMC.

Methodology: This cross-sectional study was conducted at Bugando Medical Centre among CKD patients who attended dialysis unit between January and September 2022. Data were collected from the Electronic Health Management System (EHMS). Data was coded and entered into SPSS software version 20 for management and analysis. We described our results using proportions (%) for categorical data and means or medians for continuous variables according to distribution. Predictors with significant p-values were assessed using Pearson's correlation for predictors, and a p value < 0.05 was considered significant.

Results: A total of 100 patients were included in this study. The prevalence of dyslipidemia was found to be 91%. Triglyceride levels were elevated in 12% of the patients, reduced HDL in 90% of the patients, and elevated total cholesterol and LDL in 8% of the patients. The majority of patients (67%) had reduced HDL-only pattern of dyslipidemia, followed by a combination of reduced HDL and elevated triglyceride which accounted for 13% of the cases. We found an association between comorbidity and dyslipidemia ($p < 0.05$).

Conclusion: Dyslipidemia is prevalent in CKD patients who are on hemodialysis.

Recommendation: Regular monitoring of blood lipids and early treatment and prophylaxis may decrease the risk.

18. Trends of frequency, mortality and risk factors among patients admitted with stroke from 2017 to 2019 to the medical ward at Kilimanjaro Christian Medical Centre Hospital: A retrospective observational study.

Authors: Baraka Moshi, Nateiya M. Yongolo, Sanjura Mandela Biswaro, Hans Maro, Sakanda Linus, Stefan Siebert, William Nkenguye, Emma S. McIntosh, Febronia Shirima, Rosalia E. Njau, Alice A. Andongolile, Manasseh Mwanswila, Jo E. Halliday, Stefanie J. Krauth, Kajiru Kilonzo, Richard W. Walker, Gloria. A Temu, Blandina T. Mmbaga.

Affiliation: Kilimanjaro Clinical Research Institute (KCMC).

Background: The burden of stroke has increased in recent years worldwide, particularly in low and middle-income countries. In this study we aim to determine the number of stroke admissions and associated co-morbidities, to a referral hospital in Northern Tanzania.

Objective: In this study we aim to determine the number of stroke admissions, and associated co-morbidities, to a referral hospital in Northern Tanzania.

Methodology: This was a retrospective observational study, conducted at a tertiary referral hospital, Kilimanjaro Christian Medical Centre (KCMC) within the Northern zone of Tanzania. The study included adults aged 18 and above, who were admitted to the medical wards from 2017 to 2019. Primary outcome was the proportion of stroke patients admitted at medical ward at the Kilimanjaro Christian Medical Centre and the secondary outcome was clinical outcome such as mortality. We conducted an audit of medical records from 2017 to 2019 for adult patients admitted into the medical ward at the KCMC. Data extracted included demographic characteristics, previous history of stroke, and admission outcome. Factors associated with stroke were investigated using logistic regression.

Results: Among 7976 patients admitted between 2017 and 2019, 972 (12.2%) were stroke patients. Trends showed an increase in patients admitted with stroke over the three years with 222, 292 and 458 for 2017, 2018, and 2019, respectively. Of the stroke patients, 568 (58.4%) had hypertension, while 167 (17.2%) had Diabetes mellitus. The proportion of stroke patients aged 18-45 increased from 2017 (n=28, 3.4%) to 2019 (n=40, 4.3%). The in-hospital mortality related to stroke was 229 (23.6%). Among patients admitted with stroke, women had 50% higher odds of death than men (OR:1.5; CI: 1.30,1.80).

Conclusion/Lesson Learnt: The burden of stroke on individuals and health services is increasing over time, which reflects a lack of awareness on the cause of stroke and effective preventive measures. Prioritizing interventions directed towards the reduction of non-communicable diseases and associated complications, such as stroke, is urgently needed.

Recommendation: It is crucial to increase general awareness of the growing burden of relevant stroke risk factors along with contemporary stroke trends and their consequences including delayed diagnoses. Other than proper blood pressure control, secondary prevention should be initiated as soon as possible following admission. Lifestyle and behavioral education should be offered to all patients.

19. Stroke characteristics and outcomes in urban Tanzania: Data from the prospective lake zone stroke registry.

Authors: Sarah Shali Matuja, Joshua Ngimbwa, Lilian Andrew, Jemima Shindika, Goodluck Nchasi, Anna Kasala, Innocent Kitandu Paul, Mary Ndalawa, Akili Mawazo, Fredrick Kalokola, Patrick Ngoya, Ladius Rudovick, Semvua Kilonzo, Bahati Wajanga, Fabian Massaga, Samuel E Kalluvya, Patricia Munseri, Mohamed A Mnacho, Kigocha Okengo, Henrika Kimambo, Mohamed Manji, Paschal Ruggajo, Tumaini Nagu, Rashid Ali Ahmed, Faheem Sheriff, Karim Mahawish, Halinder Mangat, Mai N Nguyen-Huynh, Deanna Saylor, Robert Peck.

Affiliation: Catholic University of Health and Allied Sciences, Bugando Medical Center, Muhimbili University of Health and Allied Sciences, Muhimbili National Hospital, Ministry of Health Community Development, Gender, Elderly and Children, Massachusetts General Hospital, Department of Neurology-Texas Tech University Health Sciences Center, Paul L. Foster School of Medicine, El Paso, TX-United States, Stroke Medicine Department, Counties Manukau Health, Auckland, New Zealand, University of Kansas Medical Center Division of Research-The Permanente Medical Group, Kaiser Permanente Northern California, Oakland, Johns Hopkins University School of Medicine, Department of Internal Medicine-University Teaching Hospital, Lusaka, Zambia, Center for Global Health, Department of Internal Medicine, Weill Cornell Medicine, New York, New York, USA.

Background: Stroke is a second leading cause of death globally, with an estimated one in four adults suffering a stroke in their lifetime.

Objective: We aimed to describe the clinical characteristics, quality of care and outcomes in adults with stroke in urban Northwestern Tanzania.

Methodology: We analyzed de-identified data from a prospective stroke registry from Bugando Medical Center in Mwanza, the second largest city in Tanzania, between March 2020 and October 2022. This registry included all adults ≥ 18 years admitted to our hospital who met the World Health Organization clinical definition of stroke. Information collected included: demographics, risk factors, stroke severity using the National Institutes of Health Stroke Scale, brain imaging, indicators for quality of care, discharge modified Rankin Scale, and in-hospital mortality. We examined factors independently associated with mortality using logistic regression.

Results: The cohort included 566 adults, of which 52% (294) were female with a mean age of 65 ± 15 years. The majority had a first-ever stroke 88% (498). Premorbid hypertension was present in 86% (488) but only 41% (200) were taking antihypertensive medications before hospital admission; 6% (32) had HIV infection. Ischemic strokes accounted for 66% (371) of strokes but only 6% (22) arriving within 4.5 hours of symptom onset. In-hospital mortality was 29% (127). In the multivariate analysis independent factors associated with mortality were: severe stroke (aOR 1.85, 95% CI:1.56 – 2.19, $p < 0.001$), moderate to severe stroke (aOR 1.81, 95% CI:1.59–2.04, $p < 0.001$), moderate stroke (aOR 1.50, 95% CI:1.22–1.84, $p < 0.001$), leukocytosis (aOR 1.18, 95% CI:1.01–1.39, $p = 0.039$) and not receiving any form of venous thromboembolism prophylaxis (aOR 1.20, 95% CI:1.01–1.41, $p = 0.03$).

Conclusion: We report a stroke cohort with poor in-hospital outcomes in Northwestern Tanzania.

Recommendation: More work is needed to raise awareness about stroke symptoms and to ensure that people with stroke receive guidelines-directed therapy. Early diagnosis and treatment of hypertension could prevent stroke in this region.

20. Prevalence and factors associated with prediabetes among sedentary office workers in Moshi Municipality, Tanzania.

Authors: Anastasiya Juma, Lucas Mbuji, Baraka Moshi, Kajiru Kilonzo, James Ngocho.

Affiliation: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical Center.

Background: Prediabetes is a global concern, impacting mainly low- and middle-income countries, with an annual 5-10% progression rate to diabetes. Early-stage complications highlight the need for intervention. HbA1c screening is cost-effective and reduces diabetes care costs. However, Tanzania lacks comprehensive prediabetes screening policies, leaving a gap in identifying at-risk populations like sedentary office workers.

Objective: To determine the prevalence and factors associated with prediabetes among sedentary office workers in Moshi municipality, Tanzania.

Methodology: A cross sectional study was conducted in 2023 in Moshi Municipality, Tanzania. A total of 200 sedentary workers were recruited using multistage probability sampling method. We used a POC HbA1c device to analyze capillary blood, with prediabetes defined at levels of 5.7% to 6.4%. Data collection involved WHO STEPS and OSPAQ questionnaires. Prediabetes prevalence was determined using descriptive statistics, and predictors were calculated through logistic regression, with statistical significance set at < 0.05 .

Results: Among sedentary office workers, the prevalence of prediabetes was 42%, and the mean (\pm Standard deviation) age was 36.9(\pm 11.1) years. Females were found to have 2.6 times higher odds of having prediabetes (OR: 2.6; 95% CI: 1.21, 5.76). Additionally, workers who had fewer breaks during their workday, such as accountants, were at a higher risk of prediabetes compared to more physically active workers like managers and support staff. Accountants had a 0.2 times lower likelihood of prediabetes (OR: 0.2; 95% CI: 0.03, 0.71), and supporting workers had a 0.3 times lower likelihood (OR: 0.3; 95% CI: 0.13, 0.97). Furthermore, sedentary office workers with diastolic prehypertension were found to have 3.7 times the odds of having prediabetes (OR: 3.7; 95% CI: 1.29, 10.49),

Conclusion: The prevalence of prediabetes is high among females, physically inactive individuals, and those with prehypertension.

Recommendation: Prioritize regular check-ups for prehypertensive individuals and advocate prediabetes screenings among high-risk populations.

21. The role of noble triad (patient, healthcare worker and family) towards prevention and management of non -communicable diseases in Tanzania.

Authors: Elichilia R. Shao, Kajiru G. Kilonzo, Huda Akrabi, Jeremia J. Pyuza, Remigius A. Rugakingira.

Affiliation: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical Center, Benjamin Mkapa Referral and Zonal Hospital.

Background: Globalization, unplanned urbanization, risk behavior (smoking, alcohol consumption, risky driving, increasing sedentary lifestyles, and unhealthy diets) are leading toward increasing NCD prevalence in Tanzania. Diverse malnutrition level, unsafe sex, pollution, and poor hygiene are also contributing to worsen the burden of NCDs. Poor knowledge and understanding about NCDs among the general population have its significant role toward increasing NCDs.

Objective: The role of noble triad (patient, healthcare worker and family) towards prevention and management of Non-Communicable Diseases.

Methodology: Use of different platforms (journals, books, television, radio, social media, drama and one on one) to educate our people about Non-Communicable Diseases

Results: Short term outcomes i.e., controlled HTN, suppressed viral load, controlled blood sugar while long term is the good quality of life among individuals on palliative care.

Conclusion: Involvement of knowledgeable patients and their relatives towards NCDs management will lead to good outcome as compared to those with poor knowledge.

Recommendation: Healthcare workers should lead the way toward educating public by using simple words in Kiswahili through (journals, books, TV, Radio, social media and in schools) and flooding the media with correct information. We are launching a Kiswahili book on kidney diseases to lead the way and encourage more healthcare workers to be more active in health education advocacy.

22. Molecular characterization of acute lymphocytic leukemia in Tanzania.

Authors: Jeffer Bhuko, Collins Nzunda, Eliud Buchard, Emmanuel Josephat.

Affiliation: Muhimbili University of Health and Allied Sciences, Catholic University of Health and Allied Sciences.

Background: Molecular diagnosis has led to targeted therapies of specific molecular profiles. There is potential for improved Acute Lymphocytic Leukemia (ALL) cancer diagnosis for gene somatic mutation called Single Nucleotide Variant and gene translocation for p190 Philadelphia (BCR-ABL) positive with targeted therapies of Tyrosine Kinase Inhibitor (TKI) in ALL patients.

Objective: Frequency of ALL related mutations in children and adult patients, concordance of techniques q-PCR for p190 cartilages against Next Generation Sequencing (NGS) and behavior clinical presentation of ALL patients in relation to mutations identified.

Methodology: Cross-sectional study conducted at the Muhimbili University samples primary suspected of ALL malignancies by cellular morphology from all districts and tertiary hospitals in the region. The study duration is 24 months, from November 2022 to October 2024. The study population included children aged 2-18 years and adults over 18 years suspected of having ALL. Independent variables: Socio-demographic, Age and sex, medical treatment, and family history. Dependent variable, molecular profile: DNA mutations pathogenic SNVs and gene translocation, Clinical manifestation: Lymphadenopathy, splenomegaly, hepatomegaly, and treatment of ALL for Ph-positive and Ph-negative patient

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

Conclusion: Understanding the molecular profile of leukemia whether it correlates with poor/good outcomes in ALL for targeted therapies.

Recommendation: The use of molecular profile analytical techniques to diagnose leukemia for personalized treatment choices.

THURSDAY, 2ND NOVEMBER 2023

ORAL PRESENTATIONS

SUBTHEME: DISPARITIES RISK FACTORS AND DETERMINANTS OF HEALTH FOR NCDS

1. The Economic burden of musculoskeletal disorders in Tanzania: results from a community based survey.

Authors: Sanjura M Biswaro, Manuela Deidda, Eleanor Grieve, Stefanie Krauth, Nateiya M Yongolo, Shawn Hsuein, Jo E B Halliday, Kiula P Kiula, Rose Kolimba, Kajiru Gad Kilonzo, Elizabeth F. Msoka Bright, Stefan Siebert, Clive Kelly, Richard Walker, Blandina Mmbaga, Emma McIntosh

Affiliation: Kilimanjaro Clinical Research Institute, Kilimanjaro Christian Medical Centre, University of Glasgow-Scotland, Newcastle University, Newcastle upon Tyne, NE1 7RU.

Background: Musculoskeletal (MSK) disorders are a leading cause of disability globally, causing significant clinical and quality of life impacts, absence from work, reduced productivity, and substantial personal medical costs.

Objective: To identify, measure, and value the economic burden of MSK disorders in the Kilimanjaro region, of Tanzania.

Methodology: a community-based cross-sectional survey in the Hai district gathered data from residents over 5 years old. Two-stage cluster sampling identified a representative sample. Clinical screening tools were employed to diagnose musculoskeletal (MSK) disorders, along with an economic questionnaire on healthcare costs and work-related impacts for those with potential MSK disorders and controls. The study valued resource use in dollars. Complex regression models were applied, and a descriptive analysis of catastrophic expenditure was performed.

Results: Annual productivity loss and healthcare costs were, respectively, 3.5 and 2.5 times higher for those with likely MSK disorders than controls (productivity costs: 509 Int\$ vs. 151 Int\$, p-value<0.01; healthcare costs: 437 Int\$ vs. 177 Int \$, p-value<0.05). The difference in terms of out-of-pocket expenses was economically substantial in magnitude (483 vs. 343 Int\$), although not statistically significant.

Conclusion: The economic burden was higher for people with MSK disorders.

Recommendation: The evidence will inform policies addressing MSK disorders, by designing interventions, service provisions, and awareness

2. Prevalence, pattern, and predictors of cardiovascular events in people living with HIV attending clinics and admitted at a tertiary hospital in Mwanza region, Tanzania.

Authors: James Chrispin, Felix Tarimo, Robert Peck

Affiliations: Weill Bugando School of Medicine, Catholic University of Health and Allied Sciences.

Background: HIV has contributed to over 39 million deaths worldwide. Sub-Saharan Africa accounts for more than 70% of the global HIV burden, in Tanzania, an estimated total of 1.4 million people living with HIV in 2013. Worldwide it is estimated 17.9 million people died from CVDs in 2015 of which PLHIV carries a higher risk.

Objective: To determine the prevalence, pattern, and predictors of cardiovascular events in PLHIV at BMC.

Methodology: A cross-section hospital-based study was conducted on January 2023 at BMC involving both outpatients and inpatients. A simple random sampling technique was used to recruit 203 participants with a minimum estimated sample size of 103. The study population was adult HIV-infected patients above 18 years old attending the CTC clinic and admitted at BMC. The participants were interviewed using a semi-structured questionnaire. Weight, height, abdominal circumference, and blood pressure were measured.

Results: Participants enrolled 25% (n=51) were male and 75% (n=152) were female with female to male ratio of 3:1. The overall prevalence of cardiovascular diseases among this population was 4.9% and the pattern of distribution was 4 (40%) stroke, 3 (30%) hypertensive heart diseases, 2 (20%) heart failure, and 1 (10%) coronary artery disease. The prevalence of hypertension was 11.8%, and BMI was related to hypertension with $p=0.000$ where overweight was 25.1% and obesity 22.2%. Alcohol consumption was related to hypertension $p=0.038$ and more than half of the study population consumed alcohol 59.6%. History of hypertension is related to the development of cardiovascular diseases with $P=0.000$ where 25.1% (n=51) had a history of hypertension and 66.7% (n=34) which were majority were not on regular medication, 8(15.7%) were seeing a traditional healer for treating hypertension.

Conclusion: Stroke and hypertensive heart disease were leading CVDs, and alcohol consumption, obesity, and hypertension were risk factors

Recommendation: To integrate NCD into HIV care and services, community screening, and awareness programs.

3. Patterns of lipid abnormalities and their risk factors among chronic kidney disease patients at tertiary hospital in northwestern zone of Tanzania.

Authors: Kaiza Bananga, Deodatus Mabula, Namanya Basinda.

Affiliation: Catholic University of Health and Allied Sciences, Bugando Medical Center, Catholic University of Health and allied sciences.

Background: Chronic Kidney Disease (CKD) is a growing problem in sub-Saharan Africa, and this may be attributed to an increased burden of diabetes and hypertension in the region. Dyslipidemia with its resultant atherosclerosis in patients with chronic kidney disease is associated with an increased risk of ischemic heart disease and cerebrovascular disease which predisposes them to recurrent acute heart attacks and strokes.

Objective: To determine the patterns of lipid abnormalities and associated risk factors in patients with CKD at BMC.

Methodology: This cross-sectional study was conducted at Bugando Medical Centre for CKD patients who attended the dialysis unit between January and September 2022. Data were collected from the Electronic Health Management System (EHMS). Data were coded and entered into SPSS software version 20 for management and analysis. We described our results using proportions (%) for categorical data and means or medians for continuous variables according to distribution. Predictors with significant p-values were assessed using Pearson's correlation for predictors, and a p-value < 0.05 was considered significant.

Results: A total of 100 patients were included in this study. The prevalence of dyslipidemia was found to be 91%. Triglyceride levels were elevated in 12% of the patients, reduced HDL in 90% of the patients, and elevated total cholesterol and LDL in 8% of the patients. The majority of patients (67%) had reduced HDL-only pattern of dyslipidemia, followed by a combination of reduced HDL and elevated triglyceride which accounted for 13% of the cases. We found an association between comorbidity and dyslipidemia ($p < 0.05$).

Conclusion: Dyslipidemia is prevalent in CKD patients who are on hemodialysis.

Recommendation: Regular monitoring of blood lipids and early treatment and prophylaxis may decrease the risk.

4. Disability Impact of Musculoskeletal Joint Disease in The Community Setting in Hai District, Northern Tanzania.

Authors: Stefanie J. Krautha, Nateiya Yongolo, Sanjura Biswarob, Clive Kellyc, Richard W. Walkere, Stefan Siebertf, Manuela Deiddag, NIHR Global health Research Group on Arthritis in Tanzania, Sally Wykeh, Jo Hallidaya, Blandina T. Mmbagab, Emma McIntoshg.

Affiliation: University of Glasgow-UK, Kilimanjaro Clinical Research Institute, Kilimanjaro Christian Medical Center, James Cook University Hospital-UK, Newcastle University, Northumbria Healthcare NHS Foundation Trust, North Tyneside General Hospital, North Shields, UK Institute of Infection, Immunity and Inflammation, University of Glasgow, Glasgow, Kilimanjaro Christian Medical University College.

Background: There is little evidence of how musculoskeletal disorder (MSKD) impacts disability in Tanzania.

Objective: To quantify the disability associated with MSKD in the rural population in Tanzania.

Methodology: Randomly selected individuals aged 5+ years were screened for MSKD using the Gait Arms Legs and Spine (GALS) examination and the Regional Examination of the Musculoskeletal System (REMS). Demographic and lifestyle factors were recorded, and disability scores were assessed using the World Health Organization Disability Assessment Schedule (WHODAS 2.0), and the Health Assessment Questionnaire (HAQ).

Results: MSKD was associated with higher WHODAS (2.3, CI: 1.5-3.2) and HAQ disability scores (2.0, CI: 1.7-2.3) and was modified by age and sex (Older individuals with MSKD had smaller HAQ scores than younger individuals; women with MSKD's score increased with age (0.7, CI: 0.3-1.1)) and role in the household (being an adult relative (0.8, CI: 0.2-1.3) or adult offspring with MSKD (0.8, CI: -0.3-1.8) was associated with larger increases in HAQ score compared to being a spouse (-0.2, CI: -0.6-0.3) or underage relative (-2.2, CI: -4.7-0.3)). Scores in the different HAQ domains, function, mental health, pain, and global health assessment, were associated with distinct factors. E.g., self-reported pain was associated with MSKD (2.9, CI: 2.7-3.2), age (0.3, 95% CI: 0.1-0.4), not working (0.7, CI: 0.1-1.3), and religion (0.3, CI: 0.0-0.6).

Conclusion: There is a strong association of MSKD with disability.

Recommendation: There is a need to tackle MSKD to improve their health and well-being.

5. Prevalence and determinants of progressive kidney disease among patients with sickle cell disease attending Muhimbili National Hospital

Author: Nyanjiga Mkangara, Pascal Ruggajo, Florence Urrio.

Affiliation: Muhimbili University of Health and Allied Sciences, Ministry of Health.

Background: Sickle cell disease (SCD) is widespread in much of Sub-Saharan Africa, affecting up to 3% of all births in some areas, but it is still a low-priority disease in most African countries. Kidney disease is common in SCD and accounts for 16-18 % of mortality among patients with SCD. Nonetheless, in Tanzania, little is known about the coexistence of SCD and renal disease, and little is known about the factors that influence kidney disease progression.

Objective: To determine the prevalence and determinants of progressive kidney disease among patients with SCD attending Muhimbili National Hospital, Dar es Salaam, Tanzania.

Methodology: This was a cross-sectional study among 369 SCD patients registered in SPARCO-Tanzania and attending the hematology clinic at the Muhimbili National Hospital within a period of five months. Participants were consecutively enrolled into the study using a convenient sampling method. After receiving ethical clearance from the MUHAS Research Ethics Committee and written informed consent from study participants, data were collected. Participants' demographic data and clinical parameters such as blood pressure and random blood glucose were collected using a standardized tool. Blood and urine samples were also collected for the measurement of serum creatinine, urine creatinine, and urine albumin. The Chi-square test and multivariable logistic regression were used to determine the association and predictive power of socio-demographic and clinical parameters (including age, sex, blood pressure, and microalbuminuria) on renal dysfunction (eGFR 60ml/ml/min/1.73m², urine albumin >20mg/l, or urine albumin-to-creatinine ratio >30 mg/g). Statistical significance is defined as a P-value of less than 0.05. Data were processed using the IBM Statistical Package for the Social Sciences (SPSS) v24.0. Budget: A total of USD 15,000 will be required for the study and this will be funded by the Sickle Pan African Research Consortium (SPARCO)-Tanzania, which is funded by the NHLBI of the US National Institutes of Health (NIH) under a grant number U01HL156853.

Results: Patients who were enrolled were 363 of which female were 52.1%. The majority of patients were between the age of 5-18 years old and of these enrolled patients 59.8% were on both folic acid and hydroxyurea treatment. Only 1.1% were found to be hypertensive while 0.5% were diabetic. The overall prevalence of kidney disease among these patients was found to be 49% and it was found to be more prevalent again in patients between the age of 5-18 years. It was also found that hypertensive patients had an increased chance of developing kidney disease by 4.2-fold while those with diabetes and microalbuminuria in urine had an increase of 9.1 and 2.6 respectively. We found that there was a difference in the prevalence of kidney disease while using UriScan (ACR) and while using the normal serum creatinine that is normally used at the

clinic. The difference was 14.4 which means that there is a chance of missing 14 patients when using urine creatinine when compared to serum creatinine.

Conclusion: The prevalence of kidney disease among sickle cell disease in patients attending MNH was 49% and as we will see in the results microalbuminuria still carries a significant role in the development of kidney disease together with other clinical markers which were hypertension and diabetes. The study has also shown that there is a chance of missing 14 patients when performing urine creatinine as compared with the serum creatinine it was discussed further in the discussion part below.

Recommendation: Microalbuminuria, hypertension, and diabetes should be screened routinely at clinics as they can help in preventing the development and even predicting the occurrence of kidney disease among sickle cell disease patients at clinics. More studies should be conducted among patients with and without sickle cell to assess if these predictors carry an equal chance or risk of developing or progressing to kidney disease.

6. Coronary artery disease management in Tanzania: A clustering approach to tailored care and Interventions

Authors: Neema Kailembo, Peter Kisenge, Tatizo Waane, Tulizo Shemu, George Longopa, Salehe Mwinchete, Yona Gandye, Honorata Maucky, Khuzeima Khanbhai, Praise Michael, Peter Masabho, Samson Kiware, Pedro Pallangyo.

Affiliation: Jakaya Kikwete Cardiac Institute, Ifakara Health Institute.

Background: The prevalence of coronary artery disease (CAD) in Sub-Saharan Africa remains largely elusive owing to inadequate local data, limited diagnostic tools, a scarcity of cardiologists, and low public awareness. In addition, various risk factors influencing disease burden and outcome are distinctly clustered forming patterns that are unique to patient groups and communities which emphasize the significance of tailored care and interventions.

Objective: To determine risk factors clusters that influence disease severity and outcome among patients with coronary artery disease in Tanzania.

Methodology: A retrospective chart review was done using a catheterization laboratory registry for 1673 patients who underwent coronary angiography at Jakaya Kikwete Cardiac Institute (JKCI). Obstructive CAD was defined as a luminal stenosis >50% by invasive angiography. Demographics, prevalence, and general predictors were assessed, followed by Clusters, which were determined using a K prototype machine learning technique, and analysis for each cluster

was done. The study found that 51.3% of patients who underwent coronary angiography had coronary artery disease. Notably, the majority of patients (over 56%) were over 60 years old, with an average age of 62 years. Male patients made up 63% of cases, with an average BMI of 28.1 kg/m². The most common risk factor in the coronary artery disease group was hypertension, present in 92% of patients.

Results: The study analyzed four patient clusters based on age and risk factors. The first cluster included patients aged 20 to 40 (14%), those aged 40 to 60 (81%), and those over 60 years old (5.7%) with an average BMI of 27.5 kg/m². Male patients accounted for 63% of this group, and the prevalence of coronary artery disease was 38%. Chest pain was a common symptom in this cluster (91% vs. 72%, $p=0.001$). The presence of risk factors such as diabetes, dyslipidemia, and hypertension increased the likelihood of having a coronary lesion. Patients with at least one symptom and two or more risk factors had a higher risk of single or double vessel lesions. The second cluster included patients only above 60 years old, with an average BMI of 26.6 kg/m². Male patients accounted for 73% of this group, and the prevalence of coronary artery disease was 66%. Chest pain was a significant symptom in this cluster (81% vs 69% $p=0.004$). The presence of risk factors such as diabetes, prior myocardial infarction, and prior percutaneous coronary intervention increased the likelihood of having double to triple vessel disease. The third cluster included patients aged 40 to 60 years old (43%) and those over 60 years old (57%), with an average BMI of 26.1 kg/m². Male patients accounted for 78% of this group, and the prevalence of coronary artery disease was 67%. Symptoms were evenly distributed between patients with coronary artery disease and those with normal coronaries. The presence of risk factors such as diabetes, dyslipidemia, prior percutaneous coronary intervention, prior myocardial infarction, alcohol use, family history, and smoking increased the likelihood of having coronary lesions. Patients with one symptom and one risk factor had a higher risk of triple vessel disease. The fourth cluster included patients aged 40 to 60 years old (37%) and those over 60 years old (63%), with 78% female patients and an average BMI of 34.5 kg/m². The prevalence of coronary artery disease was 32%. Diabetes, prior percutaneous intervention, prior CABG, and dyslipidemia were the most common risk factors. Symptoms were distributed evenly between the two groups. Patients with one risk factor had a higher likelihood of having coronary lesions. This cluster had a significant number of patients from Dar es Salaam and Kilimanjaro.

Conclusion: Our study has found that lifestyle changes have led to premature coronary artery disease in a significant number of young patients (14%), in addition to patients over 40 years old. This underscores the importance of primary prevention strategies aimed at the youth, such as

promoting healthy diets and physical activity in schools, universities, and workplaces. We have also noted cases of repeated myocardial infarction and percutaneous intervention among elderly patients, highlighting the need for proper patient counseling and management during follow-up visits, particularly for those who travel to areas without specialized cardiac clinics. Moreover, our analysis indicates that female patients are most affected by obesity and dyslipidemia. This finding is consistent with our recently published manuscript on obesity, which identifies women as the most obese group in Dar es Salaam. In summary, our study has identified crucial patterns that can guide the development of personalized care plans for patients and community interventions.

Recommendation: To ensure sustainability and long-term impact, interventions targeting youth and women should focus on reducing unhealthy diets, physical inactivity, smoking, and alcohol abuse. The same interventions can be extended to the older generation, however adding proper patient management, training to health workers and counseling may result in better outcomes, reducing repeated PCI and MIs. This can effectively be done through specialized cardiovascular disease outreach programs that combine hands-on training, community awareness, and diagnosis to extend service to the underprivileged and promote early disease detection.

7. Prevalence and determinants of NCDs among healthcare workers in six public hospitals in Sokoto State, North-Western Nigeria.

Authors: Shehu Buhari, Bello Arkilla Magaji, and Ahmed Mohammad Hussein.

Affiliation: Usmanu Danfodiyo University, Sokoto Nigeria School of Public Health, Texila American University, India.

Background: Non-communicable diseases (NCDs) have emerged as a significant public health challenge globally, impacting populations irrespective of socio-economic status. In low- and middle-income countries (LMICs), NCDs account for a substantial portion of morbidity and mortality.

Objective: This study investigates the prevalence and determinants of NCDs among healthcare workers in six public hospitals in Sokoto State, North-Western Nigeria.

Methodology: A cross-sectional study involving healthcare workers aged 18 and above was conducted. Data were collected through the WHO STEPS Instrument, blood pressure measurement, anthropometric assessment, and biochemical analysis. Descriptive statistics, Chi-square tests, and regression analysis were performed.

Results: Among 315 participants, 186 (59%) were female, with a mean age of 35.45 years, and 222 (70.5%) were married. Nurses constituted 209 (66.3%). The study revealed a prevalence of 47 (14.9%) for raised blood pressure, with average systolic and diastolic blood pressure readings of 124.7 (± 19.8) and 85.3 (± 10.9) respectively, and the mean fasting blood glucose level was 5.89 mmol/L (± 1.96). Tobacco and alcohol use were assessed, with 1.0 (0.3%) as current smokers, and 3.0 (1%) using smokeless tobacco. Alcohol consumption was low, with 10.0 (3.2%) as current users. Dietary habits indicated inadequate fruit and vegetable consumption, below WHO recommendations. Additionally, 40.0 (12.7%) frequently added salt to their meals, and 134.0 (42.5%) engaged in physical activity, while 181.0 (57.5%) did not.

Conclusion: This study underscores the need for interventions addressing modifiable risk factors, including physical activity, and dietary habits to mitigate NCDs among healthcare workers in public hospitals in Sokoto, Nigeria.

Recommendation: Future research should delve into the specific impact of these factors on distinct NCD outcomes within this population. Such interventions can play a crucial role in reducing the burden of NCDs in LMICs and improving the overall health of healthcare professionals.

8. Clinical patterns and factors associated with outcomes among premature neonates admitted at Bugando Medical Centre in Mwanza, Tanzania.

Authors: May Idris Kikula, Neema Chami, Delfina Msanga.

Affiliation: Bugando Medical Centre (Mwanza, Tanzania) and Catholic University of Health and Allied Sciences (CUHAS).

Background: Preterm infants are a vulnerable population, demonstrating increased risk for life threatening complications due to the immaturity of the major organs at the time of birth. At Bugando Medical Centre neonatal mortality has been fluctuating between 19% to 48.5%. The increasing mortality and vulnerability of preterm neonates necessitates the need to explore clinical diagnoses that are more related to mortality.

Objective: To determine clinical patterns and factors associated with outcomes among premature neonates admitted at Bugando Medical Centre in Mwanza, Tanzania.

Methodology: This was a hospital-based longitudinal study conducted from February 2023 to June 2023 at neonatal units of Bugando Medical Centre (BMC). Data was entered into Microsoft Excel and analyzed by using STATA. Clinical patterns were assessed daily and documented once

during the study time. A generalized linear model with log link and a Poisson distribution with robust variance estimator was used to determine predictor of mortality and hospital stay of more than 7 days. Predictors with p-value of less than 0.05 after calculating for adjusted RR were considered as significant independent predictors of outcome.

Results: Neonatal jaundice, Respiratory Distress Syndrome RDS and hypothermia were the most observed clinical patterns. Early neonatal mortality was 18.5% while hospital stay more than 7 days was 45%. RDS ARR 1.7 [95%CI] [1.1-2.6], gastroschisis ARR 2 [95%CI] [1.2-3.5] and hypothermia ARR 1.9 [95%CI] [1.3-3.0] were independently associated with mortality whereas Necrotizing Enterocolitis NEC ARR 1.6[95%CI] [1.2-2.2], neonatal jaundice ARR 2.9 [95%CI] [2.1-3.9] and gastroschisis were associated with hospital stay of more than 7 days.

Conclusion: Neonatal Jaundice, RDS, and hypothermia are among the morbidity patterns of admitted premature neonates. ENM among premature neonates was 18.5% and hospital stay more than 7 days was 45%. Gastroschisis, hypothermia, and RDS were associated with mortality while NEC, gastroschisis, and neonatal jaundice were significantly associated with a hospital stay of more than seven days.

Recommendation: Surfactant therapy should be enhanced among premature neonates with RDS. Furthermore, there should be prevention and control of hypothermia in the neonatal ward. Also, referral hospitals should emphasize early and proper care of newborns with gastroschisis.

9. Clinical Characteristics and Treatment Outcome of Childhood Acute Lymphoblastic Leukemia in Tanzania from 2016 to 2020.

Authors: Primus Ewald, Koki Shimizu, Hadija Mwamtemi, Koga Luhulla, Lulu Chirande, Chambega Chambega, Magreth Msoffe, Salama Mahawi, Godlove Sandi, Regina Kabona, Trish Scanlan.

Affiliation: Nagasaki University, Japan, Muhimbili National Hospital, Muhimbili University of Health and Allied Sciences; Tumaini la Maisha.

Background: The Tanzanian government opened its first pediatric oncology ward in 2004. In 2009 the first child with acute leukemia was successfully treated. Since then, huge efforts, infrastructural change and medical advances have been made across all childhood cancer services.

Objective: This research aims to describe the current clinical outcome of childhood acute lymphoblastic leukemia (ALL) in Tanzania from 2016 to 2020.

Methodology: A retrospective cohort study was conducted on pediatric patients treated for ALL from January 1, 2016, to December 31, 2020, at Muhimbili National Hospital (MNH). We obtained information of patient demographics, disease presentation, diagnosis, and outcome through comprehensive chart review. We estimated the overall survival (OS) and event-free survival (EFS) from the date of treatment initiation using the Kaplan-Meier method. Univariable and multivariable Cox proportional hazards models were used to calculate the hazard ratios (HRs) of each prognostic factor on survival.

Results: A total of 202 patients were eligible for the study. Median follow-up time was 39 months. Median age was 6 years (range 1-19), and 84 were females (42%). B-lineage and T-lineage accounted for 70% and 30% respectively. After remission induction treatment, 126 patients achieved remission (65%); and of those, 96 patients achieved minimal residual disease negativity. Median OS was 499 days (95% confidence interval (CI): 296-755) and the 2-year OS was 43% (95%CI: 37-50). Median EFS was 312 days (95%CI: 223-475), and the 2-year EFS was 37% (95%CI: 30-43). Edema (HR 1.93, p=0.003), sickle cell anemia (HR 1.81, p=0.076) and 2-hours travel time from home to the hospital (HR 1.57, p=0.052) were positively associated with mortality in multivariable analysis.

Conclusion: Biological and social factors affect the prognosis of Tanzanian pediatric ALL population which is still unacceptably low compared with high Resource settings.

Recommendation: Further efforts targeting locally identified hurdles need to be made to continue to improve access and consequently survival in this curable group of vulnerable patients.

10. Factors influencing the utilization of cervical cancer screening services among HIV positive women attending Care and Treatment Centre (CTC) in Kinondoni municipality, Dar es Salaam, Tanzania.

Authors: Kisaka Eliena, Kabalimu Titus, Semali Innocent, and Mashalla Yohana

Affiliation: Hubert Kairuki Memorial University (HKMU).

Background: Cervical cancer is one of the leading causes of cancer-related deaths in women in the world. The most affected region being the Sub-Saharan African region, which also experience both a high burden of cervical cancer and HIV.

Objective: To determine the extent and factors influencing utilization of cervical cancer screening among HIV-positive women attending Care and Treatment Centre in Kinondoni Municipality, Dar es Salaam.

Methodology: The study was conducted using an Analytical cross-sectional study among HIV-positive women attending CTC between September and October 2021. Data was collected using a pre-tested standardized questionnaire. Descriptive statistics were used to determine the proportion of cervical cancer screening utilization; bivariate and multivariate logistic regression were used to analyze the Adjusted Odds Ratio association of the independent variable with the dependent variable using SPSS version 25.

Results: 230 HIV-positive women aged 21–60 years were interviewed. Only 47% had ever screened for cervical cancer. Women who didn't know being HIV positive is a risk factor for cervical cancer were less likely to screen for CC [AOR 0.49, 95% CI 0.253-0.957] p-value=0.037. Parity, those who gave birth more than 3 times were likely to screen CC compared to those who gave birth 1-2 times [AOR 2.124, 95% CI 1.012-4.456] p-value=0.046. Employment status: house mothers were likely to screen CC compared to businesswomen [AOR 2.594, 95% CI 1.149-5.853] p-value=0.022. Those without knowledge of prevention methods for cervical cancer were less likely to screen compared to those who had knowledge of prevention methods for cervical cancer [AOR 0.114, 95% CI 0.013-0.972] p-value=0.047."

Conclusion: Most of HIV-positive women had inadequate knowledge on the risk factors for cervical cancer, signs and symptoms of cervical cancer, and knowledge on prevention of cervical cancer.

Recommendation: Provider-patient health education should be intensified for women of reproductive age to raise awareness on screening for cervical cancer.

11. Barriers to Mental Health Services Utilization among Patients Attending Tertiary Health Institutions in Sokoto, North-Western Nigeria.

Authors: Bello Arkilla Magaji, Mukhtar Umar, Nuratu Muhammad Illo, Sajjad Muhammad Yusuf, Ahmad Abubakar.

Affiliation: Usmanu Danfodiyo University, Sokoto Nigeria Department of Psychiatry, Usmanu Danfodiyo University Teaching Hospital.

Background: Access to mental health services remains a global public health challenge, particularly in low- and middle-income countries where patients face heightened risks of inadequate care.

Objective: This study aimed to identify and assess the barriers to mental health service utilization within selected tertiary health facilities in Sokoto, Nigeria.

Methodology: A facility-based cross-sectional study was conducted, involving 52 psychiatric outpatients and 99 relatives, chosen through a multistage sampling technique. A semi-structured interviewer-administered questionnaire was used to collect data on various research variables, including physical, cultural, and financial barriers to mental health services utilization. Data analysis utilized IBM SPSS version 25.0, encompassing descriptive statistics and chi-square tests to identify statistically significant associations. Ethical approval was obtained from the health research ethics committee of Usmanu Danfodiyo University Teaching Hospital (UDUTH/HREC/2023/1273/V2).

Results: Interviews were conducted with a total of 151 respondents, with a mean age of 37.92 years (± 12.62) and the modal age being 41 years (30.5%). Most respondents were male 95 (62.9%), married 107 (70.9%), and Muslim 143 (94.7%). Literacy levels were reported at 120 (39.7%), and a substantial portion 94 (60.3%) were self-employed. The average monthly income was N50,766:67. A lack of community support was reported by 116 (65.6%) of respondents, and the majority 116 (76.8%) had limited access to mental health services. Financial constraints in purchasing medications were experienced by 122 (80.8%). Cultural and financial barriers were found to be statistically significant barriers to mental health services ($\chi^2=0.672$, $p=0.001$).

Conclusion: The study identified a lack of community support and financial constraints as significant barriers to utilizing mental health services in the study area.

Recommendation: We recommend enhancing family and community support for individuals with mental disorders and exploring the implementation of health insurance schemes for the mentally ill to improve access to care.

12. Self-reported pesticide exposure during pregnancy among small-scale horticulture workers in Tanzania.

Authors: William Nelson Mwakalasya, Simon Henry Mamuya, Aiwerasia Vera Ngowi, Bente Elisabeth Moen.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: On a global scale, women constitute the majority of the workforce in the horticulture sub-sector. Given the substantial reliance on pesticides within horticulture, it becomes imperative to establish effective systems for safeguarding the health and well-being of these women. Nevertheless, there remains a significant gap in our knowledge regarding the specific activities in which women engage that lead to their pesticide exposure.

Objective: To investigate the horticultural activities and practices that potentially expose women to pesticides during pregnancy.

