

Tanzania Medical Journal is proud to be collaborating with the Organizing committee of the 3rd National Non-Communicable Diseases Scientific Conference in publishing the abstracts presented at the conference that was held on 11th - 12th November 2021, at the Arusha International Conference Center in Arusha, Tanzania. The conference theme was: **“Multisectoral Engagement and Collaboration in addressing Non-Communicable Diseases”**. The abstracts are listed along with authors' affiliations. The scientific committee for this conference was responsible for peer review of the abstracts.

1 Universal Health Coverage for Non-Communicable Diseases in Rwanda

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Background: Universal health coverage (UHC) has been proven to drive the success in the control and prevention of non-communicable diseases (NCDs), a 21st-century public health threat. Worryingly, little is known about UHC for NCDs in Rwanda.

Aim: To bridge the gap with a comprehensive overview of Universal Health Coverage for Non-communicable diseases in Rwanda.

Methodology: Descriptive study with a mixed method was employed for situation analysis. The quantitative and qualitative data were collected from the purposive selected 91 study participants and analyzed with the use of STATA software.

Results: The participants in six categories were interviewed and dominated by policy implementers who reported being involved in planning while the proportion of those who were not involved in the implementation of NCDs programs is twice as many as those who reported being involved. People living with NCDs shared their experience about UHC in practice, the most challenge claimed on the accessibility of NCDs medical care was 89% shortage of medicine whereas on affordability 25% reported Community Based Health Insurance to partially cover their medical care cost. Low budget allocation and multilateral funding mechanisms for NCDs overtook other barriers spotted to hinder the quick progress toward UHC for NCDs.

Conclusion: The prioritization of NCDs program backed up by evidence-based facts for the need should drive the movement of UHC for NCDs to the success with the provision of sufficient budget in NCDs prevention and control.

Recommendation: There is a great need in investing and reinforcing NCDs-related research for quantifying the burden of NCDs in Rwanda.

2 An Integrated Approach for Improving Health Services for Chronic Respiratory Diseases in Tanzania

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Background: Chronic respiratory diseases (CRDs) are yet to be addressed within the Tanzanian health system. The baseline assessment indicated that CRDs are given low priority because of limited data despite their impacts. The TB program reported TB-negative clients without further pathways within the health system hence limited access to care.

Aim: To develop, implement, monitor, and evaluate a context-specific intervention to manage CRDs within the health system.

Methodology: The study was implemented in Chamwino district. Implementing facilities included five health centres and two hospitals. The training was provided to health facilities and community health workers (CHWs) on CRD management. Training materials were developed, data capturing tools updated, patient pathway and algorithm developed, and diagnostic tools purchased thereafter distributed to the health facilities. Monitoring was done on a monthly and quarterly basis. For the six months follow-ups, 601 presumed CRD cases were referred to the clinic of which 471 were evaluated using supplied equipment.

Results: A total of 74 clients had the chronic obstructive pulmonary disease (COPD), 336 chronic asthma, 32 post-TB lung disease (PTLD), and 29 other CRDs. Health workers gained the ability to differentiate TB from CRD such as COPD, PTLD, and Asthma due to the corresponding training and equipment availability. They also reported a decreased trend of recurrent cases of Asthmatic attacks to patients. CHWs reported happiness with this intervention because TB negative clients could get treatment. Patients reported improvement in symptoms due to medication and some of them resumed their normal activities.

Conclusion: Management of CRD appears to be possible. Cases of COPD, Chronic Asthma, PTLD, and other CRDs have been diagnosed that were previously not properly done. Integration of CRD diagnosis and care

into the TB program and strengthening linkages with CHW is feasible and acceptable.

Recommendation: Better plans are needed for sustainability.

3 Assessment Of Healthcare Workers' Knowledge And Resource Availability For Care Of Sick Cell Disease At Health Facilities In Dar Es Salaam, Tanzania

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Background: Sick cell disease (SCD) is a global public health priority having high morbidity and mortality. In Tanzania, SCD accounts for 7% of under-five mortality. Few studies have explored the knowledge among healthcare workers on SCD in Sub-Saharan Africa (SSA). In Tanzania, data on knowledge of healthcare workers on SCD and availability of resources for the care of SCD is lacking.

Objective: To assess the level of knowledge on SCD among healthcare workers and the availability of resources for the management of SCD at healthcare facilities in Dar es Salaam.

Methodology: A facility-based cross-sectional study was conducted between December 2020 and February 2021 among 490 nurses and clinicians at Regional Referral Hospitals in Dar es Salaam and Muhimbili National Hospital (Upanga and Mloganzila) in Dar es Salaam, Tanzania. A structured questionnaire and inventory checklist were used, Pearson's Chi-square and Likelihood ratio tests were used to determine the association between level of knowledge and demographic factors. Multivariate logistic regression. P-values < 0.05 were considered statistically significant.

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Results: A total of 490 healthcare workers were enrolled; 25.1% (123) had good knowledge of SCD. The level of knowledge on SCD was strongly associated with healthcare workers' cadre, level of education, and practising experience. Unlike the national hospital; the regional-level hospitals lacked SCD confirmatory tests, supporting imaging equipment (CT scan, MRI), blood and urine culture, intensive care services as well as Hydroxyurea.

Conclusion: There was a general lack of knowledge on SCD among healthcare workers and limited availability of critical resources for the diagnosis and care of SCD, especially at regional-level hospitals.

Recommendation: Efforts are needed to improve healthcare workers' knowledge of SCD. The RRH should be equipped with vital resources to support SCD diagnosis and care. The capacity for specialized services such as exchange blood transfusion should be built at designated centers of excellence, such as the MNH, where in-need patients can be referred. A similar study should also be conducted in other parts of the country (lower-level facilities) and other professional cadres to assess the level of education and availability of resources for SCD diagnosis and care in the whole country.

4 Delays in Paediatric Injury Care Seeking in Northern Tanzania: A Mixed Methods Study

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Background: Pediatric injuries are a leading cause of morbidity and mortality in low-and middle-income countries. Timely presentation to care is key for favourable outcomes. The Three Delays Model was developed to understand delays that contribute to maternal mortality, but it has utility for understanding delays in other settings.

Aim: To identify and investigate delays that children experience between injury and receiving definitive care at Kilimanjaro Christian Medical Center (KCMC) in Moshi, Tanzania.

Methodology: In this mixed-methods study, 305 patients were enrolled in a pediatric trauma registry at KCMC from November 2020 to September 2021. Data included referral and timing information. In-depth interviews were completed with a sub-set of 30 family members addressing delays to care. Data were analyzed according to the Three Delays Model, with iterative analysis allowing for triangulation of data sources.

Results: 81.0% (247) of pediatric injury patients at KCMC were referred from another healthcare facility. For referred patients, the median time from injury to arrival at KCMC was 8.0 hours [Q1=3.8, Q3=39.1] compared to 1.4 hours [Q1=0.6, Q3=3.8] in patients who were not referred. Overall, in-hospital mortality was 20 (6.1%), and 90% (n=18) of these children were referred. Qualitative data provided a deeper understanding of factors contributing to each delay. For the decision to seek care (Delay 1), delays included emergency recognition, applying first aid, and anticipated challenges. For reaching definitive care (Delay 2), delays included caregiver rationale for going to intermediary facilities, logistical challenges, and facility delays. For receiving definitive care (Delay 3), delays included payment and treatment delays.

Conclusion: The Three Delays Model helps understand how factors throughout the healthcare system contribute to delays in receipt of care for

pediatric injuries. The complex referral pathway and transportation and care costs emerged as significant delays.

Recommendation: There is a need to strengthen health care systems to minimize delays and improve outcomes for pediatric injury patients

5 The Hypertension Care Cascade in Kilombero and Same Districts in Tanzania

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Affiliation: The Hypertension Care Cascade in Kilombero and Same Districts in Tanzania

Background: The effectiveness of non-communicable disease (NCD) care relies on multiple separate and interrelated interventions and treatment programs across the health system. A cascade of care provides both a holistic measure and highlights key steps along the cascade, from screening to control, to guide the development of interventions.

Aim: To quantify the state of the care cascade for hypertension in two rural districts in Tanzania: Kilombero and Same.

Methodology: This study used data from a household survey of 784 adults in Kilombero and Same districts. We collected information on the use of health services and prior chronic disease diagnosis or treatment. Blood pressure was measured according to the WHO Steps recommendation. We quantified the proportion of the hypertensive positive respondents in each of the following stages of the care cascade: diagnosed by a healthcare provider; engaged in care for hypertension within the last 6 months; on treatment defined as having taken anti-hypertensive medicine

in the last 7 days, or retained in care controlled without medicine; and controlled hypertension either with or without medicine

Results: The age-adjusted prevalence of hypertension was 24%. Within our sample, 48% of those screened positive were previously diagnosed with hypertension. Only 28% of those screened positive were engaged in care while 22% were either on treatment or retained in care but controlled without medication. Only 9% of the hypertensive respondents in our sample had their hypertension controlled.

Conclusion: The goal of hypertension treatment is the long-term control of the disease to reduce mortality and complications. The low proportion achieving blood pressure control underscores the limits of the health system, driven by low detection rates and high levels of drop-off along the whole care cascade.

Recommendations: Improving hypertensive control requires interventions along the whole cascade and an emphasis on diagnosis and long-term adherence to care. Coordination along the cascade as used in chronic communicable diseases such as HIV or TB can be employed for chronic NCDs as well.

6 Barriers and Facilitators of Availability of Hydroxyurea for Sickle Cell Disease In Tanzania

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Background: Despite three decades of proven safety and effectiveness of hydroxyurea in modifying sickle cell disease (SCD), its availability, affordability and accessibility is limited in Sub Saharan Africa which shares 75% of the world's SCD burden. Therefore, it is high time to explore the barriers and facilitators for manufacturing and importation of hydroxyurea for SCD in Tanzania.

Aim: To explore barriers and facilitators for the importation and manufacturing of hydroxyurea for SCD in Tanzania

Methodology: This was qualitative research that employed a case study approach. Purposive sampling followed by an in-depth interview (IDI) using a semi-structured questionnaire aspired by data saturation enabled to the gathering of data from 10 participants. The study participants were people with more than three years of experience in pharmaceutical importation, manufacturing, and regulation. The audio-recorded data were verbatim transcribed and analyzed using thematic analysis

Results: Ten experts participated in IDI whereby four, four, and two were from pharmaceutical importers, manufacturers, and medicines regulatory authorities, respectively. Two themes were generated. The first is barriers to importation and manufacturing of hydroxyurea which had four sub-themes namely inadequate awareness of the disease and hydroxyurea, limited market and investment viability, lack of infrastructure and resources to import or manufacture hydroxyurea, inadequate knowledge on orphan diseases, medicines, and Tanzania Orphan Drug Regulation of 2018. The second theme was opportunities for importation and manufacturing of hydroxyurea with four sub-themes namely basic knowledge on SCD and hydroxyurea, awareness of activities performed by medicines regulatory

authority, sense of corporate responsibility, and readiness to import or manufacture hydroxyurea, and availability of favorable government policy.

Conclusion: Inadequate understanding of SCD, hydroxyurea, and orphan drug regulation are a major concern that aggravates the concern on the limited market and investment viability.

Recommendation: The existing opportunities are a starting point towards increasing availability of hydroxyurea whose realization will require multi-sectoral collaboration between SCD patient communities, researchers, healthcare workers, regulators, policymakers, importers, and manufacturers.

7 Raising Taxes on Tobacco to Enhance NCDs Control in Tanzania

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Background: Tobacco is a common risk factor for major non-communicable diseases (NCDs) namely cancer, cardiovascular disease, diabetes, and chronic respiratory disease. Globally, NCDs account for 71% of all deaths annually, 77% from low and middle-income countries. NCDs in Tanzania account for 27% of all deaths. The United Nations estimated that the cumulative global economic loss from NCDs could reach \$47 trillion by 2030 if nothing changes. Effective tobacco taxation has lowered consumption, thereby reducing tobacco-related diseases additional to increasing government revenue. WHO recommends a tobacco tax increase of > 75% of the retail price for an impact. Tanzania has the least tobacco

taxation in the AFRO region, resulting in increased cigarette consumption and NCDs prevalence.

Aim: To raise awareness on health and financial benefits of increasing tobacco taxes and support a case for Tanzania to abide by WHO recommendations

Results: Countries that have raised tobacco taxes have registered a decrease in smoking rates, tobacco-related NCDs and, an increase in government revenue. Tanzania ratified the WHO FCTC in 2007 thereby obliged to fully enhance public health. FCTC Article 6 obliges Parties to raise tobacco taxes to at least 75% of the retail price. Presently taxes are 32.2% far below Rwanda (55.8%), Kenya (52.2%), Burundi (42.7%) and Uganda 39.8%)⁸ within East Africa.

Conclusion and Recommendation: Tanzania should raise tobacco taxes in line with WHO recommendation to reduce tobacco use and raise government revenue for effective financing of NCDs control.

8 From Knowing Non-Communicable Diseases Status To Accessing and Engaging in Care: What is the Role of Social Health Protection Schemes in Tanzania?

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Background: The management of diabetes and hypertension improves with investments in strategies aimed to increase the accessibility of health services. Currently, Tanzania is implementing NCDs clinics/windows strategy that allows continuous utilization of care. This strategy wrenches the persistent demand for health services. The increase in demand is leading to an upsurge in the cost of seeking health care. Social health

protection schemes, such as health insurance and exemption policies, are supposed to increase access to services to patients with chronic illnesses

Aim: To explore the existing relation between accessing NCDs health services and enrollment to social health protection schemes.

Methodology: The study used household survey data collected through face-to-face interviews between November 2021 and January 2021 in Same and Kilombero, rural districts of Tanzania. Respondents who reported knowing their health and social health protection enrollment status were included in the analysis. Descriptive statistics and logistic regression models were performed to examine the association between being included in one of the available social health protection schemes and access to care for diabetes and hypertension.

Results: Only 23.85% declared to be informed to have diabetes or hypertension and 32.7% were either registered with one of the available health insurance schemes or could benefit from a waiver. Of 183 respondents that could get services, 56.3% received complete services, and 35% of services were covered by insurance and waiver. The regression results indicated that, controlling for relevant covariates such as age, marital status, education and occupation, patients with diabetes and hypertension and those with multi-morbidity, enrolled in a social health protection scheme, were more likely to access health services (OR=8.11, P-value 0.03; OR=3.96, P-value 0.06; OR=2.86, P-value 0.20).

Conclusion: Social health protection schemes showed to be important in taking NCDs health services.

Recommendation: Scaling up the coverage of these schemes can improve the access and engagement in care for people with chronic conditions such as diabetes and hypertension.

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Background: Despite major improvements, newborn and maternal mortality remain high in Tanzania. Maternal deaths in Tanzania represent 21% of all deaths of women aged 15-49, with a maternal mortality ratio of 556 per 100,000, and 31.5% of all deaths among women 20-24 years of age (highest of any other age group). To address these high mortalities, Plan International with its consortia and the Government of Tanzania implemented a Safe Motherhood project, known as Uzazi Salama Rukwa (USR).

Aim: To assess the impact of the USR project's achievements vis-à-vis the project's overall intended outcomes, referencing baseline and midterm results.

Methodology: The survey employed a cross-sectional design using both quantitative and qualitative data collection approaches; and was conducted in all four districts of Rukwa region reaching out to a total sample of 1399 i.e. Household 904, adolescent girls and boys 245 and 250 respectively.

Results: An average of 865(95.7%) of respondents aged 15 -49 years reported a history of facility delivery compared to baseline (79%). 93.1% of facility births are attended by skilled birth attendants. The extent to which facilities use data to track performance in MNH was demonstrated to be high to most of the facilities (88%) compared to baseline. 49.2% reported knowing any danger symptoms during pregnancy, 42.2% during delivery,

38.8% after delivery, and 34.1% in newborns. 80% of Women of Reproductive Age reported receiving postnatal care visits within two days of childbirth.

Conclusion: The project appears to have contributed to increased ANC attendance, facility delivery, and postnatal care utilization. Through early attendance of ANC, the project has contributed toward lessening the prevalence of non-communicable diseases among pregnant women like hypertension and Gestational diabetes Mellitus through facilitating early diagnosis and intervention.

Recommendations: More investment in community-focused interventions including; prioritizing health education in rural areas, training more, and continued use of CHWs for community sensitization. Increasing the number of CHWs in rural areas, recruiting and training additional peer educators.

10 Decentralization and Health Care Prioritization Process for the Elderly in Rural Tanzania.

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Affiliation: Muhimbili University of Health and Allied Sciences

Introduction: In the early 1990s, Tanzania like the rest of the world embarked on the third generation of health sector reforms with one aim being to strengthen the primary health care system through strong community participation. However, more than three decades later, challenges remain that the primary health care system has remained weak with most of the vulnerable groups including the elderly population being left out in the priority setting process.

Objective: To analyze the methods and procedures for priority setting on the healthcare services of the elderly in rural areas.

Methods: This study adopted an exploratory qualitative study that used Key Informants Interviews (KIs), focus group discussions (FGDs) in Nzega and Igunga in western Tanzania. Further, we reviewed documents (secondary data). The study employed 24 key informants from the two districts. The audio-recorded interviews (conducted in Kiswahili) were reviewed and transcribed from audio to written documents then were translated into English for analysis and extraction of quotes using the content analysis approach.

Results: Strategies on prioritizing elderly at Local Government Agencies (LGAs) includes the issue of dealing with their complaints, prioritizing poorer elderly than those with health insurance and those who can pay for health services, identifying elderly and providing IDs for exemption purpose. Furthermore, the planning and priority setting process for the elderly at LGAs is implemented on a teamwork basis using existing guidelines. The study has also revealed difficulty in elderly identification, exemption/waivers are not clear, insufficient resources to implement the planned activities at the LGAs, unintegrated health systems at the LGAs, no strict law to protect elderly matters and the limited autonomous of LGAs as major challenges facing priority setting for the elderly in primary health care.

Conclusion and Recommendations: Priority setting process for elderly in rural Tanzania needs to be reviewed and strengthened. This calls for multi-stakeholders' engagement. This should consider the identification of elderly in needs and the laws and procedures that act as barriers.

11 Catastrophic health expenditure and voluntary health insurance: Can Community based health insurance scheme reduce catastrophic health expenditure in rural Tanzania?

Authors: Alphoncina Kagaigai, Sverre Grepperud, Amani Anaeli, Amani Mori

Background: Over 150 million people suffer financial catastrophe each year because of out of pocket (OOP) payment. LMICs comprises of the high population that have no access to essential healthcare services and the global burden of disease is much higher as compared to developed countries. In Tanzania, the OOP payments account for about 24% of total health expenditure.

Objective: To investigate the incidence and the determinants of catastrophic health expenditure among members and nonmembers of improved Community Health Fund (iCHF) in rural Tanzania.

Methods: A cross-sectional study design employing quantitative approach was used to collect primary data from 722 respondents in Bahi and Chamwino Districts. To analyse the determinants of catastrophic health expenditure (CHE), non-food household expenditures and OOP health expenditure of the household was used to calculate $CHE = (HE/NFE) * 100$. Logistic regression was employed to assess the association between CHE and iCHF membership status after adjustment for other sociodemographic and economic variables.

Results: Non-members had a great chance of being catastrophe when they are at the lower quintiles compared to those at the upper quintiles. Being a member of insurance reduced the probability of incurring catastrophic health expenditure at the lower quintiles but the probability increased at the upper quintiles. More than 14% of respondents

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experienced catastrophic health expenditure at 40% thresholds and the incidences are high among nonmembers of iCHF insurance i.e 15% VS 13% at CHE>40. Households who are members of iCHF health insurance, those with good health state, were less likely to incur CHE compared to their counterparts. While, Households with children under 14 years, households with at least one member with chronic illness and households with at least one member hospitalized, were more likely to experience CHE.

Conclusion: Voluntary health insurance schemes, reduce the probability of households in the informal sector to incur CHE. Policy makers should reconsider the iCHF scheme to be a compulsory means of health financing to every individual employed in the informal sector.

12 Identifying Research Priorities for Adolescent Mental Health In Tanzania

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Background: Poor adolescent mental health (AMH) is a barrier to achieving several sustainable development goals in Tanzania. Evidence about how best to address this challenge is lacking. Research to generate this evidence must be rooted in careful prioritization, to ensure that this research responds to local needs and to optimise use of limited resources. We present the design and preliminary results of a national multi-institution AMH research priority setting exercise, co-led by the National Institute of Medical Research.

Methods: From June 2021, a multi-stage, mixed-methods research priority setting study is being conducted among key AMH stakeholders in

Tanzania. An online survey (completed) will be followed by face-to-face interviews and focus groups. Priorities will be verified through literature searches and discussed and ranked during a consensus meeting in November 2021 to develop a final list of national AMH research priorities. These activities will also promote national networking among AMH stakeholders.

Initial Results: The response to the online survey, sent to 66 implementers and 38 researchers was high (84%). The 87 respondents submitted 231 research priorities which were broadly categorized under the following themes: (1) mental health literacy, (2) promotion/prevention, (3) development and evaluation of treatment interventions, (4) (mental) health service delivery, and (5) disorder/population-specific issues. More detailed ranking will inform the next phase of priority setting,

Conclusion: AMH is a high priority among adolescent health researchers and implementors in Tanzania. Engagement in the initial stages of priority setting has been high and may improve the validity of identified priorities, which can then inform the development of a national AMH research agenda and a nationwide, collaborative, inter-institutional community of AMH research practice.

13 Heart Failure Care and Outcomes in a Tanzanian Emergency Department: A Prospective Observational Study

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Background: The burden of heart failure (HF) is growing in sub-Saharan Africa (SSA), but there is a dearth of data characterizing care and outcomes of HF patients in the region, particularly in emergency department (ED) settings.

Methods: In a prospective observational study, adult patients presenting with shortness of breath or chest pain to an emergency department in northern Tanzania were consecutively enrolled. Participants with a physician-documented clinical diagnosis of HF were included in the present analysis. Standardized questionnaires regarding medical history and medication use were administered at enrollment, and treatments given in the ED were recorded. Thirty days after enrollment, a follow-up questionnaire was administered to assess mortality and medication use. Multivariate logistic regression was performed to identify baseline predictors of thirty-day mortality.

Results: Of 1020 enrolled participants enrolled from August 2018 through October 2019, 267 patients (26.2%) were diagnosed with HF. Of these, 139 (52.1%) reported a prior history of HF, 168 (62.9%) had self-reported history of hypertension, and 186 (69.7%) had NYHA Class III or IV HF. At baseline, 40 (15.0%) reported taking a diuretic and 67 (25.1%) reported taking any antihypertensive. Thirty days following presentation, 63 (25.4%) participants diagnosed with HF had died. Of 185 surviving participants, 16 (8.6%) reported taking a diuretic, 24 (13.0%) reported taking an antihypertensive, and 26 (14.1%) were rehospitalized. Multivariate predictors of thirty-day mortality included self-reported hypertension (OR = 0.42, 95% CI: 0.21-0.86, $p = 0.017$) and symptomatic leg swelling at presentation (OR = 2.69, 95% CI: 1.35-5.56, $p = 0.006$).

Conclusion: In a northern Tanzanian ED, HF is a common clinical diagnosis, but uptake of evidence-based outpatient therapies is poor and thirty-day mortality is high. Interventions are needed to improve care and outcomes for HF patients in the ED setting.

14 Non-Communicable Diseases and Rehabilitation: Way Forward Present and Future

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People of all age groups, regions and countries are affected by Non-Communicable Diseases (NCDs). Children, adults and the elderly are all vulnerable to the risk factors contributing to NCDs, whether from unhealthy diets, physical inactivity, exposure to tobacco smoke or the harmful use of alcohol (1). Throughout the life course, persons with health conditions that cause limitations in functioning can benefit from rehabilitation. Studies show that rehabilitation improves functioning in many domains of life for people with cancer, cardiovascular, and chronic respiratory conditions. Rehabilitation also produces positive results for people with cerebrovascular, neurological, and mental health conditions and many other non-communicable conditions and injuries. In Tanzania like many developing countries the burden of NCDs has been increasing steadily. When treatment for NCDs is considered, this is often presented in terms of preventing mortality, rather than focusing on morbidity and the potentially disabling implications of living with an NCD.

Physiotherapists specialize in human movement, physical activity, promoting health, fitness, and wellness. Physiotherapy helps millions of

people every year to prevent noncommunicable diseases and their risk factors – most importantly obesity.

Through targeted rehabilitation methods they also manage the effects of NCDs to optimise health when they are present. The World Health Organization points out that physical inactivity is one of the leading risk factors for global mortality, causing 3.2 million deaths annually, and that physical activity can reduce non-communicable diseases, it is clear that the physiotherapy has a major part to play. People with chronic health problems can improve their health by learning how to increase physical activity levels and exercise safely under the guidance and instruction of physiotherapists. The scoping review suggests exercise-based rehabilitation programs can be implemented in low resource settings. Physiotherapy doesn't just mean more healthy people, but more productive people who can contribute to countries' economies. The message is clear: physiotherapists are the movement, physical activity, and exercise experts and a resource in the battle against non-communicable disease that should never be overlooked

15 Adaptive Diseases Control Model: Integrating Communicable and Non-Communicable Diseases using the Tuberculosis (TB) and Diabetes Mellitus as A Case Study in Tanzania

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Background: Sub-Saharan African countries endure a high burden of communicable diseases including multidrug-resistant pathogens; but also, a concurrent rise of non-communicable diseases (NCD) as populations urbanizes, diets “westernized” and lifespans lengthen. Interventions for epidemics like TB are executed within vertical programs whereas communicable and NCD co-exist and overlap in populations of shared exposures.

Aim: To investigate an adaptive diseases management approach for integrating communicable diseases and NCD using the TB and DM dual epidemic respectively as a case study.

Methodology: We established and implemented an adaptive diseases control model and underpinned implementation research in three regions; Dar es Salaam, Iringa, and Kilimanjaro in Tanzania. The adaptive model incorporated two main components; stepwise training focusing on the integration of TB and DM with innovations like digital technologies and clinical audit. The first level of training was provided through a web-based platform thereafter successful trainers attended the workshop. The second level of training was led by the trainers. A mixed research design with both qualitative and quantitative approaches was used to understand the pathway of diagnosis and care of patients with dual TB and DM and other clinical outcomes.

Results: From September 2018 to March 2019, we enrolled 46 graduate nurses and medical doctors the three participating regions. Out of the enrolled participants, 12 were from regional referral hospitals, and 36 were from the primary health care level. Forty-six were eligible for e-learning (23 doctors/specialists, 23-nurse officers), 40 attended the workshop whereas

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31 established the integration of TB/DM and mentored a total of 519 frontline health care (371-nurses, 148-clinicians) providers from other health facilities. The clinical audit showed a screening of DM in TB has started and reached 40%. Some identified challenges in dual TB/DM clinical care include redundant pathways of patient care, for instance visiting 2 clinics in the same health facility or different health facilities for TB and DM.

Conclusion: The adaptive disease model is feasible

Recommendations: Scaling in scope and scale will impact the integration of technologies and innovations to personalized communicable and NDC clinical management and quality care.

16 An Innovative Evaluation of Follow-Up adherence of NCDs Patients: The Treatment Card Protocol Experience of Iringa DC

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Background: Morbidity and mortality due to non-communicable diseases (NCDs), in particular hypertension and diabetes, are growing exponentially across Tanzania. The limited availability of NCDs services and the disparity in the quality of the health care system between rural and urban areas are among the key factors for the increased burden of NCDs in the country.

Since March 2019, an integrated management system was started in Iringa DC. The system implements integrated management of hypertension and diabetes between the hospital and the peripheral health centers and introduces the use of paper-based treatment cards and a dedicated clinical database for data collection.

Objectives: To present the results of the first-30-months roll-out of the system.

Methodology: Statistical analyses were conducted upon patients' data recorded on the clinical database during the first-30-months roll-out of the system.

Results: The first 30 months of roll-out included 1190 patients. Data show that: 50.0% of patients returned for the 6 months re-assessment visit during follow-up; blood pressure was at target in 41.4% of patients with hypertension and blood sugar was at target in 38.2% of diabetic patients. The majority of patients who were lost to follow-up or did not reach the targets were those without medical insurance or living in the most remote peripheries.

Conclusion: These results confirm that gaps in the control of NCDs are still large in Tanzania. Nevertheless, the analysis performed on this integrated management system suggests that health system interventions are possible and should be properly designed taking into consideration socio-economic indicators and proposing models of health delivery strategy owned by local authorities tightly connecting primary health facilities and referral hospitals.

Recommendation: Should these positive results be confirmed after long-term assessment, similar programs might be taken into consideration for implementation on a larger scale in Tanzania.

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Histopathological evaluation of Chronic Rheumatic Mitral Valve Stenosis: The Association with Clinical presentation, Pathogenesis, and Management at a National Cardiac Institute.

Authors: Reuben K Mutagaywa, Amos Mwakigonja, Pilly Chillo, Advera Ngaiza, Moses Byomuganyizi, Maarten J Cramer, Gideon Kwesigabo, Appolinary Kamuhabwa, Lulu Fundikira, Steven Chamuleau

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Background: The histopathology of mitral valve (MV) tissues has been previously reported in necropsy and retrospective studies. Operatively excised MV tissue provides important, clinically relevant information related to the severity of disease, clinical presentation, insight on the disease pathogenesis and management.

Aim: To determine histopathological characteristics of mitral valve tissues obtained from open-heart surgery at Jakaya Kikwete Cardiac Institute.

Methodology: We prospectively studied the histopathological changes in rheumatic mitral stenosis using advanced histologic techniques and corroborated these with clinical presentation, disease pathogenesis, and management. Surgically excised rheumatic stenotic MV tissues from 54 Tanzanian patients were studied. These were examined using hematoxylin-eosin, von Kossa staining, and immunohistochemistry.

Results: The median (range) age of the patients was 39 (14 – 57) years with a female 34 (63%) predominance. Hematoxylin-eosin, 37 (68.5%) specimens showed fibrinoid degeneration (FD), 44 (81.5%) polymorphonuclear leukocytes (PMNL)/lymphocytes, 6 (11.1%) Aschoff nodules, 30 (55.6%) calcification, and 39 (72.2%) fibrosis. Thirty-five (64.8%) specimens were positive to von Kossa. The proportions of

specimens positive for CD3, CD20, CD68, and CD8-staining cells were 46 (85.2%), 35 (64.8%), 39 (72.2%), and 8 (14.8%) respectively. Valvular calcium was high among older patients, males, and those with higher trans-MV gradients. A statistically significant association existed between the degree of inflammatory cellular infiltration and valvular calcification as well as between the presence of FD and recent rheumatic fever, PMNL/lymphocytes infiltrate and disease of < 10 years, and fibrosis and the absence of atrial fibrillation. C-reactive protein and anti-streptolysin titers were statistically significantly high in both CD20 and CD8 staining cells.

Conclusion: The high MV calcium level among older patients, males, and those with a higher trans-MV gradient; the association between cellular infiltration with valvular calcification; and the association between clinical parameters with histopathological-immunohistochemical studies provide new insight to disease presentation.

Recommendations: Firstly, there is a need for an aggressive pre-operative workup to rule out the possibility of an active inflammatory process among surgical cases, especially by blood investigations rather than clinical acumen alone for acute RF. Secondly, the active inflammatory process observed suggests a role of secondary prophylaxis even after valve replacement and the role of anti-inflammatory medications such as acetylsalicylic acid and statins.

18

Exploring Time to Diagnostic Imaging among Adult Trauma Patients in Northern Tanzania

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Background: It is estimated that 90% of the annual 5 million deaths due to traumatic injuries occur in low- and middle-income countries (LMIC). While it has been proven that mortality can be reduced by improving time to treatment metrics and hospital-based trauma system developments, those systems are not commonly integrated into LMIC. In the Emergency Department (ED), which serves as an initial point of contact for clinical care of trauma patients, no studies have evaluated the current situation regarding time to treatment metrics after arrival to the ED in LMICs in sub-Saharan Africa.

Objectives: To explore the status of time to imaging among adult trauma patients presenting to the Kilimanjaro Christian Medical Center (KCMC) ED. Results from this study will inform quality improvement programs that aim to optimize patient management and hence improve patient outcomes.

Methodology: Data from a prospective trauma registry of the ED in a tertiary urban hospital in Moshi, Tanzania was analyzed. A delay in receiving diagnostic imaging was defined based on available literature (X-ray imaging >2 hours; Computer Tomography (CT) imaging >1 hour; Point of Care Ultrasound (POCUS) > 90minutes).

Results: Most of the 1435 adult trauma patients were male (81.4%), presented with mild injuries (71.9%), and suffered a road traffic injury

(63.5%). 11.4% of patients arrived at the ED within one hour of the injury while 32.6% arrived between 4 and 12 hours after the injury. 25.3% received the first imaging after more than 4 hours. There was a delay in receiving diagnostic imaging in 43.4% (n=196) of patients who needed an X-ray, 44.1% (n=97) of patients requiring Ultrasound, and 96.4% (n=134) of patients who had an indication for a CT scan. Delays in receiving diagnostics did not differ by the severity of injury ($p>0.05$).

Conclusion: A considerable number of patients at KCMC received delayed imaging, especially for CT

Recommendation: Further research is needed to understand what is causing imaging delays, whether it's hospital logistics or patients' financial constraints, and identify ways to improve patient management.

19 Chronic inflammatory joint disease in Zanzibar – status and measures for improvement

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Affiliation: The State University of Zanzibar

Background: In the Zanzibar islands, many rheumatologic patients remain undiagnosed and untreated. Only one referral hospital with rheumatology care exists in Zanzibar. Despite the absence of rheumatologists, disease-modifying anti-rheumatic drugs (DMARDs) are prescribed. However, there is a lack of evidence on patient characteristics and disease activity among patients with chronic inflammatory joint disease in Zanzibar.

Aim: To describe patient characteristics, disease activity, and present treatment in patients with chronic inflammatory joint disease in Zanzibar.

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Methodology: Patients with the clinical diagnosis of rheumatoid arthritis, psoriatic arthritis, or ankylosing spondylitis from September 2019 to date were recruited. In newly diagnosed patients, the treatment target is remission defined as Disease Activity Score 28 – Erythrocyte Sedimentation Rate (DAS28 – ESR) < 2.6 and no arthritis of feet/ankles or Clinical Disease Activity Index (CDAI) ≤ 2.8. In cases with established disease, the treatment goal is low disease activity defined as DAS28 - ESR 2.6-3.2 or CDAI ≥ 2.8-10. The case report form is used to collect the data.

Results: This is an ongoing study. As of now, a total of 83 patients have been enrolled, 81 with rheumatoid arthritis and 2 with psoriatic arthritis. The majority are women (85%) with a mean age of 45±15 years old with formal education (87%). The mean disease duration was 5.6±6 years with a delay in time to diagnosis of 3.1±4 years. The mean DAS28- ESR and CDAI at baseline were 4.6 ± 1.7 and 19.3 ± 13.3 respectively. At the follow-up visits, patients have low and moderate disease activity with mean CDAI of 9.7 ± 8.6 and DAS 28-ESR 3.5 ± 1.4 respectively. For patients (35/37) on DMARD therapy, methotrexate was the first-line treatment. Among patients on methotrexate 16 (48%) had suboptimal doses of < 15 mg/week. Several patients had on and off self- of prescriber initiated steroid therapy with doses as high as 40mg before disease diagnosis.

Conclusion and Recommendation: After the completion of comprehensive data analysis, a conclusion and recommendation will be provided.

20 Multidisciplinary care approach for patients with kidney disease in Tanzania- Muhimbili National Hospital perspective

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Affiliation: Muhimbili National Hospital

Background: Chronic kidney disease is a growing burden and both developing and developed countries are seeing a high burden in the past few decades. Developing countries have limited facilities and a shortage of skilled health care providers making access to quality care difficult. A multidisciplinary approach is recognized as a comprehensive method of managing patients, which meets all the needs in a timely manner. In the provision of care, several aspects, which are important for good outcomes including social, nutrition and rehabilitative care are usually ignored while the great emphasis of care is placed on diagnostic, medical/surgical, and nursing care.

Objectives: To describe the multidisciplinary care approach for patients with kidney disease in Tanzania

Methodology: These services are offered in a multidisciplinary manner with constant and continuous engagement within and in between different disciplines. Among the units which work closely with the renal unit in the provision of care for patients include social work, nutrition, pathology, urology, and radiology. This has improved the care through reduced hospital stay, reduced cost of care as well as increased efficiency.

Results: Despite the benefits obtained in this approach, some challenges need to be mitigated to make it successful. The renal unit at MNH is faced with these challenges, which include a lack of common times for meeting and difficulties in coordinating common activities. Shortage of health care providers is also an obstacle that makes it difficult in negotiating service provision priorities especially in meeting primary services for each respective unit

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Conclusion: Despite these challenges, the multidisciplinary approach offers a comprehensive and effective model of providing care for patients especially in a resource-constrained setting like Tanzania.

Recommendations: Multidisciplinary approach offers a comprehensive and effective model of providing care for patients especially in a resource-constrained setting like Tanzania.

21 Implementation of a Trauma Registry for Pediatric Injury Patients in Northern Tanzania

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Background: Paediatric injuries in low- and middle-income countries are a leading cause of morbidity and mortality. Implementing trauma registries can aid in reducing the knowledge gap between hospital care and patient outcomes.

Aim: To create a paediatric trauma registry at Kilimanjaro Christian Medical Centre (KCMC) to provide insight into the epidemiology and outcomes of injured children.

Methodology: This was a prospective observational study in which a pediatric trauma registry was implemented at KCMC in Moshi, Tanzania. Data included demographics, hospital-based care, and outcomes including morbidity and mortality. Morbidity was measured by the Pediatric Glasgow Outcome Score-Extended (GOS-E) score. Data were input into REDCap® and analyzed using ANOVA and Chi-squared tests in SAS (Version 9.4)

Results: 305 patients were enrolled in the registry from November 2020 to September 2021. The majority were males (n=199, 65.2%); 40.6% (n=124) were children 0-5 years, 34.1% (n=104) were 6-11 years, and 25.3% (n=77) were 12-17 years. The leading causes of pediatric injuries were falls (n=112, 35.9%) and road traffic injuries (n=109, 34.9%). The mortality rate was 6.1% (n=20). Fifty per cent (50%) of the in-hospital deaths were in children with burn injuries, and children with burn injuries had a higher odds of mortality than children with other injuries (OR 9.6, p7 days).

Conclusion: The mortality rate of injured children in the studied cohort was considerably high, especially in children with burn injuries. Predictors of poor outcomes included vital sign abnormalities, abnormal mental status, need for ICU admission, need for surgery, and length of stay >7 days.

Recommendation: These findings highlight the need to implement strategies to improve outcomes of pediatric injury patients in Northern Tanzania.

22 Prevalence of Hypertension and Associated factors among Diabetic patients in Kilimanjaro region, Northern Tanzania: A Hospital-based Cross-sectional study.

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Background: Hypertension is among the most common non-communicable diseases, being the major cause of premature deaths worldwide. The co-existence of hypertension and diabetes mellitus increases the risk of death and cardiovascular events.

Aim: We aimed to determine the prevalence of hypertension and associated factors among diabetic patients in Kilimanjaro region, northern Tanzania.

Methodology: A cross-sectional study was conducted from June to September 2020 among 315 types II diabetic patients aged 18 years and above receiving care from diabetic clinics in the Kilimanjaro region, northern Tanzania. Participants were selected using a systematic random sampling technique. The WHO Steps Survey for non-communicable diseases was used to collect data. Data were analyzed using SPSS version 20. A multiple logistic regression model was used to estimate the odds ratios (OR) and 95% confidence intervals (CIs) for factors associated with hypertension adjusted for demographic, behavioral, and clinical characteristics.

Results: Their mean (\pm SD) age was 58.62 ± 10.8 years and 58.4% were female. The prevalence of hypertension was 55.2% and was independently associated with older age (>70 years) (OR=5.61; 95% CI: 1.65, 19.04), cigarette smoking (OR=3.98; 95% CI: 1.25, 12.72), history of ischemic heart disease (OR=16.86; 95% CI: 2.03, 140.3), and obesity (OR=1.64; 95% CI: 0.72, 3.72) which was not statistically significant.

Conclusion and Recommendations: More than half of diabetic patients in this study have co-existing hypertension. This calls for frequent and regular checkups of blood pressure among diabetic patients. Special attention should be given to older patients (>70 years), cigarette smokers, and those with a history of ischemic heart disease for early prevention and management of adverse complications of diabetes and hypertension.

23 A Case Report of Coarctation of the aorta in the wake of COVID-19 Complicating to Brain Aneurysm in Tanzania, A Diagnostic and Management Challenge.

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Affiliations: Muhimbili University of Health and Allied Sciences, Muhimbili Orthopaedic Institute.

Background: Coarctation of the Aorta (CoA) is a congenital malformation of the aorta. Asymptomatic refractory hypertension can be its only form of presentation, which usually leads to its late diagnosis and consequent complications.

Results: We report a late diagnosis of secondary hypertension due to CoA in a 19-year-old male, which complicated to a basilar tip aneurysm. Our patient was relatively asymptomatic until he presented with severe headaches and palpitations in his second decade of life. For over 5 years he was managed as a case of hypertension in peripheral facilities, despite its refractoriness to therapy. When he arrived at a tertiary level facility (Muhimbili Orthopaedic Institute, in Dar es Salaam, Tanzania) he underwent investigations, which confirmed a diagnosis of (CoA) and basilar tip aneurysm. He is currently on medical management but with no improvement of hypertension. He is waiting for a percutaneous interventional therapy, which is not available in the country due to the unavailability of interventional consumables. The plan is to refer the patient to India. However, he is incapable of paying for himself and the current supporter is undecided on whether to cover the anticipated costs or not. The other option is to secure Government's support. Unfortunately, all these plans are further frustrated by travel restrictions due to the ongoing

COVID-19 pandemic. Consent to publish this case was obtained from the patient.

Conclusion/Recommendations: This interesting case emphasizes the need for Clinicians at all levels to always bear in mind the possibility of secondary hypertension in all young patients presenting with refractory hypertension, and that a proper cardiovascular examination must be conducted. Additionally, management challenges in the presence of constrained resources and the ongoing COVID-19 pandemic have been highlighted.

24 Clinical Outcomes of Hydroxyurea accessed via various means and Barriers Affecting its Usage among Children with Sick Cell Anemia in North-Western Tanzania

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Background: Sick cell anemia (SCA) is highly prevalent in sub-Saharan Africa where Tanzania ranks third among countries affected by sickle cell disease within the continent. Lake Zone regions of the country bear the highest disease burden of the disease. Hydroxyurea, a potent disease-modifying therapy for SCA that improves both morbidities and mortalities. In sub-Saharan Africa, hydroxyurea is inconsistently prescribed or unavailable in some places. Its barriers to users in Africa are still unclear.

Objective: To determine clinical outcome and factors affecting Hydroxyurea usage in children with SCA in North-western Tanzania.

Methodology: The study's first objective used analytical cross-sectional surveys that were conducted among caregivers of the children diagnosed with SCA attending Bugando Medical Center (BMC) Sick Cell Clinic. For specific objective two, medical files were reviewed retrospectively to assess their lab clinical outcomes.

Results: A total of 87 children were enrolled. The median age at enrolment was 99[78-150] Months, 52/87 (59.8%) were male. A total of 24/87 (27.6%) reported different barriers in obtaining hydroxyurea, 10/24 (41.7%) of the participants with barriers in obtaining hydroxyurea reported the drug to be very expensive other 10/24 (41.7%) reported insurance challenges, and 4/21 (16.6%) reported unavailability of the drug. After months to years on hydroxyurea, there were lab improvements in Hb, ANC, and markedly median increment of HbF percent of 10.1 [IQR 7.2-14.7], which is statistically significant above the normal value of HbF. The median Hb at 3 months was significantly higher than the median Hb at baseline (7.1[6.2-8.6] g/dl versus 8.7 [7.7-9.2] g/dl; p-value <0.0001). The median MCV at 3 months was significantly higher than the median MCV at baseline (79.9[74.4-87.5] versus 93[87.8-100.6]; p-value < 0.0001) The median ANC at 3 months was significantly lower than the median ANC at baseline (5.2[3.2-8.6] versus 4.1[3.9-5.9]; p-value < 0.0001). Hydroxyurea use showed, the median increment of HbF in various access were 10.7+5.1, 11.2+5.1, and 13.0+5.8, mean increment Hb was 1.1g/dl, 1.0g/dl and 1.4+1.6, and Neutrophil's decrement of 3.5+5.9, 1.9+4.5 and 1.3+3.7 in cash, Insurance, and project coverage respectively. Significant improvement of children's clinical outcome with 85/87 (97.7%) good hydroxyurea effect was observed which resulted in reduction of admissions, increase in Hb, and reduction of VOC events.

Conclusion: Hydroxyurea has significant clinical utility in SCA patients. Cost, its unavailability, and lack of insurance are the barriers to its use.

25 Sickle Pan-African Research Consortium (SPARCO) – Tanzania: Improving Sickle Cell Disease Care, Research and Training

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Background: Tanzania is one of the countries most affected by Sickle Cell Disease (SCD) with an estimated 11,000 births a year. Major challenges in addressing the burden of SCD in Africa have been the lack of multi-site cohorts of SCD patients; failure to deploy consistent standards of care; limited human resource capacity and limited research in areas pertinent to SCD in the African context. SPARCO-Tanzania aims to address these challenges.

Objectives: To expand registered patients in the electronic database as well as enhance the care and research on SCD in Tanzania.

Methodology: In the 5 years of the project (2021 – 2026), SPARCO-Tanzania will 1) enroll 3,000 new SCD patients in Dar-es-salaam, Pwani, Mwanza, and Zanzibar, 2) engage stakeholders in promoting the adoption and use of SCD standards of care, 3) train healthcare workers and researchers, and 4) conduct 3 cohort studies and 3 implementation research on pertinent areas on SCD in Tanzania.

Results: In the first year of implementation, the project has 1) Expanded enrolment to Zanzibar, Kisarawe, Mkuranga, and Aga Khan Hospital with the registration of 400 new SCD patients (total 4400 in the database), 2) completed a review of the SCD practice notes in collaboration with Ministry of Health, 3) trained over 60 healthcare workers and 400 patients on SCD, and 4) published one article, submitted six manuscripts to peer-reviewed journals and made several presentations at National and International Scientific Conferences.

Conclusion: SPARCO-Tanzania is positioned to contribute significantly in establishing the capacity for research and care for SCD in Tanzania, which will lead to the reduction in the morbidity and mortality due to SCD in Tanzania and Africa at large.

Recommendations: Enhance partnership should encourage to improve of sickle cell disease patients' care in Tanzania

26 Implementation Fidelity of Gender Based Violence Screening Practice Among Healthcare Providers In The Health Care Facilities Of Dodoma Region

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Affiliation: University of Dodoma

Background: Most victims of Gender-based violence (GBV) are left unrecognized when visiting health facilities. Few individuals are screened for GBV when attending the health facilities. Information is scarce regarding poor adherence to the implementation fidelity of GBV screening in health facilities. This study looked at factors affecting adherence to implementation fidelity of GBV screening among the health care providers in health facilities in Dodoma region.

Objective: To determine factors affecting adherence to implementation fidelity of GBV screening among the health care providers in health facilities in Dodoma region.

Methodology: An analytical cross-sectional study design and mixed methods approach was used. 384 healthcare providers were obtained through the multistage sampling technique. Quantitative data was obtained through the interviewer-administered questionnaire and qualitative data was obtained through a focused group discussion with 21 health care providers. SPSS was used for Quantitative analysis to determine the level of adherence, logistic regression was used for factors, and thematic analysis for challenges affecting adherence to GBV screening

Results: There is a low level of adherence whereby 63 (16.4%) of healthcare providers adhered to the GBV screening practices. Associated factors showed that; those who were not trained had low adherence to the GBV screening practices compared to those who were trained (AOR = 0.206, $P < 0.0001$). Nurses were less likely to adhere to GBV screening practices (AOR=0.46, $p=0.037$). Challenges included the cost of GBV services, lack of effective tracking for GBV Services.

Conclusion: Most of the healthcare providers in Dodoma do not adhere to and few providers do GBV screening. Hence only a few survivors for GBV are identified and given appropriate management

Recommendations: There is a need to address challenges and factors to improve the adherence of GBV screening through training, effective tracking for the GBV services, legalize exemption of GBV survivors in the health policy.

27 Comparison of Subjective and Objective Measures of Physical Activities among HIV-Infected Patients and HIV-Uninfected Tanzanian Adults

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Background: Physical activity (PA) is associated with lowered risk of chronic diseases and mortality. PA is measured subjectively or objectively, and the practice is seen more in high-income countries among non-HIV individuals. Limited data is available on the level of PA in sub-Saharan Africa. We aimed to assess levels of PA and compare data from objective and self-reported measures among HIV patients and HIV-uninfected adults in Mwanza, Tanzania.

Aim: To assess the levels and correlates of PA using combined heart rate and accelerometer monitor (Acti-heart) and IPAQ among HIV infected and uninfected adults.

Methodology: A cross-sectional study was conducted for 12 months in Mwanza among HIV-infected and uninfected. Subjective PA was measured as Metabolic Equivalent of Task (MET) based on data from a 7-day International Physical Activity Questionnaire (IPAQ). Objective PA measures included physical activity energy expenditure (PAEE) and sleeping heart rate (SHR) and were assessed using combined heart rate and accelerometer monitor. The PA estimates agreement of subjective and objective methods was assessed using the Kappa coefficient.

Results: A total of 125 (64%) HIV patients and 69 HIV-uninfected participants were recruited. The average objective physical activities recording length was 4.3 days. SHR was higher in HIV patients as compared to HIV-uninfected whereas PAEE was lower in HIV patients

(40.88 KJ/kg/day) compared to HIV-uninfected (50.99 KJ/Kg/per day). Moderate physical activities decrease as age increase as measured subjectively (OR=0.34, 95% CI 0.12- 0.97; P=0.04) as well as objectively (OR=0.08, 95% CI 0.01- 1.06; P=0.05). Same finding for vigorous physical activities decreases as age increases as measured subjectively (OR=0.21, 95% CI 0.06 - 1.73; P=0.01) and objectively OR=0.14, 95% CI 0.04 - 0.52; P=0.003). Subjective physical activity measures had only a 50% chance of identifying individuals with the same level of physical activity as identified by objective measures.

Conclusion: As age increases, the level of physical activity decreases. HIV infection influences the level of PA on PAEE and SHR. IPAQ subjective tool for assessing the level of PA has reduced chances of identifying individuals with the same level of PA as identified by objective measures.

Recommendations: Findings from this study highlight that, each tool weighs advantages and disadvantages and differ in measuring physical activity. Care should be taken when assessing physical activities level to improve the accuracy of the data.

28 Practices and Predictors of Diabetes Mellitus Screening among Adults in Kilimanjaro region, Tanzania

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Affiliation: University of Dodoma, School of Nursing and Public Health

Background: There is a growing burden of non-communicable diseases in low- and middle-income countries (LMICs), in particular those of the sub-Saharan African countries. While there is an emphasis on primary prevention through promotion of healthy diet, physical activity, and

reduction of smoking, diabetes mellitus (DM) screening is also crucial for prevention and early management of the disease. However, information is still scarce on the screening practices of DM and associated factors in Northern Tanzania.

Aim: To determine the screening practices of diabetes mellitus and the associated predictors among adults in the Kilimanjaro Region, Tanzania.

Methodology: The cross-sectional study was carried out between February and April 2021. A face-to-face interview using a standardized questionnaire was conducted. Collected information included sociodemographic characteristics of the participants, diabetes mellitus screening practice, and the factors influencing DM screening. Analysis was done using descriptive statistics and a multivariate logistic regression model.

Results: A total of 420 eligible participants were involved in this study. The proportion of ever screened for diabetes stood at 28.8%. Significant predictors for DM screening included elderly age [AOR=2.03; 95%CI: 1.19-3.47; p=0.009]; secondary education and above [AOR=5.45; 95%CI: (2.65-11.23), p<0.001] and [AOR=2.85; 95%CI: (1.06-7.62), p=0.037]; formally employed [AOR=1.87; 95%CI: (1.01-7.62), p=0.048]; family history of DM [AOR=3.93; 95%CI: (2.00-7.74), p<0.001]; and accessibility of facilities for DM screening services [AOR=2.66; 95%CI: (1.41-5.00), p=0.002].

Conclusion: The proportion of ever being screened for diabetes was low. Elderly age, higher education, and availability of DM screening services significantly predicted DM screening.

Recommendations: Public health efforts need to focus on awareness creation for DM screening through a systematic Diabetes screening program specifically in primary health care settings.

29 The extent to which levels of habitual physical activity, sedentary behaviour and sleep complied with WHO Guidelines in 3–4-year-old children in Sub-Saharan Africa

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Background: Physical inactivity has been identified as a leading factor for global mortality and a contributor to the global rise in overweight and obesity. The number of overweight or obese infants and young children (age 0 to 5 years) increased from 32 million globally in 1990 to 40 million in 2016 and it has been projected to reach 50 million by 2030 [WHO 2018]. In a global effort to counter the rise in overweight and obesity the World Health Organization (WHO) developed 24-hour movement behaviors guidelines for the early years (comprising physical activity, sedentary behavior, and sleep).

Aim: To quantify the extent to which levels of habitual physical activity, sedentary behavior and sleep complied with WHO Guidelines in 3-4-year-old children in Sub-Saharan Africa.

Methodology: The systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). A literature search was conducted in August 2019 searching PubMed, Web of Science, and Medline Ovid databases as well as grey literature. Eligible studies were assessed for their quality by using the Joanna Briggs Institute (JBI) tool for prevalence studies and findings were summarized.

Results: Four studies were eligible and included in this systematic review, three from South Africa and one from Ghana, in a total of 640 participant. Three studies showed high compliance with the physical activity guidelines,

one showed high compliance with the screen time guidelines, and none reported on sleep. Few studies have examined the levels of or compliance with 24-hour movement behaviors in pre-school children in Sub-Saharan Africa to date

Conclusion: This review highlighted insufficient data to make definitive conclusions on adherence to the 24-hour movement recommendations in Sub-Saharan Africa.

Recommendation: Future research on levels of the 24-hour movement behaviors among young children in Sub-Saharan Africa should be conducted.

30 Factors influencing preventive measures against hypertension among relatives escorting patients at a cardiac institute in Tanzania

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Affiliation: Muhimbili University of Health and Allied Sciences

Background: Hypertension is a risk factor for cardiovascular morbidity and mortality. Appropriate lifestyle modifications are a fundamental step in the prevention of hypertension, which is the strongest risk factor for cardiovascular disease. In Africa, hypertensive heart disease has a prevalence of 46% for adults aged 25 and above. Management of hypertensive heart diseases involves education on the disease, its interrelations and complications, use of medications, and mostly lifestyle modification.

Objectives: To assess factors influencing preventive measures against hypertension among relatives escorting patients at the cardiac institute in Tanzania.

Methodology: This was a descriptive cross-sectional study conducted at Jakaya Kikwete Cardiac Institute (JKCI) situated at Muhimbili National Hospital Upanga campus, information from study participants was obtained by interviewer-administered questionnaire.

Results: It was revealed from the study that 62.3% of the respondents had moderate knowledge on risk factors of BP, with a majority (69.3%%) having moderate knowledge on preventive measures of BP and less than one-third (25.8%) have elevated BP. At most 98% have a good attitude on preventive measures against BP. The majority of participants (86.2%) perceived an irregular healthy diet and 78.5% have a sedentary lifestyle while 90.5% had never smoked and 68.4% were not taking alcohol. Meanwhile, there was no association between knowledge, attitude, and extent of practice on preventive measures.

Conclusion: Despite good knowledge regarding preventive measures of hypertension and attitude against preventive measures established in this study, there is a clear mismatch between participants' knowledge and attitude with practices. These findings reflect alarming public health concerns and underscore the urgent need to establish and implement widespread and effective educational initiatives aiming at mitigating the community's practices towards preventive measures of hypertension.

Recommendations: There should be more programs to encourage community members on lifestyle modification such as regular perceived healthy diet by salt intake reduction, consuming fruits, and reducing saturated fat intake, various community exercises programs such as jogging to encourage community members to do physical exercises.

31 Addressing gaps in Diabetes Mellitus and Tuberculosis-Diabetes Mellitus care in Tanzania and Uganda.

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Background: Diabetes Mellitus (DM) is a major public health problem and accounts for significant morbidity, mortality, and increased socioeconomic burden. DM in resource-limited settings is often severe, with poor glycemic control which in itself aggravates tuberculosis (TB). Those with TB and DM have further increases in risk and complications in the management of both conditions. During screening and follow-up of people with DM in the PROTID-trial, we will diagnose people with combined DM-TB and explore ways to improve their management.

Aim: To identify and address gaps in the preventive and therapeutic management of people with DM and DM-TB diagnosed during screening for a randomized control trial.

Methodology: Clinical, socio-demographic, and treatment information will be captured from people with DM enrolled in public care facilities. Concurrent TB will be diagnosed both at baseline and during follow-up. Cascade of care analysis will be conducted for all patients with combined DM-TB identified; patient-level and health service delivery-level factors will be investigated for associations with losses within the cascade using a mixed-methods approach. Quality indicators extracted from literature and guidelines will employ health needs assessment framework to further frame and explore the policy-practice gaps for DM-TB and DM care. This will be followed by a participatory process to identify site-specific solutions, involving key stakeholders.

Results: We identified 137 existing DM2 Quality Indicators (QIs) and 1265 recommendations from the literature and eighteen Sub-Saharan Africa guidelines, that were aggregated due to similarity or to a higher level to 80 QIs and 355 recommendations respectively. A multistage Delphi method to follow with expert panel for identifying key indicators and recommendations to be used in assessing the quality of DM care in SSA.

Conclusion: Quality improvement strategies and key performance indicators can be utilized to improve the quality of DM and DM-TB care deliverance and reduce gaps and barriers that exist between recommended guidelines and practices.

Recommendation: The key indicators will further be used to assess gaps in the management of DM and DM-TB; thus, the results will be used by decision-makers to identify policy options that will improve care.

32 Review of healthy food environment policies for the prevention of Nutrition Related-Non-communicable diseases in Tanzania. Implication for institutionalizing

health food environment strategic plan

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Background: Nutritional Related- Non-Communicable Diseases (NR-NCDs) is a growing burden on the health care system in Tanzania. Besides their contribution to high mortality and morbidity, NR-NCDs also contribute to social and economic devastations in the population. An international consensus insists on policy actions to create a healthy food environment for preventing NR-NCDs.

Objective: This paper aim at addressing policy evidence gaps on food environments in Tanzania to inform context policy actions for the prevention of NR-NCDs.

Methodology: Policy review was conducted using a standardized Healthy Food Environment Policy Index (Food EPI tool). Two researchers conducted the document search and reviews. The synthesis of policies and guidelines were based on 13 domains and 55 indicators included in the Food-EPI that reflect the status of the healthy food environment in Tanzania

Results: There is a clear description of food ingredients labeling policies and transparency, on the institution that mandates regulations of quality, of food manufactured in or imported. The NCD Strategic Plan (2016-2020) established targets for reduction in salt, sugar, and saturated fats consumption as nutrients of concern. The National Policy and Nutrition strategic plan doesn't include clear restrictions on unhealthy nutrients and food composition. Policies and strategies have not elaborated 'healthy food' concepts, and clarification on the amount of sugar, salt, and fatty as unhealthy foods. No evidence and regulations of food sold to children, adolescents, and restaurants. No policies and regulations that support

price reduction of healthy food such as vegetables and fruits. Some policies are outdated; do not reflect current nutrition changes, for example, a nutrition policy of 1992

Conclusion: Implementation of available policies still challenges in crucial indicators, thus hampering the fight against NCDs preventions.

Recommendations: Tanzania needs a strategic plan beyond nutrition and adopt healthy food environment that supports the promotion of healthy food for the prevention of NR-NCD

33 Knowledge, Attitudes, and Preventative Practices Regarding Ischemic Heart Disease among HIV Positive Individuals in Northern Tanzania

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Objectives: To describe knowledge, attitudes, and practices (KAP) regarding ischemic heart disease (IHD) among adults with HIV in Tanzania.

Methods: Adults presenting for routine HIV care at a clinic in northern Tanzania were consecutively enrolled and were administered a standardized KAP survey. For each participant, an IHD knowledge score was calculated by tallying correct answers to the IHD knowledge questions, with maximum score 10. Individual five-year risk of cardiovascular event was calculated using the Harvard NHANES model. Associations between participant characteristics and IHD knowledge scores were assessed via Welch's t-test.

Results: Of 500 participants, the mean (sd) age was 45.3(11.4) years and 139 were (27.8%) males. Most participants recognized high blood pressure (n=313, 62.6%) as a risk factor for IHD, but fewer identified diabetes as a risk factor (n=241, 48.2%), or knew that aspirin reduces the risk of secondary cardiovascular event (n=73, 14.6%). Higher IHD knowledge score was associated with post-primary education (mean 6.27 vs 5.35, $p=0.001$) and with >10% five-year risk of cardiovascular event (mean 5.97 vs 5.41, $p=0.045$). Most participants believed there were things they could do to reduce their chances of having a heart attack (n = 361, 72.2%). While participants indicated that they adhered to their prescribed medications (n = 488, 97.6%), only 106 (21.2%) attended regular health check-ups.

Conclusion: Efforts are needed to improve gaps in IHD knowledge and increase uptake of cardiovascular preventative practices among Tanzanian adults with HIV.

34 Acceptability and feasibility of self-sampling and follow-up attendance after text message delivery of HPV results

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Background: Cervical cancer is a major public health issue in Tanzania, and the incidence and mortality rates may be reduced by the use of efficient screening methods and proper follow-up of women at risk of the disease.

Aim: This study was conducted to determine if self-collection of vaginal samples for human papillomavirus (HPV) testing was acceptable and

feasible in rural Tanzania and to assess the extent of attendance at a follow-up appointment among women who tested HPV-positive after delivery of HPV results via text messages.

Methodology: A combined cross-sectional and cohort study was conducted among women aged 25-60 years from rural Kilimanjaro, Tanzania. Women were offered HPV self-sampling or traditional visual inspection of the cervix with acetic acid. If HPV self-sampling was preferred, participants received instructions on self-collection with an Evalyn Brush. A questionnaire was used to assess the acceptability and feasibility of the self-sampling procedure for the participants and delivery of HPV results via text messages. A mobile text message platform was used to send private text messages with the screening results to the participants.

Results: A total of 1108 women were enrolled and self-collected an HPV sample; 11.8% tested positive for high-risk HPV. The majority (98.9%) agreed that they had no trouble in understanding the instructions on how to perform the self-collection and that they would recommend it to a friend (94.5%) or as a standard screening method in Tanzania (95.5%). A minority of women experienced bleeding (2.4%) or pain (6%) while collecting the sample, while some were worried that they would get hurt (12.7%) or felt embarrassed (3.5%). The majority (98.4%) of women would like to receive the screening test results via text messages. Eighty-two percent of those who tested positive for high-risk HPV attended the follow-up appointment after receiving a text message reminder and an additional 16% attended after receiving both a text message and a phone call reminder whereas 2% did not attend follow-up at all. Attendance was not influenced by age, marital status, education level, parity, or HIV status

Conclusion: Human papillomavirus self-sampling and text-message feedback delivery are generally well-perceived and accepted among rural

Tanzanian women, and the majority of HPV-positive women attended a follow-up appointment after receiving their HPV results and follow-up appointment via text messages.

Recommendations: HPV self-sampling coupled with an interactive text message solution may be an alternative method to increase uptake of cervical cancer screening in Tanzania as it is well-perceived as a primary screening method among rural Tanzanian women.

35 Adherence to WHO 2019 24-Hour Movement Behavior Guidelines (Physical Activity, Sedentary Behavior, and Sleep) In Pre-School Children in Low and Medium-Income Countries.

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Affiliation: Tanzania Food and Nutrition Center and Strathclyde University

Background: Studies have shown a high association between low physical activity, high level of sedentary time, and lack of quality sleep to be responsible for more than 5 million deaths globally per year (WHO 2020). These behaviors also matter to health in early life. In their early years, children develop very fast physically, mentally, and intellectually and hence this is a crucial development stage. Therefore In 2019, the World Health Organization (WHO) came up with guidelines for optimal health and development: (3-4-year-olds), should spend at least 3 hours per day in Physical activity, ≤ 1hour per day in screen time, and 10-13 hours per day of quality sleep.

Objectives: To quantify the extent to which children in low-to-middle income countries (LMICs) adhere to WHO 2019 24-hour movement behavior guidelines.

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Methodology: Preschool child/parent (dyads n=601) were recruited from preschools of 10 LMICs participating in the international Sunrise Study. Total physical activity was assessed using activPAL accelerometers (time spent stepping), while sedentary behavior (screen time and time spent restrained) and sleep were assessed via parent report. The proportion of children meeting or not meeting the 24-hour movement behavior were categorized as meeting or not meeting 1) the individual guidelines 2) meeting all the guidelines.

Results: The percentage of children meeting the physical activity guideline was 18.5%, 53.5% met the sleep guideline, 50.7% met the screen time guideline, and 3.2% met all the guidelines combined. Strategies to promote adherence to the 24-Hour Movement Behavior Guidelines for the Early Years among preschool children are needed globally.

Recommendations: Supporting preschool children to meet all or more guidelines may be beneficial for dealing with childhood obesity. More research needs to be done in Sub-Sahara Africa for 24- hour movement behaviors not only in preschoolers but also in all age groups.