Methodology: We conducted a descriptive cross-sectional study of 432 small-scale horticulture women with at least one child aged 4 – 6 years from Mvomero – Morogoro, Mbarali – Mbeya and Bagamoyo – Pwani between October 2022 and April 2023. We used a questionnaire to collect self-reported activities and practices predisposing women to pesticide exposure during pregnancy. We used descriptive statistics for continuous and categorical variables, and binary logistic regression was used to measure the relationship between pesticide-related activities with age, knowledge and experience.

Results: More than eighty-six percent of women worked in horticulture during pregnancy and the majority (47.5%) continued working until the third trimester of pregnancy. Most women (93.1%) had low knowledge of pesticide handling based on their understanding of the information displayed on the packaging label. Label information on mixing (62.5%) and spraying (64.1%) are most known by women. During pregnancy, most women participated in weeding within 24 hours post-spray (57.2%) and washing clothes used in pesticide spraying (51.6%). Mother's age, knowledge and experience influenced women's involvement in some activities. However, age and experience have no significant effect on knowledge.

Conclusion: Pregnancy is not an excuse for women working in horticulture to engage in activities that expose them to pesticides. Knowledge of the information displayed in the pesticide package is very low.

Recommendation: The findings from this study should be taken as a wake-up call for all responsible parties to spearhead policy dialogues in line with the ILO Safety and Health in Agriculture Convention (No. 184).

SUBTHEME: DIGITAL TECHNOLOGIES FOR PREVENTION SURVEILLANCE AND MANAGEMENT OF NCDS

1. Effectiveness of patient-mediated journaling on improving self-care practice among type 2 diabetes mellitus patients in Dodoma Region, Quasi-experimental study.

Authors: Bupe Mwakalindwa, Dr Stephen Kibusi, Dr Julius Ntwenya.

Affiliation: University of Dodoma (UDOM).

Background: Globally, the prevalence of type 2 Diabetes Mellitus (T2DM) is increasing rapidly. Patient-mediated Journaling is important in diabetes treatment because it enhances diabetic self-care practice, improves clinical outcomes, and involves goal setting and evaluation.

Objective: To assess the effectiveness of patient-mediated journaling in improving self-care practice among T2DM in Dodoma Region.

Methodology: A controlled quasi-experimental study; pretest-posttest design was conducted on 147 type 2 diabetes mellitus patients in Dodoma Region. The participants were divided into experimental and control groups with a 1 to 2 ratio, based on their geographical location. The data collection tool was The Summary of Diabetes Self Care Activities Scale (SDSCA) which was researcher administered. The intervention involved assisting goals setting and evaluation (Patient-mediated journaling) using a designed journal. To measure of intervention effect difference in difference was used.

Results: At the baseline overall mean score of self-care practice was 3.94 ± 0.56 , 4.12 ± 0.87 in intervention and control group respectively. Change in mean self-care practice scores observed 2 months after intervention; intervention group 4.4735 ± 3.9022 , control group 3.9022 ± 0.703 . The magnitude of the D-I-D coefficient for treatment versus Control arms was 0.7499, with p- value of $< .0001$. This means that the change in self-care practice from baseline to end line was significantly higher in the treatment arm than in control arm.

Conclusion: This study showed that Patient-mediated journaling intervention was linked with significant improvement in self-care practices

Recommendation: The implementation of patient-mediated journaling intervention in health facility can improve diabetes self-care management.

2. Mobile phone and households surveys in the surveillance of non-communicable disease risk factors: experience of Rwanda.

Authors: Francois Uwinkindi, Alypio Nyandwi, Joseph Mucumbitsi, Alphonse Mbarushimana, Julie Piotie.

Affiliation: Non-Communicable Diseases Division, Rwanda Biomedical Centre, Kigali-Rwanda African Population and Health Research Center, Kenya Rwanda Non-Communicable Diseases Alliance, Kigali-Rwanda.

Background: In 2021-2022, the Rwanda Ministry of Health, with technical and financial support from partners conducted a mobile phone survey (MPS) and a household survey (STEPS survey) to inform on the prevalence of modifiable non-communicable disease (NCD) risk factors.

Objective: It aimed to assess if mobile phone technology can complement household-based surveys in providing evidence to the regular monitoring and surveillance of NCD risk factors in the country.

Methodology: Both surveys adapted and used tools of the WHO STEPS studies and were cross-sectional, nationally representative samples of men and women aged 18 years and older. The MPS used random digit dialing via the Surveda platform, and SMS was sent to mobile phone users to collect data. The MPS dialed 360,740 phone numbers which yielded 4,483 completed interviews while the household survey used face-to-face interviews, and 5,676 were interviewed. They covered demographics, tobacco, alcohol use, diet, hypertension, and physical activity.

Results: The MPS showed that 5.4% of adults used some form of tobacco, including 4.5% being current smokers compared to 7.1% in the Rwanda STEPS Survey 2022. Over the past year, 43.8% reported consuming alcohol, with men 1.5 times more frequent than women (54.9% vs. 33.4%). Conversely, the STEPS Survey reported 48.1% of current drinkers with 61.9% of males drinking more frequently than women. Regarding diet, 26.2% added salt while eating, and 96.4% consumed less than five servings of fruits and vegetables daily in the MPS compared to 1.6 servings of vegetables and 0.7 servings of fruits in the Rwanda STEPS Survey. Regarding blood pressure, the MPS reported 63.4% of adults having their blood pressure measured by a healthcare professional compared to 47.9% in the STEPS survey. Among those diagnosed, 37.2% were on medication in the MPS versus 16.8% in STEPS. On average, Rwandans reported 2.1 days per week with 30 or more minutes of moderate physical activity in the MPS versus 334,1 in the STEPS.

Conclusion: Traditional household surveys are costly and challenging to repeat frequently. Rwanda's experience demonstrates that mobile phone surveys can complement these efforts, enhancing the monitoring and surveillance of NCD risk factors.

Recommendation: Regular repetition is essential for meaningful comparisons over time.

3. A novel open-source simple platform for highly automated patient-specific chemotherapy prescriptions at Muhimbili National Hospital.

Authors: Magreth Msoffe, Jeremie Hassan, Manuel Esther, William Chimwege, Trish Scanlan.

Affiliation: Muhimbili National Hospital, Tumaini la Maisha.

Background: Manual prescription of chemotherapy is inherently error prone, requiring sub-specialist input. Errors increase toxicity and decrease treatment efficacy. Existing chemotherapy automation software is underdeveloped and prohibitively expensive for resource-limited countries.

Objective: To assess the viability of a comprehensive, cost-effective, open-source automated solution to minimize human error in chemotherapy prescriptions created by Tumaini la Maisha called CleverChemo.

Methodology: Local protocols and a random sample of handwritten prescriptions were reviewed to classify prescribing errors. Questionnaires assessing automated options were sent to international pediatric oncology centers. We created a Microsoft Excel™ software solution, CleverChemo, using embedded formulas to automate almost all complex protocol decisions, which included daily error log-assessment. All identified mistakes were gathered, and the sheets were appropriately modified. A structured questionnaire-based interview of key stakeholders was conducted to evaluate satisfaction.

Results: Twelve international centers confirmed automated chemotherapy prescribing is not universal. Reviewing 124 randomly selected manual chemotherapy sheets revealed over 200 errors of varying significance from insignificant to life-threatening. Sixteen protocols required automation. Nine protocols were fully automated, along with a generic automation sheet for the 7 remaining protocols. These replaced all manual chemotherapy prescribing. Automation resulted in the reduction of all errors. Since implementation in October 2018, any errors identified were logged and resolved. The lack of onsite Excel experts has somewhat hampered automated error resolution requiring some manual solutions. Other 'human' errors were reduced through training

and user checklists. All 10 participants in our key stakeholder survey found chemotherapy prescribing safer for patients and significantly more efficient for users.

Conclusion: Open-source automated sheets have the potential for zero-error chemotherapy prescribing but require continuous surveillance active daily error reporting and code modification.

Recommendation: Moving from Excel Excel-based to a web-based application is the ideal next step.

4. A feasibility assessment of a traumatic brain injury predictive modelling tool at Kilimanjaro Christian Medical Center and Duke University Hospital.

Authors: Julius Raymond, Paige O'Leary, Alexis Domeracki, Arthi Kozhumam, Victoria Macha, Anna Tupetz, Francis Sakita, Valerie Krym, Joao Riccardo Nickenig Vissoci, Catherine Staton.

Affiliation: Duke University School of Medicine, Durham, North Carolina, USA Duke University School of Medicine, Durham, North Carolina, USA, Kilimanjaro Christian Medical Center, Northwestern University Feinberg School of Medicine, University of Toronto, Duke Global Health Institute.

Background: Traumatic Brain Injuries (TBI) are a major cause of fatalities and disabilities. Low and Middle -income countries bear a disproportionate burden of TBIs, putting immense strain on limited healthcare resources. Addressing this challenge, innovative solutions such as prognostic models, are needed to improve physicians' diagnostic capabilities, enabling more personalized and effective treatments.

Objective: This study aims to evaluate the feasibility of a TBI prognostic model developed in Tanzania for use by Kilimanjaro Christian Medical Center (KCMC) healthcare providers and Duke-affiliated healthcare providers.

Methodology: This research evaluates the practicality of a Tanzanian-developed TBI prognostic model using human-centered design methodology to gauge its integration potential into current processes. Employing an implementation science framework, co-design interviews were done with emergency physicians and nursing staff from Kilimanjaro Christian Medical Center (KCMC) and Duke-affiliated healthcare establishments in the United States in 2020. The analysis of these interviews followed an inductive coding and content analysis approach.

Results: In interviews with 21 HCPs, at KCMC a preference for iPads and tablets was observed over phone and computer due to storage and mobility advantages. Implementation facilitators from Duke participants included the tool's accurate outcome predictions, educational value, and

mandatory workflow integration. Participants perceived the tool as important for efficient resource allocation and virtual patient status communication when specialists aren't at the bedside. Barriers Included high input demands, internet access needs, workload concerns, and social-behavioral challenges in aligning the tool with doctors' established habits. These insights inform effective TBI Tool introduction in varied healthcare contexts.

Conclusion: Through this human-centered and framework-driven method, our study shed light on the contextual elements that can guide a TBI prognostic model intervention implementation plan as we bridge the gap between innovation and implementation.

Recommendation: Considering this study's insights TBI prognostic tools implementation strategies need to be tailored based on specific contexts while encouraging collaboration and embracing iterative design.

5. Digital health communication strategies to support a healthy lifestyle in adults diagnosed with noncommunicable diseases who have possible limited health literacy: a scoping review.

Authors: Kija Malale, Marianne Reid, Anne Moorhead.

Affiliation: University of the Free State, South Africa School of Nursing, Catholic University of Health and Allied Sciences, Mwanza, Tanzania School of Communication & Media, Institute for Nursing and Health Research, Ulster University, Northern Ireland, UK.

Background: Noncommunicable diseases are resulting in increasing deaths globally. Various efforts have been made to improve people's lifestyles; thus, healthy lifestyle messages must be communicated worldwide. Digital health has been recognized as a strategy to increase access to healthcare resources, indicating the importance of digital health literacy. Improving digital health literacy is a useful solution to emerging health challenges.

Objective: The present aims to identify research gaps in existing literature concerning digital health communication strategies to support a healthy lifestyle in adults with chronic diseases with limited health literacy.

Methodology: This was a scoping review based on Arksey and O'Malley's framework (2005). The parameters were population: adults with chronic diseases with limited health literacy; intervention: digital health communication strategies; and outcome: healthy lifestyle behaviors. Searches included from January 2012 to November 2022. Researchers followed the PRISMA guideline for reporting.

Results: From the 12 selected studies with 15,175 participants, three types of digital health communication strategies supporting participants' healthy lifestyle behaviors were identified in high-income countries. The telephone-based strategy was the most prominent, followed by phone plus health apps and then websites.

Conclusion: This review concluded that digital health communication strategies of telephone, telephone plus health app, and website-based supported healthy lifestyle behaviors and improved health literacy in adults, regardless of their chronic conditions in high-income countries.

Recommendation: Digital health technologies are a promising solution to combating unhealthy lifestyles for people with non-communicable diseases with limited health literacy. Further primary research for similar populations in low and middle-income countries is vital.

6. Justification for requests of chest radiograph among pediatric patients at a tertiary hospital in Dar-es-Salaam.

Authors: Victor P. Mhezi, Zuhura Nkrumbih, Frederick Lyimo.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Ionizing radiation has been classified as a carcinogen, therefore, understanding the "justification" and optimization" principles of radiation protection during chest X-ray examinations (which are the commonest radiological procedures) is crucial for radiation protection measures. Particularly for the pediatric population, a group at higher risk for exposure to ionizing radiation that later can result in developing cancers.

Objective: To investigate the application of justification for ionizing radiation among requests for chest radiography for pediatrics at a tertiary hospital.

Methodology: Prospective hospital-based cross-sectional study of pediatric patients' pants who underwent AP/PA CXR exams. A structured data checklist was used for data collection. Clinical justification of the CXR requests was concluded by comparing the participants' clinical presentations to the standardized pediatrics CXR imaging referral guideline. For optimization, six CXR radiographic technical criteria were evaluated, i.e., type of beam projection, beam collimation, rotation, exam repetitions, exposure parameters (kV, mA, ms and mAs), and use of thyroid and abdominopelvic radiation shielding tools. Each criterion was compared to known standards. Data was analyzed by SPSS v29.

Results: A total of 320 requests were reviewed. among these 42.8% female and 57.2% male. Mean age of 3.2 years. The proportion of clinically unjustified CXR requests was 36.6%. Of these unjustified requests, 51.3% were due to the lack of clinical information, and for the remaining 48.7%, the provided clinical information didn't align with the CXR imaging referral guideline. Most unjustified requests were significantly from OPD compared to IPD (82.9% vs 17.1%, $p < 0.001$, OR=3.1). AP X-ray beam projection, poor X-ray beam collimation, and rotation were observed in most of the CXR examinations at 79.7%, 69.7%, and 63.8% respectively, significantly in under-fives ($p < 0.001$). Unnecessary repetition of CXR examinations occurred in 11.6%, while 36.9% of examinations did not utilize optimal levels for at least one of the console exposure parameters (kV, mA, ms and mAs). Radiation shielding devices weren't applied at all.

Conclusion: One-third of pediatric CXR examinations were clinically unjustified, while many were performed with sub-optimal radiographic techniques. These underscore the necessity for improved implementation of justification and optimization principles of radiation protection during pediatric chest X-ray imaging.

Recommendation: Establishing the use of imaging referral guidelines and improving the provision of appropriate clinical information by clinicians can enhance justification. Optimization can be achieved through the use of optimal radiographic techniques (i.e., standard projections, positioning, collimation, radiation shielding, and optimal exposure levels).

SUBTHEME: NCD RESEARCH GAPS TO ATTAIN UNIVERSAL HEALTH COVERAGE

1. Clinicodemographic profile and survival prospects of women with peripartum cardiomyopathy in Tanzania: A prospective cohort study.

Authors: Pedro Pallangyo, Zabella Mkojera, Makrina Komba, Peter R. Kisenge; Henry A. Mayala, Smita V. Bhalia, Paulina N. Nkondora, Sitna Lukindo, Fatma S. Iddi, Lisa S. Rusibamayila, Happiness J Swai, Edither Nestory, Engerasiya Kifai.

Affiliation: Jakaya Kikwete Cardiac Institute, Emergency Medicine Association of Tanzania, Iringa Regional Referral Hospital, Mnazi Mmoja Hospital, Muhimbili National Hospital.

Background: Irrespective of a higher rate of complete recovery relative to other forms of systolic heart failure, peripartum cardiomyopathy (PPCM) remains the leading cause of non-obstetric fetomaternal morbidity and mortality worldwide.

Objective: this present study aimed to shed light on the clinicodemographic characteristics and prognosis of PPCM in Tanzania.

Methodology: This prospective, multicenter PPCM study in Tanzania commenced in April 2016. PPCM was defined according to recommendations of the Heart Failure Association of the European Society of Cardiology Working Group on PPCM. Clinicodemographic evaluation and echocardiography were performed on all enrolled women at presentation. Data was systematically collected at the very first contact and then upon three, six-, and twelve-months visits. Clinical outcomes including complete recovery (LVEF>55%), persistent dysfunction, and death were recorded. Bivariate comparison and subsequent Cox proportional-hazards regression model were used to compare the women with respect to the primary end point.

Results: A total number of 1339 of women were screened and consecutively recruited 1047 who met the inclusion criteria. The mean age at diagnosis was 29.4 ± 6.8 years and in 321 (30.7%) women it was their first pregnancy. Participants had a mean parity of 3 children and about one-fifth had delivered at least 5 times. During a mean follow-up of 896 days, 242 (23.1%) of women had complete recovery, 514 (49.1%) had persistent LV systolic dysfunction, and 291 (27.8%) died. Following multivariate analysis in a cox regression model of 16 variables; Atrial fibrillation (HR 5.0, 95%CI 2.6-9.8, $p<0.001$), LVIDd ≥ 60 (HR 2.8, 95%CI 1.9-4.3, $p<0.001$), EF<30% (HR 1.7, 95%CI 1.1-2.5, $p<0.001$), TAPSE<14 (HR 7.4, 95%CI 5.1-11.1, $p<0.001$), and LV thrombus (HR 2.3, 95%CI 1.3-3.9, $p<0.01$) proved to be the predictors of mortality.

Conclusion: In this largest cohort of African women with well-phenotyped PPCM, we observed myocardial recovery in just under half of patients and maternal death in over a quarter of the enrolled women. Despite its relative rarity yet poor prognosis, PPCM remains a challenge to diagnose, prognosticate, and treat.

Recommendation: The establishment of a nationwide database would be beneficial for both genetic studies and clinical trials in this high-risk population.

2. The lived experiences and caring needs of women diagnosed with cervical cancer: A qualitative study in Dar es Salaam, Tanzania

Authors: Rashid Gosse, Emmanuel Chona, Emanuelli Msengi, Joel Ambikile

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS)

Background: Tanzania is ranked fourth globally in terms of the incidence rate of cervical cancer. Cervical cancer patients undergo significant physical, psychological, and socioeconomic changes. Understanding their lived experiences and caring needs provides valuable insights into various aspects of care, including psychosocial aspects. This area remains under-researched in Tanzania.

Objective: This study aimed to explore the lived experiences and caring needs of cervical cancer patients at the Ocean Road Cancer Institute (ORCI).

Methodology: A qualitative descriptive study was conducted among cervical cancer patients at ORCI in Dar es Salaam, Tanzania. Twelve cervical cancer patients were purposively sampled, and saturation guided sample size determination. Data was collected through in-depth interviews using a semi-structured interview guide, which was analyzed using a conventional content analysis approach.

Results: The lived experiences and caring needs of cervical cancer patients were categorized as disease knowledge gaps, suffering from the disease process, disruption in economic and social activities, lack of emotional support, psychological torture, stigma, family neglect, husband-wife conflicts, and fear of infertility.

Conclusion: The findings show that cervical cancer patients experienced more unrevealed issues that could impact their health status and wellbeing when not well addressed.

Recommendations: The findings provide health professionals with vital insights into the life experiences and caring needs of cervical cancer patients and call for an urgent response from

potential stakeholders to develop and implement comprehensive and culturally consonant approaches to providing care to cervical cancer patients. Also, there is a need to enhance the primary health care system to address the various aspects of care for patients with cervical cancer.

3. Incidence and factors associated with neuropsychiatric manifestations at one-month following traumatic brain injury among patients admitted at referral hospitals in Dodoma, Tanzania.

Author: Suluma Aslan, Azan Nyundo.

Affiliation: University of Dodoma, Tanzania Institute of Mental Health, Benjamin Mkapa Hospital.

Background: Traumatic brain injury (TBI) is a global health concern, with high incidence in Africa and LMICs, affecting 27-69 million annually. Neuropsychiatric disorders following TBI; depression, apathy, and PTSD, mania, cognitive impairment, significantly impact outcomes. This study's rarity in Africa underscores its importance in uncovering modifiable risk factors for intervention strategies.

Objective: To determine the one-month incidence and factors associated with post-TBI neuropsychiatric manifestations in referral hospitals in Dodoma, Tanzania.

Methodology: This prospective observational study enrolled 121 patients with moderate to severe TBI at referral hospitals in Dodoma. Baseline data encompassed socio-demographics, clinical, and injury characteristics. At one-month, psychiatric manifestations were assessed using standardized tools, including PHQ-9(for depression), GAD-7(Anxiety), YMRS (mania), AES (apathy), PANNS (psychosis), PCL-5(PTSD), and MoCA (cognitive function). Univariate and multivariable logistic regression analyses were employed to identify risk factors for post-TBI neuropsychiatric manifestations.

Results: Of 121 patients, (95.87%) were males, with a population's mean age of 31.04 ± 10.41 , 38.02% had a history of substance use, and 76.15% were due to motor traffic accidents. 76.04% had moderate TBI, with over half involving close (54.55%), non-penetrative (54.55%), or blunt injuries (59.59%). The one-month incidence of neuropsychiatric manifestations was 80.58%, with apathy (70.87%) being the most common, followed by cognitive impairment (50.48%), depression (27.18%), mania (24.27%), and PTSD (13.59%). Confusion (AOR: 6.156, 95%CI: 1.755-21.587, $p=0.0045$) and substance use history (AOR: 4.183, 95%CI: 1.013-17.264, $p=0.0479$) were significantly associated with any neuropsychiatric manifestation.

Conclusion: This study highlights a high incidence of neuropsychiatric manifestations in the acute phase of TBI, emphasizing the critical need for early identification and prompt management to prevent complications

Recommendation: Confusion and substance use history are identifiable and manageable risk factors; hence early identification through early assessment can prevent complications.

4. Assessment of cervical cancer ‘screen and treat’ approach among HIV positive women in the Southern Highland Zone of Tanzania.

Authors: Restituta Minde, Gwamaka Mwaisanga, Shabani Hamada, Glory David, Paschal Kiliba.

Affiliation: Henry M. Jackson Foundation Medical Research International -Tanzania (HJFMRI-T).

Background: In 2020, about 342,000 women died from cervical cancer worldwide; 90% occurred in low and middle-income countries with HIV-positive women being at a six times higher risk. There is limited evidence of the screen-and-treat approach in reducing cervical cancer incidence and mortality among HIV-positive women. This analysis aimed at assessing the ‘screen-and-treat’ approach among HIV-positive women in the Southern Highland Zone of Tanzania

Objective: Assessment of cervical cancer ‘screen and treat’ approach among HIV positive women in the Southern Highland Zone of Tanzania.

Methodology: This retrospective study was conducted at PEPFAR-supported facilities in four regions of the SHL where cervical cancer screening is done by visual inspection of the cervix after application of 4% acetic acid and treatment by Cryotherapy and loop electrosurgical excision procedure (LEEP) from 2018 to 2022. Secondary data collected from cervical cancer screening program (CECAP) registers were analyzed using descriptive statistics methods. All HIV-positive women screened for cervical cancer were included in the analysis.

Results: The number of HIV-positive women found to have cervical lesion(s) and treated increased rapidly each year from 55 (80%) in 2018 to 547 (94%) in 2022 with respect to the increase in number of women screened, 3174 in 2018 to 45976 in 2022 mainly due to abundance of resources in cervical cancer screen and treat approach from PEPFAR from 2018. Five years cumulatively, 2284 (1.6%) HIV-positive women were found to have cervical lesion(s) using VIA, among those with lesion(s), 2038 (89.2%) received treatment on site; most patients 1,977 (97%) were treated using cryotherapy.

Conclusion: As a result of resource augmentation, cervical cancer screening and treatment have become widely available.

Recommendation: Services for cervical cancer screening and treatment need to be made available in more rural communities.

5. Association between fetal hemoglobin parameters and disease severity in sickle cell disease patients in Tanzania

Author: Hadiya Haji, Florence Urio, Siana Nkya, Benson Kidenya, Agnes Jonathan, Emmanuel Balandya.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: In sickle cell disease, high fetal hemoglobin (Hb F) levels are associated with less severe course of the disease. However, some patients with high Hb F levels can still have severe symptoms. This diversity can be attributed to the concentration of Hb F per F cell. Therefore, it is hypothesized that the amount of Hb F/ F cell is crucial in determining the clinical outcome of SCD rather than the overall level of Hb F and F cell number.

Objective: To determine the association between fetal hemoglobin parameters and disease severity in SCD patients in Tanzania.

Methodology: A retrospective cohort study involved secondary data analysis of 92 SCD individuals aged 6 years and above who were at their steady state and not on hydroxyurea, conducted at the Muhimbili University of Health and Allied Sciences between September 2022 and February 2023. This study was nested within the ongoing parental study, titled ""Comparative study of Sickle Cell Disease (SCD) modifiers in Ghana, Nigeria and Tanzania; investigation of fetal hemoglobin parameters and clinical manifestation"". Hematological and social demographic data were obtained from Sickle Pan-African Research Consortium (SPARCO) Tanzania registry and Hb F/F cell was calculated by the formula; $\text{Hb F/ F cell} = (\text{Hb F\%} \times \text{MCH pg}) / \text{F cell\%}$. STATA version 15 was used for analysis, categorical variables were presented as proportion and continuous variables were presented as median and IQR. Mann Whitney test was used to compare Hb F parameters among age and sex, and the association of Hb F parameters and termination events and recurrent events was examined using univariable binary logistic regression and univariable ordinal logistic regression respectively. A p-value of < 0.05 was considered statistically significant.

Results: Among the 92 SCD patients, 53(57.4%) were below 18 years, the median age was 16 (IQR: 10, 21) and male to female ratio was 1:1. The levels of Hb F parameters were generally low, below the cut of points of high levels used in this study with median levels of 4.45% (IQR: 2.33, 7.15), 21.60% (IQR: 13.20, 32.45), and 5.63pg (IQR: Males had significantly higher levels of Hb F/F cell compared to females, with a median of 6.44pg (IQR: 4.3, 9.5) and 5.34pg (IQR: 3.5, 6.5) respectively (P=0.004). Also, we observed that as the percentage of Hb F and F cells increased, there was a significant reduction in the risk of receiving multiple blood transfusions (P=0.016, 95% CI: 0.802-0.969) and (P=0.02, 95% CI: 0.947-0.995) respectively. However, Hb F/F cell level had no significant association with disease severity."

Conclusion: Hb F and F cells level remain a significant predictor of sickle cell events (blood transfusion) while Hb F/F cell showed no statistically significant association with disease severity in SCD patients in this cohort.

Recommendation: Conducting an extensive research study to assess the relationship of the high level of Hb F/F cell (≥ 10 pg) on disease outcomes, as well as its potential as a predictor of severe disease in sickle cell anemia. Utilize a prospective study design to collect data over a specific period, allowing for examination of continuous trends and assessment of connections between variables.

6. Understanding the prevalence and impacts of arthritis in Tanzania: Translating research findings for policy and public.

Authors: Sanjura M. Biswaro, Emma Laurie, Nateiya M. Yongolo, Jennika Virhia, Stefanie J Krauth, Elizabeth F. Msoka-Bright, Christopher Bunn, Jo Halliday Richard Walker, Clive Kelly, Kajiru G Kilonzo, Emma McIntosh and Blandina T. Mmbaga on behalf of the NIHR Global Health Research Group on Musculoskeletal Disorders and Arthritis.

Affiliation: Kilimanjaro Clinical Research Institute, Kilimanjaro Christian Medical Centre, Institute of Health and Well-being, University of Glasgow, UK, Institute of Biodiversity, Animal Health and Comparative Medicine, University of Glasgow, UK, Newcastle University, UK, Institute of Infection, Immunity and Inflammation, University of Glasgow, UK, Kilimanjaro Christian Medical University College.

Background: Clinical problems affecting the MSK system are common among patients attending hospitals in Tanzania, but formal diagnosis is low. More information is needed on how joint pain is understood, its prevalence, and the economic, social and quality of life impacts to direct improved support for MSK disorders within NCD policies.

Objective: Offers interdisciplinary insights on joint pain in Tanzania, examining impacts and translating research findings for policy.

Methodology: Providing an overview of the project-wide findings, we draw upon data derived within clinics and community settings in Northern Tanzania. Presenting this interdisciplinary study, we draw a cross qualitative and quantitative data, including 2,500 household surveys with clinical screening, 8,000 patients' hospital files analysis, and 48 in-depth interviews to provide insight into the prevalence and impacts of joint pain in Tanzania.

Results: Community screening found that 1 in 17 people had joint pain and 1 in 20 had degenerative 'wear and tear' arthritis. Despite this community prevalence, hospital record analysis found that a precise diagnosis of arthritis was rarely recorded. Arthritis has significant economic impacts on people experiencing arthritis who are unable to undertake essential self-care and reliant on others for help and assistance. Reflections on the experience of community- and policy-level workshops highlight the ethical imperative of translating project findings to diverse audiences.

Conclusion: MSK disorders need greater recognition within NCD policies.

Recommendation: Awareness, skills and referral pathways guidelines from primary care is essential to reduce MSK disorders impact.

SUBTHEME: NUTRITION AND NCDS

1. A brief review on adoption of nutrient profile model: Experience from African countries and progress made in Tanzania.

Authors: Adeline Munuo Hassan, Rusobya Hawa Mpunj, Grace Moshi, Stephanie Kaaya, Neema Kileo, Hawa Gembe, Maria Ngilisho, Khadija Omar, Akwilina Mwanri.

Affiliation: Tanzania Food and Nutrition Centre (TFNC), Muhimbili University of Health and Allied Sciences (MUHAS), Ministry of Health (MOH), Tanzania Bureau of Standards (TBS), World Health Organization (WHO) Tanzania Office, Zanzibar Food and Drug Agency (ZFDA, Sokoine University of Agriculture (SUA).

Background: Childhood and adolescent obesity is a growing concern globally, especially in Sub-Saharan Africa leading to a dual malnutrition burden. Marketing unhealthy foods with poor nutritional labeling worsens this crisis. Even though, the WHO actively aids countries through evidence-based strategies and policies, including nutrient profiling to restrict unhealthy food marketing for children; Tanzania is still lacking laws regulating the marketing of unhealthy foods,

Objective: To explore the experience from five African countries and progress made in Tanzania towards adoption of the nutrient profiling model

Methodology: The study involved a scoping review of literature, protocols, and guidelines related to the development and adoption of the nutrition profile model from African countries including South Africa, Ghana, Nigeria, Kenya, and Uganda. A questionnaire was developed to collect information from identified food categories in selected regions.

Results: In 2019, these African countries made strides in enhancing food marketing and labelling regulations. South Africa focused on drafting regulations for nutrient profiling, while Ghana's FDA developed nutrient profiling guidelines. Nigeria's NAFDAC expressed interest in adopting nutrient profiling, Kenya explored its implementation, and Uganda considered using nutrient profiles for food regulation and marketing. Tanzania is in the process of adopting the nutrient profiling model, A questionnaire was developed to collect data on packaged and unpackaged foods containing fats, sugars, and salt, as these are known as contributors to overweight and obesity. The categorization of foods was based on the eighteen AFRO Nutrient Profile Model categories.

Conclusion: These efforts demonstrate a collective commitment to improving public health through enhanced food marketing and labeling regulations. Nutrient profiling models are valuable tools, but their implementation success depends on a comprehensive approach involving

education, public awareness campaigns, policy initiatives, stakeholders' willingness and supportive environment.

Recommendation: Various stakeholders, including governments, the food industry, healthcare professionals, and consumers, must collaborate to ensure the effective adoption and implementation of nutrient profiling systems that guide individuals toward healthier food choices.

2. Quality of life and nutritional status of people living with HIV/AIDS in Buea and Limbe Health Districts in Cameroon.

Authors: Nkengfua Samuel, Ebot Walter Ojong, Ngalame Abigail Lumateh, Moses N. Ngemen.

Affiliation: University of Buea, Cameroon.

Background: There is evidence that the nutritional status (NS) and quality of life (QoL) of People Living with HIV/AIDS (PLHIV) play a significant role in ART retention, treatment adherence, and survival. As a result, NS and QoL of PLHIV are becoming increasingly important for policymakers. In Cameroon, there is a dearth in data on the association between QoL and the NS of PLHIV, hence the need for this study.

Objective: To assess the association between quality of life and the nutritional status of PLHIV in Buea and Limbe Health Districts.

Methodology: This study was a hospital-based cross-sectional study. The study period ran for 6 months, from December 2022 to June 2023. Body Mass Index (BMI) was used as an indicator for NS. Sociodemographic factors, HIV related factors, weight, height and WHOQOL-HIV BREF answers were collected from the participants. Descriptive analysis was used to estimate the prevalence of malnutrition and describe the QoL of participants. Logistic regression was used to assess the association between independent variables with quality of life and nutritional status, and equally BMI and QoL overall score.

Results: We recruited 500 participants aged between 23 - 73 years. It was found that 184 (36.8%) participants had normal weight, 40 (8.0%) participants were underweight, 165 (33.0%) were overweight and 111 (22.2%) were obese. Overall QoL was poor (51%). There was a significant association between being single (AOR= 0.30 [95%CI: 0.16-0.55], p=0.001), female (AOR= 2.09 [95%CI:1.29-3.06], p=0.003), being in the lower wealth quintile (AOR= 2.14 [95%CI: 1.26-3.6], p=0.005) and having a poor quality of life. There was a significant association between ending school at the primary level (AOR= 2.80 [95%CI: 2.01-3.35], p=0.002), staying alone (AOR=3.12

[95%CI:2.26-4.23], $p=0.001$), having a detectable viral load (AOR= 2.12 [95%CI:1.23-2.72], $p=0.034$), being in stage III and IV HIV ($p=0.031$) and being underweight. Also, there was a significant association between being adherent to ART (AOR= 2.23 [95%CI:1.67-2.92], $p=0.030$), having no viral load detected (AOR= 1.51 [95%CI:1.01-2.60], $p=0.043$) and having a good quality of life. Our study revealed a very highly significant association between quality of life and nutritional status ($p<0.001$).

Conclusion: Malnutrition is common in PLHIV, with a strong link to quality of life. Providers should prioritize monitoring, support, counseling, and ART adherence to enhance well-being.

Recommendation: Prioritize assessments, counseling, supplements, education, and referrals for improved nutrition and quality of life in HIV. Further research needed.

3. Adherence to Food Labeling Standards by Local and Imported Snacks Sold in Dar es Salaam.

Authors: Hassan J Rusobya, Zuhura Kimera, Frederick Mashili.

Affiliation: Muhimbili University of Health and Allied Science (MUHAS).

Background: Urbanization has had a profound impact on food culture, leading to a notable rise in the consumption of unhealthy foods attributed to a growing prevalence of non-communicable diseases (NCDs). In response to this concerning trend, food labeling standards have been introduced and enforced for all food products in the supply chain to empower consumers to make informed choices. Despite the vital role of food labeling on health, data on food labeling

Objective: To evaluate the compliance of local and imported pre-packaged snacks with Tanzania and International (Codex) labeling standards.

Methodology: A cross-sectional study was done involving a total of 180 systematically selected snacks that were collected from various wards around Dar es Salaam. These snacks were classified based on their adherence levels to the labeling standards. Additionally, factors affecting the level of adherence to both local and international labeling standards were studied. Data were analyzed using SPSS v23. Bivariable and multivariable analyses were conducted, with the level of significance set at a p-value of 0.05.

Results: The majority of pre-packaged snacks (67%) demonstrated partial adherence to labeling standards. Significantly more snack products (45%) adhered fully to local (Tanzania) as compared to International (Codex) standards (33%) ($p < 0.001$). Notably, about (53%) of the imported snack

products exhibited the highest proportion of fully adherence, with more than (50%) of the baked and confectionaries snacks having the best adherence to both labeling standards among the snack categories. The majority of products used English language (62%) on their labels with back of pack (59%) being the predominant format used in declaring nutrition information. Furthermore, product category, product origin, and package size were found to be associated with an increased level of adherence to labeling standards (p-value <0.05). Importantly, imported snacks and snacks with medium package sizes demonstrated a significant association with the level of adherence.

Conclusion: Overall, prepackaged snacks did not fully adhere to both local and international food labeling standards, with locally produced snacks showing the most inadequacies. Infrequent use of Swahili language on the labels and the predominance of back-of-the-pack over the recommended front-of-the-pack nutritional labeling point to consumers' difficulties in understanding food labeling. These findings emphasize the need for consistent, clear, complete, accurate, and culturally acceptable labeling standards in order for consumers to make informed purchasing decisions.

Recommendation: The Tanzanian Bureau of Standards should enhance their quality control methods to monitor and enforce labeling requirements compliance including ensuring that only the official languages are used on the label. ii. Manufacturers should be encouraged to adopt Front-of-Pack (FOPL) labeling formats such as color code, traffic light, and health star coding. FOPL labeling can help consumers quickly understand the nutritional content of snacks and make healthier choices. iii. Encourage further research on snack labeling compliance, consumer preferences and effects of poor labeling to continuously improve labeling standards and adapt them to evolving consumer needs and trends.

4. Diet quality of children of age 6 to 23 months in Mvomero district, Tanzania: Does maternal education matter?

Authors: Akwilina Wendelin Mwanri, Suleiman Rashid, Theresia Assenga, Dismas Mwaseba, Fulgence Mishili and Susan Nchimbi-Msolla.

Affiliation: Sokoine University of Agriculture (SUA).

Background: Malnutrition among Tanzanian children under five years has been persistently high especially in the rural areas. There are limited studies that assessed diet quality of the children and most of them did not consider consumption of foods that are known to reduce the risk for diet related non-communicable diseases and those that increase the risk.

Objective: This study aimed to assess diet quality and associated factors among rural children of age 6 to 23 months in Mvomero district

Methodology: A cross-sectional study involved 518 mother/caretaker child pairs. Participants were randomly selected from a list of householders with children of age 6 to 23 months. Children who stayed in the village for at least three months were included. Face to face interviews were used to collect information on demographic characteristics, food purchasing and consumption behaviors using structured questions and global diet quality questionnaire. Regression analysis was used to identify factors associated with dietary diversity, NCD-risk and NCD-protect scores.

Results: Many of the respondents (46%) aged below 25 years; 66% owned mobile phones and 42% had no formal education. Most of the households (45%) spent more than 50% of their income on food. Only about one in five children met the medium dietary diversity. Although almost all households kept chicken, only 3% of the children consumed eggs; 30% did not consume either fruits or vegetables and 27% consumed deep fried foods on a day preceding the survey. The mean NCD-protect score was 2.3 ± 1.5 and for the NCD-risk scores was 0.6 ± 0.9 . Household income but not education of the mother was associated with NCD-risk, NCD protect and medium dietary diversity scores.

Conclusion: There is low diversified diet, low consumption NCD-risk and NCD-protect food groups for the rural children

Recommendation: Promotion of consumption of diversified foods among children is important while choosing the correct messages and appropriate media given the literacy level of the studied mothers.

5. A Novel approach to malnutrition in childhood cancer patients - using fresh whole food supplements.

Authors: Anna Henrh. Primus Ewald, Miraji Omary, Michelle Walters; Elena Ladas, Trish Scanlan.

Affiliation: Tumaini la Maisha; Muhimbili National Hospital, Muhimbili University for Health and Allied Sciences, Columbia University NYC/International Initiative for Pediatrics and Nutrition IIPAN.

Background: About 450,000 Tanzanian children are malnourished by the WHO definition; with over 100,000 children with SAM and a stunting rate of 30% overall. Children with cancer are even more likely to have malnutrition and those who are more likely to die of their oncology condition.

Objective: To assess the nutrition program designed by Tumaini la Maisha/IIPAN based at MNH including the interventions used and the level of nutrition at presentation; and the outcome of these children over time.

Methodology: The TLM/IIPAN nutrition program was assessed by reviewing the team involved, the daily products created; reviewing the numbers of children enrolled in the program from 1st January -31st June 2023 (6months) the presenting nutritional status of each child supported by this program; and the nutritional outcomes of these children.

Result: "The TLM nutritional program comprises of a team of one nutritionist, a nutrition assistant, and 2 kitchen staff creating fresh products. The fresh whole food locally sourced nutritional products include: a fruit and nut-based smoothie (60L daily), special porridge (4kg/day), Coconut based Foundation 'F100' (10L daily) and protein balls (20 daily). 215 children were enrolled at the MNH oncology ward during the study time. All children were offered some nutritional supplementation regardless of their nutritional status - daily porridge and smoothies. Malnourished children were offered personalized national prescriptions including a combination of all products mentioned above plus eggs and extra hospital food from the MNH kitchen. 17 children were diagnosed with SAM and 17 had MAM at diagnosis. Of these 6 were palliative at diagnosis and although offered supplementation were not followed long-term to review their nutritional progress. 3 children died in induction of late-stage disease. 25 of the children were curative and all recovered appropriate nutrition, For MAM children within 1 month and for SAM children within 4-12 weeks. 4 children were overweight at presentation (unrelated to tumor size)."

Conclusion: Locally sourced whole food supplements are an appropriate and cost-effective means of treating malnutrition in children with cancer.

Recommendation: We would recommend fresh whole food local sourced supplements for other malnourished children - even without a cancer diagnosis.

6. Analysis of correlated outcomes of anthropometric measurements for under-five children in Tanzania.

Authors: Edgar Pallangyo, Amina Msengwa.

Affiliation: Nyang'hwale District Council.

Background: According to TDHS reports, the pattern indicates that stunting has dropped from 38 percent in 2004/2005 to 35 percent in 2010 (3 percentage points). Wasting increased a bit

from 3 percent in 2004-2005 to 4 percent in 2010 among children under the age of five, while underweight shrunk from 22 percent in 2004-2005 to 21 percent in 2010.

Objective: The study aimed at applying Multivariate Generalized Linear Mixed Models to examine factors associated with correlation outcomes, in particular, anthropometric measurements among under-five children in Tanzania.

Methodology: Three anthropometric measurements: Weight for Age, Height for Age, and Weight for Height among under-five children in Tanzania were jointly modelled to identify common factors associated with childhood malnutrition. A total of 9,052 children with valid measures of height and weight were processed and analyzed.