36 Assessment of Policies, Strategies, and Legislation on Overweight and Obesity among Children, Adolescents, and Adults in Tanzania

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Background: The WHO has developed a strategic plan to guide governments and development partners in tackling all forms of malnutrition through a strengthened enabling environment and better use of data. The

2015 Lancet series states that global actions to address overweight obesity include: restricting the marketing of unhealthy foods to children, regulating foods sold in schools, front-of-pack nutrition, and menu labeling, taxing sugar-sweetened beverages, improving food environments, engagement of food industry. Little is known on the available policies, strategies, and legislation on the prevention of overweight and obesity among children, adolescents, and adults in Tanzania

Aim: To assess the policies, strategies, and legislations on overweight and obesity among children, adolescents, and adults in Tanzania.

Methodology: The study employed a mixed qualitative design with cross-sectional exploratory. Phase A involved desk review applied UNICEF and WHO 2020 Landscape tool and analysis. Phase B, key informant interview conducted in Dodoma and Dar-es-salaam regions. 22 key informants were interviewed and participants were national governments, sub-national, UN agencies, academicians, civil society organizations, and media personnel. A purposive sampling technique was used to select the informants. Thematic analysis was performed to analyze data.

Results: A total of 35 policies, strategies, and legislation were reviewed including international databases. Policies were partially implemented, some outdated and not enacted. Knowledge and availability of data were inadequate. UN key recommendation policies were seen as useful but challenging in implementation. Government work closely with industries on food fortification but is not fully engaged in overweight and obesity

Conclusion: Unavailability, weak implementation, and outdated policies, strategies, and legislation as well as gaps in data and knowledge were found in this study. The involvement of stakeholders is key to addressing overweight and obesity in the country.

Recommendation: It is important to review, and develop food systems and school environment policies.

37 Prevalence and associated factors of Musculoskeletal Joint Disease in the community setting in Hai district, Tanzania.

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Background: There is little evidence on the prevalence of musculoskeletal (MSK) joint disorders, particularly around inflammatory and degenerative arthritis in the United Republic of Tanzania. The general increase in auto-immune diseases worldwide suggests that joint diseases may be relatively common.

Aim: This study aims to establish the prevalence of musculoskeletal joint disease and associated factors in rural Tanzania.

Methodology: Households in the Hai District were randomly selected and individuals were screened for the presence of MSK joint problems using the Gait Arms Legs and Spine (GALS) examination, and those who scored positive were further assessed using the Regional Examination of the Musculoskeletal System (REMS). Demographic and other information was gathered and subsequently checked for association with the GALS and REMS exams. Data were analyzed in STATA using a mixed model logistic regression.

Results: The overall prevalence of MSK joint disease was 5.9 % (CI: 5.1 % – 6.9 %; $p < 0.01$), adult females had significantly higher odds of screening positive than adult males (OR: 2.2; CI: 1.5 – 3.2; $p < 0.01$). The prevalence of MSK joint problems varied significantly with age, with only 0.1 % (CI: 0 % – 0.75 %) of Children aged 5-18 years screening positive with REMS compared to 31.8 % (CI: 20.6 % – 44.7 %) of those aged over 85. People living in mid-level altitudes had the highest odds of screening positive with REMS (OR highland vs lowland = 1.5; CI: 1 – 2.3, $p = 0.081$).

Conclusion: Our study provides new insight into the prevalence and distribution of musculoskeletal joint disease in rural Tanzania and the associated factors.

Recommendation: This study will help build the evidence around the prevalence of musculoskeletal joint diseases and can thus help practitioners improve the management of joint diseases.

38 Predicted 10-Year Risk of Developing Cardiovascular Disease: A Sub-Group Analysis Of Adults Aged 40–64 Years In Rural Morogoro, Tanzania

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Background: Cardiovascular diseases (CVDs) are the leading cause of death and a significant contributor to poor quality of life globally. In Tanzania, CVD risk factors have been well characterized however, data on the future risk of succumbing to CVD is scarce.

Objective: To examine the 10-year risk of developing CVD among middle-aged adults in rural Morogoro.

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Methodology: Baseline data from a sub-group of participants aged 40-64 years from a cluster-randomized trial of community health workers (CHWs) was analyzed for interventions for the reduction of blood pressure. Socio-demographic and lifestyle-related factors were assessed using a questionnaire. Blood pressure, height, and weight were measured following standard protocols. The Globorisk prediction charts specific for Tanzania were used to estimate the participant's 10-year risk of developing CVD. Chi-square test and statistical significance were used to assess the association.

Results: A total of 1,441 participants were included. The median age [interquartile range] 49 [44-56] years. Four out of ten participants (43.2%) were hypertensive, and the prevalence of overweight/obesity was 46.1%. The proportion of participants with low (<10%), moderate (10-19%), and high risk ($\geq 20\%$) of developing CVD in the next 10 years was 93.6%, 5.8%, and 0.6% respectively. The use of raw table salt was positively associated with a 10-year risk of developing CVD.

Conclusion: The risk of developing CVD in this rural population of middle-aged adults is low. The observed low risk is good news, the challenge is maintaining this low risk while providing targeted interventions to those at moderate and high risk to cut down their risk of succumbing to CVD.

Recommendations: Health education on risk factors and healthy lifestyle promotion interventions are recommended to maintain the observed low risk of developing CVD in the future. Such interventions can be delivered through both facility-based and community-based programs.

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Background: Worldwide, the burden of Non-Communicable Diseases (NCD) has been posing serious implications on social and economic development. It has been predicted that by 2030, 8 of 10 leading causes of death will be linked to NCD.

Aim: This paper aims to conduct a comprehensive review of NCD studies done in Zanzibar within a decade (2011 - 2021) and to update progress in fighting NCD.

Methodology: The Zanzibar NCD published studies and reports from various health institutions were searched, reviewed, and ongoing NCD progress in the Zanzibar population is projected.

Results: The majority of NCDs published studies in Zanzibar were based on the 2011 Zanzibar National Survey on NCD Risk Factors, the 2013 Zanzibar Nutritional Survey, and the 2017 East African Community NCD Alliance Benchmark Survey. Overall NCD prevalence, associated risk factors, the interaction of socioeconomic, demographic, environmental, physiological, and unhealthy habits-related disorders were identified. The association between obesity indices (body mass index, waist circumference, and percentage body fat), leptin, and inflammatory markers like C-reactive protein, interleukin-6, and tumor necrosis factor was revealed. An intensive broad follow up nutritional survey is underway; to assess the development of the situation after the first survey of 2013, to explore a better understanding of the underlying mechanisms linking the development of NCD with inflammation, and also to measure the economic impact of the Covid-19 pandemic on nutrition in Zanzibar.

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Conclusion: Most of the published studies focused on hypertension, diabetes, and cardiovascular diseases. Moderate progress was achieved in governance and prevention of risk factors in tackling the rising prevalence.

Recommendation: Future studies should be also focused on other NCD for a broad understanding of the burden.

40 The Effectiveness of the Provision of Health and Nutrition Education and the Promotion of Home Gardening in Stunting Reduction

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Background: Childhood undernutrition is recognized as one of the determinants of non-communicable diseases. Interventions targeting to reduce stunting might contribute greatly to NCD reduction.

Aim: This study assessed the effectiveness of the provision of health and nutrition education and the promotion of home gardening in stunting reduction.

Methodology: Two rounds of household surveys were done to assess changes in behaviours and stunting among children under five years. A two-stage stratified sample of 896 and 1736 households was selected at each round of data collection in the intervention and control districts respectively. Mothers delivered in the past 24 months preceding the survey and all children under-5 years residing in selected households were eligible. A total of 3467 and 4145 children under 5 years were recruited at baseline and end-line respectively. The difference in difference (DID) analysis was used to estimate the impact of the interventions.

Results: The proportion of stunted children decreases from 35.9 to 34.2% in the intervention and from 29.3 to 26.8% in the control sites. Overall, no statistically significant stunting reduction was observed between

intervention and control sites. However, a significant effect was observed in intermediate outcomes; Uptake of iron-folic acid (DID: 5.2%, (95% CI: 1.7–8.7), $p = 0.003$), health facility delivery (DID: 6.5%, (95% CI: 1.8–11.2), $p = 0.006$), pre-lacteal feeding (DID: – 5.9%, (95%CI: – 9.2, – 2.5), $p = 0.001$), breastfeeding within 1 h after birth (DID: 7.8%, (95%CI: 2.2–13.4), $p = 0.006$) and exclusive breastfeeding in children under 6 months (DID:20.3%, (95% CI: 10.5–30.1), $p = 0.001$).

Conclusion: Health and nutritional education did not result in significant evidence of stunting reduction, but the observed effect on health and nutrition behavioural indicators are at the causal pathways to improved child nutritional outcomes in the long run.

Recommendation: Implementation of these integrated packages over a longer duration is needed to witness a significant reduction of stunting.

41 Recreational Use of Phosphodiesterase 5 Inhibitors among Young Healthy University Students in Tanzania: A Cross-Sectional Study

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Background: Phosphodiesterase 5 inhibitors are groups of drugs approved for the treatment of erectile dysfunction, a disorder common in older populations. Notable is that these drugs are now popularly being used by many young healthy men without erectile dysfunction for sexual enhancement.

Aim: This study aimed to investigate the prevalence of recreational use of PDE5 inhibitors and their associated factors among male university students in Tanzania.

Methodology: This cross-sectional study enrolled 196 male undergraduate students from Catholic University of Health and Allied Sciences using an online structured questionnaire between April and July 2020. Demographics and medical history were recorded. Logistic regression was used to determine independent factors associated with the use of phosphodiesterase 5 inhibitors.

Results: The mean age was 24 ± 2.21 years' and the majority of the students were registered in the course of bachelor of medicine 74 (37.8%). The prevalence of phosphodiesterase inhibitor use was 15 (7.7%). Participants who consumed alcohol and smoked cigarettes were more likely to use phosphodiesterase inhibitors compared to non-users 12 (80%) vs 50 (27.6%), $p < 0.001$, and 4 (26.7%) vs 6 (3.3%), $p = 0.004$ respectively. The majority of the participants purchased the drugs in community pharmacies without prescriptions 9 (60%) and the commonest side effect was headache 8 (53.3%). Independent factors associated with the use of phosphodiesterase inhibitors were: age {adjusted OR 4.04 (95% CI: 1.20 - 13.61)} and cigarette smoking adjusted {adjusted OR 6.8 (95% CI: 1.17–39.4)}.

Conclusion: In the present study the prevalence of Phosphodiesterase inhibitor use was 7.7%. Factors independently associated with the use of PDE5 inhibitors were older age and cigarette smoking.

Recommendations: Efforts should be centered on promoting awareness of the potential side effects associated with the misuse of PDE5 inhibitors and strategies for restricting easy access to the drugs.

42 Prevalence and correlates of ischemic ECG findings among adults with HIV in Tanzania

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Introduction: HIV infection is associated with increased risk of myocardial infarction (MI), but there has been little study of MI among people with HIV in sub-Saharan Africa, where the burden of HIV is largest.

Methods: Consecutive adults (age ≥ 18 years) presenting for routine HIV care at a clinic in northern Tanzania were enrolled and completed a standardized health questionnaire. An electrocardiogram (ECG) was obtained for each participant and reviewed by two independent physician adjudicators. In accordance with Fourth Universal Definition of MI guidelines, ECG criteria for prior MI was defined as pathologic Q waves in ≥ 2 contiguous leads, and myocardial ischemia was defined as ST segment depression or T wave inversion in ≥ 2 contiguous leads. Multivariate logistic regression was performed to identify correlates of prior MI.

Results: Of 500 participants, 139 (27.8%) were males and median (IQR) age was 45 (38, 52) years. No participant reported a known history of prior MI, and 451 (90.2%) had achieved virologic suppression (HIV viral load < 200 copies/ml). Of participants, 137 (27.4%) had ischemic ECG findings, including 56 (11.2%) with prior MI and 93 (18.6%) with myocardial ischemia. On multivariate analysis, prior MI was associated with male sex

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(OR 1.95, 95% CI: 1.01-3.69, $p=0.042$) and self-reported family history of cardiovascular disease (OR 1.98, 95% CI: 1.02-3.74, $p=0.038$).

Conclusions: There is a large burden of previously undiagnosed ischemic heart disease among adults with HIV in Tanzania. Interventions are needed to improve prevention, screening, and care for MI among this population.

43 Prevalence of burnout syndrome and its associated factors among MUHAS resident doctors at tertiary teaching hospitals in Dar es Salaam

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Background: Burnout syndrome among doctors both in the practice and training, has reached epidemic levels with prevalence near to and exceeding 50%. However, uncertainties exist about the prevalence of burnout syndrome among resident doctors in our settings. In addition, associations between burnout and gender, age, specialty, and geographical location of training remain unclear.

Aim: To determine the prevalence of burnout syndrome and its associated factors among MUHAS resident doctors at tertiary teaching hospitals in Dar es Salaam.

Methodology: This was a cross-sectional study involving 398 resident doctors from the MUHAS practicing at tertiary teaching hospitals. Data was collected using a printed structured questionnaire which had two sections: Section one; Socio-demographic and professional characteristics and section two a validated instrument Maslach Burnout Inventory (MBI) for burnout evaluation. The obtained data were analyzed by SPSS.

Results: The prevalence of burnout syndrome was 33.7%. Inadequate support from residency program supervisors, work-family related conflicts,

stressful call perception, and each added year of study were independently associated with burnout with odds ratios of (OR=1.97, 95%CI [1.23,3.14]; $p=0.005$), (OR=3.2; 95% CI [1.35,7.71]; $p=0.008$), (OR=3.31; 95% CI [1.90,5.76] $p<0.001$) and, (OR=1.5; 95% CI[1.23.3.14]; $p=0.011$) respectively. However, no significant association was found between burnout and age, marital status, specialty, year of experience, or a number of call duties.

Conclusion: Burnout syndrome is prevalent among resident doctors in this tertiary University teaching hospital. Factors such as inadequate support from residency program supervisors, work-family-related conflicts, and stressful call duty were associated with burnout in resident doctors.

Recommendation: Considering the high prevalence of burnout among residents, these results indicate that there is a need to establish mental health support services for resident doctors.

44 Prevalence and risk factors for Type 2 diabetes mellitus and hypertension among adolescents in Morogoro, Tanzania

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Background: The prevalence of non-communicable diseases is increasing rapidly in Tanzania; triggered by changes in lifestyles, dietary patterns, and increasing young age onset of overweight/obesity. While the burden of non-communicable diseases (NCDs) is increasing in developing countries, there has been little focus on adolescence, when the majority of behavioural risk factors for NCDs first emerge.

Aim: This study reports the prevalence and risk factors for Type 2 diabetes mellitus and hypertension among adolescents.

Methodology: A cross-sectional survey was conducted in 2020 involving 384 adolescent secondary school students aged 14-19 years. Standard procedures were used to measure weight, height, body fat percentage, blood pressure, and random blood glucose. Dietary intake and physical activities were assessed. Bivariate logistic regression was done to determine the association between variables

Results: Prevalence of underweight, overweight, and obesity were 5.7%, 8.9%, and 10.9% respectively. Prevalence of obesity was higher in private than in government schools (14.6% vs. 7.3%), in urban compared to rural areas (16.7% vs. 5.2%) but the reverse was true for underweight. Similarly, the prevalence of pre-diabetes was higher in urban compared to rural areas (7.3% vs 3.1%) and hypertension prevalence was about three times higher in urban than in rural areas. The risk factors for pre-diabetes were overweight/obesity (AOR 2.05; 95%CI 2.17-6.86), and elevated body fat (AOR 1.95; 95% CI 1.23-7.18). The risk factors for hypertension were overweight/obesity (AOR 6.45 95% CI 1.64-13.94), elevated body fat (AOR 3.91 95%CI 1.94-8.96), living in the urban area (AOR 3.43 95% CI 1.67-7.04), and physical inactivity (AOR 1.98 95% CI 1.65-5.49).

Conclusion: There is a high prevalence of overweight/obesity, prediabetes, and hypertension among secondary school adolescents with a much higher prevalence observed among urban compared to rural areas. Elevated body fat and overweight/obesity in adolescents were among the risk factors for prediabetes and hypertension.

Recommendation: Nutrition and healthy lifestyle education should be integrated into school programs to reduce the risk for non-communicable diseases in the future.

45 Prevalence and factors associated with hypertension among children attending pre-schools in Dar es salaam, Tanzania.

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Background: Over recent decades' childhood hypertension has become a widely investigated topic due to its increasing prevalence, among other factors it is evidenced to be in parallel with the increase in obesity. Hypertension in children is frequently undiagnosed due to challenges in getting appropriate cuff sizes and interpretation of the readings. Several studies have been done on hypertension in children in Tanzania but much focus is on older children and adolescents.

Aim: To determine the prevalence and factors associated with hypertension among children attending preschools in Dar es Salaam, Tanzania.

Methodology: This was a cross-sectional study conducted in Ilala and Kinondoni districts from October to November 2020. Children aged 2-5 years attending preschools, meeting inclusion criteria, and whose parent's/guardians signed informed consent were included. Anthropometric and 3 blood pressure measurements were taken. The average blood pressure was compared to standard charts for age and sex provided by the American Academy of pediatrics 2017 to determine the blood pressure category.

Results: A total of 1083 children fulfilled the eligibility criteria and were enrolled in the study; of which 51.3%) were male. 23.3% were found to

have high blood pressure. No significant gender difference was observed among those with high blood pressure. Low birth weight, increasing age, and Body Mass Index (BMI) were significantly associated with elevated blood pressure ($p=0.036$, 0.032 , and <0.001) respectively.

Conclusion: The prevalence of high blood pressure in this population of pre-school-aged children is alarming. Low birth weight, increasing age, and BMI were significantly associated with elevated blood pressure.

Recommendations: Children born with low birth weight, and those who have overweight/obesity should have their blood pressure measured regularly throughout childhood to detect and manage hypertension early as they are more likely to be hypertensive even at a young age.

46 Prevalence And Predictors of Uncontrolled Hypertension, Diabetes, And Obesity Among Adults with HIV In Northern Tanzania

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Background: HIV is associated with increased risk of cardiovascular disease, but factors related to cardiovascular comorbidities among people with HIV in sub-Saharan Africa remain unclear.

Methods: Adults presenting for outpatient HIV care in Tanzania were prospectively enrolled. Participants completed a questionnaire and underwent weight, height, blood pressure, and blood glucose

measurement. Hypertension was defined by blood pressure $\geq 140/90$ mmHg or self-reported hypertension. Uncontrolled hypertension was defined as measured blood pressure $\geq 140/90$ mmHg. Diabetes was defined by fasting glucose ≥ 126 mg/dl, random glucose ≥ 200 mg/dl or self-reported diabetes. Obesity was defined by body mass index ≥ 30 kg/m². Multivariate logistic regression was performed to identify predictors of uncontrolled hypertension and obesity.

Results: Among 500 participants with mean (sd) age 45.3(11.4) years, 451 (90.2%) had achieved virologic suppression (HIV RNA <200 copies/ml). Of participants, 173 (34.6%) had hypertension, 21 (4.2%) had diabetes, and 99 (19.8%) were obese. Of those with hypertension, 116 (67.1%) were unaware of their hypertension, 169 (97.7%) were not taking an antihypertensive, and 155 (89.6%) had uncontrolled hypertension. Of those with diabetes, 12 (57%) were unaware of their diabetes, and 17 (81%) were not taking an antihyperglycemic. In multivariate analysis, uncontrolled hypertension was associated with older age (OR 1.07, 95% CI: 1.05-1.10, $p<0.001$) and higher body mass index (OR 1.17, 95% CI: 1.11-1.22, $p<0.001$).

Conclusions: There is a large burden of uncontrolled hypertension, diabetes, and obesity among adults Tanzanians with HIV. Interventions are needed to improve screening, prevention, and treatment for non-communicable comorbidities for this high-risk population.

47 Hypertension Self-Management Among Patients Attending Clinics in Referral Hospitals In Dar-Es-Salaam, Tanzania

Authors: Ashabilan Ebrahim, Ruchius Philbert

Affiliations: MUHAS

Background: Hypertension (HT) is a growing risk for cardiovascular disease affecting more than 1.13 billion people worldwide. Rapid urbanization and associated lifestyle changes, currently happening in middle and low-income countries (MLICs), are known to drive the growing prevalence of HT. With lifestyle factors playing a major role in its pathogenesis, lifestyle interventions are crucial for the management of the disease. To a large extent, lifestyle interventions are done by individual patients hence self-management practices are a key component.

Objective: To describe self-management practices of hypertension among adults attending a referral hospital in Dar es salaam, Tanzania.

Methodology: A hospital-based cross-sectional study, involving 330 hypertensive patients was done in three regional referral hospitals in Dar es Salaam. All eligible patients completed an interviewer-administered questionnaire consisting of a modified and validated "hypertension evaluation of lifestyle and management (HELM) scale" in Swahili. Descriptive and logistic regression analyses were then conducted using SPSS version 20.

Results: The prevalence of good practice was 19.7%. There was a significant association between good self-management practice and education level, having a relative with hypertensive complications, and knowledge level ($p < 0.05$). The independent predictor for good practice was having good knowledge (OR = 0.209, 95% CI = 0.060-0.727).

Conclusion: Most of the study participants reported poor self-management practices. Factors associated with hypertension self-management practice were education, adequate knowledge on hypertension, and prior experience with a patient who suffered from hypertension complications. Awareness, knowledge, and experience seem to influence self-management practices.

Recommendations: Approaches to improve factors influencing self-management practices should be incorporated into hypertension management regimes. Incorporate strategies that will improve self-efficacy when designing an effective intervention for chronic disease management such as hypertension control. Results from our study can be incorporated in developing patient education schemes equipping them with the tools to take their healthcare into their own hands.

Stroke in Zanzibar – Incidence and Characteristics

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Authors: Jutta Adelin Jorgensen, Halima S Saddiq, Ahmed Jusabani, Mohammed Yusuf Khan, Richard Walker, Karoline Kragelund Nielsen, Dirk Lund Christensen

Affiliation: University of Copenhagen

Background: Stroke in adults is an important clinical condition and a leading cause of death and disability globally. Epidemiological data on stroke in sub-Saharan Africa are limited.

Aim: This study aimed to describe incidence rates, risk factors, stroke types, and outcome of hospitalization for stroke in Zanzibar, Tanzania.

Methodology: This was a prospective study over 12 consecutive months of all adult patients resident in Unguja, Zanzibar, who were admitted at hospitals in Unguja with a World Health Organization (WHO) clinical definition of stroke. Socioeconomic and demographic data were recorded alongside relevant past medical history, medicine use, and risk factors. The modified National Institute of Health Stroke Scale (mNIHSS) and Modified Rankin Scale (mRankin) were used to assess admission stroke severity

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and outcomes respectively. Descriptive analysis was undertaken using STATA.

Results: A total of 869 stroke admissions were observed from 1st October 2019 through 30th September 2020. The mean age of stroke patients was 61.6 years, 52.5% were female, and 65.3% had a first-ever stroke. Risk factors included prior diagnosis of hypertension in 72.8% of patients, of whom 55.3% reported regularly using antihypertensive medication, and among these 57.5% had used this medication within the last week before stroke onset. Diagnosis of stroke was confirmed by CT scans in 62.8% of patients, with evidence of intracerebral hemorrhage 30.8% patients. The mean stroke severity score using mNIHSS was 18.5 (SD +/- 9.88), mean mRankin score at discharge was 3.7 (SD +/- 1.5), and 30-day mortality rate was 40.8%. Age-standardized to the WHO global population the yearly incidence was 286.8 per 100,000 adult population.

Conclusion: Zanzibar has a high incidence of hospitalization for stroke, indicating a very high population incidence of stroke. The majority of stroke patients had before stroke onset been in contact with health providers and been diagnosed with hypertension, however, few were adherent to regular treatment.

Recommendations: The proportion of patients who before stroke onset had had contact with health services indicates a role for health facilities in risk factor management including improving medication adherence and achieving blood pressure control to prevent stroke.

49 Adolescent-Nutrition-and-Health: Formative Assessment of the School-Health Environment and Programs in Ethiopia, Sudan, and Tanzania.

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Affiliations: AAPH, MUHAS, and Harvard School of Public Health

Background: 90% of adolescents live in low-and-middle-income countries. They are affected by injuries, malnutrition, and diseases. Early adolescence (10-14 years) is a critical phase for research and intervention. Intervening through schools where the majority of these adolescents are found, provides an effective strategy for improving health. There is limited summative evidence linking policies and school environments to related nutrition and health outcomes. This formative assessment sought to understand the policy surrounding school-health-environments, individual adolescent-health, and population-level risk factors relevant to the design, delivery, and scale-up of nutrition and health interventions through schools.

Aim: To assess the school health and food environment in Ethiopia, Sudan, and Tanzania on three levels: Policy environment and existing interventions; the school food environment; and the nutritional and health state for in-school adolescents ages 10-14.

Methodology: Multi-stage cluster random sampling was used to select participating schools and students. Mixed methods were used to assess adolescent nutrition, health, and school-food-environments among 3558 adolescent boys and girls and 52 teachers. National and subnational policies on adolescent health to school-health programs desk reviews and key informant interviews were conducted.

Results: Although national guidelines are in place, only 54%, 14%, and 9% of the local authorities in Ethiopia, Tanzania, and Sudan had an adolescent-specific health-related policy, respectively. None of the schools provided deworming services in Ethiopia as compared to 43% in Tanzania. School feeding was provided in 90%, 24%, and 18%; and drinking water in 70%, 71%, and 36% of schools in Ethiopia, Tanzania, and Sudan respectively. Although adolescents demonstrated understanding of healthy

behavior and nutrition, their practice was limited to their socio-economic status and decision-making involvement.

Conclusion: Efforts to improve in-school adolescent health have been made with much work yet to be done. Improving school-age adolescent health and nutrition surpasses school environment and policy.

Recommendations: It requires interventions through curricula and community engagement, with results frameworks to gauge progress.

50 Prevalence and factors associated with under and over nutrition among in-school adolescents in urban Tanzania

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Affiliations: AAPH, MUHAS and Harvard School of Public Health

Background: Malnutrition is a public health concern globally. The burden is higher in Asian and Sub-Saharan African countries including Tanzania. The 2015/16 TDHS concluded; 30% under-fives are stunted, 14% are underweight and 4% overweight. Malnutrition impairs growth, child's brain development and increases the risk of non-communicable diseases in adulthood. Adequate nutrition during adolescence creates a second opportunity for growth, especially for children who experienced nutritional deficits during their early life. There is a scarce understanding of malnutrition among adolescents in Tanzania.

Aim: To investigate the prevalence and determine the factors associated with stunting, underweight and overweight among in-school adolescents aged 10-14 years in urban Tanzania.

Methodology: This was a cross-sectional study that analyzed data of 1,219 in-school adolescents aged 10 – 14 years in Dar-es-Salaam, Tanzania. Logistic regression determined factors associated with stunting,

underweight and overweight. Analyses accounted for school-level clustering and associations were statistically significant at p-value < 0.05.

Results: 11.6% of adolescents were stunted, 7.8% were underweight, 8.7% were overweight and 4.3% obese. Age, gender, and wealth quintiles were significant factors for stunting. Age, gender, and the number of siblings in the household were significant factors for underweight. Gender, mother's occupation, and wealth quintiles were significant factors for overweight. Females were less likely to be stunted [AOR 0.68; 95%CI 0.47 – 0.98], less likely to be underweight [AOR 0.64; 95%CI 0.43 – 0.95] but more likely to be overweight compared to males [AOR 1.66; 95%CI 1.10 – 2.51].

Conclusion: Tanzania is facing a double burden of undernutrition and overnutrition. Significant drivers to the double burden of malnutrition include age, gender, socio-economic status, and the number of siblings in the household.

Recommendations: Health policies and interventions are urgently needed to curb this double burden of malnutrition and prevent the subsequent onset of diseases in adulthood.

51 A Training Model for A Sustainable Cardiovascular Sciences Research in Tanzania and Beyond: Leveraging From The East African Centre of Excellence in Cardiovascular Sciences Project Research

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Affiliation: Muhimbili University of Health and Allied Sciences

Background: The limited cardiovascular sciences (CVS) research output from Tanzania and other East African (EA) countries hinders the establishment of locally informed management and policy changes. The Shortage of skilled researchers is among the bottlenecks for this disparity.

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The establishment of the EA Centre of Excellence in Cardiovascular Sciences (EACoECVS) can be taken advantage of, for sustainable CVS research programs, and subsequently better health of our people.

Objective: To train highly skilled human resources for all levels of prevention of CVS and to promote locally relevant CVS research in EA.

Methodology: Since 2014, the Muhimbili University of Health and Allied Sciences (MUHAS) has been implementing Phase I of the EACoECVS project, which aimed to set the stage for a full-fledged center of excellence for CVS in EA. We developed a training plan for existing and future faculty for the center where we partnered with World-Class Institutions in Africa, India, and Europe for the initial training, using the Training of the Trainers (ToT) model. To expand capacity in CVS research, we developed a training model where young faculty members from MUHAS obtain advanced research training through a collaborative Ph.D. program with Utrecht University, Netherland.

Results: To date, 38 trainees have obtained the ToT, and 5 are on the Ph.D. program. This group of initial faculty forms a base for continuous and sustainable CVS training and research and is set to train the next generation of specialists in CVS in Tanzania and EA.

Conclusion: The establishment of the EACoECVS offers a unique opportunity for setting strategies and coordinating CVS training and research for Tanzania and EA.

Recommendations: More local and regional collaboration is highly recommended.

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Background: Artificial Intelligence (AI) has a great potential to transform health systems to improve the quality of health-care services and health outcomes. However, AI is still new in Tanzania and there is limited knowledge about the application of AI technology in the Tanzanian health sector.

Aim: This study aims to explore the current status, challenges, and opportunities for AI application in the health system in Tanzania.

Methodology: A scoping review was conducted by using the Preferred Reporting Items for Systematic Review and Meta-Analysis Extensions for Scoping Review (PRISMA-SCR). We searched different electronic databases such as PubMed, Embase, African Journal Online (AJOL), and Google scholar. Search terms were developed based on AI, artificial intelligence, machine learning, robots, neural network, deep learning, health system, health sector, challenges, opportunities in Tanzania. Three reviewers independently conducted study selection, independently screened and extracted abstracts and full-text studies using the Covidence platform. A total of sixteen (16) studies met inclusion criteria out of 39 studies from different electronic searches.

Results: Among AI-driven solutions, the studies mostly used machine learning and deep learning for different purposes including prediction and diagnosis of diseases and vaccine stocks optimization. The most commonly used algorithms were conventional machine learning including

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Random Forest (RF) and Neural network (NN), Naive Bayes (NB), K-Nearest Neighbour (KNN), and Logistic regression.

Conclusion: This review shows that AI-based innovations can be successfully applied to improve health services delivery including addressing emerging and non-communicable diseases and health outcomes in Tanzania.

Recommendation: Therefore, it is high time the government of Tanzania develops the AI policy and regulatory framework as well as capacity-building programs for the adoption of responsible AI solutions in the health sector.

53 Determination of active metabolites against alzheimer's disease from olive 'mzaituni' leaves cultivars by lcms-based untargeted metabolomics approach

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Background: Cultivars are the assemblage of medicinal herbs selected for desirable characteristics that are maintained during propagation. They are usually belonging to the same genus (and subspecies). Due to that close classification, both their morphology and metabolites are extremely similar, and they are easily confused. Several ways of identifying and differentiating cultivars have been proposed, and high-resolution mass spectrometry (HRMS)-based metabolomics approaches appear to be most effective.

Objective: The aim of this study was to find a novel method that correlates their metabolite contents with their respective bioactivities.

Methodology: A novel HRMS-based metabolomics method for screening specific biomarkers was developed by LC/QTOF-MS, and later we correlated these markers to the bioactivity differences of the cultivars. At

first, the acetylcholinesterase (AChE) inhibitory rates of eighteen olive leaves cultivars were tested, and only six cultivars were chosen for further studies (three most active vs three least active ones). Secondly, we establish their metabolite profiles, by employing all-ion fragmentation (AIF) acquisition mode in data mining.

Results: The metabolic profiles were analyzed to detect all components as molecular features, MFs. Then, to get final metabolites with high quality, all components were compared among the cultivars and were filtered with Mass Profiler Professional (MPP) software – whereby a total of 66 MFs were detected, of which 29 MFs have been tentatively identified (6 MFs as triterpenoids and 23 MFs as phenolic compounds). For screening specific biomarkers, the extracted ion chromatograms (EICs) were compared and the MFs, which were found in significantly higher abundance in a specific cultivar were considered as specific for that cultivar. As an example, the specific biomarkers for Lucca and Cipressino cultivars are MF #39 (m/z 515.0805, RT=6.63 min) and MF #13 (m/z 137.0246, RT=8.06 min), respectively.

Conclusion: We found that some MFs were consistently abundant in the 'most active cultivars' signifying an establishment of good correlation of metabolome content-bioactivity relationship.

Recommendation: Verification of the selected specific biomarkers must be done.

54 Clinicopathological association of primarily enucleated eyes with retinoblastoma at Muhimbili National Hospital

Authors: Neema Mosh, Anna Sanyiwa, Celina Mhina, Milka Mafwiri, Suzana Mosenene, Atuganile Malango.