Results: The results indicate that Weight for Age was correlated with Height for Age ($p\text{-value} < 2e-16$) and Weight for Height ($p\text{-value} < 2e-16$). The Multivariate Ordered Logit Model has lower AIC=53213.92 and BIC=52727.95, indicating better model fit than the Multivariate Ordered Probit Model. In Tanzania, the age of the child, birth order, mother education level, child gender, mother working status, wealth index, marital status, and mother body mass index are important determinants of malnutrition among children under the age of five. Moreover, the common factors were child's age, Birth order, Mother's education attainment, child's sex, Mother working status, wealth index, Marital status and Mother's Body Mass Index

Conclusion: As a result, emphasis should be placed on analyzing correlated health outcomes in order to draw conclusions about the factors that may have a mutual effect on anthropometric measurements.

Recommendation: We recommend that interventions to control undernutrition among children under-five years should be focused on modeling the combination of nutritional outcomes for enabling the drawing of conclusions concerning unmeasured factors that may have a mutual impact on the correlated variables Anthropometric measurements.

SUBTHEME: NCD EMERGENCY PREPAREDNESS

1. Energy drinks consumption is potentially fatal: Lessons from a case of acute myocardial infarction.

Authors: Pedro Pallangyo, Smita V. Bhalia, Makrina Komba, Zabella S. Mkojera, Happiness J. Swai, Henry A. Mayala, Peter R. Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI)

Background: In this era where energy drinks consumption is increasingly becoming popular in our societies, there is mounting evidence suggesting an association between such beverages and acute coronary events. Excessive intake of such drinks is realized to have a detrimental effect on platelet and endothelial functions with resultant hypercoagulable state and consequently increased risk of thrombosis.

Objective: We present a case of acute myocardial infarction following the consumption of energy drink in a 28-year-old male of African origin.

Case: A 28-year-old man of African origin presented to the emergency department with an 8-hour history of retrosternal chest pain. His symptoms started 4 hours after consuming 5 cans (1,250 cc) of an energy drink whose principal ingredients are caffeine, taurine, sugar and glucuronolactone. His past medical, surgical and family history was unremarkable, and he had no apparent cardiovascular risk factor. Physical examination was unremarkable, however, electrocardiogram and echocardiogram showed features of anterolateral myocardial infarction (STEMI). Catheterization confirmed a 100% thrombotic occlusion of the proximal Left Anterior Descending (LAD) artery and revascularization with a drug-eluting stent was successful.

Conclusion: Sudden onset of chest pain following energy drink consumption should raise an index of suspicion for acute coronary syndrome. With the preponderance of data suggesting increased incidence of energy drink-associated coronary events, it is prudent to advocate a limited consumption of such beverages.

2. NCDs emergency preparedness: Knowledge, attitude, practice and determinants towards community health workers' involvement in ncDs prevention and control in Northern Tanzania.

Author: Harold L. Mashauri, Cornel M. Angolile, Florida J. Muro.

Affiliation: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical Centre.

Background: Globally, NCDs are the leading cause of preventable morbidity and premature mortality. In sub-Saharan Africa, NCDs will be the leading cause of mortality by 2030. In 2018, WHO reported that NCDs accounted for about 33% of all deaths in Tanzania. In developing countries like Tanzania, CHWs play an extensive role in the prevention and control of communicable diseases, however, their simultaneous involvement towards NCDs is limited.

Objective: To determine knowledge, attitude, practice, and determinants towards CHWs' involvement in NCD prevention and Control in Northern Tanzania.

Methodology: This was a community-based analytical cross-sectional study in Northern Tanzania enrolling 191 CHWs. Frequencies and percentages, chi-square and logistic regression tests were used to summarize categorical variables and determinants of CHWs involvement towards NCDs prevention and control respectively using SPSS.

Results: The majority of participants had good knowledge (92.1%) and favorable attitude (100%). More than half (63.4%) were involved in NCD prevention and control programs of which only 26.7% and 41.4% reported to have been involved in NCDs screening and community mobilization programs respectively. Only 36.1% and 46.1% reported having access to NCDs screening tools and having attended either a formal NCD seminar or training respectively. Trained to be a CHW, frequency of home visits per week, involvement confidence, attendance of formal seminars or training on NCDs and accessibility of tools for NCDs screening were determinants of CHWs involvement in NCDs prevention and control.

Conclusion: Despite the vital role of CHWs towards NCDs prevention and control, their engagement in NCD screening and community mobilization is still low in Northern Tanzania.

Recommendation: Professional training among in-service and new enrolled CHWs, encouragement of weekly home visits and NCDs' Capacity building programs in term of skills and accessibility of screening tools should be implemented among CHWs to enhance their involvement in NCDs prevention and control.

3. Thrombolysis as part of acute STEMI care: a nation-wide survey from Tanzania.

Authors: Nakigunda Kiroga, Khuzeima Khanbhai, Peter Kisenge, Mzuma Mzuma, George Longopa, Tatizo Waane, Tulizo Shemu, Smita Bhalia, Yona Gandye, Honoratha Maucky, Pedro Pallangyo, Mazen Albaghdadi.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI).

Background: Cardiovascular diseases are the leading cause of death worldwide, contributing to one third of all global death, with majority attributed to acute coronary syndrome (ACS). Revascularization remains the mainstay treatment for patients with acute coronary syndrome (ACS). The growing burden of ACS in sub-Saharan countries is attributed to the limited access of revascularization modalities and delays in referral system.

Objective: This study aimed at evaluating the availability of diagnostic equipment and thrombolytics in referral hospitals in Tanzania.

Methodology: This was a nation-wide survey involving sixty-six facilities of five referral northern, eastern, southern, western and central zones of Tanzania. We developed a data collection tool based on our objective outcome. A structured google form was created and a link shared through a social media Tanzania STEMI WhatsApp platform group to be filled by the medical doctor in the respective hospital chest pain units. The survey form consists of two sessions; the first session requested information about the country zone, name and department of the facility of the doctor who responded to the tool. The second part of the form contained information about the type of specialist available, the availability of ECG in the facility, knowledge to recognize ACS and availability and type of thrombolysis as well as the referral pathway in a particular facility. Responded had to consent to participate in a survey. Data was extracted from the google documents forms and analyzed using Ms Excel.

Results: The zonal and regional referral hospitals emergency departments exhibited higher responses in the study (36.4% and 26.6% respectively) as compared to southern (15.2%) and central (10.6%) Physicians (34.6%) were the most available doctor cadres to encounter with patients with ACS-STEMI as the first medical contact and an encounter with a cardiologist was rather rare (15.2%). In all these zones, almost all the hospitals (98.5%) reported to have ECG available in their facilities as a diagnostic tool and more than half (86.4%) of the available doctors were able to recognize the ACS-STEMI patterns on ECG. However, thrombolytics were not available in 66.7% of the zonal facilities and the majority of the doctors managed ACS using oral clopidogrel, statins and junior aspirin (66.7%, 65.2% and 71.2% respectively). Tenecteplase, streptokinase and alteplase were minimally used as thrombolytics for ACS (16.7%, 10.6% and 7.5% respectively). In most facilities, the referral system was done using a pre-structured referral letter (62.5%) to a tertiary facility where revascularization would take place and more than three quarter of referrals (72.7%) took more than 90 minutes from first medical contact to balloon.

Conclusion: This survey revealed a gap in STEMI care in the country in terms of availability of thrombolytics and timely referral system. This is a call for the need to involve the stakeholders into improving a STEMI care pathway in the country.

Recommendation: A constant and affordable timely availability of thrombolytics is vital into improving morbidity and preventing mortality in patients with STEMI.

4. Tumor lysis syndrome associated risk factors and outcomes in patients with leukemia and lymphoma in Tanzania.

Authors: Abdu Hussein Mogella, Ahlam Nasser, Koga Luhulla, Neil Dunavin.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Tumor lysis syndrome (TLS) is a metabolic disorder that can develop spontaneously or after initiation of anticancer treatment for a particular malignancy. It occurs when intracellular contents including uric acid and electrolytes are released from inside the cells into the bloodstream causing serum electrolyte derangements. TLS is common in patients with hematologic malignancies, mostly with leukemia and lymphoma.

Objective: To determine the factors associated with tumor lysis syndrome and overall survival among patients with leukemia and lymphoma.

Methodology: A prospective cohort study was conducted at Muhimbili National Hospital and Ocean Road Cancer Institute from September 2022 to April 2023. A total of 165 participants above one year of age diagnosed with leukemia and lymphoma were studied. We collected participants' clinical information and a sample of venous blood to assess serum electrolytes, creatinine, uric acid, and Lactate Dehydrogenase (LDH) on ARCHITECT PLUS and blood count using CELL DYN RUBY. Participants were monitored for 4 days then those who developed tumor lysis syndrome were further followed up for 30 days to determine their survival. Data analysis was done using SPSS version 25 whereby univalent and multivalent analysis was done to assess the risk factors for developing TLS and a P-value of <0.005 was considered to be statistically significant. The Kaplan Meier method was employed for the assessment of the survival rate.

Results: The study included 165 participants among those, 91 (57%) were males and 74 (43%) females and the median age was 23 (8,50) years. The overall incidence of tumor lysis syndrome was 23%. The most frequent laboratory abnormalities were hyperuricemia ($\geq 0.475\text{mmol/L}$) 30.9% and hypocalcemia ($\geq 1.75\text{mmol/L}$) 23.6% and the most observed clinical feature of TLS was renal

insufficiency (creatinine ≥ 165 micromole/L) in 7.1% of the participants. High white blood cell count ($\geq 50 \times 10^9/L$) was significantly associated with TLS with the aRR 2.33 (1.14 - 4.73) and a P value of 0.02. Cumulative survival rates progressively decreased from 86.8% on day 10 up to 73.7% at the end of follow-up. The overall survival rate was 73.7% at the end of the follow-up.

Conclusion: The overall incidence of tumor lysis syndrome among patients with leukemia and lymphoma was moderately high. Many participants with TLS presented with high white blood cell count ($\geq 50 \times 10^9/L$), older age, and had a diagnosis of leukemia. Cumulative survival rates progressively decreased in the first 10 days of diagnosis and treatment.

Recommendation: We recommend prophylactic measures and close monitoring of patients with leukemia and lymphoma presenting with high white cell count, elevated serum creatinine and abnormal electrolytes levels.

5. Prevalence of prostate cancer and its Correlation with PSA among African men in Northern Tanzania.

Authors: Bartholomeo Nicholas Ngowi, Alex Mremi, Orgeness Jasper Mbwambo, Mshangama Juma Seif, Modesta P Mitao, Mramba Nyindo, Kien Alfred Mteta, Blandina Theophil Mmbaga.

Affiliation: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical Centre, Kilimanjaro Clinical Research Institute.

Background: The critical PSA cut-off of 4 ng/mL, commonly used for prostate cancer (Pca) screening, was questioned because it originated from non-African populations with assumed higher normal PSA levels.

Objective: The study aimed to determine the correlation between prostate-specific antigen (PSA) levels and prostate cancer (Pca) diagnosis in a Northern Tanzanian community.

Methodology: From May to October 2022, a community based Pca screening included men aged ≥ 40 years. PSA levels were measured from venous blood samples, and those with PSA > 4 ng/mL were invited for a biopsy. Independent pathologists evaluated biopsy samples. PSA levels were categorized as $> 4-10$, $> 10-20$, $> 20-50$, $50-100$, and > 100 ng/mL. Each PSA category was assessed for its correlation with positive biopsy, sensitivity, specificity, positive predictive value, negative predictive value, and area under the receiver-operating characteristic (AuROC) curve. Significance was set at $p < 0.05$.

Results: The study involved 6164 African men with an average age of 60 ± 11 years. Among them, 912 (14.8%) had PSA >4 ng/mL, 581 (63.7%) underwent biopsy, and 179 (30.8%) were diagnosed with Pca. High Gleason scores (8-9) were present in 46 (25.7%) of cases. Over 2/3 (64.7%) of participants with PSA >20 ng/mL had prostate cancer, reaching nearly 100% at PSA >100 ng/mL. A positive correlation between PSA levels and Pca as well as aggressive disease was observed. The optimal PSA cut-off was found at >10 ng/mL. PSA demonstrated 84% overall ability to distinguish Pca from non-cancer cases and a 71% ability to differentiate aggressive from non-aggressive disease.

Conclusion: Thirty percent of biopsied participants had prostate cancer, indicating the need for control measures. PSA showed excellent potential in distinguishing prostate cancer among African men aged ≥ 40 year.

Recommendation: In cases where biopsy is impractical, treatment can be initiated for those with PSA levels >100 ng/mL. This study underscores the importance of considering population-specific PSA thresholds for prostate cancer screening.

6. Clinical epidemiology of cervical cancer: An institutional experience.

Author: Majani Edward.

Affiliation: St. Francis University College of Health and Allied Sciences (SFUCHAS).

Background: Cervical cancer remains a significant global health burden. It is the fourth most common cancer among women globally, with an estimated 570,000 new cases and 311,000 deaths annually. However, most cervical cancer deaths occur in low and middle-income countries, where access to screening and treatment is limited.

Objective: This retrospective analysis aimed to investigate the clinical epidemiology profile of cervical cancer patients attending Good Samaritan Cancer Hospital.

Methodology: A comprehensive retrospective study was conducted, utilizing medical records from patients diagnosed with cervical cancer at Good Samaritan Cancer Hospital from 2020 to 2023. Data were analyzed using descriptive statistics.

Results: The findings revealed that cervical cancer constituted a significant proportion of the total cancer cases, contributing to 36% of the diagnosed cases at the hospital during the study period. The mean age of the study group was 55.14. Predominantly clinical presentation was per vaginal bleeding (77.1%) followed by per vaginal discharge (50%). Among the histopathological subtypes,

squamous cell carcinoma was the most common (77.9%), followed by adenocarcinoma (11.2%). Interestingly, HIV serotype association with cervical cancer was not widely documented by doctors and often not included in their reports, despite its potential impact on the development of such cancer. Furthermore, the study identified a notable geographic trend, with the majority of cases originating from the Kilombero region (47.2%)

Conclusion: The retrospective analysis provided valuable insights into the clinical, pathological, and epidemiological aspects of cervical cancer among patients attending Good Samaritan Cancer Hospital

Recommendation: Therefore, we recommend the importance of early detection and emphasize the need for increased awareness of HIV serotype association with cervical cancer. Furthermore, the findings suggest the necessity of targeted interventions and healthcare campaigns in regions like Kilombero, focusing on improving healthcare access and education. By understanding the complex profile of cervical cancer patients, healthcare providers can implement more effective strategies to combat this disease and improve patient outcomes.

SUBTHEME: NCD INTEGRATION HEALTH SYSTEM CHALLENGES AND OPPORTUNITIES FOR UNIVERSAL HEALTH COVERAGE

1. How Non-Communicable Disease organizations fail in managing media relations in Tanzania?

Authors: Exuperius Kachenje, Leon Bahati.

Affiliation: Journalists, Executive Members from the Organization for Awareness on Non-Communicable Diseases (TOANCD).

Background: NCDs are a global issue, but most affected are the Low- and Medium-Income Countries including Tanzania is one of them, as it faces challenges in raising public awareness through media. NGOs in Tanzania, often come across these challenges, which hold back their ability to advocate for policy change and mobilize resources effectively.

Objective: To explore challenges faced by NGOs in dealing with media to raise public awareness.

Methodology: Data collection was done through TOANCD reports of three years and experience of five years dealing with NGOs. The analysis involves 20 NGOs by questioning if they consulted media during the preparation of projects.

Results: The absence of journalism skills in crafting compelling narratives and building relationships with media results in poor media engagement strategies, Poor dissemination of awareness information, and Failure to reach communication strategic goals.

Conclusion: Low engagement of journalists in research works have negative consequences on the reach and utilization of research.

Recommendation: Journalists' consultation and engagement in research is inevitable in increasing the reach and utilization of generated research evidence.

2. Factors hindering integration of care for noncommunicable diseases within HIV care services in Dar es Salaam, Tanzania: The perspectives of health workers and people living with HIV.

Authors: Tausi Haruna, Magreat Somba, Hellen Siril, Gladys Mahiti, Francis August, Anna Minja, David Urassa, Edith Tarimo, Ferdinand Mugusi.

Affiliation: University of Cincinnati (UC)-Ohio, USA & Hubert Kairuki Memorial University (HKMU)-Tanzania.

Background: Global mortality attributed to NCDs occurs in more than 36 million people annually, with 80% of these deaths occurring in resource-limited countries. PLHA studies have reported a higher prevalence of NCDs compared to the general population. Little is known about factors facilitating or hindering the integration of the care and treatment of NCDs within CTC in Tanzania.

Objective: To explore the perceptions of PLHA and health workers on factors influencing the recognition and integration of care for NCDs within CTCs in Dar es Salaam.

Methodology: Inductive content analysis of transcripts from 41 in-depth interviews were conducted with 5 CTC managers (CTC Managers), 9 healthcare providers (DHCP), and 27 people living with HIV (PLHA) attending CTCs and with co-morbid NCDs.

Results: Four themes emerged: the current situation of services available for care and treatment of NCDs among PLHA in CTCs, experiences of PLHA with co-morbid NCDs with access to care and treatment services for NCDs, facilitators of integrating care and treatment of NCDs within CTCs and perceived barriers to accessing and integration of care and treatment of NCDs within CTCs.

Conclusion: There was a positive attitude among PLHA and healthcare workers towards integration of NCD services within CTC services. This was enhanced by perceived benefits inherent to the services. Factors hindering the integration of NCD care and services included limited and inconsistent supplies such as screening equipment, medications; insufficient awareness of NCDs within PLHA; lack of adequate training of healthcare workers on management of NCD and treatment costs and payment systems.

Recommendation: Integration of NCD care and services within CTC is a very important approach to curb the morbidity and mortality related to NCD complications. Government and stakeholders jointly deal with the challenges that hinder the integration of NCD care and services within CTC so that screening and management of NCDs among PLHA's opportunities are not missed.

3. Patient navigation for integrated cervical and breast cancer early detection and linkage to care in Kicukiro district - Rwanda.

Authors: Joseph Mucumbitsi, Theoneste Maniragaba, Naasson Nduwamungu, Julie Piotie.

Affiliation: Rwanda Non-Communicable Disease Alliance.

Background: Cervical and breast cancer pose significant public health challenges globally, with particularly devastating consequences in LMICs such as Rwanda. Limited awareness, cultural stigma, and economic barriers remain some of the major challenges in accessing timely screening and care. This study aimed to improve cervical and breast cancer integrated early detection in Kicukiro District, Rwanda and patients 'linkage to care through a Patient Navigation (PN).

Objective: The PN focused on integrating cervical cancer screening and treatment and early breast cancer detection at the primary healthcare level together with patients' linkage to specialized care.

Methodology: From June 2022 to June 2023, cervical cancer screening and clinical breast examination were conducted at all Health Centers (HCs) and Posts (HPs) in Kicukiro District. Community health workers and local leaders played a pivotal role in raising awareness, mobilizing, and educating residents to attend the screening. Eligibility criteria for cervical cancer included ages 25-49 for HIV-positive women, ages 30-49 for non-HIV women, and ages 50-65 for those never screened before. For breast cancer, screening was open to those aged 30 and above.

Results: A total of 7,729 women underwent cervical cancer screening, with 5.62% (435) identified abnormal cases. Among them, cervical precancerous lesions were treated via thermal ablation (TA) for 430 women and Loop Electrosurgical Excision Procedure (LEEP) for 5 women. Additionally, 14 suspected cervical cancer cases were referred to the RMH, where 7(50%) were confirmed as cervical cancer and 7(50%) as cervical intraepithelial neoplasia (CIN). Among the 13,230 women who received clinical breast examination, 589 had abnormal findings and were referred to DH, where only 27.67% underwent breast ultrasounds and core needle biopsies, and 21 cancer cases were confirmed. Through the PN program, all cancer cases were linked to specialized care within 1-2 weeks after diagnosis.

Lesson learnt: Community-based early detection of cervical and breast cancer, supported by patient navigation, can significantly improve patient compliance and access to cancer care.

Recommendation: We recommend scaling up awareness, prevention, and integrated early detection of cervical and breast cancer across Rwanda, through strengthening the primary healthcare system and patient navigation programs to support timely referral and care for suspected cases.

4. Clinical Breast Examination and FNAC to Improve Breast Cancer Detection in Limited Resource Setting.

Authors: Alex Mremi, Angela Pallangyo, Thadeus Mshana, Onstard Mashauri, Walter Kimario, Gilbert Nkya, Theresia Edward Mwakyembe, Patrick Amsi, Blandina Theophil Mmbaga.

Affiliation: Kilimanjaro Christian Medical Centre, Kilimanjaro Christian Medical University College, Moshi, Kilimanjaro Clinical Research Institute.

Background: Breast cancer (BC) is a prevalent female cancer globally, with disparities in screening, diagnosis, treatment, and survival. In Africa, the majority of women with BC are diagnosed at advanced stages associated with worse outcomes highlighting the need for early detection and screening in resource-constrained settings.

Objective: We aimed to evaluate prevalence and screening results of BC using clinical breast examination (CBE) coupled with fine needle aspiration cytology (FNAC) in resource-constraint setting.

Methodology: Women at risk of developing BC in Kilimanjaro region, Tanzania were invited through public announcements to their primary healthcare facilities. The women received CBE and a questionnaire was used to assess participants' characteristics and screening practices. Detectable lesions were subjected to FNAC, and suspicious lesions underwent confirmatory trucut needle biopsy. Preliminary data from this ongoing BC control program was extracted and analyzed for this study.

Results: A total of 3577 women were screened for BC, their mean age was 47 ± 7.53 years. About a third 1145 (32%) were practicing self-breast examination at least once a month. Of 200 (5.6%) with CBE abnormal findings, 18 (9%) were confirmed to be BC, making the prevalence of BC to be 0.5%. The remaining had benign conditions. The vast majority of participants with BC 13 (72.2%) had early disease stages, and infiltrating ductal carcinoma, NST was the commonest 15 (83.3%) histopathology subtype. Hormonal receptor status determination analysis results indicated that 11 (61.1%) and 7 (38.9%) of BC tumors overexpressed estrogen receptors (ER) and progesterone receptors (PR) respectively, while 7 (38.9%) of the tumors were triple negative.

Conclusion: Our study demonstrates 5.6% of Tanzanian women have abnormal CBE findings with 9% being BC. Nearly three quarters (72.2%) of women with BC were detected in early disease stages.

Recommendation: Organized screening with CBE coupled with FNAC, which is a simple and cost-effective screening method has the potential to improve early detection thus, improve outcomes of BC patients in resource-constraint setting.

5. Prevalence and associated factors of hyperuricemia among chronic kidney disease patients at Muhimbili National Hospital.

Authors: Vaneshwari Bamanja, Pilly Chillo, Paschal Ruggajo.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Chronic Kidney Disease is a global health problem and a significant burden on the patient as well as the health care system. Previous studies from outside Tanzania have shown that the co-existence of hyperuricemia and CKD leads to rapid progression to End-Stage Renal Disease, especially among non-dialyzed CKD patients. However, there is little information on the magnitude and associated factors of hyperuricemia among CKD patients in our setting.

Objective: To determine the prevalence and associated factors of hyperuricemia among CKD patients attending Muhimbili National Hospital (MNH).

Methodology: A cross-sectional study was conducted from August 2022 to January 2023 at the MNH in- and out-patients' nephrology units. Data on socio-demography, clinical characteristics, anthropometric measurements, and laboratory findings were collected. Serum uric acid was considered elevated when it was ≥ 0.42 and ≥ 0.35 mmol/l for males and females respectively. Modified Poisson Regression with univariate and multivariate analysis was used to determine the association between hyperuricemia and the independent variables with statistically significant association from p-value < 0.05 .

Results: In total 380 patients were enrolled. Their mean \pm SD age was 58.0 ± 14.4 years, 56.3% were male, 93.2% were hypertensive, and 36.8% were diabetic. The prevalence of hyperuricemia was 76.8% in the total population. In multivariate analysis age > 45 years (aPR=1.11), male gender (aPR=1.08), being diabetic (aPR=1.11), HIV (aPR=1.17), smoking (aPR=1.12), central obesity (aPR=1.1), uncontrolled hypertension at enrollment (aPR=1.12), increased serum BUN (aPR=1.25) and phosphate (aPR=1.08) were independently associated with hyperuricemia, all $p < 0.05$.

Conclusion: Hyperuricemia is highly prevalent among CKD patients in our setting, and is associated with older age, male gender, being diabetic, HIV, smoking, central obesity, uncontrolled hypertension, increased serum BUN and phosphate.

Recommendation: Multiple modifiable and non-modifiable risk factors have been identified in this study. Management of CKD should include controlling for the modifiable associated factors.

6. The effects of multimorbidity on short-term survival among acute patients admitted in medical wards of Tanzania: A cohort study.

Authors: Ibrahim Simiyu, Nateiya Yongolo, Paul Dark, Felix Limbani, Hendry Sawe, Ben Morton, on behalf of Multilink Consortium.

Affiliation: Liverpool School of Tropical Medicine (LSTM).

Background: The number of people living with more than two chronic conditions, known as multimorbidity, is an increasing public health concern stretching healthcare systems in sub-Saharan Africa. Multimorbidity is associated with an increased risk of premature deaths, healthcare utilization, and impaired quality of life, challenging healthcare systems delivery designed around a single disease.

Objective: To estimate 90 days survival outcomes among acute medical patients admitted to hospital with multimorbidity.

Methodology: A prospective cohort study among acute medical patients admitted at Muhimbili National Hospital between October 2022 to August 2023. Multimorbidity was defined as the presence of two or more chronic conditions among hypertension, diabetes mellitus, HIV and CKD in patients aged ≥ 18 years. Inpatient follow-ups on days 2, 5 and 7 from hospital admission and outpatient on days 30 and 90 were taken to assess progress and outcomes. Survival estimates computed using Kaplan-Meiers and log-rank methods.

Results: Of the 345 patients with multimorbidity in the cohort, 44.1% (152/345) were females, and the mean (\pm SD) age was 57.13 (± 13.8). Hypertension 91.3% (315/345), diabetes mellitus 59.4% (205/345) and CKD 58.2% (201/345) respectively were the most common single chronic conditions. Patient observation time ranged from 2 days to 90 days with 36.5% (126/345) of patients dead, and 33.0% lost to follow-up. Overall, 79.1% (273/345) of the patients were alive at hospital discharge, 66.2% (176/267) at 30 days and 53.2% (34/65) at 90 days respectively. The median survival time was 105 days with 95% CI (78-125%) and there was no significant difference in survival between female and male patients with multimorbidity.

Conclusion: Preliminary findings show that acute patients with multimorbidity have poor short-term survival outcomes

Recommendation: Further research to understand how outcomes for patients with multimorbidity can be improved is required.

SUBTHEME: ROLE OF URBANIZATION MIGRATION CLIMATE CHANGE AND POLLUTION IN NCDs

1. Strengthening regional collaboration in policy, research, and innovation for prevention, surveillance, and management of non-communicable diseases.

Authors: Eunice Shadrack John.

Affiliation: Pan African University (PAU)-Nairobi, Kenya.

Background: NCDs, including cardiovascular diseases, cancer, respiratory disorders, and diabetes, are responsible for a substantial burden of morbidity and mortality worldwide. The complex interplay of various factors, such as urbanization, migration, climate change, and pollution, has been implicated in the rise of NCDs. Understanding these dynamics is crucial for designing effective interventions and policies to mitigate the impact of NCDs.

Objective: The aim of this study was to emphasize the need for regional collaboration to tackle NCDs and explore the specific role of urbanization, migration, climate change, and pollution in contributing to the NCD burden.

Methodology: This study draws upon a comprehensive review of existing literature, policy documents, and research studies that have examined the relationship between NCDs and the sub-themes of urbanization, migration, climate change, and pollution. It synthesizes the available evidence to highlight the key findings and implications for regional collaboration in addressing NCDs.

Results: The review indicates that urbanization, migration, climate change, and pollution exert significant influences on the prevalence and management of NCDs. Urban environments, characterized by sedentary lifestyles, unhealthy diets, and limited access to healthcare, contribute to the NCD burden. Migration patterns can impact health behaviors and access to healthcare services, while climate change and pollution introduce additional risk factors for NCDs.

Conclusion: To effectively prevent, surveil, and manage NCDs, regional collaboration is crucial. By pooling resources, sharing best practices, and coordinating efforts, regions can implement comprehensive policies and strategies to address the unique challenges posed by urbanization, migration, climate change, and pollution. Cross-sectoral collaborations involving healthcare providers, policymakers, researchers, and community organizations are essential.

Recommendations: Integrating NCD prevention and management into urban planning, migration policies, and environmental initiatives is recommended. By prioritizing regional collaboration and addressing the aforementioned sub-themes, significant progress can be made in reducing the burden of NCDs and improving population health.

2. An overview of climate change's impact on non-communicable diseases.

Author: Luco Patson Mwelange.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Climate change is the long-term changes in weather conditions and extreme weather occurrence patterns. Climate change and non-communicable diseases (NCDs) are two of the major risks and challenges of the 21st century. The interdependence of rising environmental risk factors and increasing non-communicable disease (NCD) rates is currently one of the most important topics of discussion among scientists worldwide.

Objective: This study aimed to review climate change's impact on non-communicable diseases.

Methodology: This study was a review of the published evidence. The following published documents were used in the review: Intergovernmental Panel on Climate Change (IPCC), 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability. a comprehensive assessment of the current state of knowledge of the observed impacts and projected health risks of climate change. Understanding linkages between environmental risk factors and non-communicable diseases—A Review and Controlling and preventing climate-sensitive non-communicable diseases in urban sub-Saharan Africa.

Results: A rising number of unfavorable health outcomes, such as non-communicable diseases (NCDs), are caused by climate hazards. Variability in the climate and climate change increases the risk of food insecurity, which increases the risk of sickness, overweight and obesity, undernutrition, and malnutrition overall, particularly in low- and middle-income nations. According to Vos et al. (2020), the number of climate-sensitive diseases worldwide was expected to reach 1,530,630,442 DALYs and 39,503,684 fatalities (69.9% of all yearly deaths) in 2019. With 32.8% of deaths and 15.5% of DALYs, cardiovascular diseases (CVDs) accounted for the greatest share of climate-sensitive conditions among these. It discovered that severe weather and rising temperatures raise morbidity and mortality rates among diabetic patients, particularly those with cardiovascular problems. It is anticipated that exposure to extreme temperatures will affect mental health.

Conclusion: There is an increasing risk of climate change's impact on non-communicable diseases, and developing countries with a low capacity to predict, mitigate, and adapt will be more affected. Since many NCDs that are suffered by populations residing in urban areas of LMICs could be amplified by climate change, environmental health must play a more prominent role in mitigation, adaptation, and communication initiatives. Moreover, the focus on NCD burden needs to be expanded to include environmental risk factors like chemical pollutants, harsh weather, and indoor and ambient air pollution.

Recommendation: Environmental information should be integrated into public health practice and climatic information into the NCDs strategy. There should be an improvement in the adaptation and building of resilience to climate change. Furthermore, awareness should be raised among the healthcare workforce on climate change and non-communicable diseases. Energy efficiency should be improved in the health sector to reduce greenhouse gas emissions as well.

3. Prevalence and risk factors of hypertension among individuals with hydrocele due to lymphatic filariasis in Dar es salaam and Pwani, 2022.

Authors: Sephord Saul Ntibabara, Nsiande Lema, Joel Manyahi, Faraja Lyamuya.

Affiliation: Muhimbili University of Health and Allied Sciences, Tanzania Field Epidemiology and Laboratory Training Program (TFELTP), Ministry of Health-Neglected Tropical Diseases Control Program (NTDCP).

Background: Hypertension (HTN) is a leading cause of premature death worldwide. About 26% of young adults aged 30-49 have hypertension in Tanzania. Patients with lymphatic Filariasis (LF) and developed hydrocele are at high risk of developing HTN due to their physically inactive lives. The pattern of HTN among hydrocele patients is unknown. We analyzed data to determine HTN prevalence and associated factors among hydrocele patients in two coastal regions.

Objective: To determine prevalence of hypertension and its associated factors among individuals with lymphatic filariasis hydrocele in Pwani and Dar-es salaam regions, 2022

Methodology: An analytical cross-sectional study was performed on hydrocele patients due to LF, a pre-surgery screening camp dataset done at Pugu Health Center. Hypertension was defined as systolic BP ≥ 140 mmHg AND diastolic BP ≥ 90 mmHg. A chi-square test was done to determine the significance of the variables. Modified multivariate Poisson regression analysis was performed to determine the association of variables by adjusting for confounders. P-value ≤ 0.05 was statistically considered significant.

Results: Among 494 patients with hydrocele due to LF analyzed, 214 (43.23%) had hypertension. Patients aged 45 years and above had a high risk (adjusted prevalence ratio (APR) 2.30, 95% CI:1.18-4.46) of developing HTN. Being married was associated with HTN as compared to being single (APR 1.81, 95% CI: 1.01-3.30). Obese patients had an increased risk (APR 1.48, 95% CI:1.01-2.19) of developing HTN as compared to those with normal Body Mass Index.

Conclusion: High hypertension prevalence was observed among hydrocele patients. The age of ≥ 45 years, obesity, and being married were independently associated with hypertension.

Recommendation: The Ministry of Health (MOH) to establish an integrated program between Non-Communicable Diseases (NCDs) such as HTN in managing patients with lymphatic filariasis hydrocele. MOH to provide health education on HTN screening, obesity combating, and marriage counseling to LF patients.

4. Assess urban versus rural living location associated with the probability of meeting the WHO movement behavior guidelines in LMICs.

Authors: Jackline Jema Nukurupia, Leyna H. Germana, Pujitha Wickramasinghe, Hong K. Tang, Nyaradzai Munambah, Mohammad S. Hossain, Pham Bang, Guan, Hongyan, Alex Antonio Florindo, Catherine E. Draper, Denise Koh, Adang Suherman, Anthony D. Okely, Mark S. Tremblay, Xanne Janssen, John J. Reilly.

Affiliation: Tanzania Food and Nutrition Centre (TFNC).

Background: Insufficient physical activity, excessive screen time, and short sleep duration may be common globally among young children in low- and middle-income countries (LMICs). However, data on prevalence of meeting World Health Organization 24-hour movement behaviour guidelines among 3–4-year-olds in LMICs are limited, and it is unknown whether urbanization is related to young children's movement behaviors.

Objective: To examine the proportion of 3–4-year-old children from LMICs meeting the WHO Guidelines and to assess whether urban versus rural living location is associated with the probability of meeting the WHO movement behavior guidelines in LMICs.

Methodology: The SUNRISE Study recruited 429, 3–4-year-old child/parent dyads from 10 LMICs. The children wore activPAL accelerometers continuously for at least 48 hours to assess their physical activity and sleep duration. Screen time and time spent restrained were assessed via parent questionnaire. Differences in the prevalence of meeting guidelines between urban and rural dwelling children were examined using chi-square tests.

Results: Physical activity guidelines were met by 17% of children (14% urban vs 18% rural), sleep guidelines by 57% (61% urban vs 54% rural), screen time guidelines by 50% (50% urban vs 50% rural), restrained guidelines by 84% (81% urban vs 86 % rural), and all guidelines combined by 4% (4% urban vs 4% rural). We found no significant differences in meeting the guidelines between urban and rural areas.

Conclusion: Only a small proportion of children in both rural and urban settings met the combined movement guidelines. Strategies to improve movement behaviors in LMICs should be considered including both rural and urban settings.

Recommendation: It is therefore critical to include rural and urban settings in future public health surveillance of the movement behaviors, and in mitigation strategies for physical inactivity epidemics in LMICs.

5. Assessment of factors associated with the use of *Securidaca longipedunculata* powder “Mkongo” as an aphrodisiac among male adults in Kinondoni district in Dar Es salaam.

Authors: Bryceson Mkinga, Allan Kiiza Lwambura, Rogers Mwakalukwa, Doreen Mloka, Cleopatra Justine Shonyella, Judith Costantine.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: *Securidaca longipedunculata* plant has long history in African traditional medicine. The stem powder, famously called “Mkongo” used as an aphrodisiac in males is not registered in Tanzania. its use among adults in Tanzania raises an important public health concern. Necessitating a need to determine factors influencing its use in Tanzania.

Objective: To assess factors associated with the use of *S. longipedunculata* powder “Mkongo” as male aphrodisiac.

Methodology: This was a qualitative cross-sectional study conducted between January and March 2023, among males in Kinondoni district, Dar Es Salaam. Participants were purposefully selected. The data was collected using focus group discussions. Discussions were audiotaped, transcribed verbatim and analyzed using thematic analysis.

Results: Eight (8) themes emerged which are awareness on *S. longipedunculata* powder “Mkongo”, perception towards sexual dysfunction and perception towards traditional medicine, experience of using Mkongo as an aphrodisiac, factors associated with the use of mkongo, mixed

social cultural use of *S. longipedunculata* powder “Mkongo”, limitations and impacts associated with the use of *S. longipedunculata* powder “Mkongo” and recommended interventions.

Conclusion: Our study has revealed factors associated with the use of *S. longipedunculata* powder “Mkongo”

Recommendation: Evidence-based research and regulation is essential to ensure the safety of consumers in herbal medicines.

6. An international study of 24-hour movement behaviors during the early years (SUNRISE): a pilot study from Tanzania.

Author: Jackline J. Nusrupia, Leyna H. Germana, Hoyce Mshida, Adeline Munuo, Xanne Janssen, John J. Reilly.

Affiliation: Tanzania Food and Nutrition Centre, Strathclyde University.

Background: As seen from the perspective of movement, the 24-hour period is divided between sleep, sedentary behaviors, and physical activity (the 24-hour ‘movement behaviors’). Time spent in physical activity, sedentary behaviors, and sleep in children influences obesity and many other health indicators (Okely 2018).

Objective: The objectives of this study were to (i) to assess the feasibility of the methods to be used in SUNRISE main study (ii) to determine the proportion of Tanzanian 3- and 4-year-olds who meet the WHO guidelines for physical activity, sedentary behaviors, and sleep.

Methodology: The SUNRISE Study recruited 110, 3–4-year-old child/parent dyads from Ilala urban/rural. The children wore actiGraph accelerometers continuously for at least 48 hours to assess their physical activity and sleep duration. Screen time and time spent restrained were assessed via parent questionnaire. Differences in the prevalence of meeting guidelines between urban and rural dwelling children were examined using chi-square tests.

Results: There were no significant differences in time spent in movement behaviors between the genders. However, the resident area of a child showed significant differences in some of the movement behaviors. Sleeping- Children from rural settings spent a significantly higher amount of time sleeping 702 (95%CI 674.3, 728.9) than their counterparts. Restrained -Children from urban settings spent a significantly higher amount of time restrained 42 (95%CI 34.6, 48.8) than their counterparts. TPA Children from rural settings spent a significantly higher amount of time on

PA 239 (95% 221.7, 256.1) than their counterparts. LPA Children from rural settings spent a significantly higher amount of time on LPA 130 (95% 121.3, 139.1) than their counterparts.

Conclusion: Only a small proportion of children in both rural and urban settings met the combined movement guidelines. Strategies to improve movement behaviors in LMICs should consider including both rural and urban settings.

Recommendation: Tanzania needs to adopt/adapt these guidelines to our own context.

POSTER PRESENTATION

1. International study of 24-hour movement behaviors during the early years (SUNRISE): a pilot study from Tanzania.

Subtheme: Role of urbanisation, migration, climate change and pollution in NCDs.

Authors: Jackline Jema Nusurupia, Leyna H. Germana, Pujitha Wickramasinghe, Hong K. Tang, Nyaradzai Munambah, Mohammad S. Hossain, Pham Bang, Guan, Hongyan, Alex Antonio Florindo, Catherine E. Draper, Denise Koh, Adang Suherman, Anthony D. Okely, Mark S. Tremblay, Xanne Janssen, John J. Reilly.

Affiliation: Tanzania Food and Nutrition Centre.

Background: Insufficient physical activity, excessive screen time, and short sleep duration may be common globally among young children in low- and middle-income countries (LMICs). However, data on prevalence of meeting World Health Organization 24-hour movement behavior guidelines among 3–4-year-olds in LMICs are limited, and it is unknown whether urbanization is related to young children's movement behaviors.

Objective: To examine the proportion of 3–4-year-old children from LMICs meeting the WHO Guidelines and to assess whether urban versus rural living location is associated with the probability of meeting the WHO movement behavior guidelines in LMICs.

Methodology: The SUNRISE Study recruited 429, 3–4-year-old child/parent dyads from 10 LMICs. The children wore activPAL accelerometers continuously for at least 48 hours to assess their physical activity and sleep duration. Screen time and time spent restrained were assessed via parent questionnaire. Differences in the prevalence of meeting guidelines between urban and rural dwelling children were examined using chi-square tests.

Results: Physical activity guidelines were met by 17% of children (14% urban vs 18% rural), sleep guidelines by 57% (61% urban vs 54% rural), screen time guidelines by 50% (50% urban vs 50% rural), restrained guidelines by 84% (81% urban vs 86 % rural), and all guidelines combined by 4% (4% urban vs 4% rural). We found no significant differences in meeting the guidelines between urban and rural areas.

Conclusion: Only a small proportion of children in both rural and urban settings met the combined movement guidelines. Strategies to improve movement behaviors in LMICs should consider including both rural and urban settings.

Recommendation: It is therefore critical to include rural and urban settings in future public health surveillance of the movement behaviors, and in mitigation strategies for physical inactivity epidemics in LMICs.

2. Dietary and socio-demographic factors associated with being overweight and obese among primary school adolescents in mainland Tanzania: Evidence from the 2021 SMNS cross-sectional school-based survey.

Subtheme: Nutrition and NCDs

Authors: Nyamizi Julius, Adeline Munuo, Rose Msaky, Elizabeth John, Eliasaph Mwana, Abela Twinomujuni, Dorice Katana, Juliet Itatiro.

Affiliation: Tanzania Food and Nutrition Centre (TFNC).

Background: Obesity and overweight among children and adolescents have become a growing global public health concern, including in mainland Tanzania. Understanding the dietary and socio-demographic factors associated with overweight and obesity in primary school adolescents is crucial for developing effective preventive strategies and interventions.

Objective: To determine the dietary and socio-demographic factors associated with the prevalence of overweight and obese among primary school adolescents in mainland Tanzania.

Methodology: "This study is a secondary data analysis of the School Malaria and Nutrition Survey conducted in 2021 by the Ministry of Health through the National Malaria Control Program and Nutrition Services in collaboration with the President's Office Regional Administration and Local Government. A multi-stage cluster sampling was used to select a representative school and ultimately School Age Children and households for the survey. Random selection of SAC from the selected schools and a random selection of 10% SAC for household visits. Children were selected systematically by using the school register and a 1:1 ratio for girls and boys from standards 1 through 6 was applied. Based on a proportional allocation to the primary school population size using a master pupil list from PO-RALG, each school was assigned a specific number of children to be sampled ranging from a minimum of 60 to a maximum of 120. The study population were SAC (5-9 years of age) and adolescents (10- 16 years of age) from public primary schools and households in mainland Tanzania. All enrolled pupils aged between 5 and 16 years who were present during the day of the survey were eligible to participate. Heads of households or representative members of selected households nearby the sampled schools were also eligible to participate. The study excluded SAC who were not present at school or sick during the survey day. The sample size was estimated at council level based on council malaria prevalence

estimates from the 2019 SMNS survey (unpublished), 0.05 margin of error, 5% significance level and a design effect of 2.5 to account for malaria transmission heterogeneity Data will be analyzed using IBM SPSS Statistics, version 25 to determine dietary and socio-demographic factors associated with overweight and obesity among school age children and adolescents in Tanzania.

Results: The intended secondary data have been acquired and thoroughly understand its structure, dependent variables, and source. A comprehensive data cleaning and preprocessing step to handle missing values, outliers, and inconsistencies, ensuring the dataset is ready for analysis has been conducted. Clear research objectives and hypotheses, outlining the specific questions intended to answer or the aspects you aim to validate has been defined. Appropriate analytical techniques based on the nature of the data and research goals have been chosen.

Conclusion: The findings from this study will inform the development of targeted interventions and policies aiming at reducing the prevalence of overweight and obesity among primary school adolescents in mainland Tanzania.

Recommendation: By identifying the specific factors contributing to overweight and obesity among school age children, policymakers can design effective strategies to promote healthier dietary habits, increase physical activity, and ultimately improve the overall well-being of this vulnerable population.

3. Short term outcome of trans urethral resection of the prostate among patients with benign prostate hyperplasia in Northern Tanzania.

Subtheme: NCD research gaps to attain Universal Health Coverage

Author: Esther E. Lekei, Bartholomeo Nicholas Ngowi, Jasper Said Mbwambo, Orogeness Jasper Mbwambo, Frank Bright, Alfred Kien Mteta.

Affiliation: Kilimanjaro Christian Medical University College (KCMC).

Background: Benign Prostatic hyperplasia (BPH) is common condition among elderly men clinically presents with an enlarged prostate. Although trans-urethral resection of the prostate (TURP) is said to be the gold standard surgical treatment for symptomatic prostate enlargement, the outcome varies from one place to another. This study aimed at assessing the short-term outcomes of TURP among patients with BPH at our settings.

Objective: Broad objectives To assess short term outcome among benign prostate hyperplasia patients undergoing trans urethral resection of the prostate at Kilimanjaro Christian medical center

from January 2023 to April 2023 Specific objectives To assess percentage change of LUTS (based on IPSS score) among patients who underwent TURP at urology department of KCMC hospital within one month post TURP To determine impact on quality of life among patients who underwent TURP at KCMC hospital within one month post TURP To determine factors associated with unfavourable outcome among patients post TURP at KCMC hospital within one month post TURP.

Methodology: Hospital based prospective cohort study conducted at Kilimanjaro Christian Medical Centre (KCMC) from January to April 2023. All men with BPH who underwent TURP. Data was managed and analyzed by using SPSS program version 25. Outcome of TURP was determined by comparing the pre-op and post op IPSS and QoL. Association between outcome of interest and other variables was determined by using Chi-square test or Fisher 's exact test.

Results: A total of 181 patients underwent TURP and 2(1.1%) patients had lost to follow up, 33(18.2%) had prostate cancer (PCA) after histology results hence excluded from the analysis. The mean average change of IPSS and QoL after TURP for the remaining 141 study subjects was 78.42 ± 18.62 and 76.22 ± 30.96 respectively. Overall, 85(58.2%) patients had at least one complication post-operative. About 20(13.7%) of patients failed to void after catheter removal and revisited the hospital within 30 days after TURP. Among readmissions 13(65%) had re-do TURP, Clots evacuation in theatre 3(15%) and 4(20%) were catheterized to assist with regaining bladder capacity function. There was a significant association between re-admission rate and clot retention post TURP, patients with moderate-to-severe IPSS score post TURP and those who were catheterized longer after TURP.

Conclusion: TURP significantly improves IPSS score and QoL in majority of patients. Clot retention and TUR syndrome are among common complications. Determinants for re-admission were clot retention post-operative, IPSS >7 post operatively and catheterization more than 2 days after TURP.

Recommendation: Good surgical practices and techniques can reduce complications such as clot retention and TUR syndrome.

4. Seeking and receiving chronic non-communicable diseases care in Tanzania.

Subtheme: NCD research gaps to attain Universal Health Coverage

Authors: Kassimu Tani, Brianna Osetinsky, Grace Mhalu, Sally Mtenga, Günther Fink, Fabrizio Tediosi.

Affiliation: Department of Health System, Impact Evaluation and Policy, Ifakara Health Institute, Dar es Salaam, Tanzania, Epidemiology and Public Health, Swiss Tropical and Public Health Institute, Basel, Switzerland, University of Basel, Basel, Switzerland.

Background: The rapid increase of chronic non-communicable diseases (NCDs) poses a major challenge for already strained health systems in sub-Saharan Africa.

Objective: This study investigates the factors associated with seeking and receiving NCD services in Tanzania.

Methodology: We used data from two cross-sectional surveys, a household survey and a client exit survey at health facilities, conducted between November 2020 and January 2021.

Results: Out of 784 household survey respondents, 23.6% were diagnosed with NCDs, of which 69% sought care in the last six months. After controlling for covariates, individuals enrolled in the National Health Insurance Fund (NHIF) and those that received a user fees waiver, were more likely to seek health services. However, even when NCDs patients managed to access needed care, they were likely to receive incomplete services. The main reason for not receiving all services at the health facility visited on the day of survey were drug stock outs. Among health service users, those registered with the NHIF were more likely to receive all prescribed services in the health facility visited than uninsured patients.

Conclusion: The findings of this study indicate the need for both strengthening primary care and social health protection schemes to increase access to needed care for NCD patients.

Recommendation: Strengthening primary care, improving the medicine supply chain, and making social protection schemes more inclusive may foster improvements in access to needed NCD services.

5. Isolation, quantification, and cryopreservation of mononuclear cells from cord and peripheral blood samples – methods validation in Tanzania.

Subtheme: NCD research gaps to attain Universal Health Coverage

Authors: Aisha Fikirini, Salmaan Karim, Zakaria Mtulo, Florence Urio, Fadhlun M. Alwy Al-Beity, Grace Moshi, Julie Makani, Mohamed Zahir Alimohamed.

Affiliation: Sickie Cell Program, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania.

Background: Autologous hematopoietic stem cell transplantation is a potential cure for sickle cell disease. Successful isolation of CD34+ stem cells is crucial for downstream processes like gene therapy. Various techniques are used to prepare and selectively isolate these cells.

Objective: This study aimed to validate methods for obtaining high-quality mononuclear cells (MNCs) from Cord Blood (CB) and Peripheral Blood (PB) in Tanzania. The objectives were to optimize blood volume, maximize cell viability, reduce transportation time, and prevent contamination.

Methodology: Blood samples were collected from Muhimbili National Hospital and Aga Khan Hospital. MNCs were isolated using the Ficoll technique, and cell counting was done with a hemocytometer. MNCs were preserved with media containing 10% DMSO. A subset of samples was tested for contamination using BacTec system.

Results: 5 PB and 44 CB samples were collected. Transportation time averaged 20 minutes. CB samples screened for Sickle cell status, 85.71% were AA and 14.29% were AS. 6 CB samples tested positive for contamination. The average CB volume was 59.0 mL. Average MNCs count were 2,403,546/ml of PB and 2,757,897/ml of CB. Viability pre-freezing was 93.04% (PB) and 95.71% (CB). Post-thawing viability was 59.30% (PB) and 64.23% (CB). The percentage of CD34+ cells in MNCs was 0.64 and 1.80 for fresh and thawed CB samples respectively.

Conclusion: The methods employed for MNC isolation and CD34+ selection have been successfully validated.

Recommendation: Generation of clinical quality hematopoietic stem cells in Tanzania which can be used for gene therapy research is recommended.

6. Effect of COVID-19 on household income, health care access costs, and financial catastrophe due to health care among patients with type 2 diabetes (T2D).

Authors: Peter Binyaruka and Sally Mtenga

Affiliation: Ifakara Health Institute, Dar es Salaam, Tanzania

Background: COVID-19 disrupted health care provision and access and reduced household income. Households with chronically ill patients are more vulnerable to these effects as they access routine health care. Yet, a few studies have analyzed the effect of COVID-19 on household

income, health care access costs, and financial catastrophe due to health care among patients with type 2 diabetes (T2D), especially in developing countries.

Objective: Analyzed the effect of COVID-19 on household income, health care access costs, and financial catastrophe due to health care among patients with type 2 diabetes (T2D).

Methodology: We used data from a cross-sectional survey of 500 people with T2D, who were adults diagnosed with T2D before COVID-19 in Tanzania (March 2020). Data were collected in February 2022, reflecting the experience before and during COVID-19.

Results: During COVID-19, household income decreased on average by 16.6%, while health care costs decreased by 0.8% and transport costs increased by 10.6%. The overall financing burden for health care and transport relative to household income increased by 32.1% and 45%, respectively. The incidences of catastrophic spending above 10% of household income increased by 10% (due to health care costs) and by 55% (due to transport costs). The incidences of catastrophic spending due to health care costs were higher than transport costs, but the relative increase was higher for transport than health care costs (10% vs. 55% change from pre-COVID-19). The likelihood of incurring catastrophic health spending was lower among better educated patients, with health insurance, and from better-off households.

Conclusion: COVID-19 was associated with reduced household income, increased transport costs, increased financing burden and financial catastrophe among patients with T2D in Tanzania.

Recommendation: Policymakers need to ensure financial risk protection by expanding health insurance coverage and removing user fees, particularly for people with chronic illnesses. Efforts are also needed to reduce transport costs by investing more in primary health facilities to offer quality services closer to the population and engaging multiple sectors, including infrastructure and transportation.

7. Patterns of care and outcomes among patients with ocular surface SCC (conjunctiva cancer) by HIV status in Tanzania.

Authors: Godfrey Malangwa, Crispin Kahesa, Emmanuel Lugina.

Affiliation: Muhimbili University of Health and Allied Sciences.

Background: Ocular surface SCC is the major and most common ocular malignancy of the eye. The risk factors are human papillomavirus types 16 and 18 and immunodeficiency such as immunodeficiency secondary to HIV infection and organ transplant. There is a high incidence of

ocular surface squamous carcinoma in Sub Saharan countries due to the high burden of HIV and there is high exposure to sunlight.

Objective: This study aimed to compare the overall survival among patients with ocular surface carcinoma by HIV status and to assess the predictors of overall survival.

Methodology: This study was a retrospective cohort study that included patients from 2016 to 2019 at Ocean Road Cancer Institute (ORCI) and Muhimbili National Hospital (MNH). The sample size was 99 patients. Kaplan Meier curves were used to describe two years of overall survival. The log-rank test and Cox proportional hazard regression analysis were performed to assess the predictors of overall survival. Ethical clearance was obtained from Muhimbili Institutional Review Board (IRB) and permission was obtained from Ocean Road Cancer Institute (ORCI) and Muhimbili National Hospital (MNH).

Results: The prevalence of HIV among patients with ocular surface SCC was 70.7% and only 67.1% were on antiretroviral therapy (ART). The majority (61.6%) of patients had locally advanced ocular surface SCC. Few (4.3%) participants had documented CD4 counts. There is no difference in social demographic characteristics and clinical profile among patients with ocular surface SCC by HIV. The dose of radiotherapy and nodal status were independent predictors of survival. Baseline characteristics like sex, HIV status, ART use, occupation, radiological findings, histopathology, and surgical findings did not significantly influence survival.

Conclusion: There is a high prevalence of HIV among patients with ocular surface SCC. Most patients had no documentation of CD4 count and no patient had documented viral load. Patients with node-positive disease have poor survival. The overall survival improves with an increase in the radiotherapy dose.

Recommendation: Integration of HIV management and cancer should be done especially for HIV-associated malignancies such as ocular surface SCC. Health education especially for the risk groups (the study showed the majority were HIV positive, peasants, women and had stage IV at diagnosis). Further studies prospective studies are needed to assess the influence of CD4 count and viral load on treatment outcomes among patients with ocular surface SCC.

8. Factors influencing the provision of NCD services among health care workers at a health center level in Tanzania.

Authors: Albino Kalolo, Titus Mashanya , Witness John , Bakari Salum, Rachel Nungu, Kaushik Ramaiya.

Affiliation: Department of Public Health, St Francis University College of Health and Allied Sciences, President's Office, Regional Administration and Local Government Tanzania (PO-RALG), Tanzania Diabetes Association.

Background: Building a non-communicable diseases (NCDs) ready human resource for health is a prerequisite for addressing the growing burden of NCDs. Multiple factors influence health workers' practice in relation to NCDs service provision but little is known on such factors at the primary health care level.

Objective: This study aimed to determine the influence of capability, motivation, and opportunities of health workers practices on provision of NCDs services at the health center care level in Tanzania.

Methodology: This was a cross-sectional study conducted in 40 health centers in nine regions of Tanzania. A questionnaire was used to collect data among 332 health care workers. The questionnaire collected information on NCD service provision practices and associated factors based on COM-B model. Bivariate analysis and binary logistic regression analysis was performed to identify factors associated with provision of NCDs services.

Results: health education was provided 8 times per month (maximum of 20 days in some health centers) whereas screening for NCDs was done 7 times per month. An average of 3 NCD patients were attended by a health worker per week whereas on a normal day a health worker reported to attend an average of 4 patients. Provision of health education was associated with age of the health care worker ($\beta=0.1$, $p=0.08$) and opportunity ($\beta=0.15$, $p=0.09$). Provision of NCD screening services was not associated with capability, motivation, and opportunity both in the bivariate and regression analyses. Frequency of attending NCD patient per week was determined by competence, skills ($\beta=0.002$, $p=0.04$), motivation ($\beta=0.154$, $p=0.00$) and opportunity ($\beta=0.061$, $p=0.003$) while the number of patients per day attended by health care workers depended on motivation ($\beta=0.077$, $p=0.001$) and opportunity ($\beta=0.297$, $p=0.001$).

Conclusion: The findings suggest sub-optimal provision of NCD services. Capability, motivation, and opportunity play a significant role in influencing provision of services.

Recommendation: Creating a conducive environment and improving capability and motivation of health care workers could improve provision of NCD services in primary health care settings.

9. Evolution of cardiac arrhythmia management by catheter ablation in Tanzania.

Authors: Yona Gandye, Mervat Aboulmaaty, Amy Bonny, Mathew Sackett, Khuzeima Khanbhai, Pedro Pallangyo, Henry Mayala, Mohamed Elalfy, Smitha Bhalia, Mohamed Janabi.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI).

Background: In Tanzania despite the expansion of cardiovascular management through expansion of health system infrastructure to combat cardiovascular diseases, radiofrequency ablation of cardiac arrhythmias remains a major challenge as the current management with catheter ablation is inaccessible to majority.

Objective: To highlight the challenges facing electrophysiology services in Tanzania.

Methodology: Challenges and perspectives: Several limitations for the development of invasive arrhythmia care are identified: 1. lack of manpower, 2. lack of healthcare resources, 3. health systems challenges, 4. High cost of consumables, 5. Healthcare financing challenges, 6. Limited antiarrhythmic medications.

Results: The proposed solutions to address the unmet 1. Inauguration of domestic arrhythmia society with dedicated prioritized academic programs, 2. Advocacy to training in cost effective conventional approach to arrhythmia ablation, 3. Reducing irrational claim deduction from insurers, 4. Call for the ministry of health to implement insurance accreditation of radiofrequency ablation in Tanzania, 5. Sensitize the government to offer motivation to candidates pursuing electrophysiology carrier, 6. The government through the ministry of health and education to transform the current training infrastructure to meet current academic needs including RF ablation services, 7. Creation of training partnerships within Africa to improve local electrophysiology expertise.

Conclusion: The radiofrequency ablation using conventional approach which is a cost effective can be adopted to ensure the service availability in Tanzania and Sub-Saharan region. A unique responsibility lies within the government and financiers to reinforce the efforts in order to implement these recommendations provided and enable to achieve the medical tourism policy in Tanzania.

Recommendation: We advise the policy makers (national assembly) and the government through the ministry of health and education to bear the medical education at top of their agenda to improve medical colleges like MUHAS and hospitals with good infrastructure to offer fellowship in electrophysiology. The education sector has to review medical colleges and update the teaching

curriculum to suit the current medical demand by omitting unnecessary curriculum to provide a vacuum for medical candidates to train electrophysiology early in their life carrier.

10. Research evidence to inform the design of multifaceted clinical and socio-economic interventions for TB and associated NCD comorbidity in households.

Author: Yohhei Hamada, Anicet Lugendo, Keolebogile Ntshamane, Thobani Ntshiqqa, Griffiths Kubeka, Don Mudzengi, Kavindhran Velen, Julieth M. Lalashowi, Lilian Tina Minja, Rachel Mukora, Shadrack Mwastaula, Samson Wilson, Issa Sabi, Andrew Copas, Nyanda Elias Ntinginya, Salome Charalambous, Molebogeng X. Rangaka.

Affiliation: Institute for Global Health, University College London, United Kingdom, Mbeya Medical Research Centre, National Institute for Medical Research, The Aurum Institute, Johannesburg, South Africa, School of Public Health, University of the Witwatersrand, Johannesburg, South Africa, School of Public Health, and Clinical Infectious Disease Research Institute-Africa, University of Cape Town, Cape Town, South Africa.

Background: Integration of non-communicable disease (NCD) screening and care within tuberculosis (TB) households could help address the dual epidemics of tuberculosis and NCD. Previous studies reported a high prevalence of diabetes among household contacts, but it is unknown if the prevalence of diabetes and other NCD among household contacts is higher than among individuals in the same neighborhood.

Objective: To derive evidence to inform the design of multifaceted clinical and socio-economic interventions for TB and associated NCD comorbidity in households affected by tuberculosis and in the community.

Methodology: A cross-sectional study conducted in South Africa and Tanzania, enrolled adults living in households with a known person with TB (contacts) and neighborhood households where no known person with TB had been identified (controls). We inquired about known NCD and measured blood pressure, spot blood glucose, HbA1c, and creatine.

Results: 156 adult contacts enrolled of 81 persons with TB and 136 adult controls. The median age was 42.5 and 39.5 years, respectively. There were more females among contacts (64.7% vs 49.3%). Among contacts, 11.3% (16/141) and 40.8% (62/152) had diabetes and hypertension, respectively, compared to 8.6% (11/128) and 40.7% (55/135) among controls. At least one NCD (including known and newly diagnosed) was present in 51% (73/143) versus 46.9% (61/130) of adults in each group. Adjusting for age and gender, contacts did not have a statistically higher prevalence of NCD (odds ratio 0.951, 95% confidence interval: 0.53-1.72) with a wide confidence interval.

Conclusion: Due to the small sample size, the difference in the NCD prevalence was inconclusive.

Recommendation: A high NCD prevalence among contacts and control suggests a shift to community wide NCD interventions, integrated with TB services or other entry points might be warranted.

11. Coping strategies employed by T2D patients to manage their illness during the pandemic.

Authors: Irene Mashasi, Sally Mtenga, Frances Mair

Affiliation: Ifakara Health Institute

Background: The COVID-19 pandemic led to a wide range of global challenges, ranging from economic to social and health-related. Chronically ill type 2 (T2D) diabetic patients were among the group of people who experienced intense socio-economic, health, and mental challenges in managing their health during the pandemic. In Tanzania, there is a paucity of evidence to inform how patients with T2D coped with the challenges during the COVID-19 pandemic. Therefore

Objective: This study explored the coping strategies employed by T2D patients to manage their illness during the pandemic as knowledge for adaptation and integration of coping strategies into NCD guidelines or frameworks for emergency preparedness situations.

Methodology: Qualitative semi-structured in-depth interviews were administered to 30 patients aged between 18 to 70 years who were selected purposively. Morogoro Municipal Hospital in Tanzania. Data collection took place in February 2022, in Dar es Salaam and Morogoro in Tanzania.

Results: In coping with pandemic challenges, participants were isolated from routine healthcare and strengthened their faith through prayers to gain hope and courage, followed the recommended COVID-19 medical preventive measures, used local herbs, and got financial support from relatives to purchase dietary food and medications."

Conclusion: The results suggest the urgent need to investigate these coping strategies employed by T2D patients as may also be applied to other patients suffering from other NCDs and chronic diseases. Th

Recommendation: Therefore, the coping strategies collectively may be analyzed, adopted, strategized, and integrated into emergency preparedness guidelines but may be adopted in countries with similar contexts.

12. National Non-communicable Diseases Conferences- A platform to inform policies and practices in Tanzania.

Authors: Davis E Amani, Harrieth P Ndumwa, Jackline E Ngowi, Belinda J Njiro, Castory Munishi, Erick A Mboya, Doreen Mloka, Amani I. Kikula, Emmanuel Balandya, Paschal Ruggajo, Anna T. Kessy, Emilia Kitambala, Ntuli Kapologwe, James T. Kengia, James Kiologwe, Omary Ubuguyu, Bakari Salum, Appolinary Kamuhabwa, Kaushik Ramaiya, Bruno F. Sunguya.

Affiliation: Muhimbili University of Health and Allied Sciences, Ministry of Health, Dodoma-Tanzania, President's Office Regional Administration and Local Government, Dodoma-Tanzania, Tanzania Non-Communicable Diseases Alliance, Dar es salaam-Tanzania, Tanzania Diabetes Association, Dar es salaam-Tanzania, Shree Hindu Mandal Hospital, Dar es salaam-Tanzania.

Background: Non-communicable diseases (NCDs) arise from a diverse risk factor, with differences in the contexts, and variability in regions and countries. Addressing such a complex challenge needs local evidence for local responses. Organized by the Ministry of Health (MOH), scientists in Tanzania convene every year to disseminate and discuss scientific evidence in the efforts to address policies and implementation gaps in NCDs response.

Objective: To highlight research dissemination efforts and how they have influenced NCDs response and landscape in Tanzania.

Methodology: Desk review was conducted through available MOH and conference organizers' documents. Four National NCDs conferences have been conducted since the inauguration of the National NCDs week in 2019. Conference organizations and conduct process were also reviewed. In addition, themes of the conference, submitted abstracts, and presentations were reviewed. Narrative synthesis was conducted to address the objectives of this research work. Recommendations emanated from the conference and policy uptake were reviewed and discussed to determine the impact of the dissemination.

Results: Since 2019, four theme specific conferences were organized and, they convened researchers and scientists from research and training institutions, implementers, government agencies and units, and legislators in Tanzania and beyond. More than 400 abstracts were presented covering fourteen sub-themes on health system improvements, financing, governance, prevention intervention, role of innovation and technology. The conferences have had significant

effect on governments' response to NCDs, including health care financing, NCDs research agenda, and universal health coverage in Tanzania.

Conclusion: Conferences provide suitable platforms where stakeholders can share, discuss and recommend vital strategies for addressing the burden of NCDs through informing policies and practices. The right stakeholders' engagement and ensuring uptake and utilization of the recommendations from these platforms is crucial for addressing the observed changes in disease epidemiology. This initiative has had significant impact in NCDs response that warrants adoption by other countries with similar burden and context.

Recommendation: Engaging right stakeholders during the conference and ensuring uptake and utilization of the recommendations is key to addressing the burden of NCDs in the country. Adequate and sustainable resource mobilization strategies are cornerstone to enhancing the contributions and utility of these events.

13. Preliminary evaluation of re-hospitalizations at a zonal referral hospital in northern Tanzania within 6 months of previous index admission.

Authors: Irene Richard Mushi, Anna Tupetz, Linda Minja, Julius Kingazi, Frijenia Sumbai, Dorice Damas, Nancy Mmary, Frida Shayo, Alice Rutta, Joao Ricardo Nickenig Vissoci, Catherine A. Staton, Blandina T. Mmbaga.

Affiliation: Kilimanjaro Christian Medical Center (KCMC).

Background: In resource-constrained settings with limited admission documentation systems, addressing the impact of re-hospitalizations is challenging. While most research focuses on identifying risk factors and interventions for specific medical conditions leading to readmissions, a research gap exists in understanding the role of social-economic determinants, patient behavior factors and the impact of health care system delivery.

Objective: This study aims to investigate patient and access characteristics in unscheduled readmissions to tertiary hospital.

Methodology: This interim report presents findings from a cross-sectional study in northern Tanzania, involving patients readmitted for conditions related to prior acute hospitalization within six months. Variables collected include socio demographics, self-reported information and data extracted from medical chart review on previous hospitalization, discharge process, comorbidities, reasons for returning to the hospital and current admission information.

Results: A preliminary analysis covered 99 readmitted patients between June-September 2023. The median age of patients was 36 years (IQR (8, 58)), with majority being female (n=63, 64%) and readmitted through the emergency-department (n=56, 58%). Most patients (n=81, 82%) were admitted for Non-communicable Diseases and (n=37, 37%) were previously tested and diagnosed with different comorbidities (n=17, 17%) patients were readmitted within seven days. About one-third of patients (n=31, 32%) were admitted in the internal medicine ward and (n=20, 22%) required surgery during readmission. (n=46,47%) were informed on when to seek care and warning signs during the discharge process.

Conclusion: The data reveals a pattern of readmissions through EMD, emphasizing urgency and seriousness of these cases.

Recommendation: A comprehensive understanding of patient clinical profiles and healthcare-seeking behaviors is needed to identify prevention strategies. Preventing hospital readmissions as a health-system intervention can result in positive outcomes, including reduced EMD census, enhanced patient well-being, resource optimization, and increased healthcare system efficiency.

14. Knowledge, prevention practices, prevalence, and factors associated with chronic kidney disease among adult diabetic patients at Muhimbili National Hospital-Mloganzila diabetes clinic.

Authors: Satrumin A shirima, Dr Theresia Ambrose, Ramadhan Sebea, Alfred Jubilate.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Diabetes is a major cause of chronic kidney disease (CKD), responsible for approximately 50.62% of CKD cases worldwide. In Tanzania, many diabetic patients are diagnosed with CKD at advanced stage leading to high treatment costs and poor prognosis. Despite this, there is limited information on prevalence of CKD, their level of knowledge, and preventive practices among diabetic patients in Tanzania.

Objective: To determine knowledge, practices, prevalence of CKD and its associated factors among adult diabetic patients attending the MNH-Mloganzila diabetes clinic.

Methodology: A cross-sectional study was conducted among randomly selected diabetes patients at the MNH-Mloganzila diabetes clinic in Dar es Salaam, Tanzania, from February to July 2023. Serum creatinine levels were used to calculate estimated glomerular filtration rates (eGFR)

using the MDRD formula and CKD was staged according to the Kidney Disease Improving Global Outcomes system.

Results: Among 284 participants 164(57.7%) were females; median age was 62(IQR:46-78) years; 102(35.9%) lived with diabetes for more than 10 years,66(23.2%) had CKD (eGFR<60 ml/min/1.73m²) while 6(2%) had End-stage renal disease (eGFR<15 ml/min/1.73m²). Awareness of the CKD diagnosis was at 34.8%(n=23) while high knowledge on CKD was at 21.1%(n=60). Prevention practices included regular exercises (54,19%), avoiding alcohol drinking (132,46.5%), smoking (223,78.5%) and raw salt consumption (57,20.1%). Having diabetes for over 10 years [OR:3.96,95%CI (1.32-11.82, p = 0.014], and a history of alcohol consumption [OR2.56,95%CI (1.07-6.13), p = 0.035] were associated with an increased risk of CKD while having health insurance [OR:0.30, 95%CI (0.12-10.74), p = 0.009] was associated with reduced risk.

Conclusion; Our findings suggest a high prevalence of CKD, lack of awareness and knowledge on CKD among diabetic patients.

Recommendation: Strategies targeting blood sugar control, improvements in CKD knowledge, and promotion of healthy practices are crucial in diabetic patients, furthermore, regular screening for kidney functions should be done in all diabetes clinics for early detection of kidney problems associated with diabetes.

15. Fatty liver disease and its correlates among people living with HIV at Temeke Dar es salaam, Tanzania.

Authors: Farida Mtonga, Ewaldo Komba, John Rwegasha, Tumaini Nagu.

Affiliation: Muhimbili University of Health and Allied Sciences, Muhimbili National Hospital, Temeke Regional Referral Hospital.

Background: Fatty Liver Disease (FLD) is projected to be the leading cause of chronic liver disease among People living with HIV (PLHIV) following effective antiretroviral therapy.

Objective: This study aimed at determining the prevalence and associated factors for Fatty Liver Diseases among People living with HIV attending Care and Treatment Clinic at Temeke Regional Referral Hospital in Dar es Salaam, Tanzania.

Methodology: A descriptive cross-sectional study was conducted between September and November 2020. Consenting adults aged ≥18 years and living with HIV were enrolled in the study.

A structured questionnaire was used to collect socio-demographic, anthropometric measurements, and clinical characteristics. Patients were fasted for a minimum of 8 hours before undergoing an abdominal USS, using B-mode and 3.5 MHz convex probe transducer (Dawei-DW 580, China, 2020) was done by a single trained investigator. FLD was defined as an increase in liver echogenicity compared to the right kidney and spleen. Interpretations of USS images were done by a trained investigator and senior radiologist. Independent predictors of FLD were analyzed using multivariate logistic regression; a p-value of < 0.05 was considered to be statistically significant.

Results: A total of 454 patients were enrolled in the study. FLD was seen in 118 patients, making a prevalence of 25.9% (95% CI 22.0%-30.3%). Age group 40-60 years (aOR 1.74; 95% CI: 1.02 – 2.96 $p=0.043$), overweight (aOR 1.92; 95%CI: 1.05-3.51; $p=0.034$), obesity (aOR 3.46; 95% CI: 1.80 – 6.65; $p < 0.001$) and dyslipidemia (a OR: 2.63 95%CI: 1.58-4.39; $p < 0.001$) were significantly associated with FLD. HIV viral load status, and duration on combination antiretroviral therapy had no association with FLD.

Conclusion: One out of four PLHIV had FLD. Factors associated with FLD were age 40-60 years, obesity, and dyslipidemia.

Recommendation: We recommend weight reduction and regular screening for FLD among PLHIV with the above risk factors.

16. The prevalence of gestational diabetes mellitus and associated risk factors among women attending antenatal care in health facilities in Unguja-Zanzibar.

Author: Ali Shehe Hamad.

Affiliation: Tanzania Field Epidemiology and Laboratory Training Program, Ministry of Health, Muhimbili University of Health and Allied Sciences.

Background: The prevalence of Gestational Diabetes Melitus has been rising worldwide. The contribution of factors like advanced maternal age, obesity, history of diabetes, and lifestyle to the burden of GDM in Zanzibar. The results will highlight the magnitude of GDM and help in planning and implementing interventions to reduce GDM in Zanzibar.

Objective: To determine the prevalence of GDM and associated factors among women attending ANC in Zanzibar.

Methodology: This was a facility-based quantitative cross-sectional study. Participants were screened for GDM using the IADPSG 2017 criteria, and data on socio-demographics, medical and obstetric history, lifestyle, and anthropometric characteristics were collected using a structured question. Descriptive statistics were used to summarize the data, while bivariate and multivariate analyses were performed to identify factors associated with GDM. Crude and adjusted prevalence ratios were calculated using modified Poisson tests, with statistical significance set at a p-value of 0.05.

Results: Out of the 405 pregnant women screened, the prevalence of GDM was 13.8%. The majority (43.21%) had a GA of 28 weeks, with a mean GA of 26.25 (SD: 0.08) weeks. Significant risk factors for GDM included maternal age over 40 years (aPR = 2.00, 95% CI: 1.227, 3.272), history of hypertension (aPR = 11.22, 95% CI: 6.475, 19.450), history of macrosomia (aPR = 6.417, 95% CI: 4.223, 9.752), obesity (aPR = 1.697, 95% CI: 0.987, 2.917), alcohol use (aPR = 2.208, 95% CI: 1.130, 4.315), and frequent consumption of carbohydrates (aPR = 0.257, 95% CI: 0.075, 0.879).

Conclusion: The prevalence of GDM among women in Zanzibar was high, while screened only first visit.

Recommendation: MOHZ should provide resources and emphasize healthcare workers to provide routine screening all visit.

17. Factors affecting adequate pain control in patients with Sickle Cell Disease presenting with pain at Mwananyamala and Muhimbili Hospital.

Authors: Happiness Joseph, Lulu Chirande, Ritta Mutagonda, Mbonea Yonazi

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Sickle cell disease (SCD) is the most common hemoglobin disorder in the world. Africa has the highest burden of (SCD). Painful events are attributed to hospital admission of most adult patients with SCD.

Objective: This study aimed to determine factors associated with inadequate pain control among patients with SCD presenting with a painful event at Mwananyamala Regional Referral Hospital (MRRH) and Muhimbili National Hospital (MNH) Dar es Salaam Tanzania.

Methodology: This was a cross-sectional study conducted at (MNH) and (MRRH) in Dar es Salaam Tanzania. A total of 390 patients with SCD who presented with painful events, age eight

years and above were enrolled. Study duration was six months. A structured questionnaire was used to collect data. The pain index score tool was used to assess the level of adequate pain control. Data was analyzed using software SPSS. The results of the difference were considered statistically significant when the p-value was less than 0.05.

Results/: Mean age (\pm SD) was 15 (\pm 6) years. Male to female ratio was 1:1, about half (58.2%) had attained at least primary education. More than half of the patients (57.4%) come from Dar es Salaam. The majority of patients (91.0%) were within steady-state HB with more patients having less than three pain episodes per year (77.9%). Most patients presented to the hospital with mild pain (64.6%) and were on Hydroxyurea (62.3%). Most patients were recruited from outpatient clinics (88.2%). One third of patients had inadequate pain control while 61% attained adequate pain control. Factors that were associated with inadequate pain control included receiving initial pain management in other health centers aOR (95%CI) =2.5 (1.5- 4.5), P=0.001, residing outside Dar-es-Salaam aOR(95%CI) =1.74(.1-2.9), P=0.03. Presenting to the hospital with moderate pain aOR=2.2, 95% CI (1.3-3.8), P=0.006 and presenting to the hospital with a fever by aOR (95% CI) =3.8 (1.1 – 13.9), p=0.04.

Conclusion: One-third of patients received sub-optimal pain control. Factors significantly associated with inadequate pain control were residing outside Dar-es-Salaam, receiving initial pain management from other health care facilities, presenting to the hospital with moderate pain, and having a fever.

Recommendation: Follow up study to assess the cause of inadequate pain control in other health facilities. Reassessment of patients with pain after the dose of analgesia.

18. Creation of a Hybrid Vascular Access Course in Dar es Salaam Tanzania.

Authors: Larry Akoko, Nathan Brand, Fransia Arda, Ally Mwanga, Arnold Levine, Stephanie Lin, Zach Matthay, London Guidry, Bian Wu, Cameron Gaskill, Misty Humphreys, Shant Vartanian.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: End stage renal disease (ESRD) is currently the 10th cause of mortality. A high disease burden is reported in low- and middle-income countries (LMIC) countries. Scarcity and maldistribution of essential kidney care skilled personnel challenge equitable access and successful integration into the existing health system. We developed a vascular access course to train Tanzania surgeons in fistula creation.

Objective: We aimed to assess the usability of a vascular access course created by vascular surgeons in training Tanzanian surgeons to create an arteriovenous fistula (AVF).

Methodology: Our course included didactic lectures, a simulation laboratory, and procedures proctored by vascular surgeons from the United States. Participants underwent a knowledge survey prior to the course, immediately after the didactic lectures, and at six months. In addition, participants underwent a filmed simulation of an AVF both before the intervention and after the last vascular surgeon visited Tanzania. All filmed simulations were graded using the observed structured assessment of technical skills (OSAT).

Results: Six surgeons and urologists from Tanzania participated in the course. The mean pre, immediate-post, and 6-month post knowledge scores were 56%, 70% and 75% respectively. The mean OSAT pre and post intervention scores were 14 and 20.8 respectively. Both the pre- and six months post knowledge exam and OSAT scores were significantly different ($p=0.03$ and $p=0.03$).

Conclusion: This study demonstrates that our course provides durable skills and knowledge transfer to Tanzanian surgeons.

Recommendation: Our results suggest that this course can be used to train additional Tanzanian surgeons so that all renal failure patients in Tanzania will eventually have access to RRT.

19. Six-month incidence of hypertension and diabetes among adults with HIV in Tanzania: a prospective cohort study.

Authors: Francis M Sakita, Paige O'Leary, Sainikitha Prattipati, Monica S Kessy, Kajiru G Kilonzo, Blandina T Mmbaga, Anzibert A Rugakingira, Preeti Manavalan, Nathan M Thielman, Dorothy Samuel, Julian T Hertz.

Affiliation: Kilimanjaro Christian Medical University College

Background: In sub-Saharan Africa people living with HIV face a new epidemic of noncommunicable diseases. This includes hypertension and diabetes which are the leading risk factors for death worldwide.

Objective: We aimed at describing the incidence of hypertension and diabetes in people living with HIV in Moshi.

Methodology: Adults with HIV were enrolled from a public clinic in Moshi, Tanzania (September 2020 - March 2021). At enrollment, a survey was administered to collect information on

comorbidities and medication use. Each participant's blood pressure and point-of-care glucose were measured. Baseline hypertension was defined by blood pressure >140/90 mmHg or self-reported hypertension at enrollment. Baseline diabetes was defined by self-reported diabetes or hyperglycemia (fasting glucose >7 mmol/l or random glucose 11 mmol/l) at enrollment. At 6-month follow-up, participants' blood pressure and point-of-care glucose were again measured. Incident hypertension was defined by self-report of new hypertension diagnosis or blood pressure >140/90 mmHg at follow-up in a participant without baseline hypertension. Incident diabetes was defined as self-report of new diabetes diagnosis or measured hyperglycemia at follow-up in a participant without baseline diabetes.

Results: Of 477 participants, 310 did not have baseline hypertension and 457 did not have baseline diabetes. At six-month follow-up, 51 participants (95% CI: 38, 67) had new-onset hypertension, corresponding to an incidence of 33 new cases of hypertension per 100 person-years. Participants with incident hypertension at 6-month follow-up were more likely to have a history of alcohol use (90.2% vs. 73.7%, OR = 3.18, 95% CI:1.32-9.62, p = 0.008) and were older (mean age = 46.5 vs. 42.3, p = 0.027). At six-month follow-up, 8 participants (95% CI: 3, 16) had new-onset diabetes, corresponding to an incidence of 3 new cases of diabetes per 100 person-years.

Conclusion: The incidence of elevated blood pressure and diabetes among Tanzanians with HIV is higher than what has been reported in high-income settings.

Recommendation: Interventions to incorporate hypertension and diabetes care in CTC should be prioritized.

20. Sinonasal cancer at Muhimbili National Hospital and Ocean Road Cancer Institute: Risk factors, histological types, clinical stage and treatment modalities.

Author: Musimu Baraka Mkome.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Sinonasal malignancies account for 3-5% of head and neck cancers. SCC is the most common histological type accounting for 50-80%. Males are more affected than females (2:1) and a peak age at diagnosis is during the 5th -6th decade of life. The majority of patients present late, and surgery followed by adjuvant chemo-radiotherapy entails the most mode of treatment.

Objective: To determine the risk factors associated with sinonasal cancer, histological types, clinical stage at diagnosis, and the different treatment modalities given to these patients at Muhimbili National Hospital (MNH) and Ocean Road Cancer Institute (ORCI) in Tanzania.

Methodology: This was a cross-sectional study involving 134 histologically confirmed sinonasal cancer subjects at MNH and ORCI from September 2022 to March 2023. Ethical clearance sought from Muhas IRB, MNH and ORCI research Units. A structured questionnaire was used to collect data, and analysis was done using SPSS version 24, where a p-value < 0.05 was considered statistically significant. Categorical variables summarized in frequencies and numerical as mean and standard deviation.

Results: A total of 134 study participants with a mean age (\pm SD) of 51.7(\pm 15.6) years and nearly equal male to female ratio (1.1:1) were recruited. The most prevalent age group was those aged above 56 years (41.8%), and most were from rural areas (53.7%). Majority (64.9%) were involved in agricultural activities, 30(22.4%) reported exposure to urea-based fertilizers, 40(29.9%) to pesticides and 41(30.6%) to herbicides. Wood dust, leather dust, textiles, chemical industry, and hairdressers accounted for 15% inclusively. Alcohol consumption accounted for 35.1% of non-occupational related risk factors. SCC was the most common histological type (50%); the majority presented at stage III (44%), and about 47.8% received surgery followed by adjuvant chemotherapy, Radiotherapy, or combined chemo-radiotherapy as their mode of treatment.

Conclusion: The majority of participants were involved in agricultural activities and exposed to related chemical products used in agricultural activities. Other occupational exposures were less prevalent, and alcohol consumption was the most commonly reported non-occupational-related risk factor. Most participants presented late, and SCC predominance and multimodality treatment approaches were noted.

Recommendation: An education program for the community to raise awareness of risk factors, early signs, and symptoms is recommended, as well as tailoring treatment modalities based on histological types among Otorhinolaryngologists.