Affiliation: Muhimbili University of Health and Allied Sciences

Background: Retinoblastoma is the commonest primary intraocular malignancy in children under-fives. The most clinical feature is leukocoria,

including strabismus, buphthalmos, glaucoma, and fungating mass. Primary enucleation is done in eyes with advanced intraocular tumors by removing the eyeball before any treatment. Histopathological examination is done to the enucleated eyes to determine the presence of high-risk features microscopically which indicate further treatment.

Aim: Determining the association of clinical and histopathological high-risk features of primarily enucleated eyes with retinoblastoma at Muhimbili National Hospital

Methodology: Descriptive cross-sectional study done at Muhimbili National Hospital. Consecutive sampling was used to recruit a total of 66 participants from January 2018 to December 2020. Data were analyzed by statistical package for social sciences version 23. Mann Whitney test, independent T-test tested, Chi square and Fisher's test revealed statistical association which was significant when $P < 0.05$. Statistical tables and charts were used to summarize the results.

Results: Sixty-six (38.5%) patients with retinoblastoma underwent primary enucleation. The dilated pupil was commonly found in examination under anesthesia. The rate of histopathological high-risk features was 64% predominantly massive choroidal involvement by 53%. The median intraocular pressure was statistically higher in patients with high-risk histopathological features by $P = 0.006$. The far the place of residence, duration of symptoms, high intraocular pressure, shallow anterior chamber depth, dilated pupil, poor tumor differentiation, and extensive necrosis were significantly related to histopathological high-risk features at $P < 0.05$.

Conclusion: The proportion of primary enucleation among patients with retinoblastoma at MNH is still low. The presence of histopathological high-risk features is still high. Dilated pupil, high intraocular pressure, shallow anterior chamber, the poorly differentiated and extensively necrotic tumor are associated with histopathological high-risk features

Recommendation: Awareness of the natural history of retinoblastoma to the general public is emphasized. Tertiary care for retinoblastoma should

be established in referral hospitals to reduce patients who are coming late.

55 Application of Artificial Intelligence In Cancer Diagnosis In Tanzania

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Background: Cancer ranks as a leading cause of death and an important barrier to increasing life expectancy in every country in the world. There were 19.3 million new cases and 10 million cancer deaths worldwide in 2020. In Tanzania, there were 40,464 new cancer cases of which 75-80% were diagnosed late, with 26945 cancer-related deaths in 2020. Accurate and robust pathological image analysis for cancer in Tanzania is time-consuming and knowledge-intensive, but it is essential for cervical cancer diagnosis. With few pathologists, there is a pathologists' workload that increases turnaround time and diagnostic errors. It is therefore imperative to develop a valid and reliable tool for histopathological image analysis and diagnosis of cancer which will assist pathologists to diagnose cancer to reduce workload and improve clinical efficiency and efficacy without unintended human bias during diagnosis.

Objective: To assess the accuracy of artificial intelligence in histopathological image analysis for cancer diagnosis in Tanzania

Methodology: Specific procedures were used to identify, select and process the proposed solution ranging from architectures, batch normalizations, optimization methods, and evaluation methods. The dataset was obtained from the public available Kaggle dataset with about 176,000 training images and 44,000 testing images. AI model used was deep convolutional neural networks. The performance of the proposed classification model was evaluated based on accuracy. The CNN model consisted of perfectly balanced classes hence binary cross-entropy loss

function was used to train neural networks. The model was deployed on the website by using Django and hosted in the local domain.

Results: Our innovative AI tool was consistently and nearly perfectly agreed with an accuracy of 89% in the held-out test with a turnaround time of 2 minutes compared to the turnaround time of optimum one to two days used by pathologists in interpreting the slides. This is per a study about colorectal cancer where the average kappa statistic was 0.896. This indicates the necessity of using AI diagnostics in cancer.

Conclusion: First AI-generalizable tool which can handle pathological analysis without potential analysis. We are so proud to provide a novel solution that helps pack the clinically relevant task of cancerous cells detection into a straightforward binary image classification task. This demonstrates the feasibility of the solution. However, our approach can still be improved by using a pre-trained model, assembling two or three models that tend to outperform single classifiers.

56 Urban Living and Associated Inflammatory Status Driven By Dietary and Metabolic Changes

Authors: Vesla Kullaya, Godfrey S. Temba, Tal Pecht, Blandina T. Mmbaga, Furaha Lyamuya, Joachim L. Schultze, Andre J. van der Ven¹, Mihai G. Netea¹ and Quirijn de Mast

Affiliations: Radboud University Medical Center, Nijmegen, the Netherlands, Clinical Research Institute, Kilimanjaro Christian Medical Center and Kilimanjaro Christian Medical University College, (KCMUCo), Moshi, Tanzania, Department for Genomics and Immunoregulation, Life & Medical Sciences (LIMES) Institute, University of Bonn, Bonn, Germany.

Background: Urban living in healthy Tanzanians is associated with an inflammatory status driven by dietary and metabolic changes. Sub-Saharan Africa currently experiences an unprecedented wave of urbanization, which has important consequences for health and disease patterns.

Aim: This study aimed to investigate and integrate the immune and metabolic consequences of rural or urban lifestyles and the role of nutritional changes associated with urban living.

Methodology: In a cohort of 323 healthy Tanzanians, urban as compared to rural living was associated with a pro-inflammatory immune phenotype, both at the transcript and protein levels. We identified different food-derived and endogenous circulating metabolites accounting for these differences.

Results: Among the metabolites which were significantly abundant in the plasma of rural-living individuals were flavonoids especially flavone apigenin. Apigenin has anti-inflammatory, anti-cancer, and antioxidant properties. Serum from urban dwellers induced reprogramming of innate immune cells with higher tumor necrosis factor production upon microbial re-stimulation in an in vitro model of trained immunity.

Conclusion: These data demonstrate important shifts toward an inflammatory phenotype associated with an urban lifestyle and provide new insights into the underlying dietary and metabolic factors, which may affect disease epidemiology in sub-Saharan African countries.

Recommendation: Our findings suggest that unprocessed or locally processed traditional, rural-style diets may reduce inflammation and thus the incidence of NCDs.

57 Evaluating the effect of Participatory Training in improving knowledge and skills on Basic Life Support among Commercial Motorcyclists: A Quasi-Experimental Study in addressing Road Traffic injuries

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Background: Informal training on approaching road traffic injuries has become increasingly important in strengthening pre-hospital care. Despite the evidence-based practice on formal training for emergency care, as well as health policy of the country on addressing those issues, informal training

is no anymore implemented in routine practice especially for first responders to address road traffic injuries as an emergency situation

Aim: Study aimed at assessing the effect of participatory training in improving knowledge and skills as well assessing their satisfaction towards this training.

Methodology: This study was a quantitative quasi-experimental study with a single group, involved 252 commercial motorcyclists sampled randomly from 44 registered parking points. Assistant researchers were trained in the pre-intervention phase and conducted training under researcher support using a prepared training manual. Data were collected using self-administered questionnaires and analyzed by descriptive statistics.

Results: All participants 252 (100%) were male, 171 (67.9%) had the experience of offering help towards RTA victims within twelve months and only 19 (7.5%) attended such kind of training. Knowledge and skills change were statistically significantly, $t(251) = -53.65$, $p < 0.001$, $t(251) = -45.22$, $p < 0.001$, respectively and mean satisfaction score for training (43.4 ± 2.6) was higher than the normal satisfaction score of 32.0, a statistically significant difference of 11.4 (95% CI, 11.1 to 11.7), $t(251) = 69.4$, $p < 0.001$.

Conclusion: A participatory training intervention was found to be effective and relevant in changing knowledge and skills on basic life support to commercial motorcyclists. The findings from this evaluation will guide future development, adaptation, and implementation of basic life support training programs to save the life of road users who facing road traffic accidents

Recommendations: Tanzania Development Vision by 2025 and address FYDP III & HSSP V; MoHCSEC & MoHA, should initiate BLS Participatory Training for Commercial Motorcyclists and other Bystander's BLS in a wide-scale through the region by region training and thereafter, in collaboration with MoESTVT other stakeholders should be harmonized as a training subject in VETA colleges.

58 Immediate “Kangaroo Mother Care” and Survival of Infants with Low-Birth-Weight

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Background: “Kangaroo mother care,” a type of newborn care involving skin-to-skin contact with the mother or other caregivers reduces mortality in infants with low birth weight (<2.0 kg) when initiated after stabilization, but the majority of deaths occur before stabilization. The safety and efficacy of kangaroo mother care initiated soon after birth among infants with low birth weight are uncertain.

Aim: To evaluate the safety and efficacy of continuous kangaroo mother care initiated immediately after birth in infants with a birth weight between 1.0 and 1.799 kg.

Methodology: We conducted a randomized, controlled trial in five hospitals in Ghana, India, Malawi, Nigeria, and Tanzania involving infants with a birth weight between 1.0 and 1.799 kg who were assigned to receive immediate kangaroo mother care (intervention) or conventional care in an incubator or a radiant warmer until their condition stabilized and kangaroo mother care thereafter (control). The primary outcomes were death in the neonatal period (the first 28 days of life) and the first 72 hours of life.

Results: A total of 3211 infants and their mothers were randomly assigned to the intervention group (1609 infants with their mothers) or the control group (1602 infants with their mothers). The median daily duration of skin-to-skin contact in the neonatal intensive care unit was 16.9 hours (interquartile range, 13.0 to 19.7) in the intervention group and 1.5 hours (interquartile range, 0.3 to 3.3) in the control group. Neonatal death occurred in the first 28 days in 191 infants in the intervention group (12.0%) and in 249 infants in the control group (15.7%) (relative risk of death, 0.75; 95% confidence interval [CI], 0.64 to 0.89; $P=0.001$); neonatal death in the first 72 hours of life occurred in 74 infants in the intervention group (4.6%)

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and 92 infants in the control group (5.8%) (relative risk of death, 0.77; 95% CI, 0.58 to 1.04; $P=0.09$). The trial was stopped early on the recommendation of the data and safety monitoring board owing to the finding of reduced mortality among infants receiving immediate kangaroo mother care.

Conclusion: Among infants with a birth weight between 1.0 and 1.799 kg, those who received immediate kangaroo mother care had lower mortality at 28 days than those who received conventional care with kangaroo mother care initiated after stabilization; the between-group difference favouring immediate kangaroo mother care at 72 hours was not significant.

Recommendations: Keeping the mother and baby together right from birth with zero separation will revolutionize the way neonatal intensive care is practiced for babies born early or small

59 **Leading Causes of Mortality in Resource Extraction Areas in Tanzania**

Authors: Isaac Lyatu, Mirko S. Winkler, Georg Loss, Andrea Farnham, Dominik Dietler and Günther Fink

Affiliations: AAPH, Ifakara Health Institute

Background: Resource extraction activities have been identified as hazardous with a substantially increased risk of adverse health outcomes for miners and surrounding communities. Studies have linked these activities with increased levels of non-communicable diseases, adverse pregnancy outcomes, and injuries. Chronic exposures to toxic substances, poor air quality, and noise pollution have been highlighted as key mechanisms underlying adverse health effects.

Aim: To identify causes of mortality among people who live close to industrial mining.

Methodology: A mortality surveillance system was set up around the two largest gold mines in Tanzania between February 2019 and February 2020. Death circumstances were collected using a standardized verbal

autopsy tool. Causes of death were assigned using computational methods and we established leading causes of death by gender and age groups. We compared cause-specific mortality fractions in mining communities with subnational data and national estimates. Within mining communities, we estimated mortality risks of mining workers relative to others not working at mines.

Results: Mining communities had higher road-traffic injuries (RTIs) [RD 3.1%, CI 0.4%, 5.9%] and non-HIV infectious disease mortality [RD 5.6%, CI 0.8%, 10.3%], but lower burden of HIV mortality [RD -5.9%, CI -10.2%, -1.6%]. Relative to non-miners, mining workers had over twice the mortality risk [RR 2.09, CI 1.57, 2.79] with particularly large increases for death due to RTIs (RR 14.26, CI 4.95, 41.10) and non-RTIs (RR 10.10, CI 3.40, 30.02)

Conclusion: The presence of mining activities contributes to rapid population growth, urbanization, and overall improvement in socio-economic status.[A1] This further contributes to increasing access and affordability of motorcycles and other vehicles leading to an increased risk of road traffic injuries.

Recommendations: This calls for specific interventions such as community road safety programs that incorporate local communities on safety concerns, particularly for commonly shared resources.

60 **Differences in Thrombin and Plasmin Generation Potential Between East African and Western European Adults: The Role of Genetic and Non-Genetic Factors**

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Background: Geographic variability in thrombosis incidence and coagulation and fibrinolysis potential is poorly understood. Thrombosis is the common cause of myocardial infarction, stroke, venous thrombosis, and pulmonary embolism. Contrary to other geographical regions, sub-Saharan Africa is witnessing a rapid increase in the burden of CVD, with stroke being a leading cause of cardiovascular death. Population growth, aging, dietary and lifestyle changes are important contributory factors to this health transition.

Aim: To evaluate thrombin (TG) and plasmin generation (PG) potential in healthy Tanzanians compared with healthy individuals of Western-European ancestry and to assess the effects of environmental and genetic and non-genetic host factors.

Methodology: We used data from the 300-Tanzania-FG (n=313) and the Dutch 500FG cohort (n=392). TG and PG were measured using modified

calibrated automated thrombography. We determined associations of TG and PG with cohort characteristics and inflammatory mediators and the impact of genetic variations through a genome-wide association study in both cohorts. Seasonal dietary influence on TG and PG was assessed using food metabolome data in the Tanzania cohort.

Results: Tanzanians exhibited enhanced TG, PG, and TG/PG ratio compared with Dutch participants, and increased normalized thrombomodulin sensitivity ratio, suggesting reduced sensitivity to the anticoagulant actions of protein C. Female sex, BMI, and age were associated with TG and PG parameters in both cohorts. TG and PG in Tanzanians were also associated with food-derived plasma metabolites and had higher concentrations of pro-inflammatory cytokines. There was limited overlap in genetic variation associated with TG and PG parameters between both cohorts. Pathway analysis in the Tanzanian cohorts revealed multiple immune pathways that were enriched with TG and PG traits.

Conclusion: Tanzanians have enhanced TG and PG potential relative to Western-European decent people. Increased TG/PG ratio, as well as reduced sensitivity to protein C activation, indicates a hypercoagulable tendency. These findings are important given geographic variability in thrombosis and the rapid increase in non-communicable diseases in SSA.

Recommendation: The observed increased coagulation and pro-inflammatory status in Tanzanian healthy individuals warrant further exploration. One such approach will be exploring the effect of diet on coagulation and inflammation, thereby delineating dietary intervention strategies to curb the rapid emerging of NCDs in SSA.

61 The Status Quo and Relationship between Geriatric Depression and Cognitive Function among Older Adults at Central Tanzania

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Background: Geriatric depression is a very huge burden to older people and it has so many negative effects. Many factors are perceived to decrease cognitive function. Among those factors, depression may also cause the decline of cognitive function. Globally, geriatric depression and cognitive function status differ from one place to another and they are both common conditions noted as people become older. Few studies were performed to give the actual estimate of the relationship between depression and cognitive function.

Aim: We aimed in gathering information about geriatric depression and cognitive function and look at the relationship between depression and cognitive function among older adults in Central Tanzania.

Methodology: A community-based, descriptive cross-sectional study design was conducted in central Tanzania among 435 older adults aged 60 years and above. A multistage sampling method was used. Data collected and analyzed by SPSS version 25, spearman correlation was done to establish the correlation and binary logistic regression was used to find the predictors of both geriatric depression and cognitive function status.

Results: Among participants 90.3% were depressed and 95.2% were having mild cognitive impairments. Correlation was established at -0.316 ($p < 0.0001$) and 96% of variance in cognitive function status can be explained by geriatric depression status (Adjusted $R^2 = 0.96$, OR = -0.312 at 95% CI = -0.52 - -0.288, $p < 0.0001$). After controlling confounders, the following were factors which were noted to influence the cognitive function

of older adults, the gender of respondents (AOR=0.227 at 95% CI=0.066-0.786, p -value=0.019) as well as the use of tobacco to smoke cigarettes (AOR=0.091 at 95% CI=0.023-0.352, p -value=0.001).

Conclusion: The exposed status of geriatric depression and cognitive function among older adults were unacceptably high compare to other places. The relationship between geriatric depression and cognitive function was also present which gives a picture of the future of older adults in their cognitive capabilities.

62 Health-related Quality of Life and Associated factors among Hemodialysis patients at Muhimbili National Hospital

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Background: The epidemiology of brain tumors vary globally between different countries and there is observed poor outcomes in lower- and middle-income countries. Data on primary brain tumors in Tanzania is scarce.

Aim: To analyze the clinicopathological pattern of primary intracranial tumors in a neurosurgical unit in Tanzania, and the determinants of post-surgical outcomes.

Methodology: A retrospective study. Data were obtained from clinical records of patients with intracranial tumors treated at a neurosurgery unit in Northern Tanzania between 2019 and 2020. Only patients with primary brain tumors who underwent surgical intervention were included. Analysis was done to identify factors associated with patient outcomes (mortality/survival and performance status).

Results: Thirty-nine patients with primary brain tumors underwent surgery (adults 72.8%, males 53.8%, mean age 35.8years). Glioblastomas (28.2%)

and meningiomas (25.6%) were the most common tumors overall, and craniopharyngiomas in pediatric patients (27.3%). The majority (83.3%) had a poor Karnofsky performance status (<70) before surgery. Few underwent gross tumor resection (25.6%) and received adjuvant therapy (42.9%). 30-day mortality rate (10.3%) and one-year mortality rate (46.2%) were high. Pediatric patients had a much worse outcome (46.2% mortality rate and 80% with poor performance status) than did males (38.1% mortality rate). Glioblastomas accounted for the majority (69.2%) of the deaths.

Conclusion: The epidemiology of primary brain tumors in Tanzania is still obscure. Delayed presentation and poor access to adjuvant therapies are important contributors to the high mortality and abandonment of treatment. Inadequate long-term follow-up is a hindrance to optimal neurooncological care.

Recommendations: Primary care doctors should be on high alert on brain tumors to prevent late patient presentation to specialist care. Health coverage should be broadened to all the common citizens the ability to access quality care. Accessibility of adjunctive care should be increased - chemotherapy and radiotherapy.

63 Correlates and short-term prognostic value of plasma N-terminal Pro-Brain Natriuretic Peptide levels among Heart Failure patients.

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Background: Several studies conducted in developed countries have found measurements of plasma levels of N-terminal pro-brain natriuretic

peptide (NT-proBNP) to be important in evaluating heart failure (HF) prognosis, however, this has not yet been studied in Tanzania.

Aim: This study was conducted to determine clinical correlates and short-term prognostic value of plasma NT-proBNP levels among HF patients.

Methodology: This was a hospital-based prospective cohort study conducted at Jakaya Kikwete Cardiac Institution, Dar es salaam, Tanzania from June to December 2020. Patients were consecutively enrolled when they fulfilled the inclusion criteria. Clinical details and NT-proBNP levels were measured at baseline and at 30-day follow-up. Pearson's chi-square test was used to associate New York Heart Association (NYHA) functional class and NT-proBNP levels, while Spearman's correlation coefficient was used to correlate between left ventricular ejection fraction (LVEF) and NT-proBNP levels. Receiver Operating Characteristic (ROC) curves were drawn to determine the best prognostic cut-off points of NT-proBNP levels for the different clinical outcomes. A P-value of <0.05 was considered statically significant.

Results: 155 HF patients were enrolled. Their mean±SD age was 48±16 years, 52.3% were male and their mean ± SD LVEF was 37.3±10.7%. At baseline, the median (IQR) NT-proBNP levels was 7654pg/ml (2289, 16000), and the levels dropped to 3383pg/ml (731, 9785) after 1 month. Baseline plasma levels of NT-proBNP increased as the NYHA functional class worsened, (P = 0.018), and with decreasing LVEF (r = -0.65, p<0.05). The ROC curve identified an overall cut-off point for poor prognosis at 18000pg/ml with 54.4% sensitivity and 93.7% specificity (area under the curve (AUC): 0.8). The NT-proBNP cut-off point for mortality was 24500 pg/ml with 100% sensitivity and specificity of 92.54% (AUC: 0.958). The ROC analysis also identified levels of NT-proBNP of ≥7899pg/ml to predict re-hospitalization, with 76% sensitivity and 60% specificity (AUC: 0.68),

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while levels ≥ 18762.1 pg/ml predicted long hospital stay with a sensitivity of 100% and specificity of 85.62% (AUC: 0.939).

Conclusion: These results demonstrate that NT-proBNP is a powerful measure predicting readmission, mortality, and long hospital stays in HF patients and can facilitate discussions with patient prognosis, decisions regarding interventions, and continuity of care.

Recommendation: The findings of this study call upon the use of NT-proBNP biomarkers for patients' prognostication.

64 The Pattern and Management of Head and Neck lymphatic malformations in a Tertiary Health facility in Tanzania

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Background: Lymphatic malformations are localized areas of the malformed lymphatic system that can either be congenital or acquired, commonly occurring in the head and neck region. Several treatment options have been proposed, however, no consensus as to optimal management.

Aim: To determine the pattern and management of head and neck lymphatic malformations in a tertiary health facility in Tanzania.

Methodology: This was a one-year cross-sectional study that involved patients with head and neck lymphatic malformations treated in Muhimbili National Hospital. A structured questionnaire was used to collect information including age and sex of the patient, chief complaint and, duration, size, and site of the lesion. Treatment modalities were surgery

and/or intralesional bleomycin injection (IL-Bleo) using a locally developed algorithm. A standard dose of bleomycin was 0.3 to 0.6 mg/kg per injection not exceeding 15 units per cycle with a maximum of 6 cycles.

Results: A total of 33 patients were included in the study. Males were 21 (63.6%) and the male to female ratio was 1.8:1. Patients' age ranged from 5 months to 28 years with a median of 6 years. In 29 (87.9%) patients, lesions were evident during birth. The median area covered by the lesion in patients was 12.00 cm². Nine (27.3%) patients were managed by surgery alone, while the majority (24, 72.7%) were given intralesional bleomycin (IL-Bleo), of whom the majority (20, 83.3%) required surgical intervention subsequently. The overall outcome of management was considered successful in 87% of patients.

Conclusion: Head and neck lymphatic malformations are more common in males. Most of the lymphangiomas are of congenital type.

Recommendation: Combining IL-Bleo and surgery is an effective way of managing head and neck lymphatic malformations.

65 HIV Infection and Carcinoma of the Conjunctiva at Ocean Road Cancer Institute

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Background: Incidence of conjunctiva carcinoma in developed countries has been increasing despite the introduction of antiretroviral therapy. Conjunctiva carcinoma as one of the AIDS-defining diseases is a significant contributor to the top ten cancers at ORCI (ORCI cancer trend). Peak incidence occurs in the economically and most sexually active age group. Enucleation, radiotherapy, and ARVs are the major treatment

modality at ORCI. Studies on the association between HIV infection and carcinoma of the conjunctiva are available in most developed and some developing countries but it is scant in Tanzania. The association of HIV infection and conjunctiva carcinoma is significantly high in our setting but has not been systematically documented. This study addresses these gaps

Objective: The study aimed at determining the association between HIV infection and carcinoma of the conjunctiva at Ocean Road Cancer Institute

Methodology: A hospital-based cross-sectional study was conducted at Ocean Road Cancer Institute. Participants were enrolled consecutively as they presented to the hospital for follow-up. Demographic characteristics, histology, HIV status, ARV status, and treatment modalities given to the clients were documented in a standardized structured questionnaire.

Results: A total of 80 patients (41 males, 39 female) with conjunctiva carcinoma were enrolled in the study. Most of the patients, 61.3%, were between 20 and 39 yrs of age. Squamous cell carcinoma was the major histology seen in 68.8%, and 62.5% were HIV positive of whom, 50% were already on ARVs, 57.5% had CD4 <200 and 51.3% had received Enucleation, radiotherapy, and ARVs.

Conclusion: Squamous cell carcinoma of the conjunctiva is strongly associated with the human immunodeficiency virus.

Recommendations: It is recommended that all patients presenting with Squamous cell carcinoma of the conjunctiva should be tested for HIV seropositivity. Patients should be encouraged to present early to the hospital to enable early and prompt treatment of the condition (tumor) and so, improve prognosis.

66 Characterization of Dilated Cardiomyopathy in Tanzania: Moyo Study

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Background: Dilated cardiomyopathy (DCM) is the most common cardiomyopathy worldwide; the diagnosis of which confers a poor prognosis with 1- and 5-year survival of 30% and 50% respectively. Although DCM is ranked as the second most common cause of heart failure in Tanzania, detailed characterization of the disease has not been done locally.

Objective: To characterize DCM in a native Tanzanian cohort using demographics, associated factors, clinical profile, imaging findings as well as management options offered.

Methodology: MOYO is an ongoing prospective study of patients with DCM involving 2 tertiary hospitals in Dar es Salaam. Adults (≥ 18 years) patients with a clinical diagnosis of heart failure and sonographic diagnosis of DCM with ejection fraction (EF) $\leq 45\%$ are consecutively enrolled into the registry. Routine clinical data on sociodemographic, clinical, laboratory, radiological, electrocardiography were collected and entered to Redcap. Blood samples were collected and stored for future -omics studies.

Results: These are the preliminary findings of 113 patients enrolled between November 2019 and March 2021 whose mean (SD) age was 48.1 (16.8) years and 50.4% were males. Cigarette smoking, alcohol abuse, diabetes, obesity and hypertension were found in 8%, 15.9%, 5.3%, 14.2%

and 29.2%, respectively. The commonest symptom was dyspnoea (83.2%), with majority of patients presenting with New York Heart Association Class III (42.5%) and IV (22.7%). A positive family history of DCM was found in 9.7%, while 20.4% of the patients had a peripartum presentation. The mean (SD) left ventricular ejection fraction was 29.5 (7.5), with majority (81.4%) having severe LV systolic dysfunction. Use of ACEI, ARB, spironolactone and beta blockers was 68.1%, 37.2%, 81.4% and 68.1% respectively.

Conclusion: DCM has no gender predilection. Peripartum cardiomyopathy is a common presentation, while hypertension and family history are notable underlying factors.

Recommendation: There is a need for proper education and adequate control of cardiovascular risk factors at the primary health care level for timely management.

67 Clinical presentation, Treatment and Survival of children with Burkitt Lymphoma treated at a Paediatric Oncology unit in Tanzania

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Background: Since the first description of Burkitt lymphoma (BL) over 50 years ago in equatorial Africa, survival outcomes for children with endemic Burkitt lymphoma (eBL) has remained at a suboptimal level compared to survival rates of more than 90% in high-income settings where children with BL are treated with intensive chemotherapy. Progress has been made

to improve treatment outcomes for children with BL in our center, including use of the INCTR-03-06 protocol, however, since the establishment, there is no comprehensive study that has described the clinical profile and survival outcomes of children with Burkitt lymphoma.

Aim: To describe the clinical profile and survival outcomes of children with Burkitt lymphoma.

Methodology: This was a retrospective cohort study with longitudinal follow-up, conducted at the Pediatric Oncology unit at MNH from January 2012 to December 2017. Short interview questionnaires and medical records for children with Burkitt lymphoma were reviewed for data collection. Overall Survival (OS) and Event Free Survival (EFS) were estimated using the Kaplan-Meier method and Cox regression analysis was conducted to determine the relationship between selected variables with mortality.

Results: A total of 123 children were enrolled with a median age of 7 years (IQR 4 -10). At the end of the study, 39.8% were in clinical remission, 33% were deceased and 26.83% were lost to follow-up. Half of the children who used first-line chemotherapy had a complete response. Overall Survival (OS) at 12 and 18 months was 63.4% and 54% while Event-Free Survival (EFS) was 38.8% and 36.4% respectively. HIV infection and advanced disease showed an increased risk of death compared to other variables in Cox univariate model. However, in multivariate analysis, only HIV infection remained a significant risk of death (aHR 5.12 95% CI 1.39- 19.0; log-rank $P < 0.01$).

Conclusion: Abdominal disease was a common clinical presentation. Despite Burkitt lymphoma being a highly chemosensitive tumor, treatment response in our cohort remained suboptimal with an estimated overall survival rate below 65% at 18 months.

Recommendations: We recommend appropriate risk stratification and step-wise intensification of the chemotherapy regimen to match available supportive care to improve the outcome of children treated for BL in our setting.

68 Health-related quality of life of patients following mechanical valve replacement surgery for rheumatic heart disease at a tertiary hospital in Tanzania

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Background: Health-related quality of life (HRQoL) is an important outcome of the effectiveness of any intervention. Heart valve replacement is performed to improve cardiovascular function and HRQoL. The HRQoL among patients after mechanical HVR for RHD in Tanzania remains unknown and hence the rationale to undertake this study

Methodology: We prospectively assessed the HRQoL amongst patients operated for rheumatic mitral stenosis (rMS) from January 2020 to February 2021 at Jakaya Kikwete Cardiac Institute (JKCI). The HRQoL was assessed by using the MacNew heart disease HRQoL questionnaire. We used the mean scoring algorithm: low (4.9), moderate (5 - 6), high (>6) for the global, physical, emotional and social scores. We compared the HRQoL at baseline, 3 months and 6 months after valve replacement (VR). Data were analyzed using SPSS version 27.

Results: Out of 54 patients, 63% were females. Their mean age was 37.98 (+/- 12.58) years. In-hospital and 6 months mortality was 3.7% and 7.4%

respectively. Three months after VR the overall MacNew scores improved significantly and were maintained during the entire 6-month follow-up. The mean MacNew global scores were 3.47 +/- 0.59, 4.88 +/-0.71 and 6.14 +/- 0.50 at baseline, 3 months and 6 months respectively (p-values <0.001 at baseline vs 3 months, baseline vs 6 months and at 3 months vs. 6 months). Pre-operative left ventricular ejection fraction (LVEF), p=0.003; mitral valve area (MVA), p=0.011; history of stroke, p=0.013; and history of hypertension, p=0.008; were multivariable predictors of HRQoL improvement.

Conclusion: Patients who receive VR for rMS experience a positive and sustained improvement in HRQoL. HRQoL is an important outcome of the effectiveness of any intervention. The only predictors of improvement in HRQoL were preoperative LVEF, MVA, stroke, and hypertension.

Recommendation: HRQoL should be incorporated in the routine care of patients post VR as means of determining intervention effectiveness as well as determining factors that are associated with HRQoL improvement or deterioration. Our findings need to be explored in studies with large sample size.

69 Left Ventricular Hypertrophy (LVH) is a Pathophysiological Response often due to Chronic Poorly Controlled Hypertension.

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Background: Our primary aim was to investigate the magnitude, correlates and outcomes of LVH as a surrogate marker for chronic uncontrolled hypertension in young adults (≤ 45 years) with stroke. Our secondary aim was to determine the accuracy of electrocardiography using Sokolow-Lyon and Cornell criteria in detecting LVH compared to echocardiography.

Aim: This cohort study recruited young strokes who had undergone brain imaging, electrocardiography and transthoracic echocardiography. The modified Poisson regression model examined correlates for LVH. The National Institute of Health Stroke Scale assessed stroke severity and the modified Rankin Scale assessed outcomes to 30-days. The performance of electrical voltage criteria was estimated using receiver operator characteristics.

Results: We enrolled 101 stroke participants. Brain imaging revealed ischemic strokes in 60 (59.4%) and those with intracerebral hemorrhage, 33 (86.8%) were localized to the basal ganglia. LVH was present in 76 (75.3%), and 30 (39.5%) and 28 (36.8%) had moderate or severe hypertrophy respectively. Young adults with a pre-morbid or new diagnosis of hypertension were more likely to have LVH, 47 (61.8%), and 26 (34.2%). On multivariable analysis, LVH was independently associated with not being on anti-hypertensive medications among hypertensives participants {risk ratio 1.4 (95%CI:1.04–1.94). The mean National Institute of Health Stroke score was 18 and 30-day mortality was 42 (43.3%). The sensitivity and specificity for Sokolow-Lyon in detecting LVH was 27% and 78%, and for Cornell was 32% and 52% respectively.

Conclusion: We identified a high proportion of LVH in young adults with stroke associated with chronic undertreated hypertension coupled with high 30-day mortality. Our findings did not support the use of the electrical voltage criteria for detecting LVH.

Recommendation: We recommend low-cost interventions like blood pressure screening, treatment, and control to reduce this burden.

70 Pathways of Cancer Care in Tanzania for Breast Cancer Patients

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Background: Pathways of care for cancer patients in Tanzania are often fraught with delays due to socioeconomic factors, lack of education, and poor access to or availability of healthcare.

Aim: To investigate the whole pathways of care to a cancer diagnosis of breast cancer (BC) in Tanzania to work towards earlier diagnoses.