21. Multiple neural tube defects: A rare case of myelomeningocele, meningocele and lipomyelocele in a single patient with hydrocephalus.

Authors: James Lubuulwa, Anton Manyanga, Neema Chami.

Affiliation: Catholic University of Health and Allied Sciences, Bugando Medical Center.

Background: The presence of multiple neural tube defects at different sites coexisting with hydrocephalus in a single patient is a very rare event. Only a few of such cases have been reported in the scientific literature.

Objective: We describe a case of multiple dysraphism involving myelomeningocele, meningocele and lipomyelocele in a single patient and a brief review of literature.

Methodology: A full-term newborn baby girl delivered through a cesarean section due to an antenatal diagnosis of large head circumference presented with multiple masses in the upper thoracic and thoracolumbar spine and sacral region at birth. Magnetic resonance imaging(MRI) of the brain and spine revealed communicating hydrocephalus, triple masses in the upper and lower back with the largest at the level of T6-9 which was cystic consistent with myelomeningocele (8*7cm),the second mass(3*3cm) was below the large mass at level of T11/12 consistent with meningocele whereas the third mass(2*3cm) was distantly at L5/S1 region and was a solid firm mass consistent with lipomyelocele

Results: Patient was operated at three weeks to repair all the defects and followed with ventriculoperitoneal (VP) shunt for treatment of hydrocephalus and fared well in the post-operative period and follow up at six months and one-two year was uneventful.

Conclusion: Simultaneous repair of multiple defects is possible in a single-stage surgery. MRI is the imaging modality of choice. Multi-disciplinary team approach in managing multiple neural tube defects is paramount for good treatment outcome.

Recommendation: Genetic studies among others are recommended to further understand the risk factors of multiple neural tube defects

22. Prevalence and risk factors of hypertension among adults in Tanga Region in January 2023: A cross-sectional community-based Survey.

Authors: Sephord Saul Ntibabara, Peter Torokaa, Godbless Henry Mfuru, Evelyine Bartazar Ngoli, Thobias Bollen, Rukia Mohamed Mashauri, David John osima, Fatma Moh'd Juma, Faraja David Ng'ida, Fungo Samson Masalu, George Atmos Massawe, Khadija Shamte, Nemes M Josaphat, Jasper Kimambo, Mariam Monah, Mariam Mbwana Ramadhani, Agnes Fridomu Njau, Helman Nyigo, James N. Allan, Jonhas Masatu, Loveness Urio, Elias Bukundi, Mucho Mizinduko, Ally K. Hussein.

Affiliation: Muhimbili University of Health and Allied Sciences, Tanzania Field Epidemiology and Laboratory Training Programme (TFELTP), Ministry of Health.

Background: Hypertension (HTN) is a significant risk factor for Cardiovascular diseases (CVDs). About 26% of all young adults aged 30-49 have hypertension in Tanzania. To develop effective control measures, updated and relevant information is crucial. This survey aimed to determine the prevalence and risk factors for hypertension, which are essential for reducing the burden of CVDs.

Objective: To determine prevalence and risk factors for hypertension among adults in Tanga region Tanzania, 2023.

Methodology: A community-based cross-sectional survey was conducted in Tanga City, Muheza, and Mkinga districts of Tanga region. Demographic information, lifestyle-related factors, history of hypertension, family history, and medication use patterns were collected using the standardized STEPS survey questionnaire. A descriptive analysis was conducted to present frequencies and proportions. A modified Poisson regression analysis was performed to assess relationship of independent variables with hypertension. Chi-square was performed to assess differences in distribution based on the hypertension status. The p-value <0.05 was considered to be statistically significant.

Results: A total of 1818 participants were recruited in the survey. A hypertension prevalence of 38% (95% CI: 35.5-40.0%) was observed. Urban areas had higher prevalence than rural areas (Adjusted Prevalence Ratio [APR]: 1.06, 95% CI: 1.02-1.11). Two-thirds (66.5%) of hypertensive individuals were unaware of their status. Among known patients with hypertension, 80.5% were not taking daily medication. Independent risk factors associated with a higher hypertension prevalence include being Male (APR: 1.06, 95% CI: 1.02 – 1.10), older age (APR: 1.41, 95% CI: 1.31-1.51), and being obese (APR: 1.20, 95% CI: 1.15-1.25). Exercise was associated with a lower prevalence of hypertension (APR: 0.96, 95% CI: 0.93-0.99).

Conclusion: The survey revealed a high prevalence of hypertension, with more than half of the patients being unaware of their status while the majority of patients are not on medication.

Recommendation: Healthcare workers should provide counseling to hypertensive patients on the importance of adhering to anti-hypertensive medication.

23. Patterns of care and outcomes with bladder preservation for patients with muscle-invasive bladder cancer treated in Tanzania: A retrospective cohort study.

Author: Mathias Banzi, Godwin Nnko, Godfrey Malangwa, Glory Makupa, Eulade Rugengamanzi, Nazima Dharsee, Katherine Van Loon³, Ali Khaki⁴, Andrew Miller⁵, Emmanuel Lugina.

Affiliations: Muhimbili University of Health and Allied Sciences, Ocean Road Cancer Institute, Tanzania, University of California, San Francisco, USA, Stanford University, USA, Illawarra Cancer Care Centre, Australia.

Background: Trimodality therapy (TMT) with maximum transurethral resection of bladder tumor (TURBT) followed by concurrent chemoradiotherapy (CCRT) is the standard bladder preservation therapy (BPT) for muscle-invasive bladder cancer (MIBC). In Tanzania, most MIBC patients are treated with BPT without the prior maximum TURBT, and some even without chemotherapy during radiation.

Objective: To describe the practice patterns for MIBC patients and compare relative overall survival between groups.

Methodology: We performed a retrospective hospital-based cohort study and included patients with non-metastatic MIBC treated with radiotherapy (with or without chemotherapy). We collected baseline demographic and clinicopathological information, treatment specifics including whether TURBT was performed, and chemotherapy was offered. The primary outcome was overall survival measured from date of diagnosis until date of death (or censored at last follow-up). Survival curves were drawn by using the Kaplan-Meier method and compared by log-rank test.

Results/Progress: "From January 2017 to December 2021, 107 patients with MIBC treated with BPT were identified. Only 19 (18%) were treated with TURBT before radiotherapy, and 9 (8%) were treated with TURBT followed by CCRT in BPT. 29 (27%) patients received chemotherapy (Cisplatin) with radiation while 78 (73%) had radiation alone.

Conclusion: TURBT was associated with longer overall survival among patients receiving BPT.

Recommendation: Clinicians to have higher consideration of maximum TURBT in BPT approach.

24. Acute myocardial infarction prevalence and outcomes in a Tanzanian emergency department: Results from a prospective surveillance study.

Authors: Julian T Hertz, MD, Francis M Sakita, Kilonzo G Kajiru, Blandina T Mmbaga, Tumsifu G Tarimo, Godfrey L Kweka, Jerome J Mlangi, Amedeus V Maro, Lauren Coaxum, Sophie W Galson, Alexander T Limkakeng, Gerald S Bloomfield

Affiliations: Kilimanjaro Christian Medical Centre, Kilimanjaro Christian Medical University College.

Background: Preliminary data suggests that the burden of acute myocardial infarction is high in Tanzania. After efforts to improve acute myocardial infarction care, we sought to describe diagnosis rates, care processes, and outcomes in a Tanzanian emergency department.

Objective: We aimed at describing the diagnosis rates, care processes and outcomes of patient with acute myocardial infarction presenting to the emergency department.

Methodology: Adults presenting to a northern Tanzanian ED with acute chest pain or shortness of breath were enrolled from November 2020 to January 2023. AMI was defined as per Fourth Universal Definition criteria. All treatments given in the ED were observed and recorded. Thirty-day follow-up was conducted with all participants via telephone or home visit.

Results: Of 568 participants with chest pain or shortness of breath, 129 (22.7%) had AMI, including 61 (47%) with STEMI and 68 (53%) with non-STEMI. Of participants with AMI, 77 (59.7%) were male, and the mean (SD) age was 64.5 (16.6) years. The mean duration of symptoms among AMI participants prior to presentation was 2.9 (3.0) days, and 26 (20.2%) reported no known medical comorbidities. In the ED, 39 (30.2%) participants with AMI received aspirin and 33 (25.6%) received clopidogrel. Follow-up was achieved for all 129 AMI participants; 42 (32.6%) of participants with AMI died within 30 days of presentation. Participants with AMI were significantly more likely to die within 30 days than participants without AMI (32.6% vs 16.4%, OR 2.45, 95% CI: 1.56-3.83, $p < 0.001$).

Conclusion: AMI is common in a northern Tanzanian emergency department.

Recommendation: Interventions are needed to improve uptake of evidence-based AMI care and reduce AMI-associated mortality.

ORAL PRESENTATIONS

THEME: Disparities risk factors and determinants of health for NCDs

1. Understanding the impacts and perceptions of alcohol use in Northern Tanzania: A mixed-methods analysis.

Authors: William Nkenquye, Alena Pauley MScGH, Madeline Metcalf, Mia Buono, Kirstin West, Sharla Rent MD MScGH, Yvonne Sawe, Mariana Mikindo, Joseph Kilasara, Bariki Mchome, Blandina T. Mmbaga, Judith Boshe, João Ricardo Nickenig Vissoci, Catherine A. Staton.

Affiliation: Duke Global Health Institute, Duke University, Durham, Duke University Medical Center, Durham, Kilimanjaro Christian Medical Center, Kilimanjaro Christian Medical University College, Kilimanjaro Clinical Research Institute.

Background: Alcohol is a leading risk factor for death and disability. Tanzania has particularly high rates of consumption and few resources dedicated to minimizing alcohol-related harm. Ongoing policy efforts are hampered by dynamic sociocultural, economic, and regulatory factors contributing to alcohol consumption.

Objective: Using Kilimanjaro Christian Medical Center (KCMC) patient voices and a gender-focused approach, we explored alcohol perceptions and its regional

Methodology: This was a mixed-methods study conducted at KCMC between October 2021 and May 2022. 678 adult (≥ 18 years old) Swahili-speaking patients who presented to KCMC's Emergency Department (ED) or Reproductive Health Clinic (RHC) were enrolled through systematic random sampling to participate in quantitative surveys. Nineteen participants were selected for in-depth interviews (IDIs) through purposeful sampling. The impact and perceptions of alcohol use were measured through Drinkers' Inventory of Consequences (DrInC) scores analyzed in R Studio through descriptive proportions, and IDI responses explored through a grounded theory approach utilizing both inductive and deductive coding methodologies.

Results: ED men had the highest DrInC scores (16.4 [19.6]), followed by ED women (9.11 [13.1]), and RHC women (5.47 [9.33]), with higher scores indicating more perceived consequences. Participants recognized alcohol's dual nature in their community, with perceived advantages and clear harms. Negative consequences included increased conflict, long-term health issues, financial instability, stigma, and sexual assault. Benefits were primarily associated with men, including cultural preservation, economic growth, and social unity. Both genders suffered physical

and financial harm due to alcohol, but women experienced a disproportionate impact, facing alcohol-related stigma and sexual assault.

Conclusion: Our findings suggest that perceptions around drinking and alcohol's social and physical consequences differ significantly by gender.

Recommendation: To effectively minimize local alcohol-related harm, future alcohol-focused research and policy efforts should consider the distinct impacts alcohol has between genders.

2. Prevalence and risk factors for non-communicable diseases among people living with HIV receiving antiretroviral treatment in Zamfara state, Nigeria.

Authors: Nasiru Zurmi Bala, Bello Arkilla Magaji, and Vimla Luximon-Ramma.

Affiliation: Faculty of Clinical Sciences, College of Health Sciences, Usmanu Danfodiyo University.

Background: An emerging concern is the increasing burden of non-communicable diseases (NCDs) among people living with HIV (PLWH), particularly in low-income countries where lifestyle and nutritional factors associated with NCDs are on the rise.

Objective: To investigate the prevalence and determinants of NCDs in PLWH on ART at 2 Tertiary Hospitals in Gusau, Nigeria.

Methodology: A cross-sectional study design was employed, involving mentally stable participants aged 18 years and above who had been on ART for over three months and provided informed consent. Data collection included the WHO STEPS Instrument, blood pressure measurement, weight and height assessment, and biochemical analysis. Descriptive statistics and logistic regression were utilized for data analysis in SPSS version 23.0 for Windows.

Results: Among the 424 participants, 298 (70.3%) were female, and 164 (38.7%) fell within the 30-39 age group. A majority, 321 (75.7%), were Hausa ethnic group, and 245 (57.8%) were married. Notably, 194 (45.8%) had no formal education, while 51 (12%) were graduates. The mean age of participants was 37.3 years, with a mean Body Mass Index (BMI) of 24.9. Overall, the prevalence of raised blood pressure was 10.4 (95% CI: 7.5-13.3), cardiovascular diseases 7.3 (95% CI: 4.8-9.8), raised blood sugar 4.0 (95% CI: 2.1-5.9) and raised blood cholesterol 0.2% (95% CI 0.0-0.7). 7.1% of participants were current smokers, 11.3% were former smokers, and 2.4% used smokeless tobacco and 1.9% had consumed alcohol in the past 12 months. 38.9% of participants did not meet WHO recommendations on physical activity for health and 98.1% less than servings of fruits and vegetables per week.

Conclusion: This study provides a comprehensive exploration of the lifestyle factors and their relationship with NCDs among HIV patients receiving ART in Zamfara state

Recommendation: The findings emphasize the pressing need for interventions targeting modifiable risk factors such as education, smoking, and dietary habits to mitigate NCDs in this population.

3. Association of household air pollution with markers of glucose metabolism in adults living in Mwanza northwestern, Tanzania: a cross-sectional study.

Author: Happyngess Kunzi, Belinda Kweka, Evangelista Malindisa, Bazil Kavishe, Kelvin Nsanya, Kidola Jeremiah, Ng`wamba Ngissa, Suzanne Filteau Daniel Faurholt-Jepsen, Henrik Friis, Happy Range, Brenda Kitilya, George PrayGod.

Affiliation: National Institute for Medical Research- Tanzania, University of Copenhagen - Denmark, London School of Hygiene and Tropical Medicine- UK.

Background: The burden of diabetes is rapidly increasing in low- and middle-income countries but determinants are not well-characterized. Non-conventional factors like household air pollution (HAP) could be contributing to the increasing burden but data are limited.

Objective: To determine the association of HAP with markers of glucose metabolism among adults living in Mwanza, Tanzania.

Methodology: This was a cross-sectional study conducted from 2016 to 2017. We collected data on sociodemographic and risk factors for non-communicable diseases (NCDs). HAP was categorized as minimal or no exposure, moderate exposure and high exposure using reported information on where people routinely cooked their meals (outdoor or indoor) and type of fuel used (electricity/gas or biomass fuel) and was the main predictor variable. Glucose and insulin were collected during oral glucose tolerance (OGTT). The main outcome variables were HOMA- β , Insulinogenic index, Oral disposition index and Overall insulin release, HOMA-IR, Matsuda index and pre-diabetes and diabetes. Data were analyzed using logistic regression.

Results: A total of 1942 were included. The mean age was 40.6(\pm SD) years and 59.42% (1,157) were females. 6% had minimal or no exposure, 44% had moderate and 50% were highly exposed to HAP. People with moderate exposure and high exposure to HAP had increased odds of lower Insulinogenic index (OR =2.15[95% CI:1.28 ,3.62]) and (OR= 2.31 [95% CI: 1.38 ,3.84]) respectively. Increase in age and male sex were associated with increased odds for lower HOMA- β . HAP was not associated with insulin resistance, prediabetes, and diabetes.

Conclusion: Exposure to indoor air pollution is associated with increased risk of β -cell dysfunction in our study population.

Recommendation: Studies assessing HAP objectively are needed to confirm these results.

4. Extreme Leukocytosis is Associated More with Malignant Than Infectious Etiologies.

Authors: Adamu Kilunqu.

Affiliation: Mbeya Zonal Referral Hospital.

Background: Extreme leukocytosis refers to a marked increase in the WBC count, usually more than double the upper limit of normal. Etiologies of extreme leukocytosis are multifactorial and include infections and hematological malignancies. In clinical practice, leukocytosis is mainly attributed to infectious etiology and quite often, less consideration is given to malignant etiology, even in cases of extreme leukocytosis.

Objective: To describe the aetiologies and clinical profiles of patients presenting with extreme leukocytosis

Methodology: This was a retrospective cohort study in which records of all patients with extreme leukocytosis who attended Mbeya Zonal Referral Hospital, between January 2021 and December 2022 were reviewed and analyzed. All patients who were found with $WBC \geq 50 \times 10^9/L$ were eligible for the study. Study cases were identified by review of CBC data from the laboratory information system (Disa). Participants' demographics, details of the clinical presentation, underlying medical condition and the etiology of extreme leukocytosis were obtained from the MZRH electronic database (e-medical) and recorded in a case report form.

Results: 178 patients were found to have extreme leukocytosis; males 95 (53%) and females 83 (47%). The level of Leukocytosis ranged from $50 \times 10^9/L$ to $812 \times 10^9/L$ white blood cells, and the median WBC count was significantly higher in the malignant compared to the infection group (221 vs. 56 WBCs). Regarding etiologies of extreme leukocytosis, malignant etiologies accounted for 45%, infection 41%, and other causes 14%. The presence of thrombocytopenia, organomegaly and lymphadenopathies added more to the chance of malignant etiologies.

Conclusion: "Leukocytosis in excess of $50 \times 10^9/L$ is significantly associated with malignant etiologies. The presence of thrombocytopenia, splenomegaly/ hepatomegaly/ lymphadenopathy adds more to the possibility of a malignant cause.

Recommendation: Clinicians are advised to have a low index of suspicion of malignant etiologies when patients present with white blood cells of $50 \times 10^9/L$ and above.

5. Clinical Characteristics, Circulating Inflammatory and Metabolic Markers in people with and without Diabetes Mellitus in Tanzania.

Authors: L. MREMA, S. Naftal Laizer, N. Chamba, K. Kilonzo, I. Sabi, N. Elias Ntinginya, G. Temba, R. van Crevel.

Affiliation: National Institute for Medical Research - Mbeya Medical Research Centre, TB and emerging diseases, Mbeya, Tanzania, Kilimanjaro Clinical Research Institute, Internal Medicine, Kilimanjaro, Tanzania, Kilimanjaro Christian Medical Centre, Internal Medicine, Kilimanjaro, Tanzania, Kilimanjaro Christian Medical University College, Biomedical sciences, Kilimanjaro, Tanzania. Radboud University Medical Centre, Internal medicine, Nijmegen, Netherlands Antilles.

Background: Diabetes mellitus (DM) prevalence in Sub-Saharan Africa (SSA) is rapidly increasing, yet the clinical characteristics and underlying inflammatory and metabolic profiles of disease in this region remain poorly understood.

Objective: We aimed to compare circulating inflammatory proteins in DM and non-DM patients while examining the clinical characteristics of DM patients in relation to inflammatory proteomics and lipidomic profiles.

Methodology: In a cross-sectional study involving 243 DM patients and 323 healthy non-diabetic individuals in Tanzania, we collected clinical data and demographics; and fat distribution, glycemic control, medication, c-peptide, creatinine, and uric acid for those with DM. Circulating inflammatory markers and metabolites were assessed from plasma samples using the 92-Olink inflammatory panel and nuclear magnetic resonance (NMR) spectroscopy for 350 targeted metabolites (Nightingale Health Plc). All data were analyzed using R software.

Results: Compared to controls, individuals with DM were more often female, older, and with a higher BMI. The median duration of DM was 9 (3; 14) years, median BMI was 28(24; 31) mid-upper arm circumference was 28.8 (27; 30) cm, total body fat was 36.4 (28; 45), and visceral fat was 10 (8; 13). Median HbA1c was 9.8(8; 12) %, Insulin was used by 15%, metformin by 82%, and other oral glucose-lowering drugs by 4%. More than 72% of DM patients had mild to end-stage chronic kidney disease. Hyperuricemia was observed in 17% of females and 4% of males. Among non-insulin users, the median c-peptide level was 0.7 (0.5; 1) ng/mL. Circulating inflammatory protein concentrations were significantly higher in people with DM compared to those without DM. Unsupervised hierarchical clustering of proteomic data among people with DM

cohort revealed three distinct clusters with varying inflammatory profiles. Age, disease duration, metformin use, uric acid levels, c-peptide, and chronic kidney disease showed statistically significant differences between the clusters."

Conclusion: DM in Sub-Saharan Africa is characterized by a heterogeneous clinical presentation, obesity is often absent, but glycemic control is mostly suboptimal with complications being common.

Recommendation: Further studies should identify underlying inflammatory and metabolic dysregulation, and strategies and potential specific targets to improve outcomes.

6. Factors influencing clinics attendance among hypertension and diabetes patients: a study from Tosamaganga Hospital's NCDs Program.

Authors: Noemi Bazzanini, Rehema Itambu, Emmanuel Ndile, Anitha Mligo, Katunzi Mutalemwa, Francesca Cera, Lucia Franca, Paolo Belardi, Bruno Ndunguru, Samwel Marwa, Francesca Tognon, Ilaria Storti, Mario Saugo.

Affiliation: Doctors with Africa CUAMM, Iringa, Tanzania, Tosamaganga Voluntary Agency Hospital, Tosamaganga, Tanzania, Iringa District Council, Tanzania, Doctors with Africa CUAMM, Padua, Italy.

Background: Patients with hypertension and diabetes in the Non-Communicable Diseases (NCDs) program at Tosamaganga Voluntary Agency Hospital are advised to attend follow-up visits every six months.

Objective: The aim of this research was to examine patient adherence to follow-up appointments at the NCDs clinic and identify the factors that influence their attendance.

Methodology: Since 2019, an electronic medical record system has been employed to track and monitor patients with NCDs. Attendance to the initial follow-up visit (V2) was considered. Multivariate linear regression analyses were conducted, considering variables such as gender, age group (<60, 60-79, 80+ years), pre-existing health conditions, proximity to the hospital, and insurance status.

Results: Among the 1,518 enrolled patients, 785 (52%) attended V2; the median time between the initial visit and V2 was 199 days. Females showed a higher likelihood of attending V2 (RR 1.15; 95% CI: 1.02-1.30; p-value 0.02) as did patients who were already on treatment during their enrolment visit (RR 1.16; 95% CI: 1.04-1.30; p-value 0.008). Proximity to the hospital reveals a gradient in V2 attendance. Patients within 20-39 kilometers were more likely to attend V2 (RR

0.83; 95% CI: 0.73-0.94; p-value 0.004) compared to those living at 40-59 kilometers (RR 0.84; 95% CI: 0.73-0.98; p-value 0.022), 60-79 kilometers (RR 0.77; 95% CI: 0.66-0.89; p-value 0.001), and 80+ kilometers (RR 0.60; 95% CI: 0.46-0.78; p-value < 0.001). Having insurance is associated with a higher frequency of follow-up visit (RR 1.12 CI: 1.01-1.25) only in the univariate analysis.

Conclusion: Our findings suggest that gender, prior treatment status, and distance from the hospital affect patients' attendance at follow-up appointments.

Recommendation: These insights may support healthcare providers and policymakers to define tailored interventions to increase follow-up attendance, such as decentralizing NCDs services provision to the nearest center.

7. Contribution of human papillomavirus infection in etiopathogeneses of oral and oropharyngeal squamous cell carcinoma in Tanzania.

Author: Sira S. Owibingire, Elison N.M. Simon, Iren Kida-Minja, Siren Fromreide, Innocent J. Mosha, Edda A. Vuhahula, Daniela E. Costea.

Affiliation: Muhimbili University of Health and Allied Sciences.

Background: Globally there has been a global upsurge of oropharyngeal cancer cases associated with human papillomavirus (HPV) infection but data from Tanzania on the same is scarce. It is recommended to know the HPV status of oral and oropharyngeal squamous cell carcinoma (OPSCC) before treatment due to differences in response however this is not practiced in Tanzania.

Objective: This study aimed at determining the HPV status to OPSCC through p16 immunohistochemistry (IHC) and in situ hybridization (ISH) and comparing the IHC results of p53 biomarker.

Methodology: The study was done at Muhimbili National Hospital (MNH) and MUHAS Dental Clinic whereby the biopsies were taken from the cases clinically suspected to have OPSCC. The blocks of 218 patients confirmed to have OPSCC were obtained and screened for suitability of processing tumor microarray (TMAs) for IHC and ISH whereby blocks for 176 patients qualified. TMAs were prepared, and then IHC and ISH were done. In addition, IHC for p53 was performed for comparisons.

Results: Out of 176 cases of OPSCC the p16 overexpression was found in 14 cases (7.95%) which had over 70% of cells in the specimen stained. In-situ hybridization was done in all cases and only 2 (1.13%) were positive. The majority of p16 positive cases showed only weak stains on ISH. The majority of the 14 cases which showed p16 overexpression were located on the tongue followed by retromolar trigone and buccal. Most of the cases that were p53 positive had no p16 overexpression and were randomly distributed on the subsites.

Conclusion: Findings concur with research done elsewhere in sub-Saharan Africa showing that HPV infection among OPSCC is low, but more so in oral cancer cases. Given the current situation of genital HPV infections, there is a need for constant surveillance of the same for the oropharyngeal area.

Recommendation: There is still a necessity to routinely determine HPV status using p16 IHC and RNA ISH among OPSCC cases in Tanzania before initiation of treatment for the sake of estimating prognosis and for constant surveillance of HPV burden.

8. Gender differences in access to care services for diabetes and hypertension: The case of Iringa District Council in Tanzania.

Authors: Noemi Bazzanini, Giulia Santi, Mario Saugo, Paola Muti, Marta Rigoni, Benedict Kago, Rehema Itambu, Katunzi Mutalemwa, Emmanuel Ndile, Paolo Belardi, Bruno Ndunguru, Gaetano Azzimonti.

Affiliation: Global Health Master, University of Milan, Doctors with Africa CUAMM, Padua, Italy, University of Milan, Tosamaganga Voluntary Agency Hospital, Tosamaganga, Tanzania, Doctors with Africa CUAMM, Iringa, Tanzania, Iringa District Council, Tanzania.

Background: Gender-based research on non-communicable diseases (NCDs) in the Global South is notably limited.

Objective: This study aims to contribute to this important topic by investigating how social determinants of health differentially affects the participation and adherence of male and female patients.

Methodology: A retrospective observational study was conducted, encompassing all diabetic and/or hypertensive patients in the NCDs program in Tosamaganga Hospital in Iringa District Council from March 1, 2019, to February 2, 2022. The analysis includes a sex-disaggregated examination of data related to patients' occupation, possession of health insurance, exposure to risk factors, disease severity, personal and family medical histories.

Results: A total of 1255 individuals were included in the analysis, 74% were women. The female population exhibits higher rates of obesity (30.6% vs 16.6%, p-value<0.01) and a more sedentary lifestyle (23.2% vs 18.0, p-value 0.05). The male population tends to engage in higher rates of smoking (12.4% vs 4.3%, p-value 0.05) and alcohol consumption (47.4% vs 32.0%, p-value<0.01) and show an increased likelihood of having elevated blood pressure values at the enrolment visit by 72% (OR 1.72%, CI: 1.15-2.55; p-value <0.01). Despite facing greater socio-economic disadvantages and lower rates of insurance coverage compared to men (27.5% vs 35.6%, p-value<0.01), women participate more in the program and are more likely to adhere to the recommended follow-up, especially women aged 60 and older (OR 0.67; CI: 0.50-0.92; p-value 0.01).

Conclusion: In addition to the positive aspects of women's participation, our findings highlight a concerning socio-economic disadvantage experienced by the female population. This underscores the need to bolster policies aimed at enhancing educational and economic opportunities for women. Furthermore, the research underscores the necessity of promoting health-seeking behavior among men through targeted, gender-sensitive awareness campaigns.

Recommendation: Addressing gender-specific risk factors and disparities in healthcare access is pivotal for effectively combating the burden of NCDs in Tanzania.

9. Breast cancer survival and associated factors in Mainland Tanzania: A hospital based retrospective study.

Authors: Daniel Joshua, Nazima Dhrasee, Candida Moshiro.

Affiliation: Zanzibar Health research Institute (ZAHRI), Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Breast cancer is the most common cancer globally, with more than 1.1 million women newly diagnosed cases every year. Cancer survival studies are among the preferred indicators to assess progress in cancer control and prevention. There are limited data on breast cancer survival and the associated risk factors in Tanzania.

Objective: To determine the two-year survival rate and the associated factors among breast cancer patients who underwent treatment at Ocean Road Cancer Institute.

Methodology: The study was a hospital-based retrospective cohort study, and it involved cancer registry data from Ocean Road Cancer Institute. Data of all breast cancer cases registered in January 2019 to June 2020 were followed up for 2 years until May 2022. The two-year survival

rate was estimated using the Kaplan Meier method. Factors associated with survival were examined using Cox's proportional Hazards model.

Results: Among 316 patients, 39 (12.3%) died. The overall 2-year survival rate of the breast cancer patients was 78.9% (95% CI = 71.3% - 84.7%). Poor survival was observed among patients enrolled with late stage of diagnosis, stage IV. Patients who were single, divorced or separated had poor survival compared to their counterparts (Log rank test $P < 0.0546$). Bivariate analysis revealed that, late stage of diagnosis was associated with breast cancer mortality (crude hazard ratio (cHR) = 3.34; 95% CI = 1.00 – 11.56). However, the relationship was not significant in the multivariable model.

Conclusion: The 2-year survival of breast cancer patients was fairly good for Mainland Tanzania.

Recommendation: Allocation of resources should be considered for screening breast cancer in women in the facility.

10. Predictors and outcomes of ventricular dyssynchrony among patients with heart failure attending Benjamin Mkapa Hospital in Dodoma, central Tanzania.

Authors: Patrick Bilikundi, Baraka Alphonse, Azan Nyundo, John Meda.

Affiliation: The University of Dodoma.

Background: Ventricular dyssynchrony, (VD) is prevalent in heart failure patients with high cost of care and potentially poor outcomes. Nevertheless, little is known about VD, especially in developing countries.

Objective: The study aimed at determining the prevalence and predictors/risk factors associated with VD among heart failure patients attending cardiology department at Benjamin Mkapa referral hospital in Dodoma central Tanzania

Methodology: this was a prospective observational study that was conducted among heart failure patients aged 18yrs and above, attending the cardiology department at Benjamin Mkapa Hospital, for those found with Ventricular dyssynchrony were then followed up for a duration of six month to ascertain outcomes (readmission, worsening heart failure symptoms, death).

Results: 150 HF patients were included in the study, with a mean age of 61.97 ± 10.77 , of whom 58.7% were females. The prevalence of ventricular dyssynchrony was 55%. Ventricular Mechanical Dysynchrony was found to be 77(51.33%), (of whom interventricular mechanical

dyssynchrony was 51.95%, and intraventricular dyssynchrony was 48.05%). Electrical dyssynchrony was found in 57(38%) HF patients. Both mechanical and electrical dyssynchrony were seen in 51(34%) participants with HF. The predictors of ventricular dyssynchrony were: Dilated Cardiomyopathy (AOR 6.968, CI: 1.108-43.84, $p = 0.0386$), ischemic heart disease (AOR 20.818, CI: 3.871-111.967, $p = 0.0004$), NYHA IV (AOR,6.968 CI:1.288-32.39, $p = 0.0233$), reduced ejection fraction <50% (AOR 30.176, CI: 6.479-140.549, $p < 0.0001$). After six months of follow-up, 27(32.5%) had worsening Heart Failure, 22(26.5%) had readmission and there were 6 (9.2%) deaths.

Conclusion: Ventricular dyssynchrony is common in individuals with heart failure and has a negative impact on their prognosis. Reduced ejection fraction, dilated cardiomyopathy, New York functional class IV, and ischemic heart disease were the risk factors for developing ventricular dyssynchrony.

Recommendation: 1. Regular screening for ventricular dyssynchrony among patients with heart failure should be done regularly especially those who are at optimal medications but still experience symptoms 2. The government should lay grounds for designing larger studies, which may pave way for incorporating therapeutic services like cardiac resynchronization therapy that has been found to improve outcomes in this group of people.

11. Towards the elimination of cervical cancer in Tanzania: Transdisciplinary science for smarter implementation strategies.

Authors: Magreat Somba, Sally Mtenga, Sonja Merten, Julia Bohlius, Grace Mhalu, Mari Dumbaugh, Daniel Kipo.

Affiliation: Ifakara Health Institute (IHI) & Swiss Tropical and Public Health Institute (Swiss TPH).

Background: Cervical cancer (CC) is one of the most preventable forms of cancer if it is detected and treated early. In Tanzania, cervical pre-cancer (CpC) screening rates are estimated at only 11% despite different initiatives implemented to address the burden of the disease. Thus, understanding how women in the community perceive CC, CpC screening, and treatment will inform strategies to help women prioritize early CpC screening and treatment services.

Objective: Towards the elimination of cervical cancer in Tanzania: Transdisciplinary science for smarter implementation strategies (TRACCTION) aims to better understand CpC screening and CC treatment delays in Kilombero district, Tanzania

Methodology: The TRACCTION team is an international collaboration of interdisciplinary Tanzanian and Swiss researchers. This convergent mixed-methods study, running from 2023-2025, uses a variety of qualitative data collection methods including a qualitative social network analysis and body mapping. A stratified, two-stage randomized survey is underway in peri-urban and rural areas to estimate the uptake of CC screening and its predictors in the study population. A crossover analysis will explore CC information sources, networks and other known predictors of accessing CC services. Community members and health care professionals will be invited to participate in the development of policy recommendations.

Results: After receiving ethical approval for the study, we engaged in a mapping of relevant actors in the study area. Formative focus group discussions explored individual and community perspectives on CC, barriers to services and health-seeking behaviours for the continuum of CpC and CC screening and care. This knowledge informs the context-specific development of mixed methods research tools.

Conclusion: Identifying, understanding, and adequately addressing bottlenecks in the provision of CpC screening and CC care through a participatory, transdisciplinary process will allow policymakers to improve outcomes among women living in Tanzania and eventually meet national and international targets to eliminate CC

Recommendation: Data collection ongoing.

12. Health promotion behaviors for prevention of non-communicable diseases among healthcare workers in private and public hospitals in Ilala district Dar Es Salaam.

Authors: Martha Nkya, Gozbert Kamugusha, Elisha Osati.

Affiliation: Department of Community Services, Management and Development for Health (MDH), Department of Sociology and Anthropology, University of Dar es Salaam, Department of Internal Medicine, Muhimbili National Hospital.

Background: The burden of non-communicable disease is growing. The fear is also growing in every nation, and everyone is asking oneself if any immediate and sustainable measures will be burden of diabetes alone is expected to increase from 366 million people living with diabetes in 2011 to 522 mil It is estimated that NCDs accounts for 27% of all deaths.

Objective: To determine Health promotion behaviors and practices for prevention of non-communicable diseases among healthcare workers in private and public hospitals in Ilala district Dar es Salaam.

Methodology: This was quantitative cross-section study that involved 350 medical professionals including doctors, nurses, pharmacists, physiotherapists, and nutritionists. Continuous variables were summarized by measures of central tendency and dispersion whereas frequencies and proportion were used for categorical variables.

Results: The sample included 149 doctors, 121 nurses, 56 Pharmacists, 17 Physiotherapists, and 7 Nutritionists. About 61.4% of healthcare workers who participated in this study were drinkers and 38.6% were non-drinkers. Only 1.4% of healthcare workers observed the WHO's recommended 8 hours of sleep. 52.3% of healthcare workers do physical exercise while 47.7% do not. Moreover, the analysis of BMI concluded that 1.4 % of studied healthcare workers were 'underweight', 41.1% had a 'healthy' status, 42% were 'overweight', and 15.4% were 'obese'.

Conclusion: Medical professionals' health-promoting behavior does not reflect the health and disease knowledge they possess. The health promotion behavior practices were poor regardless of the health professionals' working experience. Moreover, healthcare workers in private and those in public hospitals are equally exposed to risks of non-communicable diseases as they both have poor health promotion behavior practices.

Recommendation: The study recommends that national health policy should initiate anti-smoking rules, alcohol consumption restrictions and BMI tracking among Health practitioners. Hospitals should launch and maintain employees' well-being programs at their workplace.

SUBTHEME: NUTRITION DISPARITIES AND EMERGENCY PREPAREDNESS IN NCDS

1. The imperative of eradicating stunting to zero by 2030, The case of Tanzania.

Author: Godfrey B. R. Swai; Kelvin Leshabari, Mathew Mwanjali, Faustine Mayunga.

Affiliation: Ultimate Family Healthcare Trust [UFHT].

Background: Tanzania and the International Community commitment [2012-2025] of reducing Prevalence of Stunting [PoS] by 40%; an Average Annual Reduction Rate [AARR] of 3.1 percent was nonetheless, reported [2022] to be below 0.8 percent. The high PoS in Tanzania is a result of inadequate diets, which is essentially preventable by over [80-90%] under Primary Healthcare [PHC] framework.

Objective: To inform key stakeholders on the benefits of eradicating stunting to zero in favor reductionists' approaches in Tanzania and elsewhere by 2030.

Methodology: Review of literature relevant to stunting, health, social and economic status of Tanzania and other countries during the past two decades [2000-2021]. The main sources of information included World Health Organization Global Health Observatory data, National population, health and nutrition surveys, and peer reviewed publications.

Results: The Prevalence of Stunting [PoS] among children under five years in 159 countries ranged from [1.4-58%] in 2000 and [0.9-63%] by 2021 with an AARR of [-1.7 to 1.6%]. Tanzania reduced PoS from [47-31%], with AARR of 0.8 percent. Stunting and other forms of malnutrition accounted for most top ten diseases despite plentiful of plant, animal and sea foods in the country. Universals Heath Coverage [UHC] Service Coverage Index [SCI] over the review period for 188 countries ranged from [11-81] and [27-91] respectively with Annual Average of Rate of Increase [AARI] of [0.3-3.3]. Countries with the highest UHC-SCI Countries had least PoS. The population pyramids [PP] of Tanzania remained expansive over the review period. The high PoS and the lifelong cognitive impairment on the work force resulted in seemingly high dependence ratio which critically undermined economic productivity.

Conclusion: Tanzania's AARR and AARI can be maximized for attainment of Zero stunting and UHC. The high PoS is undercutting productivity and restraining health, social and economic development.

Recommendation: Health Professionals should urgently mobilize high level multidisciplinary consensus for concerted Eradicating of Stunting to zero by 2030 in Tanzania.

2. The landscape and level of alcohol policy implementation in Tanzania: A review

Authors: Kim Madundo, Aliza Hudda, Maaiké Seekles, Angela Obasi, Blandina Mmbaga

Affiliations: Department of Mental Health and Psychiatry - Kilimanjaro Christian Medical University College - Moshi - Tanzania, Department of Mental Health and Psychiatry - Kilimanjaro Christian Medical Centre - Moshi - Tanzania, The Liverpool School of Tropical Medicine, Department of International Public Health - Liverpool - UK, Department of Pediatric and Child Health, Kilimanjaro Christian Medical University College - Moshi - Tanzania; Kilimanjaro Clinical Research Institute - Moshi - Tanzania

Background: Harmful use of alcohol causes more deaths in Sub-Saharan Africa than in any other region. In Tanzania, where alcohol use disorder rates are twice the overall African average, harmful alcohol consumption is a public health concern.

Objective: Given the lack of a contemporary overview, we aimed to review key alcohol-related policies, implementers, and initiatives in Tanzania.

Methodology: Utilizing the 10-composite-indicator framework for measuring alcohol policy implementation developed by World Health Organization, and Google searches, we conducted a desk-review of policy-related documents, and in-depth interviews with eight key informants. Representatives were from health-service delivery, community-based organizations, governmental organizations, research, and policymakers whose work is related to alcohol in Tanzania. Data collection was finalized in March 2023. Microsoft Word v2021 was used for analysis. Themes were identified, collected, combined, and tabulated. Differences were resolved by the first three authors.

Results: Tanzania has no single comprehensive national alcohol policy. Pending finalization of a draft policy, various documents and actors govern alcohol production, distribution, licensing, and consumption. There is little intersectoral linkage between these entities, contributing to poor implementation of regulations. Regulation is stronger in urban areas, and restrictions more effective on industrial alcohol. However, majority of consumed alcohol in Tanzania is informally produced, and especially in rural settings. This likely indicates low overall impact of alcohol policy implementation in Tanzania. Socio-cultural context plays a key role in behavior surrounding alcohol production and consumption, contributing to early-age exposure to alcohol. Alcohol is a

growing source of revenue for the Tanzanian government; imposing further restrictions is a low priority.

Conclusion: There are several gaps in policy and implementation relating to alcohol use in Tanzania.

Recommendations: Our results strongly suggest the need for a comprehensive approach to developing alcohol policy with involvement of key stakeholders, building awareness, and means of support.

3. Clients, health care providers and family reasons for the implementation of timely initiation of breastfeeding: A case of health care facilities In Kinondoni Municipality, Dar Es Salaam.

Authors: Jacqueline Raphael, Idda H. Mosha, Anna Tengia Kessy, Furaha August.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Timely initiation of breastfeeding, within the first hour of birth, is crucial to reduce neonatal mortality and morbidity. Delaying by 2-23 hours increases the risk of newborn death. Globally, 47% of newborns start breastfeeding promptly, with variations in Africa. In Tanzania, only 53.5% adhere to this practice, falling short of the WHO's 70% recommendation.

Objective: To describe client, provider, and family reasons for the implementation of timely initiation of breastfeeding of timely initiation of breastfeeding among health facilities in Kinondoni Dar es Salaam.

Methodology: This descriptive qualitative study was conducted at Kigogo and Tandale health centers, involving clients, healthcare providers, and family members in the postnatal ward. Convenient sampling was used to select 19 participants (6 clients, 7 healthcare providers, and 6 family members) who were interviewed using a semi-structured interview guide. The data, including audio recordings, field notes, and transcripts, were securely managed. Thematic analysis, assisted by Nvivo version 12, was applied to analyze the data.