Methodology: Structured interview of patients with Breast Cancer at the Ocean Road Cancer Institute and Muhimbili National Hospital from 1st of June 2020 to 30th June 2021. Delays (in months) on the pathway to cancer diagnosis were computed. Multivariate logistic regression was used to estimate odds ratios (OR) and 95% confidence intervals (CI) for the advanced stage at diagnosis, in association to patient-related characteristics and referral path characteristics. Quantile linear regression

models were used to estimate the associations between access delay and patient-related and referral-related characteristics.

Results: Eighty BC patients were recruited. Most patients were diagnosed in advanced cancer stages: 3%, 15%, 50%, 31% in stages I, II, III, and IV respectively. Based on data on all 80 patients, a statistically significant increased risk of being diagnosed with Stage IV Breast Cancer compared to stage III was found for patients that visited traditional healers (OR = 4.35 (95% CI 1.53 – 14.11)). Median access delay was 2 months (max 31 and 39 months, Median access delay was increased by traditional medicine use (1.94 (95%CI 0.92; 3.89)), and reduced by having secondary or higher education (-1.06 (95%CI -2.30; -0.23)) and previous chronic illness (-1.61 (95%CI -4.05; -0.07)). In the patients interviewed, perceiving the cost of healthcare as expensive was also found to increase the access delay.

Conclusion: Understanding the breast cancer pathways provides insights that are helpful to future interventions, reforming cancer policy. Integrating traditional medicine on the pathway of care of cancer patients could help reduce access delays and downstage breast cancer.

Recommendations: More studies on pathways of care are needed to understand why cancer patients in Tanzania present with late-stage cancer and come up with appropriate interventions.

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Oral Anticoagulation/Antiplatelet Agents in Patients with Atrial Fibrillation at Jakaya Kikwete Cardiac Institute

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Background: Atrial fibrillation (AF) is a supraventricular arrhythmia that is diagnosed by the finding of irregularly irregular ventricular rhythm without discrete P waves in an electrocardiogram. Atrial fibrillation increases the risk for intracardiac thrombosis and cerebral vascular events such as ischemic stroke. Affects about 33 million people globally and is more common in adults above 65 years. Atrial fibrillation is a common finding among patients with cardiovascular diseases.

Aim: To audit the use of oral anticoagulation/antiplatelet agents in patients with Atrial Fibrillation at Jakaya Kikwete Cardiac Institute.

Methodology: A retrospective descriptive cross-sectional audit study was conducted at Jakaya Kikwete Cardiac Institute among adult patients with a diagnosis of atrial fibrillation. Cross-checking for the record of risk scores and OAC/antiplatelet prescription was done and recorded in a structured questionnaire that was designed to collect the data.

Results: Of 800 patients. 37(4.6%) were found to have a diagnosis of AF. Among patients with AF, females were 19 (51.4%), those aged 18-39 years were 13 (35.1%) same as those aged 40-64 years, 65+ years were 11 (29.7%). Based on the structural/non-structural diagnosis among patients with AF, 20 (54.0%) were having valvular heart diseases and the rate of use of oral anticoagulation/antiplatelet agents was 73%. Among those using oral anticoagulation/antiplatelet agents, 24 (88.9%) were using warfarin, 2 (7.4%) NOAC, and 1 (3.7%) was using antiplatelet. In terms of INR checking, 24 (64.9%) were checked.

Conclusion: The rate of prescription of OAC was high while that for antiplatelet was low. The rate of INR checking in those who were using warfarin was high but not a hundred percent. The documentation of bleeding risk scores before the prescription of OAC therapy was not done at all.

Recommendation: We recommend the good practice and follow the recommendations from ESC guideline 2020, our local protocol, and evidence-based practice for the management of atrial fibrillation.

72 Protocol for Programmatic Feasibility and Clinical Effectiveness of Pulmonary Rehabilitation and Adjunct Pharmacotherapy in Patients with Chronic Respiratory Diseases Linked with Post-Tuberculosis, Kibong'oto Infectious Diseases Hospital.

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Background: Post TB Lung Diseases (PTLD) is one of the unrecognized chronic respiratory diseases in Sub-Saharan Africa. We surveyed to estimate the burden in individuals treated and cured pulmonary TB in the last 2 years and found 45% had PTLD.

Objective: To assess a package of services comprising pulmonary rehabilitation delivered in communities with adjunct pharmacotherapy for individuals affected with PTLD.

Methodology: The intervention package underpinned with implementation research will be delivered by the health care providers and community health volunteers in Siha and Simanjaro districts of Kilimanjaro and Manyara respectively. Individuals with an evidenced history of the treatment of bacteriological positive pulmonary TB; either cured or completed treatment and presenting with either shortness of breath,

exercise intolerance, and unable to walk unaided will be recruited. Temporary exclusion criteria include individuals having another important communicable disease such as recurrent pulmonary TB or COVID-19 and psychiatric conditions. The pulmonary rehabilitation package comprises breathing and physical exercises plus education and counseling. While adjunct pharmacotherapy includes long-acting β_2 agonist (formoterol) and inhaled corticosteroid (budesonide). Patients with bronchiectasis will receive antibiotics and mucolytics (carbocysteine) whereas pulmonary hypertension will receive sildenafil. Investigation and efficacy tests include spirometry for lung function, blood gases, exercise capacity using 6MWD, dyspnoea with mMRC scale, chest radiography, echocardiography for pulmonary hypertension, and right ventricular assessment.

Results: Improvement of health-related quality of life will be estimated by St George Questionnaire. Other outcome measures include hospitalization or urgent visit to the hospital due to PTLD. Likewise, we will describe the feasibility of the intervention by estimating the proportion of individuals accessing services, acceptability using patients' satisfaction tool, and fidelity of adhering to the protocol to both providers and clients

Conclusion: Findings of this project will show the feasibility of offering PTLD intervention to improve the quality of life and well-being of affected population

Recommendation: The designed intervention package is simple and considered to be easily scaled to other parts of the country

73 One-Year Outcomes and Predictors of Mortality Following Acute Myocardial Infarction in Northern Tanzania

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Background: Little is known about long-term outcomes following acute myocardial infarction (AMI) in sub-Saharan Africa.

Objectives: To characterize mortality and healthcare utilization following AMI in Tanzania.

Methods: Consecutive patients presenting with AMI (as defined by the Fourth Universal Definition of AMI Criteria) to a Tanzanian referral hospital were enrolled in this prospective observational study. Follow-up surveys assessing mortality, medication use, and rehospitalization were administered at 3-, 6-, 9-, and 12-months following enrollment, by telephone or in person. Multivariate logistic regression was performed to identify baseline predictors of one-year mortality.

Results: Of 152 enrolled patients with AMI, 5 were lost to one-year follow-up (96.7% retention rate). Mortality rates were 48.7% (73 of 150 patients) at 3 months, 52.7% (78 of 148 patients) at 6 months, 55.4% (82 of 148 patients) at 9 months, and 59.9% (88 of 147 patients) at one year. Of 59 patients surviving to one-year follow-up, 43 (72.9%) reported persistent anginal symptoms, 5 (8.5%) were taking an antiplatelet, 8 (13.6%) were taking an antihypertensive, 30 (50.8%) had been rehospitalized, and 7 (11.9%) had ever undergone cardiac catheterization. On multivariate analysis, statistically significant predictors of one-year mortality included

lack of secondary education (OR 0.26, 95% CI 0.11-0.58, $p=0.001$), lower BMI (OR 0.90, 95% CI 0.82-0.98, $p=0.015$), and higher initial troponin (OR 1.30, 95% CI 1.05-1.80, $p=0.052$).

Conclusions: In Tanzania, AMI is associated with high all-cause one-year mortality, and the use of evidence-based secondary preventative therapies among AMI survivors is low. Interventions are needed to improve AMI care and outcomes.

74 Trends in prevalence of non-communicable diseases in patients admitted to a medical referral hospital in Northern Tanzania: A Retrospective Study

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Background: Non-communicable diseases (NCDs) have become a global health concern and equal to or exceed that generated by communicable diseases. The mortality due to NCDs is higher in low resource settings and the economic burden is significant. The pattern of NCDs seen in under-resourced hospitals may contribute to higher mortality.

Aim: This study aimed to provide a three-year prevalence trend of NCDs as the most frequent causes of admission to Kilimanjaro Christian Medical Centre (KCMC) in northern Tanzania and to explore associated factors and outcomes.

Methodology: A retrospective cross-sectional study of all patients aged between 14 years and above admitted to the medical wards of KCMC from

January 2017 to December 2019 was undertaken. Hospital medical records were retrieved, and demographic characteristics, diagnoses, and outcomes were recorded using standardized proforma. The prevalence of the commonest diseases diagnosed over the three years was calculated. Analysis was done using STATA

Results: A total of 8023 patients were admitted with a median age of 56 (32.6) years of whom 3839 (48%) were female. Half were self-referred while 33% were medically insured. In-hospital mortality was 18%. Eight of the ten most prevalent diagnoses were NCDs. The three commonest diagnoses were hypertension 2366(19%), diabetes 1299(11%), and congestive cardiac failure (CCF) 1160(9.3%). The leading diagnoses associated with death were hypertension (23.4%), CCF (16.6%), stroke (15.9%), chronic kidney disease (15.9%), anemia (14.7%), and diabetes (12.3%). The relative prevalence of NCDs among admissions rose each year.

Conclusion: Over three years, the prevalence of NCDs rose steadily with hypertension associated with both admission and mortality.

Recommendation: Investment in comprehensive cardiovascular care in the catchment area is likely to improve outcomes of patients admitted to KCMC

75

Mental Health and Diabetes-Are We Doing Enough?

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Background: Atypical antipsychotic agents are useful in treating patients with schizophrenia and other psychoses but may cause hyperglycemia.

Hyperglycaemia is not dose-dependent and is reversible by stopping the treatment. The occurrence of diabetes after atypical antipsychotic drug administration is of major concern as patients may not recognize their symptoms, and health workers may fail to reach an early diagnosis, with major implications for morbidity and mortality. The effect and ability of various atypical antipsychotic drugs to cause diabetes are debatable. The currently available evidence seems to indicate that olanzapine and clozapine have the highest propensity to induce diabetes compared to other atypical antipsychotics.

Methods: Case Series

1. 71 years old lady was admitted in October 2015 after being found on the floor in the mental health unit. On admission, she was found to be a hyperglycaemic glucose level of 56mmol/l, and the urine dipstick was positive for ketones. She was acidotic on blood gas and lactate was 4.61. She was started on an insulin sliding scale and treated as Diabetic Keto Acidosis (DKA). She had a background of bipolar disorder, hypothyroidism, Hypercholestraemia, gastroesophageal reflux, and constipation. Her medications include olanzapine 5mg od. Ranitidine 150mg bd, Glycerin suppositories, Simvastatin 40mg od,Levothyroxine 125mcg od, Haloperidol 5mg bd. Blood test results showed Hb 142, WCC 10.1, Plt 418 urea 26.6, creatinine 180, sodium 133 ,K 4.1, Ck 1186, calcium 2.70, ALT 35, ALP 115.HbA1C 122mmol/mol, most recent 52 mmol/mol

Arterial blood gas: Ph 7.292, PO2 7.78, HCO3 15, BE -11.5, Lactate 4.61. She was treated with insulin sliding scale and iv fluids .and improved and started on Novomix 30

2. 42 years old lady was admitted in September 2015 with hyperglycemia. Capillary glucose level 38mmol/l, Hba1c 160mmol/mol. Started ON Lantus 12 units at night, Novo rapid 6 units tds, and metformin 500mg bd. GAD65

antibodies negative, Islets antibodies negative. Her medications include amisulpride. 3.39 years old lady was admitted with increased confusion and was found to be a hyperglycaemic glucose level of 76mmol/l, AKI, and sepsis.

Discussion: The occurrence of diabetes after atypical antipsychotic drug administration is of major concern as patients may not recognize their symptoms, and health workers may fail to reach an early diagnosis, with major implications for morbidity and mortality.

Pharmacology: The mechanisms responsible for antipsychotic-induced diabetes remain unclear. Hypotheses include these drugs' potential to cause weight gain. Other mechanisms independent of weight gain lead to elevation of serum leptin and insulin resistance. Patients with psychoses have difficulties with diet and lifestyle interventions for diabetes and weight management.

If hyperglycemia develops, a change to an atypical antipsychotic drug with lower diabetogenic potential should be considered, especially in younger patients.

Nursing and family counseling: For any insulin regimen, patients with their care-takers should receive specialized nursing education, and this may have to be delivered over multiple sessions.

Conclusions: Careful collaboration between the psychiatric and diabetology teams is essential for effective management and to minimize the risk of diabetes-related complications and cardiovascular diseases in patients taking psychiatric medication. NICE (Nation Institute for Health and Care Excellence) recommend screening for diabetes in patients with mental health before initiation of anti-psychotics by checking HbA1C at base line, then 3-4 months and then annually.

76 Barriers and Facilitators to Health Insurance Enrolment among People Working in The Informal Sector in Morogoro, Tanzania: Implications for Non-Communicable Diseases (NCDs) Management for iCHF Members

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Background: The prevalence of non-communicable diseases (NCDs) is currently increasing in Tanzania. Access to quality health care is crucial for the management of NCD patients. Health insurance is a pathway towards the achievement of universal health coverage (UHC) and may provide patients, including those with NCDs, with resilience to overcome shocks at the time of illness. In Tanzania, health-financing reforms are underway to speed up universal health coverage in the informal sector. Despite improved Community Health Fund (iCHF) rollout, enrolment remains a challenge in the informal sector.

Objective: To explore the perspectives of local women food vendors (LWFFV) and Bodaboda (motorcycle taxi) drivers on factors that challenge and facilitate their enrolment in iCHF.

Methodology: A qualitative study was conducted in Morogoro Municipality through in-depth interviews with LWFFV (n=24) and Bodaboda drivers (n=26), and two focus group discussions with LWFFV (n=8) and Bodaboda drivers (n=8). Theory of Planned Behaviour (TPB) constructs (attitude, subjective norms, and perceived control) provided a framework for the study and informed a thematic analysis focusing on the barriers and facilitators of iCHF enrolment.

Results: The views of LWFFV and Bodaboda drivers on factors that influence iCHF enrolment converged. Three main barriers emerged:

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inability to overcome challenges, such as iCHF not covering treatment of NCDs and iCHF not being accepted at non-government facilities; lack of knowledge about the iCHF; and negative views from friends and families. Several facilitators were identified, including opinions that enrolling to iCHF made good financial sense, encouragement from already-enrolled friends and relatives, and the belief that enrolment payment is affordable.

Conclusion: Enhancing NCDs care management may be supported by enhancement of equitable access to health insurance schemes.

Recommendation: More targeted information about the scheme is needed for individuals in the informal sector. There is also a need to ensure that quality health services are available, including coverage for NCDs.

77 The Prevalence, Management, and Thirty-Day Outcomes of Symptomatic Atrial Fibrillation in A Tanzanian Emergency Department

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Background: Data describing atrial fibrillation (AF) care in emergency departments (EDs) in sub-Saharan Africa are lacking. We sought to describe the prevalence and outcomes of AF in a Tanzanian ED.

Methods: In a prospective, observational study, adults presenting with chest pain or shortness of breath to a Tanzanian ED were enrolled from January through October 2019. Participants underwent electrocardiogram testing, and electrocardiograms were reviewed by two independent physician judges to determine presence of AF. Participants were asked

about their medical history and medication use at enrollment, and a follow-up questionnaire was administered via telephone thirty days later to assess mortality, interim stroke, and medication use.

Results: Of 681 enrolled patients, 53 (7.8%) had AF. The mean (sd) age of participants with AF was 68.1 (21.1) years, and 23 (43.4%) were male. On presentation, none of the participants with AF reported a history of AF. The median (IQR) CHADS-VASC score among participants was 4 (2-4), and no participant was taking an anticoagulant at baseline. On index presentation, 49 (92.5%) participants with AF were hospitalized. Of 52 (98.1%) participants with AF completing 30-day follow-up, 18 (34%) participants died, and 5 (9.6%) suffered a stroke. Of the surviving 31 participants with AF and CHADS-VASC score ≥ 2 , none were taking other anti-coagulants at 30 days. Compared to participants without AF, participants with AF were more likely to be hospitalized (OR 5.25, 95% CI 2.10-17.95, $p < 0.001$), more likely to die within thirty days (OR 1.93, 95% CI 1.03-3.50, $p = 0.031$), and more likely to suffer a stroke within thirty days (OR 5.91, 95% CI 1.76-17.28), $p < 0.001$).

Conclusions: AF is common in a Tanzanian ED, but use of evidence-based therapies is rare, and thirty-day mortality is high. There is an opportunity to improve AF care and outcomes in Tanzania.

78 Fatal Thrombo-Embolic Complication in A Covid -19 Patient with Diabetes. A Case Report

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Background: Corona Virus Disease (COVID-19) continues to cause significant morbidity and mortality especially among people with comorbidities. Diabetes is an independent risk factor associated with severity of COVID 19 as well as venous thromboembolism. The world is yet to learn about its perplexing pathogenicity and optimal therapy.

Case Report: We present a case of a 51-year-old female with Diabetes who presented with a 4-day history of progressively worsening dyspnoea. Clinical evaluation and laboratory workup identified severe hypoxia, hyperglycemia, leucocytosis, urine ketosis, elevated inflammatory markers, and elevated D-dimer levels. Frontal chest radiograph was significant for bilateral diffuse airspace opacities with basal and peripheral predominance. The patient was managed in Intensive Care Unit as Critical COVID 19 with Acute Respiratory Distress Syndrome (ARDS) and Diabetes Ketoacidosis (DKA). SARS-COV2 PCR results returned positive. There was significant clinical improvement as DKA had resolved and she was on minimal mechanical ventilation support. However, swelling of the left thigh was observed on the 4th day and the lower limb Doppler Ultrasound showed a total occlusive thrombosis of the Common Femoral Vein.

Low molecular weight Heparin was increased to therapeutic doses therefore. Despite apparent decrease in the lower limb swelling, the patient had sudden worsening in hypoxia and became hypotensive. A point of care echocardiogram revealed right ventricular enlargement and a right ventricular strain as evidenced by the D sign on Parasternal Short Axis view. Computed Tomography of the chest could not be performed due to hemodynamic instability and challenges in transportation of a mechanically ventilated patient in our setting. Despite ventilation with 100% oxygen and cardiopulmonary resuscitation with adrenaline, the patient died several hours later.

Conclusion: The incidence of venous thromboembolism in patients with COVID-19 remains high. It is imperative for clinicians to be mindful of this presentation. Therapeutic or higher doses of anticoagulant prophylaxis in patients with comorbidities could be lifesaving.

79 Burden and correlates of cognitive impairment among hypertensive patients in Tanzania: A cross-sectional study

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Background: The evolution of cognitive impairment of vascular origin is increasingly becoming a prominent health threat particularly in this era where hypertension is the leading contributor of global disease burden. Hypertension is associated with the alteration of the cerebral microcirculation coupled with unfavorable vascular remodeling with consequential slowing of mental processing speed, reduced abstract reasoning, loss of linguistic abilities, attention and memory deficits

Aim: To assess the prevalence and correlates of cognitive impairment among hypertensive patients attending a tertiary cardiovascular hospital in Tanzania.

Methodology: A hospital-based cross-sectional study was conducted at Jakaya Kikwete Cardiac Institute, between March 2020 and February 2021. A consecutive sampling method was utilized to recruit hypertensive outpatients during their clinic visit. General Practitioner Assessment of Cognition Score was utilized in the assessment of cognitive functions. All

statistical analyses utilized STATA software. Pearson Chi-square and Student's T-test were used to compare variables. Logistic regression analyses were used to assess for factors associated with cognitive impairment.

Results 1201 hypertensive patients were enrolled. The mean age was 58.1 years and females constituted nearly two-thirds of the study population. About three quarters had excess body weight, 16.6% had diabetes, 7.7% had a history of stroke, 5.7% had heart failure, 16.7% had renal dysfunction, 53.7% had anemia, 27.7% had hypertriglyceridemia, 38.5% had elevated LDL, and 2.4% were HIV-infected. Nearly two-thirds of participants had uncontrolled blood pressure and 8.7% had orthostatic hypotension. 43.6% of participants had cognitive impairment. Multivariate analysis revealed \leq primary education (OR 3.5, 95%CI 2.4-5.2, $p < 0.001$), unemployed state (OR 1.7, 95%CI 1.2-2.6, $p < 0.01$), rural habitation (OR 1.8, 95%CI 1.1-2.9, $p = 0.01$) and renal dysfunction (OR 1.7, 95%CI 1.0-2.7, $p = 0.04$) to have an independent association with cognitive impairment.

Conclusion: This present study underscores that cognitive decline is considerably prevalent among individuals with systemic hypertension.

Recommendation: Given this, it is pivotal to incorporate cognitive assessment in routine evaluation of hypertensive patients. Furthermore, hypertension represents a potentially vital mechanism for the prevention or delay of cognitive impairment. Assessment of cognitive impairment ought to be incorporated in the standard care of hypertensive patients.

80 The association of physical activity and capacity with beta-cell function, insulin resistance, and diabetes among HIV-infected and HIV-uninfected individuals

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Background: Physical inactivity may be associated with poor glucose intolerance. However, in Sub-Saharan Africa, data is limited.

Aim: To assess the association of objectively measured physical activity and capacity with beta-cell function, insulin resistance, and diabetes among HIV-infected and HIV-uninfected individuals in Mwanza, Tanzania.

Methodology: We conducted a cross-sectional study among newly diagnosed HIV-infected antiretroviral (ART)-naive and HIV-uninfected individuals, frequency-matched for age and sex. Data on socio-demography, fat mass and fat-free mass, C-reactive protein (CRP), HIV infection, glucose, and insulin were collected. Dependent variables computed from 0hr 30mins 120hrs glucose and insulin data were beta-cell dysfunction (insulinogenic index 1.9 (mU/L/mg/dL), and diabetes status; no diabetes, (OGTT) 11.1mmol/L). Physical activity energy expenditure (PAEE), sleeping heart rate (SHR), and maximum uptake of oxygen during exercise (VO₂max) assessed using combined heart rate and accelerometer monitor were the main independent variables. Data were analyzed using binary and multinomial logistic regressions.

Results: Data from 272 newly diagnosed HIV-infected ART-naive and 119 HIV-uninfected individuals were available. The mean age was 39 (SD \pm 10.5) years and 60% (163/272) were females. Higher PAEE was associated with lower risk of beta-cell dysfunction (OR=0.99, 95% CI: 0.98, 0.99), insulin resistance (OR=0.98, 95%CI: 0.97, 1.00), pre-diabetes

(RRR=0.98, 95%CI: 0.96, 0.98) and diabetes (RRR=0.92, 95%CI: 0.88, 0.96). In addition, higher VO₂max was associated with a lower risk of pre-diabetes (OR=91, 95%CI: 0.86, 0.96) whereas higher SHR was associated with a higher risk of pre-diabetes (RRR=1.03, 95%CI: 1.00, 1.05) and diabetes (RRR=1.07, 95%CI: 1.03, 1.12). HIV did not modify these associations.

Conclusion: Physical activity and capacity are associated with modestly reduced risk of beta-cell dysfunction and insulin resistance, and improve glucose metabolism irrespective of HIV status.

Recommendations: Interventions to promote physical activity are needed to reduce the risk of diabetes among adult Tanzanians.

81 The Association of Schistosoma and Geohelminth Infections With B-Cell Function and Insulin Resistance among Hiv-Infected And Hiv-Uninfected Adults: A Cross-Sectional Study In Tanzania

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Background: Besides causing infectious-related illness, studies have suggested that Schistosoma and geohelminth infections may have a protective role on low-grade chronic inflammation-linked cardiometabolic diseases (including diabetes). However, there is limited information on the effect of helminths on diabetes in SSA, whereas due to significant overlap

with other infections like HIV, the association of helminths with diabetes could be different.

Objective: To determine the association of Schistosoma and geohelminth infections with B-cell function and insulin resistance among HIV-infected and HIV-uninfected adults.

Methodology: A cross-sectional study was conducted among adults during 2016-2017. Demography, Schistosoma and geohelminth infections; HIV, and insulin data were collected. The main outcome measures for β -cell function and insulin resistance included oral glucose tolerance test, overall insulin secretion index, insulinogenic index, HOMA- β , and HOMA-IR. Generalized estimating equations and linear models assessed the association of Schistosoma and geohelminth infections with outcome measures separately by HIV status. Outcomes were presented as marginal means with 95% CI.

Results: 1718 participants were involved. Schistosoma infection was associated with higher 30-min insulin (24.5 mU/L, 95% CI: 7.1, 41.9) and overall insulin secretion index (13.4 pmol/L/mmol/L; 3.8, 23.1) among HIV-uninfected participants but with lower fasting insulin (-0.9 mU/L; -1.6, -0.2), 120-min insulin (-12mU/L; -18.9, -5.1), and HOMA-IR (-0.3 mmol/L; -0.6, -0.06) among antiretroviral therapy (ART) naive HIV-infected participants. Geohelminth infection was associated with lower fasting insulin (-0.9 mU/L; -1.7, -0.2), 120-min insulin (-9.1 mU/L; -17.3, -1.0), HOMA- β (-8.8 mU/L)/(mmol/L; -15.1, -2.4) and overall insulin release index (-5.1 pmol/L/mmol/L; -10.3, -0.1) among ART-naive HIV-infected participants. There was no association among those on ART.

Conclusion: Schistosoma infection was associated with better β -cell function among HIV-uninfected participants whereas Schistosoma and

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geohelminth infections were associated with reduced β -cell function among ART-naive HIV-infected patients.

Recommendation: Further studies are needed to assess the association between helminths and β -cell function and insulin resistance among patients on ART.

82 Evaluation of a Training Program to Community Health Workers and Its Implications for Community-Level Screening for Cardiovascular Disease Risk Factors in Tanzania.

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Background: Interventions conducted by community health workers (CHWs) have led to improvement in maternal and child health in developing countries. If trained, CHWs can also provide health education to improve public knowledge of risk for cardiovascular diseases (CVDs) and other non-communicable diseases (NCDs).

Objective: To evaluate knowledge gained by CHWs following a 5-days CVD-specific training of CHWs interventions for the reduction of blood pressure and other CVD risk factors in rural Morogoro.

Methodology: We used a written content knowledge test to assess the knowledge of CHWs on risk factors, warning signs for CVD events, action to be taken in case of CVD event, and unhealthy dietary habits. Pre-and post-training comparison of means and proportions was done using paired sample t-test and Fisher's exact test, respectively.

Results: More than half (55.6%) of CHWs scored below the passing mark during the pre-training assessment, and all (100%) scored above the passing mark during the post-training assessment. The mean knowledge scores for risk factors, warning signs, and healthy dietary habits also improved following the training (all $p < 0.001$). The overall mean (SD) knowledge score increased to 30.4 (1.3). The proportion of CHWs with sufficient knowledge on CVD risk factors and warning signs for CVD events increased to 100% and 100.0% respectively (all $p < 0.001$).

Conclusion: Short and focused training for CHWs enhanced their CVD content knowledge and skills. Trained CHWs have the potential to play a preventive role by providing health education and screening for early detection of CVD risk factors using simple non-invasive screening tools.

Recommendations: Further assessment should be conducted on CHWs to understand how long the knowledge gained during the training can be retained.

83 Non-communicable diseases and associated factors in injury population in Tanzania: an observational study

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Background: Non-communicable diseases (NCDs) currently contribute more to global mortality than all other causes combined. Low- and middle-income countries (LMICs) particularly suffer a greater burden of disease.

Aim: To describe the burden of diabetes and hypertension in an LMIC and identify associated factors among injured patients.

Methodology: This prospective study was conducted using data from a trauma registry of adult patients who presented to the Kilimanjaro Christian Medical Center Emergency Department (ED) in Moshi, Tanzania, from 2018 to 2020. Data were collected through questionnaires and clinical examinations. Having an NCD was defined as a self-reported diagnosis of diabetes or hypertension. Frequencies, percentages, and multivariable logistic regression were used to showcase descriptive findings and identify factors predicting NCD burden.

Results: A total of 1365 patients were included in this analysis of which 3.9% had diabetes while 66.1% were never tested for diabetes. 7.3% patients had hypertension while 58.9% were never tested. 3.0% individuals presented with both diabetes and hypertension. Among the previously tested patients, multivariable regression results showed that older age (aOR = 1.06, 95% CI = 1.04 to 1.08), female gender (aOR = 3.55, 95% CI = 1.91 to 6.67), injury by fall (aOR = 4.01, 95% CI = 1.76 to 9.36) and moderate/severe injury (aOR = 3.30, 95% CI = 1.58 to 6.98) were independent predictors of NCD.

Conclusion/ Recommendations: The large percentage of presenting patients not tested for diabetes or hypertension implies low levels of screening and diagnosing of NCDs in the general population. Educational programs about the impacts of NCDs, modifiable risk factors, and the importance of testing high-risk groups such as injured, elderly, or female patients are necessary.

84 Assessment of Ethno-medical Perspectives Towards Maternal Nutritional health and illness in Mbeya Region-Tanzania

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Background: Consumption of a diversified diet has remained poor in Tanzania compromising the health and wellbeing of the people. Understanding the ethnomedical perspectives towards maternal nutritional health and illness may be one of the promising ways to reduce NCDs. Ethno-medicine is the study of how medical problems are realized and dealt with in different societies.

Aim: To assess the ethnomedical perspectives towards maternal nutritional health and illness.

Methodology: The study used phenomenology and grounded theory to collect information from pregnant women on disease, foods eaten, and norms underlying foods and diseases during pregnancy. The study employed free listing, pile sorting, and in-depth interviews (IDI) data collection methods. Four districts were purposively selected by Mbeya regional team. A total of 120 women were selected and invited for a free listing exercise and 208 women were involved in the pile sorting exercise. A list of twenty food items and 15 diseases was generated separately in each district and used for pile sorting exercises. The pile sorting was followed by 59 in-depth interviews with women of reproductive age. Data were analyzed using NVIVO 12 software and Microsoft Excel was used to process the data using visual Anthropac - Freelists and pile sorting software.

Results: Participants were unable to group foods correctly. Several myths regarding foods eaten during pregnancy in Mbeya region were presented. For example, drinking milk was associated with babies being born with dirty fluids. High Blood Pressure, Anemia, Sexual Transmitted Diseases, Fungi infection, abdominal pain, and Malaria were considered moderate or severe illnesses, and participants felt that if left untreated, may harm the mother and/or the baby. The less severe diseases were swollen legs, dizziness, fever, vomiting, cough, flu, nausea, fatigue, leg clams, and waist pain.

Conclusion: This ethnomedical study revealed inadequate knowledge and perception regarding diseases facing pregnant women including NCD's, healthy foods and demonstrated several negative myths underlying foods and diseases during pregnancy.

Recommendation: Extensive education and awareness creation should be done to pregnant mothers and communities to improve the knowledge on foods, NCD's and infectious diseases associated with pregnancy.

85 Dual Burden of Malnutrition among HIV Positive Adults on Antiretroviral Treatment in Rural Tanzania

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Switzerland; University of Basel, Switzerland; Division of Infectious Diseases and Hospital Epidemiology, University Hospital Basel, University of Basel, Switzerland.

Background: Worldwide, the prevalence of overweight has increased in high and low to middle-income countries (LMIC). Untreated HIV infection exerts a high metabolic demand and is associated with a decreased BMI (wasting syndrome). Currently, there are limited data on body mass index (BMI) trends among people living with HIV (PLHIV) on antiretroviral therapy (ART) in rural Tanzania.

Objective: To determine the prevalence of underweight and overweight/obesity and factors associated with BMI and death/lost to follow-up (LTFU) in a cohort of PLHIV on ART in rural Tanzania.

Methodology: The study nested within the prospective Kilombero and Ulanga Antiretroviral Cohort, adults (≥ 19 years) initiated on ART in 2013-2018, with follow-up to June 2019. BMI was classified as underweight (< 18.5 kg/m²), normal (18.5–24.9 kg/m²) and overweight/obese (> 25.0 kg/m²). Stratified piecewise linear mixed models were used to assess the association between baseline characteristics and follow-up BMI. Cox proportional hazard models were used to assess the association between time-updated BMI and death/LTFU.

Results: Among 2,129 patients, 398(19%) were underweight and 356(17%) were overweight/obese at baseline. The majority of the patients were female (59%) and aged 35-44 years (37%). During the first 9 months following ART initiation, for every three additional months, BMI increased by 0.7% among participants with normal BMI at baseline (estimate = 1.007 [1.005-1.008]), 2% among those underweight (estimate = 1.02 [1.01-1.02]), and 0.4% among overweight/obese (estimate = 1.004 [1.002-1.006]). At the end of follow-up, 107(5%) patients had died and 592(28%) were LTFU.

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Being underweight in any given month was associated with an increased hazard of death/LTFU compared to participants with normal BMI (hazard ratio = 2.04 [1.64-2.53]).

Conclusion: The study showed a double burden of underweight and overweight/obesity among PLHIV on ART.

Recommendation: Monitoring and measures to address both states of malnutrition among PLHIV should be integrated into routine HIV treatment.

86 Effect of Age, Cerebrovascular Complications and Caemoglobin on Cognitive Function, in Tanzanian Children with Sickle Cell Anaemia

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Background: Developmental difficulties in many cognitive domains are common in children with sickle cell anemia (SCA). Children with cerebrovascular complications particularly stroke are most affected but delayed or atypical cognitive function has been reported in children with SCA and silent infarcts (SCI), vasculopathy, and normal brain MRI. However, very few studies of cognition have been conducted in Africa, a continent with 75% of the SCA burden. We, therefore, investigated cognitive profiles in Tanzanian children with SCA and examined the impact of age, SCI, vasculopathy, and hemoglobin concentration (Hb).

Aim: We assessed cognitive profiles in Tanzanian children with SCA and examined the impact of age, SCI, vasculopathy, and hemoglobin concentration.

Methodology: Children aged 6-16years with and without SCA were eligible. Cognitive assessment was performed using Raven's Matrices, assessing fluid, no-verbal intelligence and subtests from the Wechsler Intelligence Scales for Children, assessing processing speed (PS), perceptual reasoning (PR), and working memory (WM) as these tests are less culture-bound. Magnetic resonance was done to assess the presence of SCI and vasculopathy. Hb data was collected in both SCA children and their non-SCA siblings

Results: 73 children with SCA and 71 healthy siblings (Mean ages 11.9years) were recruited. Compared with healthy siblings, children with SCA had lower PS (Mean diff 7.35 points; $p=.002$). The lowest cognitive scores were observed on the PS subtest, where patients with SCI had the lowest mean values as compared to children with no SCI. PS was significantly lower in SCA patients with no vasculopathy as compared to healthy siblings. There was a significant positive effect of Hb on PSI ($p=0.001$) and in both patients and controls and a trend level significant positive effect of Hb on PRI ($p=0.050$) and WM ($p=0.051$).

Conclusion: Children with SCA have reduced cognitive performance as compared to non-SCA children. Cognitive performance improves with increasing age. Lower Hb is associated with lower cognitive performance in both patients with SCA and their non-SCA siblings. SCI and vasculopathy have no impact on cognitive function.

Recommendations: Studies examining microstructural brain integrity, brain volume deficits and cognitive functioning alongside access to socioeconomic and environmental resources in African children would be informative.

87 The High Burden and Predictors of Anemia among Infants aged 6-12 months in Dar es Salaam, Tanzania

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Background: Despite several interventions, the prevalence of anemia and related complications remains high among infants in Tanzania.

Aim: We sought to determine the predictors of iron deficiency anemia among infants of HIV-negative women in Dar es Salaam, Tanzania.

Methodology: Cross-sectional analysis of 2826 mother-infant pairs who participated in a trial of vitamins and perinatal outcomes in Dar es Salaam, Tanzania. Hemoglobin and mean corpuscular volume were used to determine the prevalence of anemia among infants at 6 and 12 months. Multiple logistic regression was used to determine the maternal and infant risk factors for anemia during infancy.

Results: We found a high prevalence of anemia (90%) and IDA (44.2%) among infants. Higher maternal education (OR=0.52), maternal normal hemoglobin at enrolment (OR=0.68), and during the early postpartum period reduced the odds of IDA at 6 months (OR=0.56). The odds of IDA at 6 months were higher among males (OR=1.65), wealth score below the median (OR=1.35), LBW (OR=1.75), and SGA infants below the 3rd centile (OR=1.95) or 3rd to < 5th centile (OR=2.29). Higher maternal education lowered the odds of IDA at 12 months (OR=0.25). Wealth score below the median (OR=1.44), preterm delivery (OR=1.94), SGA (< 3rd centile) (OR=2.40), low birth weight (OR=2.89) increased the odds of IDA during infancy in the study population. Dietary diversity was low for infants and women in the study sample

Conclusion: The prevalence of anemia among infants is very high in Dar es Salaam, Tanzania, and multiple risks have been investigated as causal factors.

Recommendations: Interventions to reduce the risk of infant IDA should address women's education, improvement of wealth status, and optimal care for premature, SGA, and LBW infants.

88**Depression in newly diagnosed HIV patients in Kilimanjaro Region: Prevalence, severity, and predictors**

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Background: Human Immunodeficiency Virus (HIV) has been shown to increase susceptibility to mental health issues. Being newly diagnosed with HIV could be associated with the incidence of depression. No studies in Tanzania have systematically explored the associations between recent HIV diagnosis, prevalence and severity of depression, and its associated factors.

Aim: To determine prevalence and severity of depression, and associated factors among newly diagnosed patients attending center and treatment clinic (CTC) in Kilimanjaro region.

Methodology: This was a cross-sectional study that utilized the Patient Health Questionnaire-9 to screen for depression, demographic health survey for socio-demographic characteristics, patient records for associated factors, Duke-UNC Functional Social Support Questionnaire for perceived social support, and a Stressful Life Events checklist. Participants newly diagnosed with HIV were sampled consecutively. Analysis was

conducted using STATA v16. Univariate analysis, Chi-square and Analysis of Variance for Bivariate analysis, and Ordinal logistic regression for Multivariate analysis were conducted.

Results: 61% of participants were female, the mean age was 41 years. The prevalence of depression was 41%. Severity was highest in participants diagnosed with HIV less than 1 month. We found significant variance between the severity of depression at different durations post-HIV diagnosis ($p=0.00$). No or informal education and those with <1-month anti-retroviral therapy were more likely to have depression.

Conclusion: Depression is highly prevalent among newly diagnosed HIV patients. Prevalence and severity were highest among participants diagnosed with HIV <1 month. Clinically significant depression may have an impact on engagement with CTC care especially in the initial period of treatment and on HIV-related outcomes.

Recommendations: Routine screening of PLHIV for depression from time of enrollment into CTC care, offering appropriate linkage to treatment services where necessary. Developing manuals for clinicians on assessing depression may be useful. Prospective studies could help to identify patterns of depression among a cohort of newly diagnosed clients.

89 Investigation of age-related brain atrophy and the determinants of acute confusional state among adults in Northern Tanzania.

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Affiliation: Mwenge Catholic University

Background: Brain atrophy is the reduction of brain volume, common in old age. It is often accompanied by cognitive changes and has a high association with a gradual decline of intellectual performance in adults,

particularly short-term memory. Neuroimaging, including computerized tomography (CT), plays an important role in the early detection of brain atrophy. Despite the emerging availability of CT scanners in Tanzania, little has been reported on the magnitude of brain atrophy and associated episodes of acute confusion state among adults.

Aim: To examine the magnitude of cerebral atrophy among adults using a CT scan and to evaluate the predictive factors that guide the aspect of acute confusion state among adults with cerebral atrophy.

Methodology: A cross-sectional hospital survey retrospectively from the year 2018 to 2020 and prospectively from 2021 to mid-2022 will be conducted, 384 elders who will be reported with various brain complications and whose brains will be examined by CT Scanners will be recruited in the study. The brain status of each participant will be examined using Region of Interest (ROI)-based analysis, where-by, structure-specific analysis, and neuroimaging will be used to study both structure and function in brain atrophy. Also, a case-control study will be conducted to determine the predictive factors of acute confusion state among the examined elders.

Results: Expected results include determining the prevalence of brain atrophy in adults; the prevalence of acute confusion conditions in the atrophied brain in adults; and risk factors associated with adult brain atrophy. The proposed study will give insight into the state of brain atrophy and its consequences in adults. The study also will determine the most prevalent type(s) of brain atrophy among adults with acute confusion states.

Conclusion & recommendations: The study will help to provide necessary suggestions on what should be done in handling acute confusion state among adults.

90 Validity of the Finnish Diabetes Risk Score for Undiagnosed Diabetes Mellitus in Mbeya, Tanzania

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Background: The prevalence of type 2 diabetes (T2D) is increasing in all populations worldwide. Early detection of T2D through screening is possible to halt the disease progression by lifestyle modifications and treatment. T2D risk prediction tools are questionnaires that contain risk factors such as, demographic data, clinical history, and anthropometric measurements. The existing tools were developed, validated, and adopted in the Caucasian population but adopted without being validated in Sub-Saharan Africa including Tanzania.

Aim: To determine the validity of the Finnish Diabetic Risk Score (FINDRISC) in the Tanzanian population.

Methodology: A cross-sectional study was done in September 2020 in Mbeya city, which included people aged ≥ 18 years. Screening for diabetes was done using the FINDRISC tool, then fasting blood glucose was performed. Chi-squared test and t-test were used to assess differences between socio-demographic variables and diabetes status. The diagnostic accuracy of FINDRISC to detect undiagnosed prediabetes and diabetes was evaluated using the area under receiver operating characteristic (AUROC) curve. All statistical analyses were carried out using Stata.

Results: The mean age was 35.5 (± 11) years, the majority were male (55.1%), the prevalence of undiagnosed prediabetes and diabetes was

78(25%). The FINDRISC tool had a sensitivity of 43.6% (95%CI; 32.4-55.3), specificity 72.5% (95%CI; 66.3-78.1), and positive predictive value (PPV) of 34.3% (95% CI; 25.1%-44.6%) and a negative predictive value (NPV) of 79.5% (95% CI; 73.5%-84.7%). The optimal cut-off point was 7. Multivariable analysis shows that body mass index (BMI) above 30kg/m² (AOR=2.3 [95%CI; 1.1-4.9]) and waist circumference >80 (AOR=2.02[95%CI; 1.1-3.7]) were significant predictors of prediabetes and diabetes.

Conclusion: The FINDRISC tool has demonstrated low sensitivity and low PPV for the Tanzanian population. BMI and waist circumference were significant risk factors for diabetes.

Recommendations: We recommend the development of a new prediction model for this population.

91 Prevalence of Depression and Its Associated Factors among Students In Higher Learning Institutions In Dar Es Salaam Tanzania

Author: Sabara Zegera

Background: Higher learning institutions have long been considered stressful environments for students entering tertiary education. Globally, multiple studies have identified principal stressors and unsurprisingly, university students have shown a significantly higher prevalence of depressive symptoms than the general population. Stressors identified are academic pressure, long hours of study, continuous examinations, inadequate holiday break, financial burdens, romantic relationships, and many others. Despite plenty of studies globally, information is still limited regarding the burden of depression among university students in Tanzania.

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Objective: To determine the prevalence and predisposing factors associated with depression among students in higher learning institutions in Dar es Salaam, Tanzania

Methodology: A descriptive study was conducted involving 4 universities namely; UDSM, MUHAS, KIUT, and HKMU. 362 participants were randomly sampled, a structured questionnaire was used for depression assessment. PHQ-9 depression scoring system.

Results: The prevalence of depression was 21.5%, which was shown to affect more females (27.7%), unmarried (19.9%), age group 20 - 25 years (18%), first years (7.2%), and students in non-health institutions (22.3%). Poor social support, poor economic background, academic stress, and future concerns were mostly reported as predisposing factors to depression among students in universities.

Conclusion: University students face a risk of mental illness mainly depression due to academic stressful environments during the process, but yet it has been considered as a normal way of life after adaptation to such situations. Though these stressful environments at their peak affect the academic and social wellbeing of students negatively.

Recommendation: Early attachment and mentorship by seniors and staff, regular mental health screening, counseling, and preventive mental health services; have all impacted positively in reducing depression among university students. The study calls for more studies regarding the matter in our country following limited information up to date compared to the magnitude of the problem.

92 Prevalence and Factors Associated with Acute Kidney Injury Among Patients Admitted with Severe Falciparum Malaria at Muhimbili National Hospital, Dar Es Salaam, Tanzania.

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Background: Severe falciparum malaria (SFM) remains a prevalent infection worldwide causing high morbidity and mortality. Acute kidney injury (AKI) is one of its most dreaded complications among adults, despite use of artemisinin-based antimalarials. This study aimed to explore the prevalence and factors associated with malarial acute kidney injury (MAKI) which is poorly studied in our setting.

Objective: To determine the prevalence, outcomes, and factors associated with AKI among patients with SFM admitted at Muhimbili National Hospital (MNH) Dar es Salaam, Tanzania

Methodology: A hospital-based cohort study involving 318 patients with confirmed malaria diagnosis admitted in the medical ward at Muhimbili National Hospital (MNH) was conducted. A structured questionnaire was used to collect patient information, vital signs, and anthropometry. Blood samples and urine were collected. Logistic regression analysis was used, a two-tailed p-value < 0.05 was considered statistically significant. Data analysis was done using SPSS version 23

Results: The prevalence of MAKI was 35.8% on admission. Age >35 years, parasitemia count >500/200 WBCs, anemia, and proteinuria were independent predictors of developing MAKI. Over two-fifth, (43%) of patients with MAKI had indications for hemodialysis treatment. The mean hospital stay for MAKI patients was 5 days longer than non-MAKI patients (p-value < 0.001). The in-hospital mortality rate for patients with MAKI was 3.51%, and upon 3-monthly follow-up, 6.14% of MAKI patients progressed to chronic kidney disease (CKD).

Conclusion: AKI is a common complication of falciparum malaria at MNH. Advanced age, high parasitemia, anemia, and proteinuria are independent predictors of developing MAKI.

Recommendation: Using low hemoglobin levels and urine for protein as proxies to predict AKI among falciparum malaria patients is recommended.

Early and timely initiation and continuation of dialysis amongst MAKI patients should be done as well as wider accessibility to RRT services in various dispersed parts of Tanzania.

93 Prevalence of Cardiovascular Diseases, Risk and associated factors among patients attending at Songea Regional Referral Hospital

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Background: Cardiovascular Disease (CVD) is a public health problem worldwide, causing over 18.9 million deaths per year. The major risk factors which are also preventable are tobacco use, diabetes, high blood pressure, overweight/ obesity, and alcohol consumption.

Objective: To determine the prevalence of CVD, Risk, and associated factors.

Methodology: We conducted a cross-sectional hospital-based study that consecutively enrolled 785 consenting adults who came to attend Jakaya Kikwete Cardiac Institute (JKCI) mobile clinic at Songea Regional Referral Hospital in 2018. A structured questionnaire was used to obtain demographic data, gather co-morbid information such as record blood pressure and Body Mass Index (BMI). A 12 lead Electrocardiogram (ECG) and 2D, M mode Transthoracic Echocardiogram were done to determine the structural and ischemic heart changes from the participants.

Results: Of 785 participants, 528 (67.3 %) females, 479 (61%) middle-aged (40-60 years) and 196 (25%) were 65 years old and above, their mean age was 56 (SD 14) years. Most of the participants were married 558 (71%), 625 (80%) sponsored by the National Health Insurance Fund (NHIF), and less than half were employed. Of all the participants, tobacco

users were 29(3.6%), diabetics 60 (7.5%), alcoholic users 99 (12.5%) and more than half were overweight/obese. The prevalence of Systolic Hypertension (SBP 140+ mmHg) was 65% and Diastolic Hypertension was 50% (DBP 90+ mmHg). 85 (11%) had chest pain, 56 (7%) had tachycardia and difficulty in breathing 45 (6%).

By ECHO diagnosis; the prevalence of dilated cardiomyopathy was 3.8%, hypertensive heart diseases 2.3% and valvular heart diseases were 2%. The majority 780 (99%) and 694 (88%) had normal Left Ventricular Systolic and Diastolic functions respectively. Furthermore, by ECG diagnosis, the prevalence of Left Ventricular Hypertrophy was 8% and ischemic heart disease was diagnosed in 4% of the participants. In a multivariate analysis, CVD were found to be statistically significant associated with the age 65+ years, 3.41 [95% CI 1.49 -7.78, p-value 0.004], diastolic blood pressure above or equal to 90 mmHg, 1.61 [95% CI 1.05 -2.48, p-value 0.03] and overweight/ obese 1.94 [95% CI 1.28 -2.92, p-value 0.002].

Conclusion: The prevalence of cardiovascular diseases was found to be high and the main associated risk factors were overage, overweight/obesity, and diastolic hypertension. Some of the participants had already developed asymptomatic structural heart disease, features which were suggesting coronary artery diseases and arrhythmias.

Recommendation: Continuous health education and super-specialized mobile clinics should be encouraged for an early diagnosis and treatment of CVDs.

94 The extent of Metabolic Syndrome in HIV Infected patients on Antiretroviral Therapy in Tanzania, A Cross-Sectional Survey

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Background: Metabolic Syndrome (MetS) is associated with higher cardiovascular disease risk. The burden of MetS in HIV patients on ART has not been adequately established in Sub-Saharan Africa.

Aim: To determine the prevalence of MetS and associated factors among people living with HIV who are on ART attending Bugando Medical Centre HIV clinic in Mwanza, Tanzania.

Methodology: A cross-sectional study was conducted among HIV patients on ART for at least 1 year, aged ≥ 18 years, from July to September 2020. Data on socio-demography, anthropometry, and conventional non-communicable diseases risk factors were obtained. In addition, data on lipids, blood glucose, blood pressure, and waist circumference were collected and used to compute MetS based on International Diabetes Federation criteria. Data were summarized using means, median or percentages. Associations between MetS and independent variables were assessed using multiple logistic regression analyses.

Results: 233 participants were recruited. The mean age was 44(SD \pm 12) years and 79.8% were females. The median HIV duration was 13(IQR 7-14) years. 73.68% were on Dolutegravir-Tenofovir -Lamivudine (first line); 16.96% (40) on other first-line regimen and the remaining 9.36% (22) on second-line regimens. Prevalence of MetS was 16.31% (38) and was significantly associated with increased age (OR 4.7 for >40 yrs vs. <30 yrs, 95% CI 1.64-13.5, $P=0.004$) and fat mass index (FMI) (OR 12.2 for high tertile vs. low tertile, 95% CI 2.1-69.6, $P=0.005$). Type of ART, Smoking, physical activity, alcohol intake, salt intake, fruit, and vegetable intake was not associated with MetS in this cohort.

Conclusion: Prevalence of MetS in HIV patients on ART is lower compared to previously reported data (20%-25%).

Recommendation: Routine screening for FMI should be introduced at ART clinics to identify at-risk patients. Larger studies are needed to explore other determinants of MetS in HIV-infected populations on ART.

95 Anemia prevalence, distribution, and associated factors among secondary school adolescents in Kibaha Town Council, Tanzania.

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Affiliation: National Institute for Medical Research

Background: Adolescents are in a transition period from childhood to adulthood which is characterized by rapid growth and high demand for nutrients. Anemia is one of the nutritional problems affecting adolescents because of the unmet demand for iron during this period.

Aim: To determine anemia prevalence, distribution, and associated factors among secondary school adolescents.

Methodology: A cross-sectional study was conducted in March 2020 which involved adolescent girls and boys from 6 public schools of Kibaha Town Council. Anemia testing was performed using a Hemocue portable hemoglobin meter and the cut-off points for girls and boys were 12.0 and 13.0g/dL respectively.

Results: A total of 461 adolescents (324 girls and 137 boys) with a mean age of 14.6 years participated in the survey. About 78.3% (girls 281 and boys 80) tested for hemoglobin (Hb) level for assessing anemia status. Adolescent girls (49.8%) had significantly higher anemia prevalence compared to adolescent boys (20.0%); $p=0.000$. Most of the cases among adolescent girls and boys were mild anemia, 61.4%, and 68.8%

respectively. The difference of anemia by severity among adolescents' girls and boys was highly significant, $P = 0.000$. Anemia was also significantly higher among menstruating girls (52.5%) than non-menstruating girls (33.0%); $p=0.000$. There was no significant difference in anemia among adolescents who reported to receive deworming drugs and Iron-folic supplements 6 months before the study.

Conclusion: Adolescent girls are more affected by anemia than boys. Nutritional intervention for addressing anemia in adolescents should consider gender differences that affect the demand for iron for growth and menstruation.

Recommendation: School is the best platform in reaching most adolescents with nutrition information if curriculums and school clubs' opportunities will be utilized well. Multisectoral collaboration between the health and education sector is important for improving anemia situation among school Adolescents.

96 The prevalence and associated risk factors of stroke among patients admitted in medical ward at Mount Meru Regional Referral Hospital from September 2021 to October 2021

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Affiliation: *Hubert Kairuki Memorial University*

Background: The burden of stroke in Tanzania is substantial and growing. Despite limited existing data, studies suggest that the prevalence of stroke in many parts of Tanzania is high. Over the last four decades, the prevalence of stroke in Low- and Middle-Income Countries has more than doubled. This has negatively impacted these countries' socioeconomic development. Accurate and recent information on the burden of stroke is necessary for the development and evaluation of effective and efficient

preventative acute care and rehabilitation program for stroke patients in Tanzania.

Aim: To determine the prevalence and associated risk factors of stroke among patients admitted in the medical ward at Mount Meru hospital from September 2021 to October 2021.

Methodology: A cross-sectional study will be conducted at Mount Meru Regional Referral Hospital (MMRH) in Arusha. Participants will be patients diagnosed with stroke admitted to the medical ward in MMRH. A semi-structural questionnaire, available data, and interviews of patients and caretakers will be used to collect data. Data will be entered in Epi data and analyzed in SPSS.

Results: The results obtained will be used to bridge the knowledge gap about the burden of stroke and its associated factors. Furthermore, information on risk factors can be used to design individualized and multi-faceted prevention and treatment protocols, as well as targeting modifiable risk factors.

Conclusion: This study will help in creating awareness to people concerning the burden of stroke that is facing us. Also, it will help in the prevention of major complications and the number of deaths that occur as a result of stroke. From this study, we shall be able to learn how we can identify the modifiable risk factors and treat them accordingly to minimize stroke prevalence.

Recommendation: This information can be used to design individualized and multi-faceted prevention and treatment protocols. This information will also be useful in assessing the progress of intervention measures of stroke.

97 Assessing the Impact of the Project Interventions in Supporting Menstrual Hygiene Management and Education to Girls in Primary and Secondary Schools in Kisarawe District

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Affiliation: Plan International Tanzania

Background: Evidence from Kisarawe district suggests that lack of improved infrastructure and Water, Sanitation, and Menstrual Hygiene Management (MHM) facilities in schools influence risk factors for non-communicable diseases (NCDs) including emotional distress and anxiety among girls. Inadequate WASH and MHM service have a significant effect on learning and school attendance. The MHM and Education project was implemented in Kisarawe district to fill gaps.

Aim: The current survey aimed to measure the achievements of the project implementation as compared to the benchmark established during baseline on the status of Education, WASH, and MHM issues. This study deployed a non-experimental research design, a mixed-methodologies with elements from both quantitative and qualitative approaches.

Methodology: Stratified sampling technique was applied in selecting participants, students from primary and secondary schools while purposive sampling approach was used to select key informants for in-depth interviews. A total of 175 primary and secondary schooling students from 8 primary and 4 secondary schools, and 129 households were selected to participate in the study

Results: About 53% (n=54) of schooling girls (compared to 22% baseline) have access to MHM during their menstruation while at school. About half 49.1% (n=51) of adolescent girls can change pads or wash reusable ones freely and comfortably when at school, compared to the baseline value of 22%. More than half (56.4%, n=98) compared to 26% baseline of pupils declared to have availability of water for 5-7 days a week. About 50 % (n=52) of girls disclosed that their classrooms are satisfactory thus feeling comfortable even during menstruation. 95% (n=126) of Household

members declared that it is wise for adolescent girls to attend school while on menstruation compared to the baseline values (15%).

Conclusion: Supporting adolescent girls on managing menstrual hygiene and creating a safe and hygienic environment in schools that would facilitate a good academic environment for school girls' may perhaps be the only way to put an end to the never-ending cycle of issues like dropout, low attendance, low age of marriage and low status of women.

Recommendations: Linking physical infrastructure, menstrual products, water, hygiene, and sanitation issues to health education and reproductive health programs including Menstrual Hygiene. Creating community responsibility for supporting school girls to access appropriate and affordable sanitary pads by facilitating community support systems that foster positive behavior on menstruation.

98 Proportions of stroke among patients admitted in the medical ward at KCMC hospital from 2017 to 2019: a retrospective study

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Background: The burden of stroke increased over the last decade worldwide, particularly in low- and middle-income countries (LMICs).

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Previous research in Tanzania demonstrated some of the highest age-adjusted stroke incidence rates in the world along with high stroke mortality.

Previous data from Kilimanjaro Christian Medical Centre (KCMC) over 4 decades from 1973-2008 showed a dramatic increase in hospital admissions for stroke over this period.

Objectives: To estimate the number and proportion of stroke admissions to KCMC, a referral hospital in northern Tanzania, with associated co-morbidities, for the years 2017-2019.

Methodology: Retrospective audit of medical record data from 2017 to 2019 for patients admitted with stroke at KCMC was conducted. Data collected included demographic characteristics (age, gender, etc.), history of stroke, and outcome. Factors associated with stroke were estimated using logistic regression

Results: For 977 patients identified, the mean age was 62 with 504 (51.6%) and 472 (48.3%) females and males respectively. There was an increase in patients admitted with stroke over the 3 years from 222 in 2017 to 293 in 2018 and 459 in 2019. In 2017 the majority of stroke patients were aged >60, with 28(3.4%) aged 18-45 years while 40 (4.3%) were aged 18-40 years in 2019. Stroke with hypertension was 568 (58.1%) and diabetes mellitus was 167 (17.1%). Mortality rates for the majority of patients with stroke were above 60 years with mortality decreasing significantly between 2017 and 2019 38(25.3%), 59(18.3%). For patients aged 45-60 mortality rate had a significant decrease in all three years, 14(31.8), 18(28.1), 18(18.8) respectively with females having higher odds of death (OR: 1.5; CI: 1.30, 1.80)

Conclusion: Stroke burden is increasing on individuals and health services over time, reflecting a lack of awareness and effective preventive measures.

Recommendation: Prioritizing interventions directed towards reduction of NCDs and associated complications such as stroke is urgently needed

99 Exploring inclusion of rapid HPV DNA testing in primary cervical cancer screening in Tanzania – role of HIV status

Authors: Johnson Katanga, Andrea Pembe, Vibeke Rasch, Rachel Manongi, Susanne K. Kjaer, Julius Mwaiselage

Affiliation: Ocean Road Cancer Institute

Background: HPV DNA testing is currently used as the primary cervical cancer screening method in most high-income countries and has been shown to improve the quality of screening services. However, this is not yet the case in low-income countries. In this study, we investigate whether the value of HPV DNA testing in primary cervical cancer screening with VIA as a triage test is the same among HIV-positive and negative women.

Objectives: To investigate whether the value of HPV DNA testing with VIA as triage is the same among HIV positive and negative women

Methodology: This cohort study included women attending routine cervical cancer screening clinics at Ocean Road Cancer Institute and Kilimanjaro Christian Medical Centre. At enrolment, eligible women were interviewed, tested for HIV, had a cervical sample taken, and finally, VIA was performed. After 14 months, they were invited for a follow-up visit and VIA was repeated. At enrolment, 938 women tested careHPV positive, of those 101 were VIA positive and were referred to further diagnostic workup and treatment.

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Results: Among 837 care HPV positive but VIA negative women, 333 attended follow-up as scheduled and 4.2% were VIA positive. However, this was not distributed equally according to HIV status. In 109 HIV-positive women (hrHPV) positive and VIA negative at enrolment, 9.2% were VIA positive at the 14 months follow-up whereas this only applied to 1.8% of the HIV-negative women follow-up.

Conclusion: The study shows that when HPV DNA testing is integrated with cervical cancer screening using triage with VIA, HIV status should be considered when considering the further follow-up

Recommendation: HIV status should be considered when scheduling for further follow-up visits

100 Association between Lifestyle and Occurrence of Type II Diabetes Mellitus among adults aged in Dodoma Region

Authors: Isaack Yustus Mwambe, Walter Cleophace Millanzi, Placidius Ndibalema

Affiliation: St John College of Health Sciences

Background: Diabetes mellitus is a group of metabolic disorders characterized by chronic hyperglycemia with disturbances of carbohydrate, fat, and protein metabolism, resulting from inadequate insulin secretion, insulin action, or both. In Tanzania, there is a rapid increase in the burden of type 2 diabetes among the lowest in the world with 0.8% in cities and towns and 0.9% in rural areas (Rayama T.R, 2015).

Aim: To analyze the association between lifestyle and occurrence of type two DM among adults aged in the Dodoma region, Tanzania.

Methodology: This was a cross-sectional study design whereby quantitative approach procedures were employed and the study was conducted in the Dodoma region, Tanzania which involved 107

respondents. The dependent variable of this study was type 2 diabetes mellitus and this was measured through nominal and scale technique with seven and three questions respectively and independent variables were socio-demographic data, lifestyle, and living standard data and were measured by nominal and scale techniques with twenty-five and three respectively.

Results: The prevalence of type 2 diabetes mellitus kept on increasing from 2015 to 2019 (2.1% to 3.1% respectively) among the respondents (n=107) in the Dodoma region, Tanzania. Moreover, this study revealed that there was an association between socio-demographic characteristics and lifestyle with type 2 diabetes with 1.670 (AOR) (95% CI: 2.231; 3.988, (P>0.05). Furthermore, those with a poor lifestyle were more likely to associate with diabetes compared to those with a good lifestyle, 1.089(AOR), (95% CI: 0.664; 2.554, P>0.05).

Conclusion: The study revealed that those with poor lifestyles upbeat with type two Diabetes mellitus as compared to those with a good lifestyle.

Recommendation: The United Republic of Tanzania through the Ministry of Health, Community Development, Gender, Elderly, and Children should increase awareness and education on DM and underlying factors through mass media education, encouraging research, providing good and accessible health care services to reduce the burden in line with SDG.

101 Hypertensive disorders in pregnancy; assessing the knowledge and barriers in selected health care settings and communities in Zanzibar

Authors: Ummulkulthum Hamad, Omar Mwalim Omar

Affiliations: Ministry of Health, Social Welfare, Elder, Gender and Children- Zanzibar and Tanzania Commission for Science and Technology (COSTECH)

Background: Hypertensive Disorder in Pregnancy (HDP) is responsible for a substantial burden of illness and cause of maternal and perinatal mortality and morbidity globally, it accounts for nearly 18% of all maternal deaths, with an estimated 62,000 to 77,000 deaths per year. The national maternal mortality ratio of Tanzania is 454, and of Zanzibar is 462. Tanzania and Zanzibar Governments aim to reduce the maternal mortality ratio to less than 140 deaths per 100,000 in 2030.

Aim: To assess the barriers that affect pregnant women with hypertensive disorder and access quality of maternal, perinatal, and neonatal services during pregnancy in Zanzibar.

Methodology: The study was observation and intervention with quantitative and qualitative methods. It specifically employed focus group discussions, key informant interviews, and face-to-face interviews with pregnant and post-pregnant women in health facilities. It also used a structured questionnaire to obtain information on hypertension from pregnant women.

Results: Health care workers (83.3 %) measured the weight of pregnant mothers during ANC visits. The urine test for albumin in pregnant, The findings revealed only 66.7 % were tested. Regular availability of albusticks in the ANC was reported by 83.3% of participants. Only 33.3% of pregnant mothers were given health education compared to 50 % who were not given health education on family planning. The adequate knowledge of hypertension during pregnancy was noted among 72.4 % of the respondents, followed by 26.3 % who mentioned chronic hypertension

Conclusion: Generally, Health Care Workers know the necessity for managing Pregnant Mothers with Hypertension in most visited health facilities and health care centers in Zanzibar. Also, resources and supplies for testing pregnant women at health facilities and ANC are available. Deficiencies were noted on the Health Care Workers commitments to provide preliminary services to pregnant mothers such as checking their height and weight during an antenatal visit, testing urine for albumin, and examination of head to toe to mothers

Recommendations: There is a need to increase resources and supplies for testing pregnant mothers to improve and sustain the management of mothers with hypertension in health facilities and health care centers in Zanzibar. To provide education and raise awareness of Health Care Workers on HDP to increase their sense of care, agency, commitment, and priority to providing important preliminary services to pregnant mothers.

102 Burden of Non-communicable Disease and need for Primary Prevention and control of NCDs in Mwanza Region

Authors: James Chrispin, Arnold Baitwa

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

Background: Non-Communicable Diseases (NCD)/chronic diseases are reported to be responsible for 60% of all deaths globally. Over 80% of cardiovascular and diabetes deaths, Sickle Cell Disease (SCD) is the most common genetic disorder of hemoglobin in sub-Saharan Africa. WHO country estimates of 2010 showed that NCDs account for 27% of all deaths in Tanzania (WHO, 2011a). In 2008, it was estimated that NCD caused a

total of 75.7 and 58.8 deaths per 1000 population, of which 42.8% and 28.5 were below the age of 60 years among males and females respectively.

Objectives: To determine the prevalence of NCDs in Mwanza Region. To access risk factors associated with NCDs in Mwanza Region

Methodology: The project offered intellectual and practical training to 200 medical students on screening for hypertension, diabetes, sickle cell disease, and mental health. It involved several sessions of television education program on non-communicable diseases at STAR TV (TUONGEE ASUBUHI session) and finally conducted a community screening and consultation outreach to 451 urban Mwanza civilians for hypertension, diabetes, sickle cell disease, and mental Health at Furahisha grounds

Results: The key findings were that the prevalence of Systolic hypertension is 18.7%, diabetes was 2.2% FBG, while obesity is 10.6% and overweight is 34.8%, on SCD 4.7% had sickle cell disease, and 6.3% were carriers to SCD. There was a significant correlation between age and blood pressure, and increased age is a risk factor for hypertension. There was a significant correlation between body mass index and systolic blood pressure, an increased BMI is a risk factor for hypertension.