Results: Theme 1, client motivations for timely breastfeeding initiation are examined, highlighting the crucial role of awareness, support from healthcare providers, and family support. In Theme 2, healthcare providers' perspectives on this practice delve into understanding its importance, access to relevant information, incentive systems, the presence of a supportive team, and the impact of their workload on breastfeeding initiation. Theme 3 explores family reasons for timely

initiation, emphasizing the influence of advice from antenatal care (ANC) services in motivating and persuading mothers, as well as the significant impact of mass and social media in spreading information about the importance of breastfeeding initiation for infant growth. Additionally, it notes the shift in cultural beliefs and norms away from practices like discarding the first milk, highlighting evolving attitudes toward breastfeeding initiation. These themes collectively underscore the multi-faceted drivers of timely breastfeeding initiation, encompassing awareness, support, information, incentives, teamwork, media influence, and changing cultural perspectives.

Conclusion: Mothers value breastfeeding awareness from healthcare providers, family, and media. Experienced mothers grasp the importance of TIBF, while others follow laws. Healthcare providers are vital for TIBF when training and teamwork are constant. Family support, media, and shift norms, aiding TIBF.

Recommendation: HCP to enhance tailored support for first-time mothers on TIBF and promote family involvement starting from ANC, Health facility management to address provider shortages, social influencer engagement for accurate social media dissemination to improve timely breastfeeding initiation rates.

4. Experience among cervical cancer patients at Ocean Road Cancer Institute: The pathway to care.

Authors: Naku K. Makoko, Amani I. Kikula, Amani Anaeli.

Affiliation: National Institute of Medical Research (NIMR), Muhimbili University of Health and allied Sciences (MUHAS)

Background: Cervical cancer is one of the serious threats to women's lives which is caused by human papillomavirus (HPV). In East Africa mortality rate is highest in Tanzania. Late-stage presentation is the main cause of high mortality rates among women in Tanzania.

Objective: To explore the experience along the pathway to care among patients diagnosed with cervical cancer at Ocean Road Cancer Institute (ORCI).

Methodology: The study adopted phenomenological study design using qualitative approach to collect and analyze information using in-depth investigation. The target population for the study included all cervical cancer patients at ORCI. The study used an In-depth Interview (IDI) approach using Swahili translated guides with the interviews being audio recorded. The audio was transcribed verbatim and data was analyzed manually using Giorgi's Phenomenological Analysis.

Results: A total number of 18 cancer patients were interviewed. Among these participants, 12 were cancer patients while 6 were survivors. The mean age of participants was 55 years. Among them, 12 participants had completed primary level education, 12 of the participants were low scale farmers and 11 of the participants were married. The pathway to care among cervical cancer patients commenced with different initial symptoms and stages of the disease. The patients faced post-diagnosis fear, anxiety and confusion. Individual factors, social factors and health system factors played major roles in acting as barriers and enablers along the pathway to care.

Conclusion: The study shows that experience along the pathway to care among cervical cancer patients is laborious and multiplex. Individual factors, social-cultural factors and health system factors play a major role in the pathway to care.

Recommendations: Empowering the community to generate awareness of the disease and empowering health care providers to improve their clinical acumen skills for cervical cancer diagnosis, particularly in lower-level facilities.

5. Pulmonary Kaposi Sarcoma at presentation and its outcome in Sub Saharan Africa.

Authors: Herriethsiah Noah, Ernesti Zakayo, Felister Tupa, Chacha J. Mwita, Emmanuel Lugina, Revelian Iramu, Owen Ngalamika, Julius Mwaiselage, Charles Wood and Salum J. Lidenge.

Affiliation: Ocean Road Cancer Institute (ORCI), Dar es Salaam, Tanzania, Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam, Tanzania, Dermatology and Venereology Section, Adult Hospital of the University Teaching Hospitals, University of Zambia School of Medicine, Lusaka, Zambia, Department of Interdisciplinary Oncology, Louisiana State University Health Sciences Center, New Orleans, LA, USA.

Background: Cutaneous Kaposi Sarcoma (KS) is the most common presentation in both endemic (EnKS) and epidemic (EpKS) KS. Involvement of visceral organs occurs in up to 50% of cases and pulmonary KS can lead to rapidly progressive respiratory failure. Pulmonary KS mostly occurs in the EPKS group and can mimic other opportunistic infections like pulmonary TB, PCP, etc.

Objective: Therefore, this study investigated the prevalence of pulmonary KS and its outcome among patients presenting at Ocean Road Cancer Institute (ORCI).

Methodology: This was a retrospective study. We have analyzed radiographic findings of patients with KS as they presented for treatment at ORCI between 2021 and 2022 and their survival outcomes post treatment.

Results: The analyzed cohort consisted of 110 patients with KS (27 EnKS and 77 EpKS). At presentation EnKS (HIV neg) patients were significantly older than EpKS patients ($p=0.04$). In both groups there were male predominance ($p=0.04$). While all KS patients presented with cutaneous lesions, 9 (8.2%) had chest x-ray findings consistent with pulmonary KS. It was however not significant between EnKS and EpKS patients ($p=0.06$). An additional 14(12.7%) patients had findings consistent with other infectious conditions. Within 6 months of presentation almost 50% the population in the Pulmonary KS had died.

Conclusion: Pulmonary KS that normally associates with poor outcomes, contributes at least 8.2% of the cases at presentation.

Recommendation: Prospective studies to properly document a true burden of P-KS by using standard diagnostic tools (CT-chest, bronchoscopy+/- biopsy) to be conducted.

SUBTHEME: NCD EMERGENCY PREPAREDNESS

1. Knowledge of autism among clinicians in selected public and private hospitals in Dar Es Salaam Region: A cross-sectional study in Dar Es Salaam – Tanzania.

Authors: Ghanie H yahya, Francis Furia, Edward Kija.

Affiliation: MUHAS Department of Pediatrics and child health

Background: According to the World Health Organization (WHO), 1 out of every 100 children worldwide has autism spectrum disorder (ASD). There is a scarcity of information on Autism in lower-income countries, including sub-Saharan Africa. Timely diagnosis of Autism depends mainly on the knowledge of healthcare providers, and studies have documented inadequate knowledge of Autism among doctors in sub-Saharan Africa.

Objective: To determine the knowledge of autism and factors associated with the knowledge among clinicians in selected public and private hospitals in Dar es Salaam, Tanzania.

Methodology: This hospital-based cross-sectional study was conducted among clinicians working in the pediatric unit of fourteen selected major public and private hospitals in Dar es Salaam in March 2023 and April 2023. Social demographic characteristics and other factors were collected using a structured questionnaire. The knowledge about childhood autism among health care workers (KCAHW) questionnaire was used to assess clinicians' knowledge of childhood autism. The tool was adopted, modified, and used to collect data of the clinicians' knowledge on childhood autism. This questionnaire had a total of thirty questions divided into five domains: total score is 0 to 30 among 30 questions. clinicians scoring below the mean score are considered to have inadequate knowledge among the population and vice versa. knowledge gap is any score below the suboptimal among each of the domains. 1) Social interaction impairment 2) impairments in communication and language Development 3) compulsive pattern of behavior 4) what type of disorder childhood autism is and the onset of childhood autism 5) management modality for childhood autism and misconceptions about childhood autism. Categorical data were analyzed using SPSS v20.

Results: Four hundred and four participants were approached for this study in which 353 responded by filling out the study questionnaire making a response rate of 83%. Two hundred and four participants (57.8%) were males, 194 (55%) were aged over 30 years, and the participant's mean age (standard deviation) of participants was 32 ± 5.6 years. The mean score of 354 participants on the KCAHW questionnaire was 17 SD 3.474 out of a total score of 30

questions. The prevalence of doctors with adequate knowledge of Autism was 53.0%. Age and the level of education were independently associated with adequate knowledge of autism. Most participants had adequate knowledge of impairments in communication and language, with only 84 (23.8%) scoring below the mean. The knowledge gap was mainly seen in the types of disorders in childhood autism, with the highest number of participants with a knowledge gap (171, 48.4%) of participants with scores below the mean.

Conclusion: The study's findings is that majority of the clinicians in the selected hospitals in Dar es Salaam had inadequate knowledge about autism as seen globally. Clinicians age and level of education significantly influencing the level of knowledge among .The researchers observed that age and level of education of clinicians had a significant influence on their level of knowledge. Surprisingly, factors such as receiving special training on autism, the type of hospital where clinicians worked, having a family member with autism, or managing a child with autism did not have a significant impact on their knowledge, which contradicts findings from other studies. The researchers also noted that the most significant knowledge gap was observed in Domain 4, which pertains to understanding the type of disorder childhood autism is and its onset.

Recommendation: Mentorship programs among clinicians of different educational levels and ages should be implemented and emphasized. Further research is recommended to explore clinicians' attitudes, experiences, and barriers in acquiring and applying knowledge about autism, which can inform the development of better educational programs. Additionally, observational studies should include clinicians at all levels of healthcare facilities, including dispensaries, to improve early recognition and referral of individuals with autism, ultimately leading to better care and outcomes.

2. NCD emergency preparedness with focus in hard-to-reach communities with or without primary healthcare services amidst socio-political crises: The case of Ntambag community in the Northwestern Region of Cameroon.

Author: Value Health Africa

Affiliation: Non-Profit Organization

Background: Non-communicable diseases (NCDs) have become a major public health challenge worldwide; especially in low- and middle-income countries (LMICs) with approximately 28 million deaths per year they represent 28 million deaths per year. According to the Ministry of Public Health in Cameroon, NCDs are responsible for 31% of mortality and a significant

prevalence of hypertension (21.6%) and diabetes mellitus (6.5%). It is projected that the lack of NCD preparedness in Cameroon will cause a greater economic burden.

Objective: To assess NCD emergency preparedness in Cameroon with focus in hard-to-reach communities with or without primary healthcare services amidst socio-political crises.

Methodology: A survey was conducted in Ntambag community following community mobilization. Participants of both sexes from 5 years and above consented in the survey. They filled in a questionnaire. Anthropometric, demographic, NCD preparedness data were collected. Their fasting blood sugar and blood pressure were measured. The survey took place from 9-10th August 2023 at Ntambag health center which served as a safe space in the conflict hit region.

Results: Of the 113 participants screened during the survey, 75(66.4%) were females and 38 (33.4%) were males. The participants ranged from 5 to 69 years (mean age 36 ± 3.6 SD), with 97% being adults. 15(13.3%) of the participants (adults) and 1.3% of the children were hyperglycemic, suggestive of diabetes, and 17 (15.0%) were hypertensive. 69.2% were not aware of NCD preventive measures. 19.8% were active smokers.

Conclusion: The findings revealed critical gaps in NCD preparedness and community uptake and access to NCD services.

Recommendation: Ensuring that NCDs are included in the emergency health information systems. establishing a baseline profile of NCD burden in affected populations, mapping health facilities and workforce, providing NCD care; and establishing consensus on priority conditions and their standard treatment guidelines.

3. Acute myocardial infarction in a 33-year-old healthy male following use of a pre-workout supplement.

Authors: Smita V. Bhalia, Pedro Pallangyo, Makrina Komba, Zabella S. Mkojera, Janeth Mmari, Henry A. Mayala, Peter R. Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI).

Background: Despite their increased usage popularity, pre-workout supplements which are thought to elicit a synergistic effect on acute exercise performance and subsequent training adaptations have unclear safety profile. Nonetheless, in recent years serious adverse events linked to use of such supplements have been reported in the body of literature.

Objective: We present a case of a 33-year-old healthy male who presented with acute onset of left-sided chest pain following consumption of a pre-workout supplement.

Case: A 33-year-old man of African origin presented to the emergency department with a 10-hour history of retrosternal chest pain. His symptoms started 3 hours after consuming a pre-workout supplement followed by a 2-hour gym session. His past medical, surgical, and family history was unremarkable, and he had no apparent cardiovascular risk factor. Physical examination was unremarkable, however, electrocardiogram and echocardiogram showed features of anterolateral myocardial infarction (STEMI). Catheterization confirmed a 100% thrombotic occlusion of the mid Left Anterior Descending (LAD) artery and a 90% thrombotic occlusion of proximal Left Circumflex (LCx) artery. Revascularization with a drug-eluting stent was successful.

Conclusion: Pre-workout supplements could predispose to cardiac ischemia. This report sheds light on the potential dangers of pre-workout supplements and their association with atypical angina. Moreover, this case illustrates the importance of raising an index of suspicion for acute myocardial infarction and inquiries about possible use of off-label products when assessing young fitness-enthusiastic patients experiencing unusual chest pain.

4. Analyzing prospectively collected data from a Tier-1 dispatch-enabled EMS program in Tanzania.

Author: Marko Hingi, Peter G. Delaney, Zachary J. Eisner, Haleigh Pine, Jason Friesen, Krishnan Raghavendran.

Affiliation: LFR International, Los Angeles-California, USA, Trek Medics International, Charlotte-North Carolina, USA Tanzania Rural Health Movement, Ilemela-Mwanza, Tanzania Bisou Bailey Medical Dispensary, Ilemela-Mwanza, Tanzania.

Background: The World Health Organization recommends community bystander-driven (Tier-1) EMS as the first step toward formal EMS. On-scene response intervals for Tier-2 EMS systems are known to vary by density of centralized responder dispatch sites per population. Whereas Tier-1 EMS system community bystander responders are mobile, diffuse, and non-centrally dispatched.

Objective: To deploy GIS in analyzing prospectively collected data from a Tier-1 dispatch-enabled EMS program in Tanzania to assess response intervals

Methodology: In 2015, the Tanzania Rural Health Movement launched a Tier-1 lay first responder program integrated with Beacon, a mobile EMD platform for responder coordination in Mwanza,

Tanzania. Chief complaint characteristics, diurnal emergency variation, and response intervals (for emergencies with 367% data compliance) were prospectively recorded for descriptive analysis. Geographic information systems (GIS) software (ArcGIS Pro 2.8) used recorded latitude/longitude for compliant entries with available data for analysis of response interval and distance from Mwanza, plotted on a logarithmic distribution for correlation.

Results: 1,397 data entries were catalogued (2017-2022). 192 simulated test incidents and 701 data entries lacking 67% data compliance were filtered, leaving 504 entries for analysis. Of the chief complaints, 77.6%, 5.23%, 5.12%, and 11.98% were related to traffic injuries, falls, burns, and other causes respectively. Median on-scene response interval was 1 minute 47 seconds (mean=7 min,50 sec) (n=497). 49% of emergencies occur between Friday-Sunday, with 66.3% between 6am-6pm. There is no correlation between response interval and distance from Mwanza ($r=0.0053957$) (n=355).

Conclusion: A community bystander-driven Tier-1 EMS system with integrated mobile EMD demonstrates on-scene response intervals that are irrespective of distance, suggesting response intervals are not geographically dependent, which may be due to inherent Tier-1 responder diffusion and EMD coordination.

Recommendation: There is a potential need to invest in cost effective and WHO recommended community bystander-driver tier-1 EMS to enhance the sustainable community emergency response in Africa.

5. Placenta abnormalities: Sonographic patterns and associated factors in pregnancy at Muhimbili National Hospital.

Authors: Samson Nyanda, Lilian Salingwa, Flora Lwakatare.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Placenta pathologies are often overlooked and receive attention only when complications arise. In most settings, placenta reporting is often limited to the location and presence of calcification. A complete fetal ultrasound should include a full assessment of the placenta for any possible abnormalities. Placental diseases range from abnormal morphology, size, location, extent, and degree of placentation to abruption.

Objective: To demonstrate the sonographic patterns and proportions of placenta abnormalities and their associated factors in pregnant women attending Muhimbili National Hospital from July to December 2022

Methodology: This was a hospital-based quantitative cross-sectional prospective study involving 220 participants was done at Muhimbili National Hospital, where real-time placenta ultrasound findings were taken and documented from all pregnant women who met the inclusion criteria using a standard ultrasound machine with similar optimal settings on each visit until the sample size was reached.

Results: Placenta pathologies excluding those related to location and abruption were overlooked in 200(91.7%) of the study population. Pathologies related to placenta parenchyma, and morphology have a strong association with chronic illness and chronic medication both with $p < 0.001$ Placentomegaly has very strongly associated with chronic illness $p < 0.001$ highly associated with fetal complication. Unexplained fetal loss and neonatal death have a strong association with placenta parenchyma pathologies p -value 0.001 Sonographic features of placenta accrete will help antenatal diagnosis of the Placenta Accreta Spectrum.

Conclusion: Prevalence of placenta pathologies are alarmingly high, 32.7 %, 27.3% and 35.4 % for placenta morphology, placenta parenchyma and placenta maternal surface respectively. Placenta pathologies excluding those related to location and abruption were overlooked in 200(91.7%) of the study population that had done at least one ultrasound examination on this or previous pregnancies in this setting or elsewhere. Unexplained fetal loss and neonatal death have a strong association with placenta parenchyma pathologies p -value 0.001. Patterns related to an abnormality in placenta morphology have very strong evidence of association with chronic illness p -value < 0.001 and chronic medication p -value < 0.001 , which should receive attention and findings documented during each antenatal ultrasound screening. Antenatal diagnosis of placenta accrete spectrum using sonographic features will improve fetal and maternal outcomes. Patterns related to placenta parenchyma should be evaluated, documented, and followed up in subsequent scans for early detection of fetal complications p -value, very strong evidence of association with chronic illness p -value < 0.001 , and chronic medication p value < 0.001 .

Recommendation: A Standardized placenta reporting format based on the reported placenta patterns should be established to ensure practitioner examines and report all possible placenta pathologies, this will allow provide a means of communication among practitioners and facilitate

follow up of specific reported parameter on placenta pathologies. Practitioners should assess, document, and follow up the reported patterns in subsequent scan for early detection and timely intervention.

6. Impact of training to improve knowledge on prevention and management of non-communicable diseases among health care providers from primary health facilities in Tanzania. A comparative analysis among nurses and clinicians.

Authors: Filbert Nyoni, Rachel Nungu, Prof. Andrew Swai.

Affiliation: Tanzania Diabetes Association (TDA).

Background: With the rise in mortality and Morbidity caused by NCDs (WHO,2022), effective knowledge on NCDs prevention and management should be imparted to healthcare providers especially at primary healthcare levels. Shortage of skilled healthcare providers, staff attrition and task shifting makes training of both nurses and clinicians on NCDs crucial.

Objective: To ascertain the effect of training (add which type of training) of health care providers and differences in gained knowledge among nurses and clinicians in Tanzania

Methodology: The evaluation made use of secondary information from pre- and post-training questionnaires, where trainees responded to the same questions both before and after training. Twenty-seven and forty-three multiple-choice and true/false questions were included in the questionnaire for measuring nurses' and doctors' knowledge of the fundamentals of NCD prevention and management, respectively. The test was taken by a total of 1196 clinicians (MD-540, AMO-132, CO-524) and 1036 nurses (ANO-375, EN-451, NO-210).

Results: A paired-samples t-test was conducted to evaluate the impact of the NCD training on nurses' test scores. The results showed a significance increase in the marks of the nurses and clinicians before (Mean = 53) to after (Mean=66), $p < 0.001$ (two tailed) and mean 65 to 73 at $p < 0.001$ respectively. One-way ANOVA test was conducted to assess if the level of knowledge and skills in prevention and management of non-communicable diseases differs among nurses and clinicians' categories. For nurses and clinicians, in the pretest and posttest, the corresponding p-value was 0.001 and 0.0008 and 0.001 and 0.001 respectively. The further analysis/post hoc test results showed enrolled nurses have significantly low mean score than NO and ANO, also medical doctors have significantly high mean score than AMO and CO. However, no significant difference was detected between ANO and NO as well as between AMO and CO

Conclusion: Financial resources and the number of service providers are not sufficient to achieve training for each service provider at the health centers. But whoever will represent, the assessment has shown that there is an increase in knowledge based on the pre and post test results. Priority should be given to medical doctors, but AMO and CO can be chosen. In terms of nursing, anyone between ANO and NO can be chosen and the preferential position will remain for EN.

Recommendation: All healthcare providers should be trained on Prevention and management of NCDs to improve availability of services

SUBTHEME: NCD INTEGRATION HEALTH SYSTEM CHALLENGES AND OPPORTUNITIES FOR UNIVERSAL HEALTH COVERAGE

SESSION 1

1. Knowledge and attitude towards cervical cancer screening among female students in allied health colleges in the Shinyanga region.

Authors: Zephania Msunza, Anna Kessy Tengia, Saidah Mohamed.

Affiliation: Muhimbili University of Health and Allied Science (MUHAS).

Background: Cervical cancer is the fourth most common cause of death among women of reproductive age (15-49 years). In 2020, WHO reported a global incidence of 604,000 cases annually. In Tanzania, cervical cancer is the first cause of mortality and morbidity among female cancers.

Objective: Assess knowledge and attitude toward cervical cancer screening among female students and future HCWs from College

Methodology: Descriptive cross-sectional study with a sample size of 420 students from allied health colleges. A simple random sampling was used to select a study sample and a self-administered questionnaire was used to collect data. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 22, Likert, and brooms cut-off points. Association between variables was established using logistic regression and the Odds Ratio (OR) of greater than one, 95% confidence interval, and P-value of <0.05 were statistically significant.

Results: Two-thirds of the respondents, 276 (65.7%), had low knowledge of cervical cancer screening, while only 34 (8.1%) had very good knowledge of cervical cancer and screening. Most respondents (298(70.1%)) had a favorable attitude toward cervical screening. Only 52 (12.14%) had ever been screened for cervical cancer. Assessing the overall knowledge and attitude on uptake of cervical cancer screening results revealed that female students with moderate knowledge had higher significant odds of taking a cervical screening test 3.05(95% CI, 1.62-5.75, p=0.001).

Conclusion: The knowledge and uptake of cervical screening among female students in colleges are poor despite favorable attitudes.

Recommendation: There is a need for well-integrated advocacy to increase knowledge through information, education, and communication in colleges toward screening.

2. Prevalence and predictors of hydroxyurea use among sickle cell disease patients attending clinics in Tanzania.

Authors: Catherine Mhando, Mwashungi Ally, Obadia Nyongole, Aveline Mgasa, Emmanuel Balandya, Agnes Jonathan, Florence Urio.

Affiliation: Sickle Cell Programme, Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Sickle cell disease (SCD) results from a single base pair alteration in the sixth codon of hemoglobin's α -globin chain causing the sickled red cell, which promotes the aggregation of deoxyhemoglobin, making red blood cells stiffer and leading to hemolytic and vaso-occlusive complications. Since its introduction and approval from FDA, Hydroxyurea (HU) has brought forth beneficial outcomes in SCD patients. Studies have shown that the use of HU in SCD.

Objective: This study aimed at determining the prevalence of patients with SCD using HU, predictors for HU use among SCD patients attending different clinic sites in Tanzania, and change in severity of anemia among SCD patients after using HU for at least 3 months.

Methodology: A retrospective review of data of SCD patients collected at 10 hospitals from January 2017 to December 2022 was conducted at Sickle cell center (SPARCO center) in collaboration with Muhimbili University of Health and Allied Sciences. The percentage of SCD patients using HU was calculated, and the socio-demographics factors such as age, name of the hospital where patients attended, and health insurance coverage were analyzed to determine the predictors for HU use. Chi-square test was used to assess the association between socio-demographic factors and HU use. Factors with odds ratio above 1 were considered to be the predictors of HU use. A one-year review of anemia severity before and 3 to 6 months after HU treatment was evaluated. Patients' hemoglobin levels before HU use and at least 3 months after HU initiation were analyzed using Wilcoxon test as they were not normally distributed. The p-value of less than 0.05 was considered to be statistically significant.

Results: Data of 6275 SCD patients were retrieved from the database from January 2017 to December 2022. The median age was 11 years (IQR 22). 77% of all patients were children below 18 years of age. The prevalence of HU use was 32%, of which the majority (47.7%) were attended at Muhimbili National hospital (Upanga and Mloganzila campuses). 84.6% of patients who use HU were on Health insurance coverage. HU is only utilized by 5.2% of patients who visit district hospitals in Pwani region. Health insurance coverage and level of hospital were found to be the predictors of HU use in Tanzania. There was a significant alteration in the severity of anemia by

at least 3 months of HU utilization. Before HU use 73.7% had severe anemia, 25.4% had moderate anemia and 0.9% had mild anemia. 3-6 months after HU use, 10.8% had severe anemia, 75.6% had moderate anemia and 13.6% had mild anemia. The change in severity of anemia before and after HU use was statistically significant with the p-value of 0.001.

Conclusion: The prevalence of patients with SCD using HU in Tanzania is still low (32%) regardless of the WHO recommendation that all patients with SCD should use HU from the age of 9 months. The level of the hospital and health insurance coverage are positive predictors of HU use.

Recommendation: To improve number of SCD patients using HU in Tanzania, we recommend health insurance coverage to all SCD patients, and change in policy to allow stocking and prescription of HU in the district hospitals where there are no medical specialists.

3. Factors affecting diabetic retinopathy screening uptake among adult patients attending diabetic clinic at Muhimbili National Hospital.

Authors: Mariam N. Denis, Suzan Mosenene, Celina Mhina, Milka Mafwiri.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Diabetic retinopathy is among the commonest complications of diabetes mellitus and it may be asymptomatic until when vision is affected. Early detection through screening and timely treatment can prevent more than 90% of diabetic retinopathy (DR) related visual impairment and blindness. The rate of screening for DR is suboptimal especially in developing countries.

Objective: To determine the factors affecting diabetic retinopathy screening uptake among adult patients attending diabetic clinic at MNH.

Methodology: This study was a hospital based analytical cross-sectional study which was conducted during diabetic clinic at MNH from June to July 2021. All adult patients with DM who met inclusion criteria were included in the study. A stratified random sampling method was used to recruit participants. Data was collected using a structured questionnaire and analyzed by using Statistical Package for Social Science (SPSS) version 26.

Results: A total of 322 participants were enrolled in this study. The median age was 58years with a range of 18 to 83 years. Less than half (43.8%) of participants were screened for diabetic retinopathy within 12months. Awareness of diabetic retinopathy screening and tolerability of

mydriatic eye drops were significantly associated with screening for diabetic retinopathy within 12 months. Recommendation by Physician to screen for DR had influence on DRS uptake.

Conclusion: The proportion of diabetic retinopathy screening was low. Lack of awareness and knowledge on diabetic retinopathy screening was a barrier to DRS uptake. Recommendation by Physician to screen for DR had influence on DRS uptake and the belief that mydriatic eye drop was intolerable discouraged screening uptake for diabetic retinopathy.

Recommendation: Nurses at diabetic clinics should be trained and sensitized to put more emphasis on DR and DRS when providing health education to diabetic patients during clinics. Physicians at diabetic clinics should be sensitized to recommend patients with diabetes to screen for DR.

4. NCD integration, health system challenges, and opportunities for universal health coverage within the Cameroon Baptist Convention Health Services (CBCHS).

Authors: Takwe Boniface, Nfor Shirley, Nemkul Freida, Munjo Elvis, Longchi Edwin,

Affiliation: Cameroon Baptist Convention Health Services (CBCHS).

Background: Globally, NCDs kill 41 million people yearly, with 80% of deaths occurring especially in LMICs like Cameroon. NCD mortality in Cameroon rose from 31% in 2014 to 42% in 2019. In response, the CBCHS created the NCD Prevention and Control Program in 2016.

Objective: To provide NCD awareness, screening, and management of clients in the facility and community.

Methodology: The NCD-PCP creation followed a situational analysis in 2014 which revealed, 60% of her staff, clients, and patients suffering from an NCD. As a strategy, the NCD-PCP developed the Know Your Numbers (KYN) initiative, a facility and community-based intervention aimed at raising awareness, screening, offering one-on-one lifestyle modification counseling, and referring persons with unhealthy vital health numbers to physicians for better management. Persons diagnosed with diabetes or hypertension are followed up at their respective clinics.

Results: Since its creation (2016) 253,328 have been sensitized on NCDs and 40,571 screened. Over 80% of clients seen with abnormal vital health numbers have been referred to health facilities of their choice for confirmation of diagnosis and follow-up. 15 diabetes and hypertension (D&H) clinics were established with 20 nurses trained for continuation of care. The CBC Health Services did not only limit her efforts to screening for NCDs but also trained over 20 D&H nurses and

established and equipped 15 (D&H) clinics in the same facilities offering KYN screening. 9,912 were diagnosed with diabetes and 7,837 with hypertension. 2230 diabetes and 2317 follow up in CBCHS facilities. Unfortunately, obesity clinics are yet to be organized due to the lack of funds.

Conclusion: The global rise in NCDs requires a life course of prevention measures.

Recommendation: Purchase additional equipment, train additional personnel, seek funding for scale-up, and subsidize management of patients.

5. The Potential of MUHAS Conferences to non-communicable diseases prevention and management, policies, and future research.

Authors: Emilia V Kitambala, Rehema C Mallya, Davis E Amani, Bruno F Sunguya.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: The burden of non-communicable diseases (NCDs) has increased rapidly in the last decade. The top four NCDs that include cancers, diabetes mellitus, cardiovascular and chronic respiratory diseases account for more deaths and disabilities than all infectious diseases combined. Unlike most infectious diseases, NCDs are chronic in nature and require lifelong treatment and as such, they exert tremendous pressure on the health systems.

Objective: To examine evidence of research output presented at MUHAS conferences and their implications for NCDs policies and research, health promotion, NCDs prevention and treatment.

Methodology: A cross-section study involving review of MUHAS conference abstract books, reports and proceedings, national research agenda, strategic plans and policies was conducted at MUHAS in October 2023. The list of research priorities was abstracted from the national policies while research titles, study designs, setting and results were extracted from the conference documents. Abstracts were grouped together and summarized by frequency based on year of the conference, study characteristics, findings and on the contexts of research priorities or policies and health policies which they were intended to address.

Results: For the past ten years, abstracts of research conducted in different regions and focused on a diverse array of health challenges were presented annually at MUHAS scientific conferences. Some focused on strengthening the resilience of health systems, others on social determinants, health promotion, and the rest on the treatment and care of NCDs. Importantly, the collated evidence provides a snapshot of the changing disease landscape in the country and highlights crucial areas for intervention by policy makers, scientists, and other stakeholders.

Conclusion: The potential of MUHAS conferences to address the prevailing burden of NCDs in the country is immense. Policy makers, scientists and other stakeholders should use this collated evidence to develop and implement responsive and acceptable plans and strategies.

6. Knowledge and practices of healthcare providers in hypertension management in PHC centers within Sokoto metropolis, Nigeria.

Authors: Bello Arkilla Magaji, Usman Mohammad Alfa, Aminu Sada, Eterikang Bigman, Hudu Garba Illo, Muawiyya Usman Zagga.

Affiliation: College of Health Sciences, Usmanu Danfodiyo University, Sokoto Nigeria, Usmanu Danfodiyo University Teaching Hospital, Sokoto Nigeria Cardiology Unit, Department of Medicine, Usmanu Danfodiyo University Teaching Hospital, Sokoto Nigeria.

Background: Hypertension is a leading global public health concern, often referred to as “silent killer” due to its asymptomatic nature. Effective management of hypertension at the primary healthcare (PHC) level is crucial in preventing cardiovascular complications.

Objective: This study assesses the knowledge and practices of healthcare providers in hypertension management in PHC centers within Sokoto metropolis, Nigeria.

Methodology: A cross sectional study was conducted among healthcare providers (nurses, midwives, and community health workers) working in Sokoto metropolis PHCs. A structured questionnaire was used to collect data on their knowledge of hypertension guidelines, risk factors, diagnosis, and treatment practices. Descriptive statistics and logistics regression were employed to analyze the data.

Results: Eighty-six healthcare providers participated, with a mean age of 32 ± 8 years and a 1:1 gender ratio. Most were community health workers 68 (79%), and 49 (55%) received training in hypertension management. The majority demonstrated good knowledge of signs & symptoms 83 (94%), diagnosis 76(55%), and complications 77 (87%). However, treatment practice was suboptimal, with 54(61%) primarily using single drugs (example., lisinopril, frusemide, nifedipine). Counselling on lifestyle modifications 85 (96%), and drug adherence 71(80%) was generally good. Training was the sole factor associated with knowledge ($X^2 = 9.117$; $p = 0.003$). Good practice correlated with training ($X^2 = 10.709$; $p = 0.001$) and knowledge ($X^2 = 16.943$; $p = 0.001$).

Conclusion: This study highlights substantial knowledge-practice gaps in hypertension management among healthcare providers in Sokoto metropolis PHCs.

Recommendation: Recommendations include strengthening the PHC system, ensuring adherence to hypertension management guidelines, and implementing targeted training and capacity-building initiatives. These steps aim to enhance competence in diagnosing, treating, and managing hypertension effectively.

SESSION 2

1. Situation of service delivery for non-communicable diseases (NCDs): A Mixed Methods study to inform the Scale up of the response to NCDs to a health center level in Tanzania.

Authors: Albino Kalolo, Titus Mashanya, Witness John, Bakari Salum, Rachel Nungu, Kaushik Ramaiya.

Affiliation: St Francis University College of Health and Allied Sciences (SFUCHAS), President's Office - Regional Administration and Local Government, Tanzania Diabetes Association.

Background: Non-communicable diseases (NCDs) present a growing burden to patients and health systems across the low and middle-income settings. The situation in primary health care settings, a level that is expected to provide services to the majority of the population, may need to be improved in order to meet patient needs, expectations and health outcomes. Studies to understand the situation of NCDs provision in primary health facilities are scarce.

Objective: The current study aimed at understanding the current situation of NCD service provision in health centers in Tanzania.

Methodology: This study used a concurrent triangulation mixed method design to collect data in 40 health centers across nine regions in December 2022. Quantitative data were collected using: 1) a structured health facility assessment checklist(N=40) 2) a structured questionnaire for health care workers (N=332) 3) a structured questionnaire for patient exit interviews (N=277). In-depth interviews (IDIs) (N=30) and observation checklist (N=40) collected qualitative information. Quantitative data were analyzed descriptively and using inferential statistics and a thematic analysis for qualitative data.

Results: Across health centers, CDs diagnoses, hypertension and Diabetes Mellitus were leading. Overall, services were underutilized. Most patients (61.73%) received adherence counseling on medications, nutritional counseling (28.16%), physical exercise (20.9%), harmful alcohol use (7.58%) and tobacco use (5.8%). The health workers' knowledge, skills and competences were basic characterized by inability to manage common NCDs, manage stocks of medicines and equipment, and unorganized patient-pathways. Satisfaction of patients with

services was significantly associated with whether they received all services they needed ($p=0.03$), received all investigations ordered ($p=0.00$), received all prescribed medications ($p=0.00$)

Conclusion: There is a growing burden of NCDs with services deficient in quality and therefore underutilized.

Recommendation: Building both individual health workers comprehensive capacity on NCD services and institutional capacity for NCD service could address the existing challenges

2. Experiences of family caregivers in caring for patients with heart failure admitted at Jakaya Kikwete Cardiac Institute, Dar Es Salaam, Tanzania.

Author: Tunzo L. Mcharo, Samwel E. Kahema, Masunga K. Iseselo, Edith A. Tarimo.

Affiliation: Jakaya Kikwete Cardiac Institute, Morogoro College of Health and Allied Sciences.

Background: Heart failure (HF) continues to be a global health problem with its ramifications more pronounced in underdeveloped countries. Family members play a pivotal part in patient management which may influence the patient's overall quality of life positively or negatively.

Objective: To explore the experiences of family caregivers in caring for patient with Heart failure

Methodology: A descriptive exploratory study design using a qualitative approach was conducted at Jakaya Kikwete Cardiac Institute, Dar es Salaam, Tanzania. A purposive sampling technique was used to select the potential participants. A sample size of 10 caregivers of patients with HF was included in the study based on the principles of data saturation. Thematic analysis was used to derive the main theme and sub-themes.

Results: Three major themes were identified: demands for supportive care, new caring roles and lifestyles, and professional support in caring for patients with HF. Caregivers needed social and financial support to facilitate the caring process. Learning to provide the required care at the right time, failing to participate in social events, and caregiving in an unfavorable environment were reported as challenges in caregiving. However, compliance with instruction and effective interaction among the nurses and caregivers were considered to be positive professional support.

Conclusion: In their caring roles, caregivers admitted that they needed assistance from friends and family; they also experienced financial hardship, social withdrawal, and providing care in a

stressful setting. Nurses supported caregivers in taking care of HF patients and altered their lifestyles to improve health-seeking behaviors.

Recommendation: Further studies should be conducted to assess nurses' perceptions on the importance of cooperating with caregivers in caring for patients with HF.

3. Opportunities and challenges for the Government of Tanzania's hospital management information system in improving the accessibility of data on non-communicable diseases: A qualitative assessment.

Authors: Filbert Nyoni, Kaushik Ramaiya, Rachel Nungu.

Affiliation: Tanzania Diabetes Association (TDA).

Background: The World Health Organization (WHO,2022) estimates that NCDs were responsible for 34% of all fatalities in Tanzania in 2012. Despite statistics revealing the high prevalence of NCDs, data collection on NCDs is inadequate since there is a discrepancy between the burden of NCDs and the data that are now accessible.

Objective: To determine how GoT-HoMIS might significantly increase the accessibility of reliable information on non-communicable diseases. To explore opportunities and challenges in NCDs data management.

Methodology: Focus group discussions, direct observations and in-depth interviews were used for qualitative data collection. A total of 39 respondents were involved in the study including 11 regional health management team members, 8 district health management team members, and 8 facility medical staff. Eight focus group discussions were conducted. Additionally, the GoT-HoMIS system utilization was observed among current technical team.

Results: The assessment discovered that the GoT-HoMIS infrastructures cannot support data to feed all indicators and improve real-time NCD data availability. The HMIS/DHIS2 coordinators for the council are not involved in the administration or execution of GoT-HoMIS operations. At the facility and district levels, the existing GoT-HoMIS system does not provide coordination. Utilising the GoT-HoMIS system is mostly focused on gathering income rather than other important data. The usefulness of using GoT-HoMIS was also diminished by the lack of ICT equipment, its wear and tear, and an inadequate backup system.

Conclusion: The GoT-HoMIS system can, in general, be used to expand the availability of information on non-communicable diseases if adequate investments are made in the system's

infrastructure, tools, training, and preparedness for service providers to use it and lessen paper-based records. Similar to this, the forces and spirits used by health managers to exploit the system to collect money should be used to ensure that data on non-communicable diseases is being gathered. In conclusion, GoT-HoMIS provides an excellent backbone on which the data capture of non-communicable diseases is possible and this will feed into the DHIS2 for appropriate monitoring and understanding the true burden of NCDs.

Recommendation: The assessment suggests that it is crucial that the registration area, consultation room in OPD, and doctor's room used during clinic hours, laboratory room, dispensing and pharmacy room, and patient admission rooms (wards) be computerized and connected to the GoT-HoMIS system. It also suggests that the HMIS coordinator of the council be involved in the daily operations of GoT-HoMIS. Third, each health facility needs numerous power sources, including solar power, generators, and Tanzania Electricity Supply Company (TANESCO).

4. Gaps and strategies to strengthen health facility level non-communicable diseases control and management in Western Uganda: The Uganda Non-Communicable Diseases Alliance (UNCDA) and International Cancer Institute (ICI) Strategic Partnership Model.

Authors: Christopher Kwizera, Victoria Namata, Noleb Mugisha, Gloria Kitur, Kevin Makori, Chite Asirwa.

Affiliations: Uganda Non-Communicable Diseases Alliance, Uganda Cancer Institute, International Cancer Institute, Kenya.

Background: Uganda Non-Communicable Diseases Alliance in partnership with the International Cancer Institute in Kenya set to implement a project aimed at strengthening community awareness by reaching out to 150,000 community members and screening 36,000 people for diabetes, hypertension, cervical, breast and prostate cancers in three districts of western Uganda.

Objective: Strengthen community awareness and screening among 150,000 people, on diabetes, hypertension and cancers in western-Uganda.

Methodology: Using district health teams, ten level 3 and 4 health facilities were identified where a baseline survey was conducted that revealed gaps in NCD control and management attributed to inadequate skilled health work force, insufficient screening equipment, medicines and supplies, and lack of Information, Education and Communication (IEC) materials. Nine of the ten selected facilities were supported with NCD screening equipment and supplies; 30 health workers and 40

Village Health Teams (VHT) linked to the 10 facilities were trained with IEC materials distributed by VHTs in the community and health facilities.

Results: Two months post-training, the monthly facility reports indicated that 985 people have been screened for diabetes and hypertension, 62 for breast cancer and 122 for cervical cancer. Over 60,000 people have been reached through awareness campaigns and outreaches, and 1,200 IEC materials distributed in the community and health facilities.

Conclusion: Health facility level NCDs control and management capacity can be enhanced through strategic partnership approaches that provide capacity building opportunities for the health workforce in NCD care.

Recommendation: Multi-sector collaboration would be the answer to building strong health systems that address challenges in NCD control.

5. Increasing access to management of severe non-communicable diseases in Kenya through implementation of PEN-Plus.

Authors: Harrison Andeko; Gideon Ayodo; Peter Mokaya; Yvette Kisaka; Gladwell Gathecha; Catherine Karekezi.

Affiliation: Non-communicable Diseases Alliance Kenya, Ministry of Health, Kenya.

Background: In Kenya, non-communicable diseases (NCDs) account for more than 50% of hospital admissions and 41% of total deaths. Access to diagnosis and treatment of severe NCDs, often available only in tertiary referral hospitals, is out of reach of many community members.

Objective: To strengthen first level health systems to provide optimum treatment and care of severe NCDs.

Methodology: NCD Alliance Kenya in collaboration with the Ministry of Health, NCDI Poverty Network and the county governments of Vihiga and Isiolo is implementing the PEN-Plus strategy in sub-county facilities in Hamisi and Kinna, respectively. This includes capacity building of middle level healthcare providers on diagnosis and management of severe NCD; construction and equipping of NCD clinics; treatment and care of persons with severe NCDs.

Results: A total of 24 middle level healthcare professionals from the two counties were trained on diagnosis and management of severe NCDs, through didactic and practical training, by specialist physicians and pediatricians. The NCDI Poverty Network training curriculum

contextualized to Kenya Guidelines was used. Two NCD clinics, were constructed and equipped to provide services such as point of care echocardiography, tele-ECG and provided with drugs. The clinics are operating, and mentorship of the healthcare professionals continues. A total of 218 active patients enrolled in the two clinics in quarter two of 2023.

Conclusion: Implementation of PEN-Plus in Kenya has led to increased access to diagnosis, treatment and care of persons with severe NCDs in these rural communities.

Recommendation: Optimization of PEN-Plus Kenya to enhance access to treatment and care of severe NCDs nationally.

6. The capacity of diabetes, hypertension, breast cancer, cervical cancer and prostate cancer care in nine level 3 and 4 health facilities.

Authors: Victoria Namata, Christopher Kwizera, Noleb Mugisha, Gloria Kitur, Kevin Makori, Chite Asirwa.

Affiliation: Uganda Non-Communicable Diseases Alliance and International Cancer Institute in Kenya.

Background: Uganda NCD Alliance in partnership with the International Cancer Institute in Kenya set to implement a project aimed at strengthening community awareness by reaching out to 150,000 community members and screening 36,000 people for diabetes, hypertension, cervical, breast and prostate cancers in three districts of western Uganda.

Objective: Specific objectives: The project seeks to achieve the following objectives: (1) To assess the capacity of diabetes, hypertension, breast cancer, cervical cancer and prostate cancer care in 9 level 3 and 4 health facilities in Mbarara, Bushenyi and Sheema districts (3 per district). (2) To screen 18000 females and 18000 males for diabetes, hypertension in a period of one year in Mbarara, Bushenyi and Sheema districts. (3) To reach 150,000 community members through sensitization and awareness creation campaigns in Mbarara, Bushenyi and Sheema districts using various communication and publicity media including physical in person, group or public gatherings. (4) To train 27 healthcare workers in 09 facilities in Mbarara, Bushenyi and Sheema districts (3 per facility) on screening, data collection and reporting for diabetes, hypertension, breast cancer, cervical cancer and prostate cancer. (5) To train 36 community health extension workers on awareness creation for diabetes, hypertension, breast cancer, cervical cancer and prostate cancer in Mbarara, Bushenyi and Sheema districts.

Methodology: Using district health teams, 10 level 3 and four health facilities were identified where a baseline survey was conducted that revealed gaps in NCD control and management attributed to inadequate skilled health work force, insufficient screening equipment, medicines and supplies, and lack of Information, Education and Communication (IEC) materials. Nine of the ten selected facilities were supported with NCD screening equipment and supplies; 30 health workers and 40 Village Health Teams (VHT) linked to the 10 facilities were trained with IEC materials distributed by VHTs in the community and health facilities.

Results: In two months, post-training, the monthly facility reports indicated that 2904 people have been screened for diabetes and hypertension, 120 for prostate cancer, 573 for breast cancer and 422 for cervical cancer. Over 60,000 people have been reached through awareness campaigns and outreaches, and 1,200 IEC materials distributed in the community and health facilities.

Conclusion: Health facility level NCDs control and management capacity can be enhanced through strategic partnership approaches that provide capacity building opportunities for the health workforce in NCD care.

Recommendation: Multi-sector collaboration would be the answer to building strong health systems that address challenges in NCD control.

SUBTHEME: DIGITAL TECHNOLOGIES FOR PREVENTION SURVEILLANCE AND MANAGEMENT OF NCDS

1. Feasibility of contactless - remote patient monitoring technology in Tanzania. Representative case of Muhimbili National Hospital.

Authors: Mwanaada Kilima, John Rwegasha, Jude Tarimo, Tumaini Evason, Sabina Kayombo, Christopher Chambo.

Affiliation: Muhimbili National Hospital (MNH).

Background: Contactless Remote Patient Monitoring (RPM) and Early Warning System (EWS) use the ballistocardiograph technology that employs piezoelectric sensors to create a contactless continuous monitoring of vital parameters and screening for abnormal changes using the Early Warning Systems. It is a life-saving technology designed to improve patient care in hospitalized patients in non-ICU settings. It also reduces time and workload on patient monitoring.

Objective: Turtle Shells Technologies, a company based in India introduced RPM-EWS system named Dozee at Muhimbili National Hospital. A pilot use was conducted in two wards from December 2022 to February 2023. It aimed at analyzing safety and effectiveness of the device and system in a general-care clinical environment. Following the pilot, the Hospital Management formed an advisory committee to analyze feasibility and cost effectiveness prior its full use at the facility.

Methodology: A thorough review of literature was undertaken. Several stakeholders were consulted including experts from Biomedical Engineering, Health Economics, ICT and Legal departments, as well as the Dozee technical team, e-Gov and TMDA. Field visit to a number of hospitals utilizing the technology within and outside the country was also made.

Results: Following scrutiny, adequate information and evidence was obtained that use of Remote Monitoring and Early Warning system (RPM-EWS) is feasible at Muhimbili National Hospital. As evidenced by literature and detailed technical analysis, (RPM-EWS) is accurate, safe, cost effective and legally applicable in our settings. It offers a number of benefits including significant reduction in workload for healthcare workers, improved quality of care and outcome for patients, reduction in ICU bed occupancy as well as a reliable database for research. The technology can also be applied for home-based monitoring of patients with cardiovascular, respiratory and palliative care patients. It is also used as a surrogate for polysomnography in diagnosing and follow-up of Obstructive Sleep Apnea and other sleep-related breathing disorders.

2. Accuracy of a smartphone application for blood pressure estimation in Bangladesh, South Africa, and Tanzania

Authors: Getrud J. Mollel, Charles Festo, Valerie Vannevel, Hasmot Ali, Tigest Tamrat, Tsakane Hlongwane, Kaniz A. Fahmida, Kelsey Alland, Maria Barreix, Hedieh Mehrdash, Ronaldo Silva, Soe Soe Thwin, Garret Mehl, Alain B. Labrique, Honorati Masanja and Ozge Tuncalp.

Affiliations: Muhimbili University of Health and Allied Sciences (MUHAS), Ifakara Health Institute (IHI).

Background: Undetected and unmonitored hypertension carries substantial mortality and morbidity risk in the general population¹. The condition is even more detrimental in the pregnant population where occurrence of hypertension with or without additional complications (hypertensive disorders of pregnancy—HDP) is associated with substantial risk to the mother and the unborn child.

Objective: We assessed the accuracy of OptiBP, a smartphone application for estimating blood pressure (BP), across diverse geographical and population settings.

Methodology: A cross sectional study was conducted in community settings: Gaibandha, Bangladesh and Ifakara, Tanzania for general populations, and Kalafong Provincial Tertiary Hospital, South Africa for pregnant populations. Based on guidance from the International Organization for Standardization (ISO) 81,060–2:2018 for non-invasive BP devices and global consensus statement, we compared BP measurements taken by two independent trained nurses on a standard auscultatory cuff to the BP measurements taken by a research version of OptiBPTM called CamBP.

Results: For ISO criterion 1, the mean error was 0.5 ± 5.8 mm Hg for the systolic blood pressure (SBP) and 0.1 ± 3.9 mmHg for the diastolic blood pressure (DBP) in South Africa; 0.8 ± 7.0 mmHg for the SBP and -0.4 ± 4.0 mmHg for the DBP in Tanzania; 3.3 ± 7.4 mmHg for the SBP and -0.4 ± 4.3 mmHg for the DBP in Bangladesh. For ISO criterion 2, the average standard deviation of the mean error per subject was 4.9 mmHg for the SBP and 3.4 mmHg for the DBP in South Africa; 6.3 mmHg for the SBP and 3.6 mmHg for the DBP in Tanzania; 6.4 mmHg for the SBP and 3.8 mmHg for the DBP in Bangladesh.

Conclusion: OptiBP demonstrated accuracy against ISO standards in study populations, including pregnant populations, except in Bangladesh for SBP (criterion 2). Further research is needed to improve performance across different populations and integration within health systems.

Recommendation: Easy to use and reliable BP monitoring systems should be explored due to their potential to accurately measure blood pressure, and early detection of hypertension.

3. My Tribe; An online interaction application for people with chronic health conditions.

Author: Doreen D Smart.

Affiliation: University of Dar-es-Salaam (UDSM)

Background: Millions of people live with chronic health conditions. These conditions can have a significant impact on their physical, emotional, and social well-being but can also be challenging to manage. Many people with chronic health conditions feel isolated and alone, and they may have difficulty finding support and information. This abstract proposes an online interaction application specifically designed for people with chronic health conditions.

Objective: Create a safe and supportive space for people with chronic health conditions, sharing their experiences and information, providing accurate information, reduce stigma, reduce isolation, and improve quality of life.

Methodology: 1. Target audience: any one above 18 years of age who has been diagnosed with a chronic health condition 2. Features: Profile pages, select tabs for which chronic disease(s) one has (for personalization of feed) Discussion forums: ask questions, share advice and support Private messaging: -to other user groups: joining support groups from the community educational resources: advertisements, insights, articles about treatment options, lifestyle changes, self-management strategies. Healthcare professional directory: 3. Privacy and Safety- users will have control over their personal information. There will be safeguards to prevent abuse and harassment. 4. Evaluation - ensure the application is meeting its goals (i.e., number of active users, number of posts and comments, number of groups created user satisfaction) -ensuring safety and inclusivity through regular surveys. 5. Competitive landscape- there are a few social media platforms in Tanzania used by people with chronic health conditions however, none of these platforms are specifically designed for this population. Hence it is difficult for them to find relevant content and communities.6. Sustainability - Through Sponsorship from brands e.g., featuring their health-related products/services. -Advertising space for companies that target people with chronic diseases - Premium features -Data licensing -Affiliate marketing 7. Devices- Smartphones, Tablets, computers for IOS, android and web-based.

Results: We have currently developed a prototype for the mobile application.

Conclusion: The platform/application has a large and growing market opportunity, and it would be the first platform in Tanzania specifically designed for people with chronic health conditions. It has the potential to empower and improve the lives of millions of people in Tanzania with chronic health conditions.

Recommendation: This is a viable opportunity with a potential to make a positive impact on the lives of millions of people.

4. Effectiveness of patient-mediated journaling on self-care practice among type 2 diabetes Mellitus patients (T2DM) in Dodoma region.

Author: Bupe Mwakalindwa, Dr. Julius Ntwenya, Dr. Stephen Kibusi.

Affiliation: University of Dodoma (UDOM).

Background: Tanzania is experiencing one of Africa's worst type 2 diabetes epidemics, in 2011, 2.8% of Tanzanian had diabetes; by 2021 this figure had risen to 12.8%. Maintaining optimum glucose levels in diabetes requires proper self-care practices. Patient-mediated journaling means writing down self-care activities which will enhance patient engagement in managing diseases.

Objective: Assessing the effectiveness of patient-mediated journaling on self-care practices among T2DM patients in Dodoma Region.

Methodology: This facility-based, controlled quasi-experimental study pre and posttest design was conducted among 147 type 2 diabetes mellitus patients randomly selected. The intervention group ($n = 49$) was exposed to patient-mediated journaling over 8 weeks, and the control group ($n = 98$) continued with usual care over the same period. Participants' self-care practices were evaluated using the Summary of Diabetes Self-Care Activities Scale (SDSCA). The data were analyzed using SPSS version 25, with statistical significance analysis.

Results: At baseline, self-care practice was 3.94 ± 0.56 mean score for the intervention group, and 4.12 ± 0.87 mean score for the control groups, respectively. The change in mean of the self-care practice scores, observed 2 months after the intervention, for the intervention group was 4.47 ± 3.90 , and for the control group 3.90 ± 0.70 . The difference was significant at the p-value of $< .0001$. This means that the change in self-care practice from baseline to end line was significantly higher in the intervention group than in the control group.

Conclusion: This study showed that patient-mediated journaling interventions were linked with significant improvements in self-care practices

Recommendation: The implementation of patient-mediated journaling interventions in health facilities can improve diabetes self-care management.

5. The role of digitalized health content approach in raising mental health awareness.

Authors: Jofrey Amos Segeza, Edwin Ngula Luguku, Glory Charles Mlagwa.

Affiliation: AfyaToon

Background: Lack of knowledge causes more than 70% of people with mental illness not being on treatment. AfyaToon is an innovation around community health information on mental health and the methods used to deliver it. It bridges the health education gap by developing and creating Mental health based digital visual arts.

Objective: Empowering the community with information and capacity to identify and assist a person in need of mental health care.

Methodology: The use of CGI technology and Artificial Intelligence incorporated in a 3D animation technology that involves artistically tailored medical information to produce Short Film Series, with captivating story based health education for young people. This is augmented by a hybrid of digital and grassroots; community outreach approach using physical gatherings, dialogues, social media posts and campaigns and traditional media as a part of content dissemination channels.

Results: Through its project RUDI, AfyaToon has produced the first Swahili mental health animation series that has reached more than 15000 views online, With over 350000 Social Media engagements. Has held 2 public showcasing events that reached around 1100 people. In the line of dissemination through Rudi Media Tour, AfyaToon contents were featured in 3 radio programs of the most prominent media houses in Tanzania and scheduled to reach 12 TV and radio programs. RUDI series content has been adopted by the ministry of health to be used as educative content in the mental health awareness month 2023 through a joint project known as “Uko poa?”.

Conclusion: The use of digital health information is needed to close the existing mental health knowledge gap.

Recommendation: Incorporation of digital technology in health information will help in prevention of non-communicable diseases.

6. Leveraging digital health to improve longitudinal care and patient outcomes for hypertension and diabetes in Tanzania: The Afya Imara Program.

Authors: Oren Ombiro, Angela Massawe, Jacob Masai.

Affiliation: Medtronic Labs

Background: Hypertension is the largest contributor to cardiovascular disease and persons with diabetes are twice as likely to develop or die from cardiovascular diseases globally. With 26% of adults living with hypertension and 10% with diabetes in Tanzania, there is an urgent need to accelerate prevention, screening, treatment, and follow-up for these conditions.

Objective: To improve access, longitudinal management and patient outcomes for hypertension and diabetes by leveraging digital technology.

Methodology: Afya Imara program was initiated in February 2022 and leverages the SPICE digital platform for community-based health education, screening and patient monitoring by trained and kitted community health workers and electronic referral/linkage to care. It also supports quality of care through clinical decision-support, risk stratification, personalized care plans, remote monitoring, tele-counselling, and targeted SMS. The dashboards within the platform facilitate real-time tracking of both individual and aggregate data for prompt clinical and programmatic decision-making.

Results: By end of August 2023, the program has supported the screening of 72,905 people and enrolment of 18,707 patients (70% hypertension, 11% diabetes, 19% both hypertension and diabetes) across 21 faith-based facilities in four regions. Of the enrolled patients, 62% are female, 51% are aged 50-69 years, 61% are overweight or obese, 19% are insured and 68% are currently active in care. Among hypertension patients who have been in the program for at least 3 months and have a follow-up blood pressure done in the last 3 months (n=5,401), 63% are within control range, up from 19% at enrolment. Among diabetes patients who have been in the program for a similar duration (n= 1,691), 84% are within blood glucose control range, up from 46% at enrolment.

Conclusion: Technology can facilitate community-facility linkage, longitudinal care and real-time data visibility to drive patient outcomes.

Recommendation: This model should be scaled geographically and across other conditions of public health importance.

SUBTHEME: NCD RESEARCH GAPS TO ATTAIN UNIVERSAL HEALTH COVERAGE

1. Activating Research for Change: Exploring multistakeholder engagement to identify pathways for improved MSK care in Tanzania.

Authors: Nateiya M. Yongolo, Emma Laurie, Jennika Virhia, Sanjura M. Biswaro, Stefanie J Krauth, Elizabeth F. Msoka-Bright, Christopher Bunn, Richard Walker, Clive Kelly, Kajiru G Kilonzo, Emma McIntosh and Blandina T. Mmbaga on behalf of the NIHR Global Health Research Group on Musculoskeletal Disorders and Arthritis.

Affiliation: Kilimanjaro Clinical Research Institute, Moshi, Tanzania, Kilimanjaro Christian Medical Centre, Moshi, Tanzania, University of Glasgow, Glasgow, Scotland, G12 8QQ, Newcastle University, Newcastle upon Tyne, NE1 7RU.

Background: While global health increasingly emphasizes community engagement and dissemination to address power imbalances, discussions often neglect stakeholder involvement at policy and civil society levels. The 'Activating Research for Change (ARC) Toolkit' can bridge this gap by fostering dialogue between researchers and stakeholders, enabling collaborative policy change planning.

Objective: Showcasing ARC-Toolkit's effectiveness in fostering collaborative engagement between researchers, policymakers, and practitioners for research-based change.

Methodology: A key-stakeholder workshop was held as part of the NIHR GHRG (Arthritis) project in Moshi, Tanzania, in August 2022. This workshop used the ARC Toolkit for the first time. We will draw on the outputs of this workshop (the co-production of 4 'Routes to Activation Map') that outlined the steps and stakeholders needed to improve MSK care in Tanzania. In doing so, we demonstrate the value and efficacy of employing the ARC Toolkit.

Results: The ARC Toolkit ensured project dissemination was neither unidirectional nor an opportunity for 'knowledge application'. Instead, ARC facilitated dialogue between researchers and professionals where different stakeholders' diverse knowledge and expertise were valued, respected, and incorporated into research. As an international project, using the ARC Toolkit created a space where the academic partners from institutions in the Global North were decentered, and the project could learn from the expertise in the room. The co-production of 'Route to Activation Maps' gave the project tangible stages to improve MSK care in Tanzania, informing future research directions.

Conclusion: The ARC Toolkit fosters researcher-stakeholder dialogue, collectively mapping pathways for policy change.

Recommendation: Utilize NIHR GHRG (Arthritis) ARC Toolkit to merge research findings with stakeholders, guiding collective goal setting.

2. Longitudinal ECG Changes among adults with HIV in Tanzania: A prospective cohort study.

Authors: Alice H Rutta, Faraan O Rahim, Francis M Sakita, Lauren Coaxum, Amedeus V Maro, James S Ford, Kate Hatter, Kalipa Gedion, Saad M Ezad, Sophie W Galson, Gerald S Bloomfield, Alexander T Limkakeng, Monica S Kessy, Blandina Mmbaga, and Julian T Hertz.

Affiliation: Duke Global Health Institute, Duke University, Durham, North Carolina, USA
Kilimanjaro Christian Medical Centre, Moshi, Tanzania, Kilimanjaro Christian Medical University College, Moshi, Tanzania, Department of Emergency Medicine, Duke University School of Medicine, Durham, North Carolina, USA, Department of Emergency Medicine, University of California, San Francisco, San Francisco, California, USA, British Heart Foundation Centre of Research Excellence and NIHR Biomedical Research Centre at the School of Cardiovascular and Metabolic Medicine and Sciences, King's College London, London, UK, Department of Internal Medicine, Duke University School of Medicine, Durham, North Carolina, USA, Benjamin Mkapa Hospital, Dodoma, Tanzania.

Background: The prevalence of cardiovascular disease (CVD) in people with HIV (PWH) is rising in sub-Saharan Africa (SSA). The electrocardiogram (ECG) is a non-invasive method for screening for CVD, but there is limited data regarding longitudinal ECG changes among PWH in SSA.

Objective: In this study, we aimed to describe ECG changes over six months in a cohort of PWH in northern Tanzania.

Methodology: Between September 2020 and March 2021, adult PWH were recruited from Majengo HIV Care and Treatment Clinic (MCTC) in Moshi, Tanzania. Trained research assistants surveyed participants on their medical history and obtained a baseline ECG. Participants were asked to return to MCTC for a 6-month follow-up when another ECG was obtained. Two independent physician adjudicators used standardized criteria to interpret baseline and follow-up ECGs for rhythm, left ventricular hypertrophy (LVH), bundle branch blocks, ST-segment changes, and T-wave inversion. New ECG abnormalities were defined as those absent in a patient's baseline ECG but present in their 6-month follow-up ECG.

Results: Of the 500 enrolled participants, 476 (95.2%) completed follow-up. The mean (\pm SD) age of participants was 45.7 (\pm 11.0) years, and 351 (73.7%) were female. At baseline, 248 (52.1%) participants had one or more ECG abnormalities, the most common of which were LVH

(n=108, 22.7%) and T-wave inversion (n=89, 18.7%). At six months, 112 (23.5%) participants developed new ECG abnormalities, including 40 (8.0%) cases of new T-wave inversion, 22 (4.6%) cases of new LVH, 12 (2.5%) cases of new ST elevation, 11 (2.3%) cases of new prolonged QTc, 11 (2.3%) cases of new prolonged PR, 10 (2.1%) cases of new ST depression, and 5 (1.1%) cases of a new short PR. No participants presented with new non-sinus rhythms nor new bundle branch blocks.

Conclusion: This is one of the first studies to examine longitudinal ECG changes among PWH in SSA. New ECG changes – some indicative of CVD – were common over a relatively short 6-month period, suggesting that subclinical CVD may develop rapidly in PWH in Tanzania.

Recommendation: These data highlight the need for additional studies on the rising burden of CVD in PWH in SSA and the importance of routine CVD screening in this high-risk population.

3. Angiographic characteristics of coronary artery disease in patients undergoing diagnostic coronary angiography at a tertiary hospital in Tanzania.

Authors: Ngweina F. Magitta, John R. Meda, Happiness L. Kusima.

Affiliation: Department of Internal Medicine, College of Health & Allied Sciences, School of Medicine & Dentistry, University of Dodoma, Dodoma, Tanzania; Department of Cardiology, Benjamin Mkapa Hospital, Dodoma, Tanzania; Department of Biochemistry & Clinical Pharmacology, Mbeya College of Health & Allied Sciences, University of Dar es Salaam, Mbeya, Tanzania.

Background: Coronary artery disease (CAD) is the leading cause of the global burden of disease. There is a paucity of data on the burden and risk factors for CAD in sub-Saharan Africa (SSA), despite the rising trends in the shared risk factors across regions. The recent introduction of cardiac catheterization laboratory services in SSA could shed light on the burden of CAD.

Objective: We aimed to assess the angiographic characteristics among patients undergoing diagnostic coronary angiography (CAG) at a single tertiary care hospital in Tanzania.

Methodology: This study was a retrospective chart review. A total of 728 patients ≥ 18 years of age who underwent CAG from January 2020 to December 2022 were recruited into the study. We obtained demographic variables, risk factors and clinical characteristics. The luminal vessel stenosis was assessed based on eyeballing by two independent experienced cardiologists. The coronary stenosis of $\geq 50\%$ was considered significant stenosis for obstructive CAD. The study was approved by the local ethics committee.

Results: Of patients who were recruited into the study, 384 (52.23%) were female. The study participants had a mean age of 59.46 ± 10.83 (SD) and mean body mass index (BMI) of 31.18 kg/m². The prevalence of CAD of any degree was estimated at 24.43%% (34.18% in male, 15.50% in female), while that of obstructive CAD was 18.27%. Forty six percent of patients had multiple vessel disease. Nearly 77% were found to have $\geq 50\%$ to 70% luminal stenosis and while those with $\geq 70\%$ luminal coronary artery stenosis constituted 56.65%. The right coronary artery (RCA) was the most commonly affected vessel, accounting for 36.84% when any vessel disease or 56% when single vessel disease was considered. Being 65 years or older and comorbidity with T2D were independent risk factors for developing CAD.

Conclusion: Patients with CAD have multiple vessel disease, often with severe luminal stenosis, commonly affecting RCA.

Recommendation: The study calls for urgent locally relevant cardio-preventive strategy for CAD intervention in Tanzania.

4. Incident Kaposi's Sarcoma in Individuals with suppressed HIV viral load in Sub Saharan Africa.

Authors: Felister Tupa, Julius Mwaiselage, Salum Lidenge, John T. West, Chacha J. Mwita, Owen Ngalamika, Charles Wood, Emanuel Lugina, Herriethsiah Noah, Ernesti Zakayo.

Affiliation: Ocean Road Cancer Institute (ORCI).

Background: Kaposi's sarcoma (KS) remains the most common cancer in people living with HIV (PLWH) despite widespread ART use. Traditionally, KS occurs as a result of uncontrolled HIV replication and CD4 immunosuppression. However, there are a few recent reports of atypical KS occurring in individuals with controlled HIV replication. Therefore, in this study, we compared a cohort of KS patients presenting with incident KS despite HIV aviremia to those with HI.

Objective: To determine the prevalence of incident Kaposi sarcoma in patient with low viral load at ORCI.

Methodology: This was a retrospective cohort study which included all KS patients who attended Ocean Road Cancer Institute in Tanzania between 2019 and 2022. HIV aviremic incident KS was defined as patients presenting with KS for the first time after being on HAART consistently and attained HIV viral suppression to below 300copies/ml for at least 6 months. Socio-demographic and clinical characteristics of HIV viremic and aviremic KS patients were compared. To test for

association between categorical variables chi Square and Fishers exact test were used, and for continuous variables, Mann-Whitney test was used.

Results: The analyzed cohort comprised of 179 KS patients (150 HIV-viremic and 28-aviremic). The HIV-aviremic KS patients were significantly younger compared to the HIV-viremic group (median age 37 years IQR (29-45) vs 42 years IQR (34-52) $p=0.03$). There was no significant gender difference between the two groups ($p>0.05$). The HIV-aviremic KS patients had a shorter duration of KS and consistent HAART use ($p\ 0.05$).

Conclusion: Despite consistent use of HAART and suppression of HIV viral load among PLWH, the risk of developing KS still exists. KS in HIV aviremic patients appears to present early, however, predictors of KS development in HIV-aviremic PLWH need to be further investigated.

Recommendation: Further studies to be done to establish predictors of KS development.

5. Increasing prevalence of overweight and obesity among Tanzanian women of reproductive age intending to conceive: Evidence from three Demographic Health Surveys from 2004/5 to 2015/16.

Authors: Amani Kikula, Aline Semaan, Belinda Balandya, Naku Makoko, Andrea B Pembe, José L. Peñalvo, Lenka Beňová.

Affiliation: Department of Obstetrics and Gynecology, Muhimbili University of Health and Allied Sciences, Tanzania Department of Public Health, Institute of Tropical Medicine, Antwerp, Belgium, Global Health Institute, Faculty of Medicine and Health Sciences, University of Antwerp, Belgium National Institute of Medical Research, Tanzania.

Background: High BMI among women of reproductive age is a risk factor for various adverse reproductive and pregnancy outcomes. High BMI among women of reproductive age is a risk factor for various adverse reproductive and pregnancy outcomes.

Objective: This study aims to describe trends over time in the distribution of BMI among Tanzanian women of reproductive age intending to conceive between 2004/5 and 2015/16, and identify factors associated with high BMI.

Methodology: We used data on 20,819 women of reproductive age (15-49 years) intending to conceive who participated in the Tanzania Demographic and Health Surveys in 2004/5, 2010 and 2015/16. We estimated the prevalence of high BMI (being overweight ≥ 25 to <30 kg/m²) and obesity ≥ 30 kg/m²) and trends in the prevalence of high BMI across the three surveys.

Results: Median BMI increased from 21.7 kg/m² (IQR 19.9 – 24.1 kg/m²) in 2004/5 to 22.0 kg/m² (IQR 20.0 – 24.8 kg/m²) in 2010 to 22.7 kg/m² (IQR 20.4 – 26.0 kg/m²) in 2015/16. The prevalence of overweight women increased from 11.1% in 2004/5 to 15.8% in 2015 (p-value<0.001). The prevalence of obesity increased from 3.1% in 2004/5 to 8.0% in 2015/16 (p-value<0.001). Women in the highest wealth quintile had higher odds (adjusted odds ratio[aOR]= 4.5; 95%CI 3.4-6.3, p-value<0.001) of high BMI than women in the lowest quintile. The odds of high BMI were about four times greater (aOR=3.9; 95%CI 2.9 – 5.4, p-value<0.001) for women 40-44 years compared to 20–24-year-olds. Women in the high-paying occupations had greater odds of high BMI than those working in agriculture (aOR=1.5; 95% CI 1.1 – 2.2, p-value=0.002). Women residing in the Southern zone had 1.9 (95%CI 1.5 - 2.5, p-value <0.001) greater odds of high BMI than Lake zone residents.

Conclusion: In Tanzania, high BMI affects almost 1 in 4 women of reproductive age who intend to conceive. This contributes to the burden of poor maternal and reproductive health outcomes.

Recommendation: We recommend developing and implementing health-system strategies for addressing high BMI and its related challenges and factors among women of reproductive age.

6. Uptake and associated factors of cervical cancer screening services among women attending reproductive and child health clinic in Dodoma Municipal Council, Tanzania.
Author: Omary A Nassoro.

Affiliation: Ministry of Health Tanzania. Tanzania Field Epidemiology and Laboratory Training Program Dar es salaam Tanzania Muhimbili University of Health and Allied Sciences-Dar es salaam Tanzania.

Background: Cervical cancer mortality can be avoided if proper preventive measures which include Human Papilloma Virus (HPV) vaccination, timely cervical cancer screening (CCS), and treatment of precancerous lesions are taken by women. Despite the increasing availability of cervical cancer screening services in Tanzania, only about 11% of eligible women were reported to have been screened.

Objective: To determine uptake and associated factors of cervical cancer screening among women attending Reproductive and Child Health (RCH) clinics in Dodoma Municipal Council

Methodology: A cross-sectional study using both quantitative and qualitative methods was conducted among women of reproductive age in RCH clinics and 7 RCH in-charges from 1st March to 30th April 2023. MS Excel and STATA were used for data management and analysis.

Bivariate analysis using the Chi-square test was used to assess the relationship between the uptake of CCS and independent variables. Multivariable Poisson regression was used to determine independent factors associated with the uptake of CCS. Thematic analysis was used to analyze the Qualitative data.

Results: A total of 463 women were enrolled and the prevalence of cervical cancer screening was 25%; 95%CI=21%-29%. Women with secondary education (aPR = 0.6; 95%CI =0.44-0.89), unemployed women (aPR =0.4; 95%CI = 0.23-0.76), and women who were not aware of cervical cancer screening (aPR = 0.4; 95%CI =0. 13-1.00) were less likely to screen for cervical cancer compared to their counterparts. The inadequate number of Health Care Workers (HCWs) for the provision of CCS, Women's lack of readiness for screening and misconceptions on CCS procedures were frequently mentioned to deter CCS uptake.

Conclusion: Uptake of CCS among attendees of RCH clinic is below the National target of 60% of all eligible women. Education level, occupation, and awareness of symptoms of cervical cancer were found to be associated with CCS uptake.

Recommendation: RCH staff should provide education on cervical cancer screening, and address misconceptions about screening procedures and the Government should ensure an adequate number of HCWs to provide screening services.

POSTER PRESENTATIONS

1. Factors influencing exclusive breastfeeding among working mothers in Tanzania.

Author: Enock Lugaila and Dr. Anitha Tingira.

Affiliation: University of Dar es Salaam (UDSM).

Background: EBF is key for adequate infant and child health. Worldwide two thirds of children are EBF while in Tanzania nearly three fifth of children are being EBF yearly. Studies across the world have shown the prevalence of EBF is much lower among working mothers as compared to the general population.

Objective: To explore factors that promote and/or hinder EBF among working mothers in Tanzania.

Methodology: Twenty-seven (27) informants were purposively enrolled in this study, this included twenty (20) breastfeeding mothers from formal and informal sector, four (4) relatives and three (3) managers, Managers and relatives were recruited via small ball sampling. In depth interviews, focused group discussion together with participants observation were the main methods used during data collection. Data was transcribed and translated to English language then thematic analysis was done.

Results: All mothers had adequate knowledge of EBF and its significance but their partners' main role in EBF was to provide family needs only. Lactating mothers in the informal sector, volunteers and interns were not entitled for paid maternity leave. Also, in the defense forces mothers are only eligible for maternity leave benefits after working for at least three years. Furthermore, after returning to work all twenty (20) mothers expressed breastmilk but only half successful EBF for six months.

Conclusion: EBF versus work imbalances, causing low breast milk production thus expressed breastmilk could not sustain child demands. Unfavorable breastfeeding environment at work, pre lacteal feeds, lack of sustainable financial sources for informal sector mothers, shorter maternity leave, lack of policies enforcing friendly breastfeeding infrastructure at work and long distance from work. EBF among nursing mothers in both formal and informal sectors is influenced by factors of all five levels of the socio-ecological model. This study has been able to appreciate all the levels and how they interact. At individual level, mothers were aware and understood the

significance of EBF but the interplay among elements at interpersonal, community, organization and policy level prevented half of women in this study from EBF for six months.

Recommendation: To enhance better breastfeeding outcomes, growth, and healthier life of the children which are the future generation, a systemic approach focusing on all socio-ecological model level challenges especially interpersonal, community, organizational and policy factors shall yield the intended results.

2. Prevalence and factors associated with kidney dysfunction among people living with HIV in Northern Tanzania: A retrospective cross-sectional study.

Authors: Jacob Henry Kitundu, Kassim Bakari, Japhary Joseph, Kajiru Kilonzo, Orgeness Mbwambo.

Affiliation: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical Centre.

Background: People living with HIV are at increased risk of kidney diseases, like HIV-associated nephropathy, focal-segmental glomerulosclerosis, immune-complex and comorbid kidney disease. Antiretroviral therapy long-term use or opportunistic infections further contribute to kidney injury. Current guidelines lack integration of HIV-specific pathways and risk-factors. It is important to formulate interventions for them.

Objective: This study was conducted to determine the prevalence and factors associated with kidney dysfunction among people living with HIV/AIDS in Northern Tanzania.

Methodology: A hospital-based retrospective cross-sectional study conducted in northern-Tanzania, clinical records of PLHIV were examined from October 2022 to April 2023. Participants included PLHIV on HAART for above 6 months attending Kilimanjaro Christian Medical Centre. Serum creatinine was used to estimate eGFR using the 2021 CKD-EPI equation without considering race. Data were analyzed using STATA 14. Multivariate analysis conducted and $P < 0.05$ was considered to indicate statistical significance.

Results: A total of 345 HIV-infected patients participated in this study. But only 331 met the inclusion criteria therefore 14 were excluded in the study due to missing valuable data. Among these 331 PLHIV on ART, 40 (12.1%) were found to have renal function impairment. Sex (adjusted odds ratio [AOR] = 4.18, 95% confidence interval [CI]: (1.42-8.19) and anemia (AOR = 3.37, 95% CI: (1.35-8.42) were found to be independent predictors of renal function impairment among people living with HIV.

Conclusion: These findings show that kidney dysfunction is not an uncommon problem among people living with HIV with at least 1 person out of 10 having kidney dysfunction. Half of people living with HIV in Northern Tanzania have anemia. Our findings suggest that anemia and being female are associated with the development of kidney dysfunction among people living with HIV.

Recommendation: All CTC laboratories to be equipped with renal function tests and hemoglobin level tests. Aggressive management of anemia should be done in people living with HIV. Multicenter and prospective studies should be done to assess the burden of kidney dysfunction and associated risk factors.

3. Evaluation of chemotherapy related adverse events and its effect on completion of therapy among colon cancer patients.

Author: Glory Makupa, Nazima Dharsee, Jerry Ndumbalo, Geoffrey Buckle, Larry Akoko, Peter Muhoka.

Affiliation: Muhimbili University of Health and Allied Sciences, Ocean Road Cancer Institute, Muhimbili National Hospital.

Background: Colorectal cancer ranks fifth in Tanzania's cancer diagnoses. Surgery is the mainstay of treatment for localized colon cancer and adjuvant chemotherapy is given in stage II (high risk) and III patients prevent recurrence. Chemotherapy regimens given have a variety of side effects which may necessitate chemotherapy modifications reducing their effectiveness.

Objective: To determine chemotherapy related adverse events and its association with therapy completion among colon cancer patients.

Methodology: A prospective, observational cohort study was conducted from 2022-2023 at ORCI and MNH in Dar-es-salaam, Tanzania. After consenting, participants were interviewed at baseline for socio-demographic and clinical-pathological characteristics. The PRO-CTCAE® instrument was used to classify symptoms at midpoint and endpoint of the study weeks. Descriptive statistics were used to summarize baseline characteristics, and adverse events. Chi-square test was used to find association between the patient characteristic parameters, adverse events and completion of chemotherapy.

Results: 96% of the patients in the cohort reported decreased appetite, 95% had taste changes, 93% fatigue, 91% peripheral neuropathy, 86% neutropenia, 79% nausea, 77% hand and foot syndrome 72% anemia, 58% vomiting, and 56% diarrhea. The most frequent grade 3 or 4 adverse event was neutropenia, fatigue, hand and foot syndrome, skin hyperpigmentation,

diarrhea and vomiting. A statistically significant relationship was observed between low BMI and the incidence of Peripheral neuropathy ($p=0.013$). 60% of patients had delayed completion and 7% did not complete treatment. A statistically significant relationship was noted between neutropenia and delayed therapy completion ($p=0.009$).

Conclusion: Majority (67%) of patients in the cohort had no timely completion of chemotherapy, mainly due to neutropenia.

Recommendation: Promoting health coverage with comprehensive medication packages is crucial for colon cancer patients with neutropenia to access G-CSF.

4. Improving acute myocardial infarction care in northern Tanzania: barrier identification and implementation strategy mapping

Authors: Julian T Hertz, Francis M Sakita, Sainikitha Prattipati, Lauren Coaxum, Tumsifu G Tarimo, Godfrey L Kweka, Jerome M Mlangi, Alice H Rutta Kristen Stark, Nathan M Thielman, Hayden B Bosworth, Janet P Bettger.

Affiliation: Kilimanjaro Christian Medical Center

Background: Evidence-based care for acute myocardial infarction (AMI) reduces morbidity and mortality. Prior studies in Tanzania identified substantial gaps in the uptake of evidence-based AMI care. Implementation science has been used to improve the uptake of evidence-based AMI care in high-income settings. However, interventions to enhance the quality of AMI care have not been studied in sub-Saharan Africa.

Objective: to improve the quality of AMI care in sub-Saharan Africa.

Methodology: Purposive sampling was used to recruit participants from key stakeholder groups (patients, providers, and healthcare administrators) in northern Tanzania. Semi-structured in-depth interviews were conducted using a guide informed by the Consolidated Framework for Implementation Research (CFIR). Interview transcripts were coded to identify barriers to AMI care using the 39 CFIR constructs. Barriers relevant to emergency department (ED) AMI care were retained, and the Expert Recommendations for Implementing Change (ERIC) tool matched barriers with Level 1 recommendations for targeted implementation strategies.

Results: Thirty key stakeholders, including ten patients, ten providers, and ten healthcare administrators, were enrolled. Thematic analysis identified 11 barriers to ED-based AMI care: complexity of AMI care, cost of high-quality AMI care, local hospital culture, insufficient diagnostic

and therapeutic resources, inadequate provider training, limited patient knowledge of AMI, need for formal implementation leaders, need for dedicated champions, failure to provide high-quality care, poor provider-patient communication, and inefficient ED systems. Seven of these barriers had five strong ERIC recommendations: access new funding, identify and prepare champions, conduct educational meetings, develop educational materials, and distribute educational materials.

Conclusion: Multiple barriers across several domains limit the uptake of evidence-based AMI care in northern Tanzania. The CFIR-ERIC mapping approach identified several targeted implementation strategies for addressing these barriers.

Recommendation: A multi-component intervention is planned to improve the uptake of evidence-based AMI care in Tanzania

5. Prevalence, characteristics of abnormal semen parameters and their association with endocrine profiles among men attending fertility clinic in northern Tanzania: A retrospective analytical study.

Authors: Mathias Kimolo, Jasper Said Mbwambo, Alex Mremi, Orgeness Jasper Mbwambo, Frank Bright, Alfred Kien Mteta, Bartholomeo Nicholas Ngowi.

Affiliation: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical Centre.

Background: Globally male infertility is a public health concern. Semen analysis and endocrine profile evaluation are crucial diagnostic tools that uncover factors contributing to infertility.

Objective: To determine the prevalence and characteristics of abnormal semen parameters and their association with endocrine profiles among males seeking fertility services in northern Tanzania.

Methodology: A retrospective study spanning 5½ years analyzed 482 semen samples from men seeking fertility services at Kilimanjaro Christian Medical Centre, a zonal referral hospital between 2017 and 2022. Data was sourced from the pathology laboratory registry book, medical records with hospital numbers, and the Electronic Health Management System (EHMS) for demographic details. Endocrine profiles were obtained via Data Intensive Systems and Applications (DISA). After excluding 229 samples with single semen samples or analyses conducted elsewhere, 253 eligible semen samples were analyzed, ensuring privacy-preserving serial numbers for data extraction.

Results: Among the analyzed samples, 192 (75.9%) exhibited abnormal semen parameters. Asthenozoospermia was the most common abnormality, present in 125 (49.4%) samples, followed by necrozoospermia, teratozoospermia, and oligozoospermia. Azoospermia was found in 48 (19%) participants. Regarding hormonal profiles, low testosterone was the most frequent abnormality, affecting 197 (77.9%) participants and significantly correlating with abnormal sperm morphology. High FSH levels were detected in 66 (26.1%) samples, while LH levels were within the normal range for 251 (99.2%) participants.

Conclusion: These findings underscore the substantial prevalence of semen parameter abnormalities in northern Tanzania.

Recommendation: We recommend further research to identify associated risk factors

6. Mother's healthcare-seeking behaviors in Dodoma and Mbeya regions of Tanzania- A qualitative study of children with acute malnutrition

Authors: Elizabeth Lyimo, Ray Masumo, Germana Leyna, Anna Zangira, Rose Msaki, Hamida Mbilikila, Nyamizi Julius, Abela Twi'nomujuni Ramadhani Mwiru, Mangi Ezekiel³.

Affiliation: Tanzania Food and Nutrition Centre, The United Nations Children's Fund (UNICEF) Tanzania, Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Maternal healthcare-seeking behavior affects the health and well-being of under-fives children. Children with severe acute malnutrition are a major global public health concern and have higher risk of death from common childhood illnesses. The low/late appearance of mothers/caretakers of malnourished children to health facility is one of the problems reported in most of the regions in the country.