Conclusion: There was a significant portion of overweight and obese, this accounted for mainly due to bad lifestyle experiences of many people in urban areas, moreover there is a little awareness about health issues in the community particularly NCDs and risk factors

Recommendation: More community outreaches should be organized to provide awareness on NCDs and risk factors, there is a need to strengthen health system intervention and promote accountability of various institutions in addressing NCDs and their risk factors and also promotion of

health-seeking behavior. Regular community screening of sickle cell disease and awareness to the community on Sickle cell disease.

103 The potential of medicinal and food plants used in managing hypertension and diabetes

Authors: Mourice Nyangabo Mbunde, Baraka Samwel, Michael Qwarse, Joseph N. Otieno

Affiliation: Institute of Traditional Medicine, Muhimbili University of Health and Allied Sciences

Background: In recent years, non-communicable diseases (NCDs)-hypertension, diabetes have globally shown an increasing impact on health status in populations with disproportionately higher rates in developing countries. In Tanzania, NCDs increasingly contribute significantly to the disease burden, especially among adult populations. Consumption of plants as food or medicine exerts beneficial effects on blood pressure or sugar level in the body. Various myths may influence health-seeking behavior and the use of traditional medicines. The main role of the Institute of Traditional Medicine (ITM) role is to identify useful practices and materia medica which can be modernized and developed into drugs for use to improve human health. Over decades extensive research on plants has been done and several herbal products have been developed that are utilized by Tanzanian communities for managing NCDs.

Objectives: To summarize the literature on the potential of medicinal and food plants used in managing hypertension and diabetes with highlights on some herbal products.

Methodology: A review of the literature was done on medicinal plants and indigenous Tanzanian foods that are commonly used by communities in

the prevention and management of hypertension and diabetes. Assessment of records on ITM herbal products was done focusing on Morizella juice and AMOPER herbal products.

Results: Based on the literature data, some common food, and herbs used for the management of diabetes and hypertension include garlic, ginger, honey, carrots, avocado seeds, papaya seeds, lemons, onions, amaranth leaves, Momordica charantia, Moringa, and aloe vera. These plants and ITM herbal products have antidiabetic, antihypertensive, and hypolipidemic properties.

Conclusion: Some plants used in Tanzania folkloric or traditional medicine have scientifically proven to have antidiabetic, antihypertensive, and hypolipidemic properties.

Recommendation: Appropriate use of these herbal and plant-based food supplements may contribute significantly to managing diabetes and hypertension.

104 Influence of male partner support on women's utilization of cervical cancer screening services in Bahi council, Dodoma region

Authors: Atugonza Laurent, Leonard Katalambula

Affiliation: Department of Public Health, University of Dodoma.

Background: A male partner could be the closest individual and great influencer to his female partner of whom a woman may highly depend directly or indirectly in many aspects of their lives including reproductive health services utilization. Male involvement has been associated with positive reproductive and maternal health outcomes such as contraceptive use, maternal care utilization, and HIV transmission prevention.

Objective: The study aims to determine the proportion of women who have ever been supported by male partners to uptake screening, and to determine the association between male support and screening practice.

Methodology: Descriptive statistics were used to determine the proportion of women who have been supported by their male partners to uptake screening and the proportion of women screened for cervical cancer. Baseline data were collected using a self-administered structured questionnaire from 275 women aged 30 to 50 from three villages in Bahi who were taking part in a clustered randomized control trial.

Results: The proportion of women screened for cervical cancer was 12.7%. The percentage of women who have ever received support was 13.4%. The majority of women (82%) have never had a couple of discussions about cervical cancer and 4.4% have ever been denied support even when they asked for it. Among the 37 participants who got support, the majority (62.2%) had screened for cervical cancer while 95.6% of those who never discussed with their partner, were not screened for the disease, and 83.3% of those who were denied support also were not screened. Experience of male support was significantly associated with screening practice ($P < .001$). The most common type of support offered was advice and permission while the most common type of support that was reported to have been denied was financial support.

Conclusion: Women who enjoyed support from their male partners were more likely to uptake screening of cervical cancer. Male support significantly increases women's utilization of cervical cancer screening services.

Recommendations: Not only females but also Male partners should also be a target when planning on interventions to increase screening uptake of cervical cancer. Education and information should be shared with both men

and women. Men should be reminded of their role in influencing women's utilization of health services and encouraged to be supportive of their female partners towards cervical cancer prevention services.

105 Understanding and Responses to Joint Pain: Preliminary Findings from a Rapid Ethnographic Assessment in Northern Tanzania

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Affiliations: Kilimanjaro Clinical Research Institute, Kilimanjaro Christian Medical Center, University of Glasgow, Kilimanjaro Christian Medical University College.

Background: Musculoskeletal disorders (MSKD) are recognised as an important global health problem but we know little about how it is understood and explained in Tanzanian communities. To ensure that interventions or services for MSKD are culturally competent and avoid unintended impacts the languages used to refer to and explain joint pain must be investigated.

Aim: To document the language used to describe joint pain, ideas about causes, understandings of who experiences such pain, the impacts the pain has and how people respond to it.

Methodology: We conducted rapid ethnographic assessment (REA) in two communities in Kilimanjaro region to document the language used to describe joint pain, ideas about causes, understandings of who experiences such pain, the impacts the pain has and how people respond to it. The REA included 60 short interviews with community leaders, traditional healers, community members, and pharmacists. Thematic analysis was conducted using QDA Miner software.

Results: The dominant concepts of joint pain and its cause were named as Ugonjwa wa baridi - cold disease; Ugonjwa wa uzee – old age disease; rimatizim – disease of the joints and gauti – gout. Causes mentioned included exposure to the cold, walking bare foot, working in cold conditions, old age, alcohol and red meat consumption, witchcraft, demons, settling in one position, sex, injuries/falls. Age, gender and occupation were seen as important factors for developing joint pain. The impacts of joint pain included loss of mobility, economic and family problems, death, reduction in sexual functioning, and negative self-perceptions. Responses to joint pain blend biomedical treatments, exercise, herbal remedies, consultations with traditional healers and religious ritual.

Conclusion: Understandings of and responses to joint pain in the two communities are 'syncretic' - mixing folk and biomedical practices. Narratives about who is affected by joint pain mirror emerging epidemiological findings, suggesting a strong 'lay epidemiology' in these communities. The impacts of joint pain are wide ranging, extending beyond the individual affected.

Recommendation: More comprehensive studies are required for interventions and services.

106 Dietary Patterns and The Risk of Obesity and Hypertension Among Adults in Pastoral Communities in Monduli District, Tanzania

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Research Centre. Nelson Mandela African Institution of Science and Technology, Ifakara Health Institute, Centre Suisse de Recherches Scientifiques en Côte d'Ivoire.

Background: Evidence has shown that unhealthy dietary patterns are common globally and are associated with increased risk of non-communicable diseases (NCDs). Obesity and hypertension are among the primary risk factors for many NCDs. Dietary pattern analysis has been used to describe the complex relationship between diet and health, and its importance in the preventing of NCDs.

Aim: To identify and characterize major dietary patterns among adults in pastoral communities

Methodology: A cross-sectional study involving 283 adults aged 18 years or older in Monduli district, Tanzania. Blood pressure, anthropometric measures were assessed in each participant. A questionnaire was used to assess the dietary intake. Factor analysis was used to identify types of dietary patterns. Multivariate logistic regression models were used to control for confounders and examine the association of dietary patterns with general obesity, abdominal obesity, and hypertension

Results: Three different types of dietary patterns were identified; traditional, red meat, and vegetables, which explained 33.5%, 23.1%, and 14.4% of the variation in food intake, respectively. Participants on the third quartile (traditional pattern score) had higher odds of having abdominal obesity (AOR=2.81; 95% CI: 1.09-7.26). Participants in the fourth quartile (red meat pattern) score had increased odds of having abdominal obesity (AOR=3.07; 95% CI:1.36-6.92). In contrast, participants in the third quartile of the vegetables dietary pattern had lower odds for general obesity (AOR = 0.25, 95% CI: 0.07, 0.9) and abdominal obesity (AOR = 0.25, 95% CI:

0.09, 0.71). No significant association between dietary patterns on the risk of hypertension was observed.

Conclusion: This study suggests that higher adherence to traditional dietary patterns and red meat dietary patterns may increase the risk of obesity, and higher adherence to vegetable dietary pattern may reduce the risk of obesity.

Recommendation: These findings can be used to guide the preventive nutrition interventions to curb the increase in obesity in pastoral communities.

107 Factors Associated with Cervical Cancer Screening among Women Living with HIV In the Kilimanjaro Region, Northern Tanzania

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Affiliations: Kilimanjaro Christian Medical University College, Kilimanjaro Christian Medical University College, University of KwaZulu-Natal, Pietermaritzburg.

Background: The prevalence of non-communicable diseases (NCDs) is currently increasing in Tanzania. Access to quality health care is crucial for the management of NCD patients. Health insurance is a pathway towards the achievement of universal health coverage (UHC) and may provide patients, including those with NCDs, with resilience to overcome shocks at the time of illness. In Tanzania, health-financing reforms are underway to speed up universal health coverage in the informal sector. Despite improved Community Health Fund (iCHF) rollout, enrolment remains a challenge in the informal sector.

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Aim: To explore the perspectives of local women food vendors (LWFV) and Bodaboda (motorcycle taxi) drivers on factors that challenge and facilitate their enrolment in iCHF.

Methodology: A qualitative study was conducted in Morogoro Municipality through in-depth interviews with LWFV (n=24) and Bodaboda drivers (n=26), and two focus group discussions with LWFV (n=8) and Bodaboda drivers (n=8). Theory of Planned Behaviour (TPB) constructs (attitude, subjective norms, and perceived control) provided a framework for the study and informed a thematic analysis focusing on the barriers and facilitators of iCHF enrolment

Results: The views of LWFV and Bodaboda drivers on factors that influence iCHF enrolment converged. Three main barriers emerged: inability to overcome challenges, such as iCHF not covering treatment of NCDs and iCHF not being accepted at non-government facilities; lack of knowledge about the iCHF; and negative views from friends and families. Several facilitators were identified, including opinions that enrolling in iCHF made good financial sense, encouragement from already-enrolled friends and relatives, and the belief that enrolment payment is affordable.

Conclusion: Enhancing NCD's care management may be supported by the enhancement of equitable access to health insurance schemes.

Recommendation: More targeted information about the scheme is needed for individuals in the informal sector. There is also a need to ensure that quality health services are available, including coverage for NCDs.

Authors: Adeline Munuo, Baltazary Gasper, Mariam Munyogwa, Maria Ngilisho.

Affiliations: University of Dar es Salaam, University of Dodoma, Tanzania Food and Nutrition Centre (TFNC).

Background: Overweight and obesity have become a critical problem predisposing individuals of varying characteristics to numerous non-communicable diseases in different parts of the world, Tanzania not being an exception. Effective multisectoral approach could be a key to addressing this burden. The adoption in Tanzania of National Multi-Sectoral Nutrition Action Plan (NMNAP I) that ended on June, 2021 had very little progress.

Aim: To analyze the current geographical distribution and scope of nutrition stakeholders' services and programs in addressing overweight and obesity as an effort to reduce NCDs in Tanzania.

Methodology: A cross-sectional design involving nutrition stakeholders from the government and private institutions in Tanzania was employed. A standard questionnaire was used to identify and map the types and distribution of nutritional services and their respective stakeholders at the district levels.

Results: The survey results show that only 7 (5.3%) out of 132 surveyed stakeholders reported to address overweight and obesity problem with coverage of less than 27% of Tanzania mainland. Most of the stakeholders' interventions were geared to address under-nutrition among children and pregnant women. The increasing trends in non-communicable diseases (NCDs) has triggered the alarm for stakeholders to design implementation plans. Overweight and obesity has been cited as key risk factors for NCDs but have not been put in any of the priority intervention areas.

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Mapping of Overweight and Obesity Stakeholders, Services and Programs in Tanzania

Conclusion: Stakeholders for nutrition in the country have not adequately designed strategies and interventions to address obesity and overweight that are increasing at an alarming rate in the country.

Recommendations: Obesity and overweight contribute significantly to the rising burden of NCDs in the country. Stakeholders for nutrition interventions should devote nearly equal efforts in addressing these epidemiological transitions as they have always done for the undernutrition.

109 Health and nutrition inequality in urban poor population and risks of non-communicable diseases

Authors: Jackline Mrema and Ester Elisaria

Affiliation: Ifakara Health Institute

Background: Non-communicable diseases (NCDs) account for 41 million deaths annually, equivalent to 71% of all deaths. More death (77%) is recorded in the low- and middle-income countries than in developed countries. In Tanzania, the prevalence of and death due to NCD is rising. Nonetheless, NCD risk factors have not been well studied in urban poor settings such as slums.

Aim: To determine risk factors for NCDs among the urban poor population in Tanzania.

Methodology: Data was collected through reviewing of documents including published and grey literature, policies and strategies and data set as well as mapping programs and stakeholders working in poor urban/slums.

Results: Existing literature indicates clearly that the urban population particularly those living in slums are disadvantaged in nutrition indicators. About 9% of children 0-6 months living in slums are exclusively breastfed

and around 40-56% of children below five years were stunted. Living in urban poor areas increased the consumption of less nutritious food especially high sugar and processed food due to the high price of fresh food such as vegetables, meat, and fish. Reviewed policies, strategies, and guidelines indicated a lack of policy statements or strategies targeting nutrition of urban poor children and adolescents. Data inventory also revealed a lack of quantitative and qualitative datasets specific for urban poor populations in Tanzania. Despite the nutrition burden existing in the urban poor population, none of the nine identified stakeholders working in slums has a nutrition component. Despite being disadvantaged, most of the policies recognize only urban and rural settings but none on urban poor except those related to land and settlement. Also, several programs are being implemented in slums however, none of the programs are targeting adolescents or children's health and nutrition. Due to these inequalities, the urban poor population could remain disadvantaged on health and nutrition and more exposed to NCDs risk factors.

Conclusion and recommendations: There is a strong need to have multi-sectoral engagement and integration of interventions targeting the urban poor population.

110 Alcohol use – a major risk factor for non-communicable diseases; policy and legal landscape to address the problem

Authors: Patricia Mhekwa, Didas Balimanya

Background: Alcohol consumption is an important risk factor for many health problems and, thus, a major contributor to the global burden of disease. More than 30 conditions listed by WHO's International Classification of Diseases, 10th Edition (ICD-10) include the term "alcohol"

indicating that alcohol consumption is a necessary cause underlying these conditions. However, legislation such as 'The Intoxicating Liquors Act, 1968,' addresses issues relating to alcohol consumption although the penalties imposed under the legislation are outdated and lack enforcement mechanisms. Alcohol is not specifically mentioned but it may be that the Act intends to cover alcohol within its scope. There is no overarching alcohol policy in Tanzania.

Aim: To substantiate initiatives and approaches to the formation of a national legal framework (policy & law) to combat the harmful use of alcohol in Tanzania.

Methodology: In 2014, an assessment was done on the Legislative Approaches within East Africa. Regulation of Alcohol Consumption was conducted through extensive consultation with individuals and organizations working within East African-based civil society organizations (Tanzania inclusive).

Results: In Tanzania, the issue of 'binge drinking' was significant, with 30% of adults consuming alcohol five or more times a week. Notably, 40 percent of children aged 14-17 are consuming alcohol 2-4 times per week.

Conclusion: There is a lack of policy initiatives that deal with the social and health effects of alcohol. This abstract aims to come up with a presentation that will be presented as an inspiration to the Civil Society Organizations and other key players to foster advocacy for the Legal framework on Alcohol harm control in Tanzania.

Recommendation: We recommend a combination of mobilization, education, and policy measures at a local and national level. In terms of policy measures, we advocate compliance with the recommendations of the WHO.

111 Depression, Generalized Anxiety and Alcohol Use Behaviours among Primary and Secondary School Teachers In Mwanza, Tanzania; A Cross-Sectional Study

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Affiliations: Catholic University of Health and Allied Sciences, Psychiatry and mental health department.

Background: Depression, generalized anxiety, and alcohol use disorders are highly prevalent in the workplace and have an enormously negative impact on work performance and productivity but little is known on the burden among primary and secondary school teachers in Tanzania.

Objective: This study aimed to determine the prevalence and factors associated with depression, generalized anxiety disorders, and alcohol use behaviors among primary and secondary school teachers in Mwanza, Tanzania

Methodology: A cross-sectional study was conducted at Mwanza City where primary and secondary school teachers from both private and public schools were involved. A total of 300 teachers were recruited and interviewed by using Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), and Alcohol Use Disorder Identification Test (AUDIT). A systematic sampling approach was used to select both schools and participants.

Results: The mean age of the participants was 36.1 (s.d 8.465), the majority of the participants were from primary and public schools, 60.67% and 55.67% respectively. 51% of the participants were having symptoms of depression, 46.33% had generalized anxiety symptoms, and 16% had harmful alcohol use. Being married, a low number of children, and bachelor

level of education were statistically less likely to be associated with depression, while bachelor level of education was more likely to be associated with anxiety symptoms. On the other hand, male gender, age group of 41-50, being married and having a high number of children were statistically more likely to be associated with harmful alcohol use.

Conclusion: Depression, generalized anxiety symptoms, and alcohol use behavior are high among a sample of teachers in Mwanza Tanzania

Recommendations: Further studies are needed to explore and measure the incidence, causal inference, and the association between outcomes and risk factors.

112 Factors Affecting Choice of Healthy Food Among University Students: The Case of Selected Universities in Dar Es Salaam

Authors: Sogone M. Wambura, Bruno A. Nyundo

Affiliation: University of Dar es Salaam.

Background: The type of food a person consumes is considered as the main cause of obesity and overweight. A range of 10% to 60% of African University students is reported by the WHO report of 2015 to be in the category of being overweight and obese. The inadvertent adaptation to modernism among these students in urban located universities affects their lifestyle and primarily their eating habits.

Aim: This study aimed to assess factors influencing healthy food choices among students at the University of Dar es Salaam and the Muhimbili University of Health and Allied Sciences.

Methods: Mixed research methods were used to assess personal, food, and environmental characteristics influencing healthy food choices. Questionnaires and interviews were employed for a sample of 108

students. Quantitative data obtained was coded and analyzed by using SPSS version 20.

Results: Personal factors including income, health attitudes, and nutritional knowledge were found to have a significant influence on food choices among the students (p -value < 0.05). The findings also showed that food characteristics including, food tastes, food prices, and food types were found to have a significant influence on food choices among the students, (p -value < 0.05). Furthermore, the environmental characteristics were three times more likely to influence students' food choices compared to personal and food characteristics (p -value < 0.01).

Conclusion: Personal income, health attitude, nutritional knowledge, food type, food taste, food price, and environmental factors like the seasonality of food, greatly influence food choices among the students. Strategic interventions on the same are to be extracted to achieve positive results.

113 The effects of physical activities on glycemic status among children with type I diabetes mellitus

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Affiliation: Tanzania Non-Communicable Disease Alliance.

Background: Diabetes camp is one of the best experiences that a child with type 1 diabetes can have and an excellent opportunity to learn and share experiences. Regular exercise is an important part of diabetes management. It improves insulin sensitivity and thereby improves blood glucose control. Excessive physical activity can cause hypoglycemia, so it's very important to balance doses of insulin with the food one eats and physical activities. To learn how different types of activity affect blood

glucose levels, we examined blood glucose levels before, during, and after physical activity sessions

Aim: To assess the effect of level of physical activities on the glycemic status of children with type I diabetes mellitus in a typical suburb of Tanzania.

Methodology: A longitudinal cohort study involving pre-and -post-exercise glycemic status was carried out on children who attended diabetes Camp in Bagamoyo district of Tanzania on 3 consecutive days in March 2020. Data on baseline HbA1c level, FBG, RBG pre, and post-physical activity, post-lunch, pre and post-dinner times were recorded in a pre-designed MS-Excel sheet. Analysis was done using Generalized Estimating Equation (GEE) under exchangeability. Analysis was done using SAS.

Results: 34 children were recruited and followed up for three consecutive days. The mean HbA1c level was 12.2%. There were significant correlations between pre-and post-exercise glycemic states in each station. Physical activities carried out during lunch had a significant largest drop in mean glycemic levels of participants ($\diamond = 2.34$ mmol/L). A drop in mean change in glycaemic levels across activity over days was observed ($\heartsuit_1 = -.9$ mmol/L; $\heartsuit_2 = -1.08$ mmol/L)

Conclusion: Poor glycemic control was evident among participants. Physical activity of at least 30 minutes carried out around lunchtime had the largest significant drop in mean glycemia levels among study participants.

Recommendation: There is a need for PA prescriptions for a type 1 diabetes patient to control levels of physical activity intensity, nutrition, and dose to balance glycemic control.

114 Social Determinants of Unhealthy Eating and Its Impact on Non-Communicable Diseases

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Affiliations: NUDEC, Tanzania Non/Communicable Disease Alliance

Background: Living organisms, including human beings, need a continuous supply of food for growth, development, and survival. Food has always been the central part of our community, social, cultural, and religious life. It has been an expression of love, friendship, and happiness. Foods contain a certain amount of given nutrients. Unhealthy eating is excessive/limited intake of certain foods and can lead to NCDs at any time in the life cycle

Aim: To explore the social determinants of unhealthy eating in the life cycle and how they relate to the occurrence of NCD

Methodology: Literature review was done by using a variety of search engines, to retrieve research publications, "grey literature", and expert working group reports. Publications have been reviewed to inform issues surrounding unhealthy eating.

Results: Findings show that inadequate breastfeeding leads to the development of obesity, hypertension, and type 2 diabetes later in life, and also increases the risk of breast cancer in mothers. In childhood, adolescence, and adulthood unhealthy eating leads to under nutrition which is a risk factor for adult obesity and related NCDs Causes of unhealthy eating include low income and low educational levels, low knowledge on food choices, and marketing promotions.

Conclusion: The food consumed at various times in our life has an implication to NCD status in adulthood. Issues of unhealthy eating/diets need to be addressed following the life cycle approach as some of the

causes of problems appearing in later life are due to early life exposures/experiences.

Recommendation: Multisectoral approaches which address production and marketing of foods, health, human rights, gender, and equity will support prevention and control of NCDs. Follow up and monitoring of policies and laws which govern the processing and marketing of foods will help in making healthy food choices. Dissemination of appropriate knowledge and messages on healthy eating is a key to change.

115 Adherence to Lifestyle Recommendations among Adults attending Hypertension Clinics in selected hospitals in Tanzania

Authors: Joseph Shilole, Julius Ntwenya

Affiliation: The University of Dodoma

Background: Hypertension is the first most contributor to the deaths from non communicable diseases (NCDs) worldwide. Lifestyle changes are recommended as an equal-first-line approach for controlling hypertension. However, the burden of uncontrolled hypertension remains high.

Aim: To assess the lifestyle behaviors among adults attending hypertension clinics in selected hospitals in Tanzania

Methodology: A Cross-sectional study involved a face-to-face interview of 311 participants carried from June to September 2020. The study collected data from adult hypertensive patients (> 18 years old) who were sampled randomly during clinic visits. The lifestyle behaviors were assessed by the WHO steps survey standard questionnaire. Data was analyzed SPSS, version 26.

Results: The mean age of hypertensive patients was 53.6 ± 7.5 years. Females were 58.8%. Only 17.7% had good compliance with

recommended lifestyle behaviors related to hypertension. Regular physical activities had 37.9% adherence, 99% were adherent to non-smoking, 94.2% adhered to moderation of alcohol consumption, and 22.2% adhered to the consumption of fruits and vegetables. Hypertensive patients with adequate knowledge were two times more likely to comply with the WHO recommended lifestyle behaviors [AOR= 2.32; CI 95% (1.082-3.471); p= 0.05]

Conclusion: Most hypertensive patients had poor lifestyle behaviors related to the management of hypertension.

Recommendation: This study shows a need for health promotion intervention to increase people's awareness of recommended lifestyle behaviors.

116 Obstructive sleep apnea and associated factors among hypertensive patients attending a tertiary cardiac center in Tanzania: A comparative cross-sectional study

Authors: Pedro Pallangyo, Lucy R. Mgopa, Zabella Mkojera, Makrina Komba, Jalack Millinga, Nsajigwa Misidai, Happiness J. Swai, Henry Mayala, Smita Bhalia, Salma Wibonela, Mohamed Janabi

Affiliation: Jakaya Kikwete Cardiac Institute

Background: There is mounting evidence for a reciprocal yet bidirectional association between sleep-disordered breathing and hypertension. Obstructive sleep apnea (OSA), a common cause of systemic hypertension, is an independent risk factor for hypertension-related cardiovascular morbidity and mortality.

Aim: To explore the burden of obstructive sleep apnea and its associated risk factors among hypertensive patients attending Jakaya Kikwete Cardiac Institute

Methodology: A total of 1974 individuals (i.e. 1289 hypertensive and 685 normotensives) were consecutively enrolled in this study. The Berlin questionnaire and Epworth Sleepiness Scale were utilized in the assessment of OSA and excessive daytime sleepiness respectively. Logistic regression analyses were employed in the determination of associated factors for OSA

Results: The mean age was 53.4 years and females constituted 60.4% of participants. About three quarters of participants had excess body weight, 11.6% had diabetes, 8.0% had asthma and 18.6% had history of recurrent nasal congestion. Positive family history of snoring was reported by 43.1% and 36.9% had a personal history of snoring. Persons with hypertension displayed a higher frequency (42.1%) of OSA compared to their normotensive counterparts (11.8%), $p < 0.001$. Multivariate logistic regression analyses revealed hypertension (OR 5.1, 95% CI 3.2-8.2, $p < 0.001$), diabetes mellitus (OR 2.2, 95% CI 1.3-3.5, $p < 0.01$), chronic nasal congestion (OR 1.6, 95% CI 1.1-2.5, $p = 0.01$), obesity (OR 2.4, 95% CI 1.8-3.3, $p < 0.001$), increased neck circumference (OR 2.7, 95% CI 1.2-6.4, $p = 0.02$), family history of snoring (OR 5.5, 95% CI 4.0-7.5, $p = 0.03$) to have an independent association for OSA. Participants with hypertension displayed superior odds for OSA compared to their normotensive counterparts

Conclusion: OSA is considerably common among patients with hypertension in a tertiary health care setting in Tanzania. Positive family history of snoring was the strongest associated factor; however, excess body weight proved to be the strongest modifiable risk factor

Recommendation: Given its pervasiveness, OSA should be an integral part of the medical evaluation in hypertensive individuals

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Prevalence of Cardiovascular Diseases and Risk Factors among Residents of Tanga City

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Affiliations: Jakaya Kikwete Cardiac Institute, Tanzania Non-Communicable Disease Alliance

Background: Cardiovascular disease is defined as a group of diseases affecting the heart and blood vessels. It is a broad term that encompasses hypertension, cerebral vascular events, atherosclerosis /arteriosclerosis of coronary artery diseases, and peripheral blood vessels. WHO has included aortic aneurysm/ dissection, deep venous thrombosis (DVT), pulmonary embolism (PE), and heart tumors like myxomas in the definition of CVDs. Most cardiovascular diseases are caused by well-known and preventable traditional risk factors (modifiable and non-modifiable). The modifiable risk factors include high blood pressure, Physical inactivity, dyslipidemias, tobacco use, Diabetic Mellitus, obesity, and unhealthy diet

Aim: To determine the prevalence of CVDs among the residents of the Tanga city during the commemoration of world hypertension day in May 2018.

Methodology: We conducted a cross-sectional community-based study that consecutively enrolled 355 consenting adults who came for a health check at Nguvumali Hospital ground Tanga, in 2018. A structured questionnaire was used to obtain demographic data, gather co-morbid information such as record blood pressure, body weight, and BMI. A 12

lead ECG and Transthoracic Echo were done to determine the structural and ischemic heart changes.

Results: Out of 355 participants, 75.6% were male but female participants had more hypertension and diabetes mellitus compared to males (HTN 45% vs. 12.9%) (DM 21% vs. 6%). The study determined that the most prevalent risk factor for cardiovascular disease was hypertension in both males (12.9%) and females (45.5%). Few of the participants were smokers, 2% of all males and 1% of females. The study also found that 6% of females were diabetic and most of these females were obese with a body mass index (BMI) of 30 or above.

Conclusion: The rates of cardiovascular diseases and modifiable risk factors were found to be high. Most of the participants had heart failure stage A and some were symptomatic.

Recommendation: Community based regular health check is highly recommended for early diagnosis and possible intervention/treatment.

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Prevalence, awareness and Patterns of risk factors for hypertension among public primary school teachers in Ilala District Municipal Dar es salaam Tanzania

Authors: Nzobendo Lucas, P. Chillo, K. Khuzheima

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Background: Hypertension is one of the leading causes of death and disability globally. In Africa, it is the major single risk factor for cardiovascular disease. Several studies have been undertaken to identify the culprit risk factors for hypertension. The teaching profession is a highly stressful occupation due to enhanced psycho-social stress at the workplace. Consequently, hypertension prevalence has been reported to be higher among public primary school teachers.

Aim: To determine the prevalence, awareness, and patterns of risk factors for hypertension among primary school teachers in Ilala District Municipal Dar es salaam, Tanzania

Methodology: Community-based Cross-sectional study, Feb-May 2021. The study population was Public primary school teachers at Ilala Municipal and 614 were enrolled. A multistage cluster sampling was used. Data were analyzed using STATA. Categorical and Continuous variables were summarized, Chi-square test was used to determine the association, and Multivariable log-binomial was used.

Results: The median age was 41years, and a majority of participants were females (82.7%). Most of the studied participants had low income (68.1%). 16.4% were hypertensive. More than three-quarters of participants engaged in moderate to vigorous physical activities while less than half were taking adequate fruits and vegetables. The mean BMI was 27.6kg/m², overweight and obesity were found in 34.0% and 31.9% of participants, respectively. On multivariate analysis, factors found to be independently associated with the diagnosis of hypertension were older age (PR = 1.64), earning a high income (PR = 1.58), being obese (PR = 2.07) and overweight (PR = 2.05), adequate vegetable intake (PR = 1.84) and received advice on salt intake (PR = 2.26).

Conclusion: The prevalence of hypertension among public primary school teachers in Ilala Municipality was 25.1%. Hypertension was associated with older age, high income, advice on salt intake, advice on vegetable intake, overweight, and obesity.

Recommendation: Regular school-based programs aiming at sensitizing and timely check-ups for blood pressure and lifestyle behaviors should be implemented to primary schools' teachers.

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Co-Occurrence of Non-Communicable Diseases (NCDs); What is known about co-occurrence of risk factors and NCDs comorbidity in Tanzania.

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Affiliation: Kilimanjaro Christian Medical University College

Background: Tanzania's social-economic development poses sharp inequities both between and within urban and rural areas, and among various socio-economic groups with scarce investigation on the association between co-occurrence of NCDs risk factors with the development of multimorbidity. Despite this alarming danger, there is no effective health model on the NCD multimorbidity care fit for low and middle-income (LMICs) countries including Tanzania.

Aim: To provide a review of evidence on the nature, epidemiology of multimorbidity, co-occurrence of risk factors, and identify gaps of evidence that need to be worked out.

Methodology: A review on global, regional, and national published related research outputs was done. The published research included the burden, SDH, health inequities among different social groups with key terms of co-occurrence and comorbidity of NCDs and chronic diseases

Results: Few studies have been published that describe the clustering of NCDs risk factors to multimorbidity in sub-Saharan Africa and had focused on people living with HIV/AIDS, people in urban areas, and adolescents. Adolescents are vulnerable to adopting unhealthy lifestyles behaviors, co-occurrence of risk factors, but also a manifestation of NCD precursors. Over half of NCDI DALYs in Tanzania are from conditions other than cardiovascular diseases (CVD), Cancer, Diabetes, and Chronic Respiratory Diseases (COPD). Scarce nationally representative data on the SDH

portfolio have resulted in ineffective policies addressing the prevailing health inequities causing NCD multimorbidity.

Conclusion: The NCD profile in Tanzania is different from that of developed nations, indicating a difference in associated risk factors. It is also important to understand the pattern of risk factors in association to comorbidity to fully understand the burden of NCDs.

Recommendations: To achieve long-term progress on NCD prevention and mitigation, an integrated multisectoral approach to tackle social inequalities is unavoidable. Prospective studies on multiple risk factors, chronic diseases, and detailed epidemiological data on NCDs are crucial to ensure preparedness and efficient response of the health system to NCDs.