Objective: Explore health seeking behaviors mothers or caregivers of under-five years' old children having/had acute Dodoma and Mbeya regions of Tanzania.

Methodology: We conducted 32 semi-structured and narrative interviews with healthcare workers, community health workers, traditional healers, religious and village leaders, and mothers or caregivers of a child who had or has acute malnutrition. The analysis of transcripts was done by qualitative content analysis.

Results: Acute malnutrition among under-fives children was not observed as serious disease by the majority of mothers/caregivers. The study established that health systems parameters like availability of the community health workers or healthcare providers, and the availability of

medicines and supplies to the health facility impact on mothers' or caregivers' healthcare-seeking behaviors. The findings also show that environmental structures like long distance to the health facility, and behavioral parameters like unawareness, negative perception of management of acute malnutrition at the health facility, witchcraft beliefs, women's workload, household food insecurity, and gender issues have a significant role in seeking healthcare.

Conclusion: The results reaffirm how a program on integrated management of acute malnutrition in Tanzania should encompass sociocultural factors that negatively influence mothers or caregivers of children with acute malnutrition.

Recommendation: The program should focus on engaging community structures including traditional healers, religious and village leaders to address prevailing local beliefs and sociocultural factors.

7. Patient's willingness to pay for the improved community health insurance and medications packages in Tanzania.

Authors: Kassimu Tani, Brianna Osetinsky, Sally Mtenga, Günther Fink, Fabrizio Tediosi.

Affiliation: Ifakara Health Institute, Swiss Tropical and Public Health Institute, Basel, Switzerland, University of Basel, Basel, Switzerland.

Background: Voluntary community health insurance is an increasingly popular approach for moving toward universal health coverage (UHC) in low-middle-income countries. Tanzania has made notable efforts to promote health insurance, yet achieving widespread coverage remains a significant challenge with less than 30% population covered. Community Health Insurance Fund (iCHF) premiums are low, the benefit package offered is limited.

Objective: This study aimed to investigate the factors influencing patients' willingness to pay (WTP) for medication and various versions of the iCHF in Tanzania.

Methodology: To elicit patients' willingness to pay (WTP) for medication, iCHF as intended and with additional packages, we conducted a study using a Contingent Valuation Method (CVM). The CVM bids were derived from a multi-stage process that included a review of iCHF as designed and relevant literature. The analysis used a random utility model estimated using an ordered logit model.

Results: Majority of patients exhibited WTP for the existing iCHF and augmented iCHF premium inclusive of additional medication coverage. Upon adjusting for demographic characteristics, we

observed that patients enrolled in insurances and benefiting from user fee waivers demonstrated a lower WTP for medication, while those with non-communicable diseases (NCDs) and seeking care in private facilities exhibited higher WTP. Furthermore, patients with secondary education or above expressed greater readiness to pay higher iCHF premiums. Conversely, patients enrolled in private insurance and availing user fee waivers, along with those accessing care in public facilities, demonstrated a diminished likelihood of WTP for higher iCHF.

Conclusion: Our findings underscore the need for targeted interventions to address existing system deficiencies and enhance the availability of medications.

Recommendation: Moreover, we emphasize the importance of considering NCD status and education levels when designing health insurance schemes for the informal sectors, with the goal of improving the uptake health insurance programs.

8. House to house community hypertension screening.

Author: Omary Mwangaza.

Affiliation: Kinondoni Municipal council.

Background: Hypertension is a silent killer disease and one of the most prevalent NCDs in the country. In 2012, over a quarter (26%) of the Tanzanian population had hypertension. UN sustainable development goals aim to attain 25% and 10% reduction of hypertension prevalence and deaths attributed to NCDs by 2030.

Objective: Detection of new cases within the community.

Methodology: House to house screening, with linkage Health education, data collection using artificially method.

Results: In 43 days of screening 5946 new cases were diagnosed to have high blood pressure, in Temeke, Ilala and Kinondoni district. Linkage is still going on and the project has stopped cause no stakeholder (no progression).

Conclusion: More cases in the community,5230(new Cases in 43 days) Lesson, gap in community HE and screening.

Recommendation: We should not depend on OPD data, we need to go to the community for early screening detection linkage and management to prevent complication with disability.

9. Paper based integrated management system of Diabetes and Hypertension and on the job training in the HCs could be the key in the management of NCDs.

Authors: Katunzi Mutalemwa, Anitha Mligo, Rehema Itambu, Lucia Franca, Francesca Cera, Emmanuel Ndile, Noemi Bazzanini, Paolo Belardi, Bruno Ndunguru, Samwel Marwa, Gaetano Azzimonti, Francesca Tognon, Mario Saugo.

Affiliation: Doctors with Africa CUAMM, Iringa, Tanzania, Tosamaganga Voluntary Agency Hospital, Tosamaganga, Tanzania, Iringa District Council, Tanzania, Doctors with Africa CUAMM, Padua, Italy.

Background: Chronic care services for NCDs are mainly available at referral hospitals in major cities, making them inaccessible in the rural areas. Moreover, treatment adherence and clinical follow-up play a crucial role in the management of NCDs, but the health system has still limited capacity of long-term continuous management of such patients.

Objective: The aim was to build an integrated system. This system included the creation of pathways for patients and the implementation of the use of paper-based treatment cards (TCs). The experience conducted in Tanzania in HIV care as well as Pen Plus model, represents key models of inspiration.

Methodology: "Since March 2019, an integrated management system was started in the Iringa District Council. In this system, each patient underwent the initial assessment at Tosamaganga Hospital, and all enrolled patients were supplied with personal TCs. Monthly follow-up visits are conducted at the hospital or the health centers (HCs), where clinical records and treatment information are regularly recorded in the TCs. The patient returned to the hospital for a reassessment visit every six months. Since June 2022 we started to do joint clinic in each HC every 3 months and since July 2023, we are conducting these joint clinics every month. An electronic medical record system has been employed to track and monitor data from patients enrolled in the system."

Results: Since March 2019 up to the end July 2023, 1902, patients have been enrolled. The global follow up rate at the 6 month follows up visit is 49%, 20% at 12 months, 32% at 24 months and 29% at 36 months. 9 HCs have been involved for on-the-job training.

Conclusion: Our experience suggests that the paper-based system can help in long term integrated management of DM and HTN. Jointly clinic and on the job, training can strengthening HCs clinics and fill the gap between rural area and major cities.

Recommendation: Implementation of integrated management and strengthening of peripheric areas could be the key in managing NCDs and finally could lead to reducing the burden of premature mortality and disability.

10. Pediatric cancer care at KCMC, Northern Tanzania: An evaluation of diagnosis, treatment, and outcomes from 2019 – 2022.

Authors: Ashraf Mahmoud, Agathon Kimario, Julieth Benjamin, Flora Felix, Bernadine Mallilah, Esther Majaliwa.

Affiliation: Kilimanjaro Christian Medical University College

Background: Childhood cancer affects many children (0-19 years), with an estimated annual impact of around 400,000 individuals worldwide. Disparities in diagnostic and treatment services exist between high-income and low/middle-income countries, leading to varying outcomes.

Objective: The aim of this study is to evaluate pediatric cancer care at KCMC by assessing diagnosis, treatment, and related outcomes.

Methodology: We conducted a retrospective study on children and adolescents (0-19 years) newly diagnosed with cancer. Data was obtained from multiple sources, including medical records, healthcare databases, and the Kilimanjaro Cancer Registry at the Kilimanjaro Christian Medical Centre. Descriptive and inferential analyses examined the demographic and clinical characteristics of participants. Chi-square tests identified patterns and associations, while logistic regression models investigated treatment outcome factors. The Cox proportional hazards model provided a comprehensive survival assessment, accounting for relevant covariates. Significance was set at $P < 0.05$.

Results: From 2019 to 2022, we reviewed 396 patients. The yearly rate of newly diagnosed pediatric cancer patients increased, especially among children under 5 and 10. Leukemias and lymphomas accounted for 46.2% of all cases. Children aged 0-4, those with health insurance, and those receiving chemotherapy were more likely to complete treatment (OR = 2.931, 95% CI [1.266, 6.790], $p = 0.012$); (OR = 2.009, 95% CI [1.101, 3.665], $p = 0.023$); (OR = 0.175, 95% CI [0.047, 0.647], $p = 0.009$), respectively. Conversely, having health insurance and undergoing radiotherapy treatment were associated with increased chances of survival (OR = 3.196, 95% CI [1.600, 6.383], $p = 0.001$); (OR = 2.935, 95% CI [1.196, 7.203], $p = 0.019$).

Conclusion: This study provides valuable insights into pediatric cancer care. It underscores the importance of timely diagnosis, access to appropriate treatments, and the influence of demographic factors on treatment outcomes.

Recommendation: These findings can inform regional needs and guide research and strategic interventions to enhance childhood cancer survival in Northern Tanzania.

11. Client, provider and organizational factors influencing the utilization of cervical cancer screening services among women in Kibaha District

Authors: Alma Damasy, Sylvia kaaya, Nathanael Sirili

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Cervical cancer is the fourth leading cancer globally with estimates to 604,127 new cases and 341,831 deaths in 2020. The utilization of cervical screening services in Tanzania is still low. Estimates show of targeted women (30-50 years) in 2018, only 11% screened for cervical cancer. Most studies did not consider the complex interactions between the client, provider, and organization influencing cervical screening service utilization.

Objective: To assess client-level, provider-level, and organizational-level factors influencing the utilization of cervical cancer screening services among women in the Kibaha District.

Methodology: A qualitative case study was conducted at Tumbe District Referral Hospital. Purposive sampling was employed to obtain 21 participants, including 16 clients, three health providers, and two facility in-charges at the CTC and RCH clinics. The study team obtained data through in-depth interviews using semi-structured interview guides. Analysis was done in five steps using content analysis as the theoretical framework to analyze the collected information with the help of NVIVO software version 12.

Results: Most clients had little awareness of cervical cancer screening and expressed that stigma, social support, and fear of screening play a big role in their decision to utilize cervical screening services. Most women did not regard finance as a challenge for using cervical screening services at the facility. Healthcare providers had inadequate training and practice in cervical screening and were entitled to several responsibilities apart from screening that hindered their performance of screening services. The information offered by healthcare providers was another factor influencing the utilization of cervical screening services. The health facility in charge

acknowledged that screening targets and setting screening schedules enabled more women to obtain screening services by fostering accountability in service provision.

Conclusion: Limited awareness, stigma, and fear were barriers limiting women from utilizing cervical screening services. HCP face challenges in training and skills practice after training which calls for more comprehensive training of HCPs. At the organizational level, setting screening targets under proper supervision and ensuring HCP motivation increased their accountability and eventual utilization of cervical services among women.

Recommendation: Firstly, comprehensive targeted educational campaigns should be conducted to raise awareness, dispel misconceptions, and address the stigma associated with cervical cancer screening. Secondly, healthcare providers should receive enhanced training and support, with opportunities for regular practice and adequate resources to deliver effective screening services. A smooth referral system and financial assistance programs should be established to ensure timely follow-up and treatment for patients who screen positive for cervical cancer.

12. Quality of life in children after cardiac surgery for congenital heart disease at Jakaya Kikwete cardiac institute.

Authors: Adam Ndamayape, Pedro Pallangyo, Robert Malya, Ester Balenga and Stella Mongela.

Background: Congenital heart diseases (CHDs) are the most common birth defects, accounting for 30% of all congenital abnormalities affecting 8-12 newborns per thousand live births and are the second leading cause of death in neonates. There is a major improvement in treating children with CHD, especially with surgical correction. Improvement of quality of life (QoL) is now a major concern after cardiac surgery.

Objective: To evaluate the quality of life (QoL) in children after cardiac surgery for congenital heart disease.

Methodology: A cross-sectional study was performed on children aged 2 to 18 years. The case group had 72 children with a history of corrective heart surgery six months before the study. The control group had 45 healthy children, age-matched to the case group. The QoL of both groups was assessed by Pediatric Quality of Life Inventory (PedsQL) Generic Core Scales. Data were analyzed using a T-test with $P < 0.05$ as the level of significance.

Results: The quality of life in children aged 2-4 years is low in physical function and emotional function, 5-7 years children from the case group shown by both parent and children report low quality of life in physical function, emotional function and school function. Children 8-12 years had low health-related quality of life in emotional function and there was no significant difference in social function, school and physical function, with healthy children aged 13-18 years had low quality of life in emotional function.

Conclusion: "The results of our study indicate that children after cardiac surgery for CHD by self and parent assessment have a lower quality of life than healthy children. Post-operative children are at risk for physical appearance, anxiety, cognitive, and communication problems."

Recommendation: It is important to monitor the quality of life of children after cardiac surgery for CHD both immediately after surgery and during their later growth development to ensure the quality of life is well preserved.

13. Effectiveness of a brief negotiational intervention and text-based booster to reduce harmful alcohol use in the emergency department of a low-resource setting: A pragmatic randomized adaptive clinical trial in Moshi, Tanzania.

Authors: Msafiri Pesambili, Catherine A. Staton, Linda Minja, Joao Vitor Perez de Souza, John Gallis, Pollyana Coelho Pessoa Santos, Mia Buono, Francis Sakita, Judith Boshe, Ashley J. Phillips, Joao Ricardo Nickenig Vissoci, Blandina T. Mmbaga.

Affiliation: Kilimanjaro Christian Medical Center, Duke University School of Medicine, Duke Global Health Institute, Duke University, Kilimanjaro Clinical Research Institute, Kilimanjaro Christian Medical University College.

Background: In Tanzania, similar to other low-middle-income countries, Alcohol Use Disorder (AUD) is a major health challenge. In high income settings, Brief Negotiational Intervention (BNI) for alcohol in the emergency department settings has shown to be cost-effective and successful and reducing alcohol use. Currently, there are no effective data on culturally adapted interventions to address harmful alcohol use behaviors in Tanzania.

Objective: The aim of this study is to evaluate the effectiveness of the culturally adapted BNI, combined with text message SMS boosters in reducing harmful alcohol use among patients presenting to Kilimanjaro Christian Medical Centre Emergency Department (KCMC ED) with acute injuries.

Methodology/Project plan: We are conducting a pragmatic randomized controlled trial for adult injury patients who reported using alcohol prior to injury or screened positive for AUD. Patients

are consented and randomized to either usual care, BNI + standard SMS booster, or BNI + personalized SMS booster. SMS boosters were sent weekly for one year to remind participants about alcohol reduction goals, and booster arms were analyzed together. Mixed effects zero-inflated negative binomial models were used to assess intervention effects.

Results: An interim analysis was conducted after 336 patients completed 3-month follow-up (228 intervention, 108 UC). Both groups showed a reduction in binge drinking days, while the intervention group had a significant reduction in binge drinking days compared to the usual care group (predicted mean difference between groups: 1.3, [CI 1.22 - 1.38] days, $p = 0.015$), indicating that the intervention was effective. The intervention group also had significant reductions in the quantity and frequency of alcohol use.

Conclusion: Our culturally adapted BNI with SMS boosters is effective in addressing harmful alcohol use among injury patients in Tanzania.

Recommendation: Further studies are needed to assess the long-term impact of this intervention, scalability and adaptability to other population groups.

14. Public knowledge of heart attack & stroke signs in Dar es Salaam: Are the educational endeavors sufficient?

Authors: Makrina Komba, Pedro Pallangyo, Zabella S. Mkojera, Loveness Mfanga, Saad Kamtoi, Janeth Mmari, Husna Y. Faraji, Smita V. Bhalia, Henry A. Mayala, Genofeva Matemu, Anna Nkinda, Engerasiya Kifai, Peter R. Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI)

Background: Knowledge of the predisposing risk factors and prompt recognition of the warning signs for heart attack and stroke is fundamental in modification of lifestyle behaviors and an imperative precursor to health-seeking behavior.

Objective: To assess the knowledge of heart attack and stroke signs in Dar es Salaam among adult population.

Methodology: A random pre-selection of specific blocks was utilized to select a random sample of 1759 households based on the 2022 Tanzania Demographic and Health Survey census frame. This study utilized a validated standardized questionnaire that was developed by Ahmed et al. We defined a priori eleven risk factors for heart attack/stroke, eight heart attack warning signs and six typical symptoms of stroke. A respondent could therefore score between 0 and 11, 0 and

8, and 0 and 6 respectively depending on the correctly identified parameters. Pearson Chi square and Student's T-test were employed in comparison of categorical and continuous variables respectively. Factors associated with respective knowledge were assessed by bivariate analyses. All tests were 2-sided and $p < 0.05$ was used to signify statistical significance.

Results: The mean age was 45.4 years, females constituted over a half of participants and over two-thirds had attained at least secondary school education. About three-quarters had excess body weight, a third were hypertensive, nearly 7% had history of diabetes, and over one-tenth had a positive history of dyslipidemia. Regarding risk factors, just over 2% of participants displayed satisfactory awareness and only stress was recognized by at least half of participants. With regards to warning signs, barely 1% of participants had satisfactory knowledge for either of the conditions while nearly three-quarters of participants failed to mention even a single warning sign for heart attack. Recognized by about two-thirds of respondents, sudden numbness or weakness in face, arm or leg was the most acknowledged stroke symptom, however, other symptoms were familiar to less than a third of participants. Although over a half of respondents acknowledged going to a hospital as their first resort, over one-tenth of respondents expressed inappropriate reactions towards heart attack and stroke victims including; prick the toes to bleed, hit the victim's head with slippers, rub the patient with toilet dirt, run away, giving fluid sips and visit a witch doctor. Old age, higher level of education, positive history of heart attack or stroke, high blood pressure and history of dyslipidemia showed association with both risk factors and warning signs knowledge during bivariate analyses.

Conclusion: Public knowledge of common risk factors and typical warning signs for heart attack and stroke was critically suboptimal. These findings herald an utmost need for public health efforts to increase community awareness of risk factors and typical signs of the two conditions to curb the rising prevalence and associated morbimortality. A comprehensive mass media campaign, targeted education of high-risk groups, and tailored eHealth interventions will be rewarding in this setting. Moreover, educational endeavors should also target healthcare professionals particularly the primary care providers.

15. Application of LS7 scale to a population of ART-Naïve PLWH and HIV-uninfected adults in Tanzania.

Authors: Gloria Manyangu, Safah Khan, Robert Peck.

Affiliation: Bugando Medical Centre, Weill Cornell Centre for Global Health-New York.

Background: People living with HIV (PLWH) are at elevated risk of cardiovascular disease due to traditional, HIV-specific, lifestyle factors; their cardiovascular health (CVH) profiles are complex and require thorough characterization to guide primary prevention efforts. Previous studies have applied the American Heart Association's Life's Simple 7 (LS7) scale to PLWH. However, studies are limited to PLWH on ART and data on ART-naïve patients is scarce.

Objective: To apply the LS7 scale to a population of ART-Naïve PLWH and HIV-uninfected adults in Tanzania.

Methodology: Cross-sectional analysis was conducted on a cohort of PLWH and HIV-uninfected adults recruited between June 2016 and August 2019 in Mwanza, using the modified Life's Simple 7 (LS7) definitions, categorizing each metric as ideal (2 points), intermediate (1), and poor (0). We compared distributions of overall cardiovascular health and each category of LS7 metrics between study groups. Ordinal regressions were employed to investigate associations between HIV status and each individual LS7 metric.

Results: Our study included 997 participants (493 PLWH, 504 controls). PLWH had better cardiovascular health than HIV-uninfected counterparts, with higher mean LS7 scores (10.39 vs 10.06) and a higher proportion of participants achieving 3-4 ideal CVH metrics (48.78% vs 58.84%, $p < 0.001$). 39% had overall ideal CV health ($\geq 5/7$ ideal components), including 2 participants with 7 out of 7 ideal components. Compared to HIV uninfected individuals, fewer PLWH had ideal blood glucose levels (99.01% vs. 96.9%) and ideal smoking status (89.66% vs 83.5%). Although the majority of PLWH were less active (46.9% vs. 32.4%), their levels of ideal total cholesterol (76.82% vs. 62.82%), blood pressure (56.3% vs. 35.18%) and body mass index (75.6% vs 65.41) were better than HIV uninfected participants.

Conclusion: Cardiovascular disease prevention in PLWH should focus on smoking cessation, exercise and screening for diabetes.

Recommendation: Consistent exercise, healthy diet, weight control, and no smoking greatly lower cardiovascular disease risk.

16. Assessment of glycemic control and its determinants among diabetic patients with chronic kidney disease on maintenance hemodialysis in Tanzania.

Author: Emmanuel Arthur Mfundo, Alphonse Mareale, Ritha Mutagonda, Deus Buma.

Affiliation: Muhimbili university of Health and allied Sciences (MUHAS).

Background: Diabetes mellitus (DM) is a foremost public health problem disturbing 463 million people globally, and in Tanzania, it is estimated to affect 1.7 million people. It is the leading cause of chronic kidney disease in developed and low-income countries. Kidneys play a significant role in glycemic control due to gluconeogenesis and tubular glucose reabsorption. Hence, glucose homeostasis is altered in diabetic CKD resulting in increased morbidity and mortality.

Objective: This study aimed to evaluate glycemic control among diabetic patients with chronic kidney disease on Maintenance Hemodialysis in Tanzania.

Methodology: A cross-sectional study was conducted in dialysis centers in Tanzania regions, including Dar es Salaam, Dodoma, Mwanza, and Arusha, from March to June 2023. The study population was diabetic patients above 18 years on hemodialysis for more than three months. A convenience sampling technique was used during patients' enrollment. Data were collected using a structured questionnaire and the Malaysian Medication Adherence Scale (MyMAAT) was used to assess adherence among enrolled patients. Data were analyzed using a statistical package for social sciences (SPSS version 23). Univariate and multivariable regression models were used to evaluate the predictors of glycemic control. A p-value of less than 0.05 was considered statistically significant. Glycated hemoglobin used to assess glycemic control, HbA1c 8% was considered inadequate control while the score 80 on the adherence scale was considered poor and good adherence respectively.

Results: Out of 233 enrolled patients, the prevalence of inadequate glycemic control was 55.4% whereby 28.4% had glycated hemoglobin of >8.0% and 27.0% had glycated hemoglobin of <6.0%. Of 171 who were using antihyperglycemic medications, 66.1% had good adherence. The determinants of inadequate glycemic control were the use of vitamin D3 supplements 0.66 (95% CI: 0.43– 0.99), $p = 0.05$ being on antidiabetic medication. 2.80 (95% CI: 1.28 – 6.10) $p = 0.01$ and frequency of hemodialysis 1.78 (95% CI: 1.02 – 3.11), $p = 0.04$.

Conclusion: The prevalence of inadequate glycemic control among diabetic patients with CKD on maintenance hemodialysis in Tanzania is 55.4%. Most patients who were on antidiabetic medications had good adherence. The patients who had less than three dialysis session had poor glycemic control as blood sugar is filtered during dialysis, those who were on in vitamin D3 supplements had a lower risk of poor glycemic control as vitamin D increase insulin sensitivity, while those who were on antidiabetic medications had poor glycemic control due to poor resolutions of hyperglycemia.

Recommendation: Individualized blood glucose monitoring by Continuous blood glucose monitoring or self-blood glucose monitoring. Lastly, HbA1c trend monitoring and adherence to antidiabetic medications are recommended.

17. Fatty Liver Disease and its Correlates among people living with HIV at Temeke Dar es salaam, Tanzania.

Authors: Farida Mtonga, Ewaldo Komba, John Rwegasha, Tumaini Nagu.

Affiliation: Muhimbili University of Health and Allied Sciences, Muhimbili National Hospital, Temeke Regional Referral Hospital.

Background: Fatty Liver Disease (FLD) is projected to be the leading cause of chronic liver disease among People living with HIV (PLHIV) following effective antiretroviral therapy

Objective: This study aimed at determining the prevalence and associated factors for Fatty Liver Diseases among People living with HIV attending Care and Treatment Clinic at Temeke Regional Referral Hospital in Dar es Salaam, Tanzania.

Methodology: A descriptive cross-sectional study was conducted between September and November 2020. Consenting adults aged ≥ 18 years and living with HIV were enrolled in the study. A structured questionnaire was used to collect socio-demographic, anthropometric measurements and clinical characteristics. Patients were fasted for a minimum of 8 hours before undergoing an abdominal USS, using B-mode and 3.5 MHz convex probe transducer (Dawei-DW 580, China, 2020) was done by a single trained investigator. FLD was defined as an increase in liver echogenicity compared to the right kidney and spleen. Interpretations of USS images were done by trained investigator and senior radiologist. Independent predictors of FLD were analyzed using multivariate logistic regression; a p-value of < 0.05 was considered to be statistically significant.

Results: A total of 454 patients were enrolled in the study. FLD was seen in 118 patients, making a prevalence of 25.9% (95% CI 22.0%-30.3%). Age group 40-60 years (aOR 1.74; 95% CI: 1.02 – 2.96 $p=0.043$), overweight (aOR 1.92; 95%CI: 1.05-3.51: $p =0.034$), obesity (aOR 3.46; 95% CI: 1.80 – 6.65: $p < 0.001$) and dyslipidemia (a OR: 2.63 95%CI: 1.58-4.39; $p < 0.001$) were significantly associated with FLD. HIV viral load status, and duration on combination antiretroviral therapy had no association with FLD.

Conclusion: One out of four PLHIV had FLD. Factors associated with FLD were age 40-60 years, obesity, and dyslipidemia.

Recommendation: We recommend weight reduction and regular screening for FLD among PLHIV with the above risk factors.

18. Rare pediatric spine anomalies: A case of lumbosacral agenesis with tethered cord syndrome.

Authors: James Lubuulwa, Anton Manyanga, Olaph Lema, David Sikambale, Paschal Chobo, Gerald Mayaya, Patrick Ngoya, Patrick Mayanja

Affiliation: Bugando Medical Centre, Catholic University of Health and Allied Sciences.

Background: Agenesis of the Lumbosacral vertebrae also described as caudal regression syndrome is a rare disorder of neurodevelopment with only few cases reported in literature in developing countries. Although the causes are unclear, genetic, folate deficiency and environmental factors have been mentioned to play a role in the pathobiology of these anomalies.

Objective: We describe two cases, one patient with agenesis of lumbosacral vertebrae with emphasis on imaging appearance and management options.

Presentation: A one-month old healthy-looking male child presented with bilateral congenital popliteal contracture which was observed soon after normal delivery. Physical examination revealed bilateral webbed knee posteriorly, could not extend the knee, bilateral buttock dimples and on palpation of the spinous processes could not be appreciated below T11. The muscle bulk in both limbs decreased markedly from proximal to distal and lower extremities maintained a frog leg position and there was webbing of both popliteal fossae with the feet in calcaneus position. The other structures of the upper trunk were spared with no observed anomaly. Magnetic resonance imaging (MRI) of the spine revealed agenesis of the thoraco-lumbar below the level of T11 with the thecal sac terminating at T11/T12 level and conus medullaris terminated mid-portion of T9 level with a truncated appearance of the spinal cord, normal water density of muscles of the thighs and legs was replaced by fat density features are highly suggestive of Tethered cord syndrome with Agenesis of Lumbar Vertebrae.

Progress: The parents were counseled about long term prognosis and child was referred to a tertiary institution for further management

Conclusion: We report the first case of lumbosacral agenesis at Bugando Medical Centre, MRI the ideal modality for evaluation of the spine in congenital spine anomalies.

Recommendation: Given the medical history of the parents was unremarkable in all clinical aspects, further studies recommended to evaluate risk factors. Multi-disciplinary team approach in managing congenital spine anomalies is essential.

19. Psychopathology associated with cardiac implantable devices at JKCI: A prognostic role of mental health.

Authors: Pedro Pallangyo, Lucy R. Mgopa, Smita V. Bhalia, Zabella S. Mkojera, Makrina Komba, Happiness J. Swai, Henry A. Mayala, Peter R. Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI).

Background: Emotional disarray linked to interventional procedures may potentially aggravate previous psychiatric conditions or even precipitate new psychopathologies. Despite of the well-known deleterious impact of mental health disorders on cardiac outcomes, psychological disturbances are relatively understudied yet of vital importance to the overall health of post-pacing patients.

Objective: In this case series we present a spectrum of mental illnesses observed in a cohort of patients who underwent permanent pacemaker implantation in Tanzania's national referral cardiac center.

Results: Five individuals of African origin aged between 58 and 81 years presented to Jakaya Kikwete Cardiac Institute (JKCI) with clinical conditions warranting permanent pacemaker implantation. All five denied prior history of mental illness. One presented with symptoms suggestive of psychological disturbance pre-procedure while the other four exhibited symptoms suggestive of mental illness post implantation. After thorough psychiatric reviews; organic brain syndrome, panic disorder, brief psychotic disorder, adjustment disorder and major depressive disorder were the diagnoses reached for the respective cases. All five were successfully channeled for medical psychotherapy.

Conclusion: This case series illustrates variable consequences of poor psychological adaptation to implantable cardiac devices, and it underscores the importance of continued psychological evaluation to such patients. Pre and post implantation mental status assessment is paramount to providing timely psychological intervention with resultant better physiological outcomes and improved health-related quality of life.

20. Prevalence, level, and association of knowledge, prevention practices, and physical disability among adult type 2 diabetic patients at Bombo hospital-Tanga Region

Authors: Olida Joseph, Lwidiko Mhamilawa, Vivian Mushi.

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Physical disability among adults with Type 2 Diabetes Mellitus (T2DM), it is a result of different medical complications caused by T2DM. The lack of sufficient statistics hinders the understanding of the trend of physical disability related to diabetes as a public health challenge in Tanzania including Tanga City. The findings are fundamentally important for developing, integrating and implementing appropriate interventions towards its management.

Objective: To determine the prevalence, level of knowledge, prevention practices, and their association with physical disability among adult T2DM patients attending the diabetic clinic at bombo hosp.

Methodology: A hospital-based quantitative cross-sectional study design was carried out among adult T2DM patients aged 40 years and above attending diabetic clinic at Bombo hospital. Data were collected using a structured questionnaire and the Katz index of independence in Activities of Daily Living (ADLs). Descriptive statistics were used in the determination of prevalence, level of knowledge, and prevention practices and chi-square test in the determination of relationships between the variables, considering a p-value of less than 0.05 as statistically significant. Bivariate and multivariate logistic regressions were conducted to identify factors influencing the prevalence of physical disability.

Results: A total of 337 adult T2DM patients were enrolled in the study. The overall prevalence of physical disability related to diabetes among participants was found to be 59.9%. prevention practices. Moderate knowledge levels towards physical disability were observed in 46.9% of the participants while 58.5% had inappropriate prevention practices. Female gender and duration of 5 to 10 years since T2DM diagnosis were significantly associated with an increased prevalence of physical disability related to diabetes. Female gender was also associated with lower knowledge levels and inappropriate prevention practices, although the association between level of knowledge, prevention practices, and the prevalence of physical disability was not significant.

Conclusion/ Lesson learned: Consider factors beyond knowledge level in preventing and managing physical disability related to diabetes i.e., socioeconomic and healthcare access.

Recommendation: The government, to implement the integration and accessibility of specialized diabetic and rehabilitation services at district and health center levels.

21. Predictors and outcome of post-stroke depression among patients admitted for first stroke at referral hospitals in Dodoma, Tanzania.

Authors: Sadiki Mandari and Azan Nyundo

Affiliation: University of Dodoma

Background: Majority of stroke sufferers reside in developing countries, and it is among the most prevalent disabilities among adults. Post-stroke depression (PSD) is the most prevalent neuropsychiatry manifestation and is linked to worsening of symptoms, recurrence of stroke, and even increased rate of disability and death; nonetheless, little is documented about the magnitude, predictors, and prognosis of post-stroke depression.

Objective: To assess the prevalence, predictors, and outcome of post-stroke depression among adult patients with stroke admitted at referral hospitals in Dodoma, Tanzania. Specific objectives

Methodology: A prospective longitudinal observational study was carried out at referral hospitals in Dodoma, Tanzania. A calculated sample size was 274 and a consecutive sampling technique was used. Adults aged 18 years and above with a first episode of stroke confirmed by CT/MRI brain presenting within 14 days and meet the inclusion criteria. For assessing and measuring depressive symptom progression, PHQ-9 was utilized. Baseline clinical characteristics were documented on admission; PSD was assessed at one and three months. Predictors and outcomes of PSD were analyzed using logistic regression.

Results: The study included 274 patients, with a mean age of 61.76 ± 14.45 . The prevalence of PSD was 27.89% and 13.33% at one and three months respectively. 23.03% had significant improvement in depressive symptoms at three months of follow-up. It was observed that at one month PSD was significantly associated with age of the patient (AOR: 95% CI: 1.137, 1.075, 1.203, $p < .0001$), no formal education (AOR: 95% CI: 13.162, 1.307, 132.519, $p = 0.0287$), seizures (AOR: 95% CI: 3.379, 1.040, 10.982, $p = 0.0429$), and apathy (AOR: 95% CI: 10.360, 3.622, 29.634, $p < .0001$, $p = 0.4007$). Fluoxetine use was strongly associated with a considerable improvement in PSD (AOR: 95% CI: 10.570, 3.247, 34.409, $p < .0001$).

Conclusion: PSD is among the most common neuropsychiatric manifestations. Patients with PSD once identified and treated early with antidepressants will have significant improvement.

Recommendation: More studies must be done to know at which stage fluoxetine is more effective.

22. Cardiometabolic risk profiling of 8000+ Tanzanians: A multi-regional Study.

Authors: Zabella Mkojera, Pedro Pallangyo, Makrina Komba, Smita Bhalia, Loveness Mfanga, Janeth Mmari, Saad Kamtoi, Husna Faraji, Genofeva Matemu, Anna Nkinda, George Longopa, Tatizo Waane, Peter Kisenge.

Affiliation: Jakaya Kikwete Cardiac Institute (JKCI)

Background: Within the past three decades, Sub Saharan Africa region has experienced a 67% rise in the NCD burden. Moreover, regardless of the increased recognition of NCDs threat in the region, reliable local estimates and associated drivers is generally lacking.

Objective: To establish the risk burden and community awareness of CVD in a Tanzania population.

Methodology: This multi-regional screening was conducted in 11 regions i.e., Dar es Salaam, Pwani, Arusha, Kilimanjaro, Geita, Mtwara, Lindi, Iringa, Manyara, Unguja and Pemba. We used a structured questionnaire bearing a modified WHO STEPwise Approach to NCD Risk Factor Surveillance (STEPS) tool to explore the modifiable behavioral and modifiable biological NCD risk factors.

Results: A total of 8469 people were consecutively screened. The mean age was 44.7 years and a 58.2% were female. Over three-quarters of participants had a good knowledge regarding NCDs and 80.3% had a positive family history of NCDs. Overall, 93.1% of participants had at least one modifiable NCD risk factor while 45.5% exhibited clustering. With respect to modifiable behavioral NCD risk factors, 6.8% were tobacco users, 15.9% had harmful alcohol consumption, 61.9% had unhealthy eating behavior, and 70.3% were physically inactive. Pertaining to modifiable biological NCD risk factors, 64.9% had excess body weight, 40.5% had hypertension and 7.8% were diabetic. Among hypertensive and diabetes individuals, 39.6% and 44.4% respectively were newly diagnosed.

Conclusion: A vast majority of participants irrespective of region were found to have modifiable NCD risk factors with a strong tendency of clustering. These findings call for intensification of both population strategies and targeted group interventions for better control of the NCD menace and its correlates. Furthermore, given the massive population of Tanzania (>60 million), there is a huge need to build CVD screening capacity to the respective regional hospitals to enhance early recognition, prompt management and timely referral.

23. Clinical profiles of patients with Esophageal and Head and Neck Cancer attending Ocean Road Cancer Institute in Tanzania from 2019 to 2021.

Author: Luco P. Mwelange, Simon H. Mamuya, Bente E. Moen, and Magne Bråtveit

Affiliation: Muhimbili University of Health and Allied Sciences, Centre for International Health, University of Bergen, Norway.

Background: Cancer in Africa is an emerging public health problem that needs urgent preventive measures, particularly in workplaces where exposure to carcinogens may occur. In Tanzania, the incidence rate of cancer and mortality rates due to cancers is increasing, with approximately 50,000 new cases each year, which is estimated to double by 2030. These cases are attributable to risk factors such as lifestyles, and environmental and occupational exposures.

Objective: To describe the clinical profiles of patients with head & neck and esophageal cancer patients attending Ocean Road Cancer Institute.

Methodology: This hospital-based descriptive cross-sectional study comprises all esophageal and head and neck cancer patients diagnosed or referred to ORCI from 2019 to 2021. The study used secondary data extracted from the ORCI system. Data such as socio-demographics, occupational, family cancer history, residential, smoking, and alcohol use were extracted from the system and stored in an Excel file. SPSS version 23 was used for data analysis. Descriptive analysis and Chi-square test were used for data analysis.

Results: A total of 1,586 new head, neck, and esophageal cancer cases were registered in ORCI during the three-year study period (2019–2021). Out of these, 611 (38.5%) were head and neck cancer patients, with a mean age of 53 (SD = 16) years for males and 58 (SD = 14) for females. About 50% of male and 24% of female patients used alcohol; 43% and 6% of male and female patients used tobacco. The results also showed that less than 10% of cancer patients had a family history of cancer. Generally, Tanzania's eastern and northern parts had higher cancer patients than others.

Conclusion: In 2019–2021, 611 head and neck cancer patients and 975 patients with esophageal cancer were enrolled in a cancer hospital in Tanzania. About two-thirds of the patients were men. These patients commonly used alcohol and smoking, more among men than women. Half of the patients worked in agriculture, and the number of cases was unevenly distributed in the country.

Recommendation: The results might be helpful in the development of cancer prevention measures, as well as for future studies on cancer. Further studies are recommended to explore the role of occupational in the increase in cancer prevalence in Tanzania.

24. Assessment of *Eucalyptus grandis* poultice charcoal as snake venom antidote.

Authors: Mashauri Benjamin R.

Affiliation: Sokoine University of Agriculture (SUA).

Background: Eucalypts are the world's most widely planted hardwood trees. Their outstanding diversity, adaptability and growth have made them a global renewable resource of fibre and energy. Envenomation by poisonous snakes is a complex neglected health problem implicated as one of the major causes of mortality, disability, psychological morbidity, and socio-economic losses recorded worldwide.

Objective: Evaluating the efficacy of Eucalyptus poultice charcoal in treatment rats after exposure to snake venom through.

Methodology: A cytotoxic snake antivenom was prepared from its essential pulverized poultice obtained through maceration. 500 g of pulverized Eucalyptus charcoal was soaked into 1000 mL of distilled water for 3 days then concentrated in water bath. 5% of the solution was prepared. Eight rats were used; four rats were used as control and the rest four rats served as. Each rat was introduced with 10 microliters of the prepared 5% of the solution containing snake venom.

Results: The two rats from the control group died after 46 minutes and 44 minutes respectively. However, both the third and the fourth sample rats survived throughout the experiment. The two rats from group two control group died seven minutes each after being poisoned. The seventh and the eighth sample rats lasted for 80 minutes and 76 minutes respectively. Moreover, the control rats exhibited swelling, blistering as well as loss of function at the site where venom was introduced before they died. However, despite dying the seventh and eighth rats from group two sample rats, did not show significant inflammation.

Conclusion: This study demonstrates the potential of Eucalyptus poultice as an effective snake venom antidote. The findings contribute to expanding the body of knowledge surrounding alternative therapies for snake envenomation and pave the way for future investigations of Eucalyptus poultice formulations.

Recommendations: Further investigations are necessary to elucidate the efficacy of Eucalyptus poultice

25. Quality of life and its predictors among children and adolescents with cancer receiving treatment at Muhimbili National Hospital from March to May 2023

Authors: Happyphania Mathew, Rehema Laiti, Nahya Salim, Nana Nakiddu

Affiliation: Muhimbili University of Health and Allied Sciences (MUHAS).

Background: Cancer in childhood and adolescents is one of the debilitating diseases that have a low cure rate in developing countries. With the advent of new chemotherapeutic agents and treatment modalities, there are better outcomes and increased survival among childhood cancer patients in the world today. Childhood cancer patients struggle with a poor quality of life in low-income settings, which include most African countries.

Objective: This study assessed the QoL and its predictors among children and adolescents with cancer receiving treatment at Muhimbili National Hospital from March to May 2023.

Methodology: A cross-sectional, analytical study was conducted among children and adolescents with cancer age 8 to 18 years receiving treatment at MNH Pediatric oncology unit from March to May 2023. Participants who met the inclusion criteria were recruited. A standardized questionnaire were used to collect demographic and clinical data. PedsQL Generic Core Scale 4.0 and Disease-specific PedsQL cancer module 3.0 were used to determine age-specific QoL. Data were analyzed by SPSS version 23 using descriptive statistics for demographic and clinical characteristics. QoL and its domains were summarized using mean and standard deviation. Predictors of QoL were analyzed using multiple linear regression at a 95% confidence interval. A p-value of 0.05 was considered statistically significant.

Results: A total of 105 participants were recruited into the study, with mean age of 11.5 years. Fifty-six (53.33%) were male patients. Fifty-six (53.33%) patients had hematological malignances. The mean age at diagnosis was 10.4 years. The total generic mean score of the child report was 71.93, with school function perceived to be lower than other domains. On cancer specific QoL, the reported mean scores were 54.84, with pain and hurt and procedure anxiety being more problematic. The predictors of QoL were age of the child and the family monthly income. Both age of the child and the parents/caregiver's monthly income had significant positive association with cancer specific QoL each with p-value <0.05.

Conclusion: The findings indicated that children and adolescents have perceived better generic QoL but relatively low cancer specific QoL. There were lower scores in the school domain of generic scale as well as in all 8 domains of cancer specific domains of QoL. Age of the child and family monthly income had predicted the overall QoL of children and adolescents with cancer.

Recommendation: Assessment of QoL should be included in the standard of care of children with cancer as it will help to identify those who need psychosocial support and behavior intervention in order to improve their QoL.

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