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Presumed large vessel occlusion in patients presenting with first-ever ischemic stroke at a tertiary teaching hospital in Tanzania

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Affiliations: Catholic University of Health and Allied Sciences, Massachusetts General Hospital, Harvard Medical School, Muhimbili University of Health and Allied Sciences, Jakaya Kikwete Cardiac Institute, Ocean Road Cancer Institute, Muhimbili National Hospital, Texas Tech University Health Sciences Center

Background: Large vessel ischemic strokes account for more than one-third of all strokes associated with substantial morbidity and mortality without early intervention. The actual incidence of Large vessel occlusion

(LVO) is not known in sub-Saharan Africa. Definitive vessel imaging is not routinely available in resource-limited settings.

Aim: We aimed to investigate the magnitude and outcomes of first-ever ischemic strokes, with a particular focus on large vessel occlusion in patients admitted at a tertiary hospital in Tanzania

Methodology: This cohort study recruited all consenting first-ever ischemic stroke participants admitted at a large tertiary teaching hospital in Tanzania. A diagnosis of presumed LVO was made by a neuro-radiologist based on contiguous ischemic changes in a pattern consistent with proximal LVO on a non-contrast CT head. We examined factors associated with presumed LVO using logistic regression analysis.

Results: We enrolled 158 first-ever ischemic strokes over 8-months with a mean age of 59.7±16.6 years. Presumed LVO accounted for 39.2% [95%CI 31.6%-47.3%] with an overall median time of stroke symptoms to hospital arrival of 1 day IQR [1-2]. Participants with presumed LVO were more likely to involve the middle cerebral artery territory (70.9%); $p < 0.0001$. Independent factors on multivariate analysis associated with presumed LVO were: increased waist-hip ratio {adjusted OR 9.31 (95% CI: 2.47–34.99)}, hypertension {adjusted OR 6.74 (95% CI: 2.29–19.85)} and alcohol consumption {adjusted OR 3.97 (95% CI: 1.21–13.00)}. One-year mortality in presumed LVO was 50% compared with 37.5% in participants without presumed LVO.

Conclusion: Our findings revealed a high burden of presumed LVO associated with high rates of mortality at one year.

Recommendation: Further studies utilizing definitive vessel imaging will be key in establishing the actual incidence and for planning preventive and therapeutic strategies in sub-Saharan Africa.

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Factors Influencing Nutritional Status of Children Below 24 Months In Njombe Region, Tanzania

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Background: The burden of malnutrition remains high across the world and young children are among the most affected group. In African region, it has increased by 1.4 million in Eastern and Southern Africa and by 6.5 million in West and Central Africa from 2000 to 2017. Tanzania is among the countries with very high levels of malnutrition ($\geq 30\%$) and Njombe is among the regions with a high prevalence (53.6%) exceeding the national average.

Objective: To determine factors influencing nutritional status of children aged below 24 months in Njombe region.

Methodology: A mixed cross-sectional study was used involving children aged 6 to 23 months by random selection. Structured questionnaires were used and anthropometric data was also collected. Under-nutrition was based on Z-scores indices below $-2SD$ of the reference population. Bivariate and multivariate log-binomial regression models were used to determine the association between variables. Qualitative data were obtained through focused group discussion and in-depth interviews and analysed thematically.

Results: 41% of the assessed children were under-nourished; stunting (40%), underweight (1.2%), and wasting (3.5%). Under nutrition was associated with sex (ARR=0.80, 95% CI: 0.66, 0.97), age (ARR=1.42, 95%

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CI:1.04,1.93), low birth weight (ARR=1.55,95% CI:1.22,1.97) and cohabiting mothers (ARR=1.51,95% CI:1.13,2.01). However, breast feeding (ARR=1.55, 95%CI: 0.93, 1.40) and fathers' secondary level of education (ARR=0.46, 95% CI 0.31, 0.68) were associated with reduced risk of under-nutrition. Multiple responsibilities, lack of partners' support, and caring for big families were reported reasons hindering effective breastfeeding up to 24 months of age.

Conclusion: The prevalence of under-nutrition in Njombe is high in comparison with the national trend. Educational level of the parents, occupational status, and alcohol intake habit of the fathers, age and sex of the children and exclusive breast feeding for six months were the significant factors influencing nutritional status of children below 24 months in Wanging'ombe and Njombe Town council. Lack of support from male partners, big families and multiple responsibilities are among the reasons hindering women to practice effective breastfeeding.

Recommendation: Health education and campaigns should be sensitized to encourage cumulative involvement in nutritional care of both mother and children.

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Blood pressure during the first two years of antiretroviral therapy in people living with HIV compared to HIV-uninfected individuals in north-western Tanzania

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Affiliations: National Institute for Medical Research, London School of Hygiene & Tropical Medicine, University of Copenhagen, Weill Cornell Medical College.

Background: High blood pressure (BP) is the main driver of cardiovascular diseases in people living with HIV (PLWH). PLWH may experience a rapid increase in BP during the first two years of antiretroviral therapy (ART).

Aim: We investigated predictors of greater change in BP in PLWH compared to HIV-uninfected.

Methodology: We undertook a longitudinal analysis of data from PLWH and HIV-uninfected adults enrolled in a study of diabetes and associated complications in Mwanza, Tanzania. A structured questionnaire was used to collect data on socio demographic, smoking, alcohol, and physical activity at enrolment visits. History of ART use, and anthropometry and BP measurements were taken at baseline, first and second year visits. We analyzed blood samples for creatinine, glucose, C-reactive protein, α -acid glycoprotein, insulin, full blood count, and HIV. Predictors of BP change over time were determined using mixed-effect linear regression adjusted for age, sex, and body mass index (BMI) a

Results: We enrolled 916 PLWH starting ART and 369 HIV-uninfected adults of whom 588 PLWH and 257 HIV-uninfected attended up to second year follow up visit. The mean age was 38 (SD=11) and 60% were females. The mean systolic BP (mmHg) in PLWH increased from 112 at baseline to 115 (both SD=18) at second year follow up visit ($p=0.006$) but decreased from 125 to 121 (both SD=19) in HIV-uninfected adults ($p=0.003$). In the overall study population, factors significantly associated with higher BP were increasing age, male sex, alcohol consumption, higher BMI, insulin resistance, higher CD4+ T-cell count and higher white cell count. HIV infection, current smoking, physical inactivity, raised C-reactive protein,

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raised α -acid glycoprotein and anaemia were significantly associated with lower BP.

Conclusion: BP increased in PLWH during the first two years on ART.

Recommendation: BP screening programs and interventions targeting modifiable risk factors such as overweight and alcohol consumption are warrant.

123 Effect of Community Based Lifestyle Education Intervention to Reduce Cardiovascular Diseases Risk Factors among Vulnerable Population in Dodoma City, Tanzania: A Cluster Randomized Controlled Trial

Authors: Nyasiro S. Gibore, Mariam J. Munyogwa, Secilia K. Ng'weshemi, Ainory P. Gesase

Affiliation: The University of Dodoma

Background: Tanzania is experiencing the rise of cardiovascular diseases and associated risk factors including hypertension, obesity, and diabetes mellitus. Health education and healthy lifestyle promotion is an effective approach towards primary prevention of the risk factors and can be achieved through community-based intervention.

Aim: To test the effectiveness of community-based lifestyle education intervention in reducing cardiovascular disease risk factors among a vulnerable population in Dodoma City.

Methodology: This will be a cluster randomized involving 800 participants aged 31 years onward who will be subjected to different interventions at different time points in a 6-months follow up. Education and health promotion will be provided to the intervention arm and on each visit, all participants will be assessed of various biological and behavioral risk factors to cardiovascular diseases. Independent and paired t-tests will be

employed to make comparisons between and within groups. P-values of less than 0.05 will be considered statistically significant.

Results: The main outcome measures will be changes in body weight, blood pressure, blood glucose, dietary habits, physical exercise in the intervention compared to the control group.

Conclusion: The findings of this study will have policy implication about the effect of community-based health education and healthy lifestyle promotion for the primary prevention of CVDs risk for vulnerable population especially now when the Tanzanian government is emphasizing on primary prevention of non-communicable diseases.

Recommendation: a sustainable and scalable intervention which enables communities to take control of their cardiovascular health, and therefore reduce mortality and morbidity related to CVDs risks factors is of paramount

124 Essential Emergency and Critical Care: a consensus among global clinical experts

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Affiliations: Muhimbili University of health and Allied Sciences, IHI

Background: Globally, critical illness results in millions of deaths every year. Although many of these deaths are potentially preventable, the basic, life-saving care of critically ill patients is often overlooked in health systems. Essential Emergency and Critical Care (EECC) has been devised as the

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care that should be provided to all critically ill patients in all hospitals in the world. EECC includes the effective care of low cost and low complexity for the identification and treatment of critically ill patients across all medical specialties.

Aim: Specifying the content of EECC through consensus among a diverse group of global clinical experts. An additional aim, given the ongoing pandemic, was consensus around the essential diagnosis-specific care for critically ill patients with COVID-19

Methodology: In a Delphi process, consensus (>90% agreement) was sought from a diverse panel of global clinical experts. The panel iteratively rated proposed treatments and actions based on previous guidelines and the WHO/ICRC's Basic Emergency Care. The output from the Delphi was adapted iteratively with specialist reviewers into a coherent and feasible package of clinical processes plus a list of hospital readiness requirements.

Results: The 269 experts in the Delphi panel had clinical experience in different acute medical specialties from 59 countries and all resource settings. The agreed EECC package contains 40 clinical processes and 67 requirements, plus additions specific for COVID-19.

Conclusion: The study has specified the content of care that should be provided to all critically ill patients. Implementing EECC could be an effective strategy for policymakers to reduce preventable deaths worldwide.

Recommendation: All critically ill patients, all over the world should have access to and receive EECC to save their lives.

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Reimaging Childhood Cancer: Melting Down the Tumor

Authors: Joshua Chesco Mwalongo

Affiliation: Kilimanjaro Christian Medical University College

Background: In Tanzania, cancer is the second most prevalent Non-Communicable Disease ranking just after cardiovascular diseases. For childhood cancer, 88% occur in LMICs annually. A cancer diagnosis is devastating, but in Tanzania, it is often a death sentence. This study explored the situation of childhood cancer in Tanzania and provided suitable suggestions to reduce the problem.

Aim: To interrogate the situation of childhood cancer care in Tanzania and to formulate a realization of the level of pediatric cancer diagnosis, treatment, and outcomes.

Methodology: A systematic review was conducted focusing on the most relatable publications about childhood cancer in Tanzania from 2017 to date. The key search words for the publications were “childhood cancer”, “childhood cancer in Tanzania”, “pediatric oncology”, “NCDs in Tanzania”, “NCDs statistics in Tanzania”, “common cancers in Tanzania” and “Tanzania health system”. A total of 10 publications were reviewed in-depth with 5 more reviewed by abstracts. In addition to that, articles, videos, and informative websites were reviewed and surveyed.

Results: It was deduced that there are few pediatric cancer institutes and centers in Tanzania and poor awareness among the society members about childhood cancers. The survival rate of children with cancer in Tanzania is very low at about 1 child out of 5 diagnosed children, unlike 4 children out of 5 diagnosed children in the developed countries. About 40% of people abandon treatment due to reasons including high cost of treatment and there is a deficiency in the number of researches and studies conducted on childhood cancers in Tanzania

Conclusion: Immediate need for improved childhood cancer education in the society, financial interventions by different sectors, research and

studies, and involvement of youth advocacy in fighting cancer was revealed.

Recommendation: Childhood cancers should be included in Primary Health Care program and education on childhood cancer should be provided to people. More studies and research should be encouraged in this field. The government should capacitate the hospitals to the regional level for cancer diagnosis.

126 Health, wealth, and medical expenditures among the elderly in rural Tanzania: Experiences from Nzega and Igunga districts

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Affiliations: Muhimbili University of Health and Allied Sciences

Background: The per capita health expenditure (HE) and share of gross domestic product (GDP) spending on elderly healthcare are expected to increase. In many developing countries like Tanzania, there is an increasing gap between health needs and the available resources for elderly healthcare, which leaves the elderly with poor health conditions, especially chronic diseases. These conditions lead to catastrophic HEs for the elderly.

Objective: To analyse the association among health, wealth, and medical expenditure in rural residents aged 60 years and above in Tanzania.

Methods: Data were collected through a cross-sectional household survey to rural residents aged 60 years and above living in Nzega and Igunga districts. Standardised World Health Organization (WHO) Study on Global Ageing and Adult Health (SAGE) and European Quality of Life Five Dimension (EQ-5D) questionnaires were used. The quality of life (QoL) was estimated using EQ-5D weights. The wealth index was generated from

principal component analysis (PCA). Two linear regression analyses (outpatient/inpatient) were performed to analyse the association among health, wealth, medical expenditure, and socio-demographic variables.

Results: This study found a negative and statistically significant association between QoL and HE, whereby HE increases with the decrease of QoL. We could not find any significant relationship between HE and social gradients. In addition, age influences HE such that as age increases, the HE for both outpatient and inpatient care also increases.

Conclusion: The health system in these districts allocate resources mainly according to needs, and social position is not important. We thus conclude that the system is fair. Health, not wealth, determines the use of medical expenditures.

127 Does Health Insurance Contribute to Improved Utilization Of Health Care Services For The Elderly In Rural Tanzania?

Authors: Malale Tungu, Paul Joseph Amani, Anna-Karin Hurtig, Angwara Dennis Kiwara, Mughwira Mwangi, Lars Lindholm and Miguel San Sebastián

Affiliation: Muhimbili University of Health and Allied Sciences

Background: Healthcare systems in developing countries like Tanzania depend heavily on out-of-pocket payments. This mechanism contributes to inefficiency, inequity and cost, and is a barrier to patients seeking access to care. There are efforts to expand health insurance coverage to vulnerable groups, including elderly in Sub-Saharan African countries.

Objectives: To analyze the association between health insurance and health service use in rural residents aged 60 and above in Tanzania.

Methodology: Data were obtained from a household survey conducted in the Nzega and Igunga districts. A standardized survey instrument from the World Health Organization Study on global AGEing and adult health was used. This comprised of questions regarding demographic and socio-economic characteristics, health insurance status, health seeking behaviours, sickness history and the receipt of health care. A multistage sampling method was used to select wards, villages and respondents in each district. Local ward and hamlet officers guided the researchers in identifying households with elderly. Logistic regression method was used to explore associations between health insurance and outpatient and inpatient health care use.

Results: The study sample comprised 1,899 people aged 60+ of whom 44% reported having health insurance. A positive statistically significant association between health insurance and the utilization of outpatient and inpatient care was observed in all models. The odds of using outpatient (adjusted OR = 2.20; 95% CI: 1.54, 3.14) and inpatient services (adjusted OR = 3.20; 95% CI: 2.46, 4.15) were higher among the insured.

Conclusion: Therefore, health insurance is a predictor of outpatient and inpatient health services in people aged 60 and above in rural Tanzania.

128 Community Engagement and Full Involvement of NGOs in Reducing Burden and Mortality of NCDs In Hospitals in Tanzania.

Author: Macca A. Mrina

Affiliation: Grassroots Initiative for Youth and Elderly Development Organization (GIYEDO)

Background: Community Development Policy (CDP), 1996 provides direction in ensuring that all authorities/institutions concerned with

community development ought to establish close and sustainable cooperation with planning and implementation of development plans including NGOs. Aged populations are more susceptible to the burden of Non-Communicable Diseases and, efforts to address these challenges should be in line with government policies and laws for protecting the welfare elderly and providing them with appropriate services. NGOs in collaboration with local authorities are instrumental in tackling some of the prevailing issues affecting the aged population through needs assessment, research, awareness programs, and community engagement

Aim: To explore experience and promote active involvement of NGOs in their quest to identify community needs, social and health-related issues.

Methodology: Mapping exercise was done by GIYEDO at Dodoma City Center and Kongwa district (Hotspots) involving 217 individuals of whom 135 were elderly and 82 youths. They were assessed for their alcohol drinking and smoking habits, other NCDs risk factors and, use of medical vs traditional therapies. The results were used to create awareness programs and equip skills necessary for addressing NCDs and assessing the role of NGOs in advocacy.

Results: There was observed enhancement in coping skills for and awareness on risk factors of NCDs accompanied by improved quality of life. There are still gaps in leadership, investment, care, and community engagement in addressing the NCDs burden.

Conclusion: Collaboration of NGOs and local government is important for sustainable community development provided there is an adequate investment, appropriate knowledge, and the community is fully engaged.

Recommendation: Elderly and vulnerable populations need care for NCDs and, NGOs are vital in providing outreach services that include

education and delivery of innovative services that may aid in early detection and thus contribute to good outcomes.

129 The Magnitude and Determinants of Antepartum Depression Among Women Attending Antenatal Clinic at A Tertiary Hospital, In Mwanza Tanzania; A Cross-Sectional Study

Authors: Mwita Matiko, Kasongi Doreen, Bernard Eliya, Gunda Daniel, Mmbaga Blandina

Affiliation: Catholic University of Health and Allied Sciences

Background: There is an increased vulnerability for the development of common mental disorders during the peripartum period as evidenced in depressive disorder

Aim: To determine the magnitude and factors associated with depression, among pregnant women attending Antenatal Clinic at Bugando Medical Centre

Methodology: A cross-sectional study was used to determine the prevalence and risk factors associated with depression among pregnant women attending antenatal clinic (ANC) at Bugando Medical Centre, a tertiary level hospital in Mwanza Tanzania.

Results: A total of 380 pregnant women were recruited and interviewed by using Edinburg Postnatal Depression Scale (EDPS). The sample size was randomly selected from the clinic. The mean age of the participants was 30.35 years, with minimum and maximum age of 20 years and 47 years respectively with 89.74% of the participants being married. Almost half of the participants, 53.68% were in the third trimester, with about two-thirds of the participants, 76.84% reports to have planned for their current pregnancies. The overall prevalence of depression was 15% with middle

age of the partner (31-40 years), been married, high level of education, partner and family support were found to be statistically protective for depression while polygamy and partner violence were statistically risk factors for depression.

Conclusion: The results showed a high prevalence of antepartum depression which emphasizes the importance of earlier screening, detection, and intervention to reduce the burden of morbidity and disability.

Recommendation: Further studies are needed to explore and measure the incidence, causal inference, and the association between outcomes and risk factors.

130 Prevalence and factors associated with substance use among HIV positive youth attending care and treatment clinics in Dodoma, Tanzania.

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Affiliation: Hubert Kairuki Memorial University

Background: Youth living with HIV (YLWH) are at risk of mental health problems including substance use. Studies have shown high prevalence rates of substance use among YLWH. Substance use among YLWH is associated with poor health, social and psychological outcomes.

Objective: To identify the burden and factors associated with substance use among YLWH attending care and treatment clinic (CTC).

Methodology: An analytical cross-sectional study was carried out in Dodoma, Tanzania from February to April 2020 among youth aged 15-24 years attending CTCs. Data was collected using sociodemographic, WHO ASSIST V.3.0., BDI II, and SERAD questionnaires. Data analysis was done using SPSS version 25; descriptive statistics were used to summarize

continuous and categorical variables. Multivariable logistic regression was done to determine factors associated with substance use among HIV-positive youths.

Results: The prevalence of substance use among YLWH attending CTCs was 6.6%. We observed a significant decrease in odds of substance use with every year increase of age at HIV diagnosis (OR: 0.74; 95% CI: 0.59, 0.93) and among unemployed youths (OR: 0.01; 95% CI: 0.00, 0.22).

Conclusion: Despite the low prevalence of substance use found in this study, it is important to note the factors associated with substance use and their impact on the health of these youth.

Recommendations: It is recommended that CTCs screen for substance use among youth who have high viral loads and low CD4 counts so as to address the substance use as early as possible and prevent any potential complications.

131 Clinical outcomes of Hydroxyurea accessed via various means and barriers affecting its usage among children with Sickle Cell Anemia in North-Western Tanzania

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Department of Laboratory Services, Bugando Medical Centre, Mwanza, United Republic of Tanzania.

Background: Sickle cell anemia (SCA) is highly prevalent in sub-Saharan Africa where Tanzania ranks third among countries affected by sickle cell disease within the continent. Lake zone regions of the country bear the highest disease burden of the disease. Hydroxyurea, a potent disease-modifying therapy for SCA that improves both morbidities and mortalities. In sub-Saharan Africa, hydroxyurea is inconsistently prescribed or unavailable in some places. Its barriers to users in Africa are still unclear.

Objective: To determine clinical outcome and factors affecting Hydroxyurea usage in children with Sickle Cell Anaemia (SCA) in North-western Tanzania.

Methodology: The study's first objective used analytical cross-sectional surveys that were conducted among caregivers of the children diagnosed with SCA attending BMC Sickle Cell Clinic. For specific objective two, medical files were reviewed retrospectively to assess their lab clinical outcomes.

Results: A total of 87 children were enrolled. The median age at enrolment was 99[78-150] Months, 52/87 (59.8%) were male. A total of 24/87 (27.6%) reported different barriers in obtaining hydroxyurea, 10/24 (41.7%) of the participants with barriers in obtaining hydroxyurea reported the drug to be very expensive other 10/24 (41.7%) reported insurance challenges, and 4/21 (16.6%) reported unavailability of the drug. After months to years on hydroxyurea, there were lab improvements in Hb, ANC, and markedly median increment of HbF percent of 10.1 [IQR 7.2-14.7] which is statistically significant above the normal value of HbF. The median

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Hb at 3 months was significantly higher than the median Hb at baseline (7.1[6.2-8.6] g/dl versus 8.7 [7.7-9.2] g/dl; p-value <0.0001). The median MCV at 3 months was significantly higher than the median MCV at baseline (79.9[74.4-87.5] versus 93[87.8-100.6]; p-value < 0.0001) The median ANC at 3 months was significantly lower than the median ANC at baseline (5.2[3.2-8.6] versus 4.1[3.9-5.9]; p-value < 0.0001). Hydroxyurea use showed, the median increment of HbF in various access were 10.7+5.1, 11.2+5.1, and 13.0+5.8, mean increment Hb was 1.1g/dl, 1.0g/dl and 1.4+1.6, and Neutrophil's decrement of 3.5+5.9, 1.9+4.5 and 1.3+3.7 in cash, Insurance, and project coverage respectively. Significant improvement of children's clinical outcome with 85/87 (97.7%) good hydroxyurea effect was observed which resulted in reduction of admissions, increase in Hb, and reduction of VOC events.

Conclusion: Hydroxyurea has significant clinical utility in SCA patients. Cost, its unavailability, and lack of insurance are the barriers to its use.

Recommendations: We inform policy to offer a feasible and affordable means by which sickle cell patients obtain hydroxyurea to increase their quality of life.

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A Retrospective Longitudinal Analysis of Comorbidities in Patients with Diabetes Mellitus Over Duration Of 10 Years at The Shree Hindu Mandal Hospital, Tanzania.

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Affiliations: Shree Hindu Mandal Hospital

Background: Diabetes Mellitus is a chronic disease affecting several organs of the body leading to long-term irreparable damage due to prolonged exposure to uncontrolled blood glucose levels.

Objective: To describe co-existing morbidities in diabetes patients and assess the incidence of emerging complications and co-morbidities over time.

Methodology: This is an ongoing retrospective cohort study obtaining clinical data from files of diabetes patients over 10 years (2004 to 2014) attending diabetes clinic at Shree Hindu Mandal Hospital. Data extracted included socio-demographics, co-morbidities upon presentation, and incidence over time onto a structured data extraction tool. Analyses were done using SPSS. Data entry is ongoing with an interim analysis of 68 files.

Results: Most patients (58.8%) were aged between 40-61 years; 27.9% were overweight and 17.6% obese. The majority were females (60%). Seventy-two percent had type 2 diabetes, 14.7% type 1, and 13.2% newly diagnosed. The majority of patients' symptoms for diagnosis are not reported, however, 57.4% were on oral treatment out of which 41.2% were on combination therapy of metformin and chlorpropamide. For those on oral treatment, 41.2% had their baseline treatment changed to other combinations to optimize control. Sixty percent of patients had co-existing morbidities of which 48.5% had at least 1 co-morbidity. Hypertension was the most common followed by hypertensive heart disease. Under-reporting of target organ screening has led to a lack of data. Hence, only 1 had retinopathy while other target organ damages were not reported in all patients. Patients progressed from having 1 co-morbidity (from 48.5% at baseline to 30.4%) to multi-morbidities (11.8 to 29%) over time. There was

a notable increase in patients with chronic kidney disease from 4.4 to 11.6%, neuropathy from 1.5 to 5.8%, retinopathy 1.4 to 4.3%.

Conclusion: Multi-morbidity in diabetes increases with time hence it is important to monitor and manage patients accordingly

Recommendations: Patients with diabetes require close monitoring, regular screening, and timely follow-ups to manage their diabetes and multi-morbidities appropriately.

133 Epidemiology and Surgical Outcomes of Primary Brain Tumors Managed at A Tertiary Hospital In Arusha, Tanzania.

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Affiliations: Arusha Lutheran Medical Center (ALMC), PanAfrican Association of Christian Surgeons (PAACS), College of Surgeons East Central and Southern Africa (COSECSA)

Background: The epidemiology of brain tumors varies globally between different countries and there is observed poor outcomes in lower- and middle-income countries. Data on primary brain tumors in Tanzania is scarce.

Aim: To analyze the clinicopathological pattern of primary intracranial tumors in a neurosurgical unit in Tanzania, and the determinants of post-surgical outcomes.

Methodology: A retrospective study. Data was obtained from clinical records of patients with intracranial tumors treated at a neurosurgery unit in Northern Tanzania between 2019 and 2020. Only patients with primary brain tumors who underwent surgical intervention was included. Analysis was done to identify factors associated with patient outcomes (mortality/survival and performance status).

Results: 39 patients with primary brain tumors underwent surgery (adults 72.8%, males 53.8%, mean age 35.8years). Glioblastomas (28.2%) and meningiomas (25.6%) were the most common tumors overall, and craniopharyngiomas in pediatric patients (27.3%). Majority (83.3%) had a poor Karfnosky performance status (<70) before surgery. Few underwent gross tumor resection (25.6%) and received adjuvant therapy (42.9%). 30-day mortality rate (10.3%) and one year mortality rate (46.2%) were high. Pediatric patients had a much worse outcome (46.2% mortality rate and 80% with poor performance status) as did males (38.1% mortality rate). Glioblastomas accounted for majority (69.2%) of the deaths.

Conclusion: The true epidemiology of primary brain tumors in Tanzania is still obscure. Delayed presentation and poor access to adjuvant therapies are important contributors of the high mortality and abandonment of treatment. Inadequate long-term follow-up is a hindrance to optimal neurooncological care.

Recommendations: Primary care doctors should be on high alert on brain tumors to prevent late patient presentation to specialist care. Health coverage should be broadened to allow common citizens the ability to access quality care. Accessibility of adjunctive care should be increased - chemotherapy and radiotherapy.

134 Management of Diabetes in Pregnancy-The single centre experience London

Authors: Gideon Mlawa, Homagni Sikha Roy, Zahid Khan, Mahamud Bashir,

Affiliation: Queens Hospital Romford-London UK.

Background: 2-5% of pregnancies in the UK are complicated by diabetes. 87.5% of these are affected by gestational diabetes and 7.5% by pre-existing diabetes type 1 and 5% by type 2. Diabetes in pregnancy is associated with increased risks to the woman and fetus. Women with pre-existing diabetes have an increased risk of miscarriage, pre-eclampsia, preterm labor, new or worsening retinopathy, and stillbirth. Women with gestational diabetes are more likely to undergo induction of labor and cesarean section than those in the general population. In pre-existing diabetes, there is also a three-fold increased risk of congenital malformations (e.g. neural tube, cardiac and circulating system, etc). Fetal macrosomia is more common resulting in a two-fold increase in shoulder dystocia and a ten-fold increase in birth injury e.g. Erb's palsy.

Objectives: To assess whether pregnant diabetic women were seen in the antenatal multidisciplinary setting as per guidelines and to determine the outcome of all diabetic pregnancies at one of the London University Hospitals in 12 months period in line with the audit standards.

Methods: All previous Gestational diabetes women referred to the joint antenatal /diabetes clinic -100%. All diabetic women are seen in the multidisciplinary diabetic clinic -100%. Care plan documented in all the antenatal notes -100%

Results: There were 2 patients with type 1 diabetes (white British), 21 patients with type 2 diabetes patients, and 234 gestational diabetes (87 patients diet controlled, 116 patients on metformin, and 31 patients on both insulin and metformin). Of the 257 patients, 99 had a cesarean section, (38.5%), 26 out of 257 babies required admission to the neonatal unit. 8 out of 257 babies were admitted to the neonatal unit for neonatal hypoglycemia. 88% (225) of all babies had a birth weight within the normal range.

Conclusion: Overall, our study/audit showed our practice is compliant with the hospital guidelines in the management of both gestational diabetes (GDM) and diabetes in pregnancy. Maternity services should encompass management of the risks associated with gestational diabetes and consistently provide comprehensive, appropriate multidisciplinary care.

135 Management of Hypercalcaemia in Pregnancy-The London Experience

Authors: Gideon Mlawla, Mahamud Bashir, Hominy S. Roy, Zahid Khan

Affiliation: Queens Hospital Romford – London

Background: Primary hyperparathyroidism (PHPT) is the third most common endocrine disorder in the general population, with a prevalence of 0.1 to 0.4%, caused by a solitary parathyroid adenoma in 80 to 85% of cases. In pregnancy, however, it is rare and usually manifests with non-specific symptoms leading to the delay in diagnosis.

Case report: Case: A 35 years old 12/40 weeks pregnant lady presented to the accident and emergency department with 6 weeks history of nausea and vomiting. On admission, she felt anxious with ongoing nausea and numbness all over the body. She was a mother 2-year-old with no significant past medical history. Her medication on admission was; folic acid 5 mg once daily, metoclopramide 10 mg three times daily when required, and pregnacare one tablets once a day. Her blood test showed Na⁺137 mmol/l, K 3.4 mmol/l, urea 2.4 mmol/l, creatinine 61 µmol/l, ALP 79 µ/l, ALT 32 µ/l, albumin 36 g/l, bilirubin 10 µmol/l, corrected Ca²⁺3.50 mmol/l, phosphate 0.71 mmol/l, magnesium 0.70 mmol/l, parathyroid hormone 15.2 pmol/l, and TSH 0.50 µ/free T4 9.5 pmol/l. 24 urinary calcium was elevated at 17.5 mmol/24 h.

Ultrasound parathyroid revealed 9 mm left lower lobe parathyroid adenoma. She was started on i.v. fluids for 72 hours and her calcium remained high at 3.05 mmol/l but she generally felt well.

She was discharged home and referred to the surgical team for review and consideration of surgery but she was readmitted 1 week later with general malaise and ongoing nausea and vomiting. She had parathyroidectomy at 14/40 gestation weeks with normalisation of calcium.

Discussion: Primary hyperparathyroidism in pregnancy (PHPT) is rare and probably underdiagnosed. This is partly due to the large overlap between symptoms of hypercalcaemia and symptoms commonly attributed to pregnancy itself, such as nausea and vomiting.

It is necessary to recognise symptoms of hypercalcaemia, when present, during pregnancy and establish the diagnosis of primary hyperparathyroidism to prevent both foetal and maternal complications associated with hypercalcaemia

Conclusion: Primary hyperparathyroidism may be associated with adverse outcomes in the fetus and neonate. Adequate hydration and correction of electrolyte abnormalities are recommended as a first-line. Pharmacological agents for the treatment of primary hyperparathyroidism in pregnancy has not been adequately studied.

136 Ramadan, Diabetes and Fasting-The London Experience

Authors: Gideon Mlawa, Hominy S. Roy, Mahamud Bashir, Zahid Khan

Affiliation: Queen's Hospital Romford – London UK

Background: Fasting during Ramadan is one of the five pillars of Islamic practice. With the increased prevalence of diabetes mellitus within Asian-

Muslim communities, risks associated with fasting should be considered. It is advisable to forgo fasting in diabetic patients, however, an individual's decision should be respected. With appropriate counseling and education, as clinicians, we can provide support during Ramadan.

Methods: This retrospective cohort study identified diabetic patients attending this London hospital during Ramadan who had received structured education regarding their diabetes management within 3 months prior. Demographic data were obtained including the type of diabetes mellitus, gender, ethnicity, socio-economic status, and religion. Outcomes assessed were if a clinical diabetic review had occurred 3 months before Ramadan and the delivery of a structured education program within 2 months prior.

Results: In total, 30 diabetic patients engaged with hospital services; 25 with type 2 diabetes and 5 with type 1 diabetes. 18 patients were male and 12 females. 6 patients were Muslim with only 1 currently fasting. None of the patients had been offered counseling or education before Ramadan.

Discussion: The number of Muslims in the UK diagnosed with diabetes is estimated to be 325,000. An individual's decision to fast during Ramadan factors in personal choice, religious practice and medical opinions.

Diabetic patients who choose to fast during Ramadan may experience acute, diabetes-related complications namely; hypoglycaemia, diabetic ketoacidosis, hyperglycaemia, hyperosmolar hyperglycaemic syndrome, dehydration and increased risk of thromboembolism. To minimize these risks, structured education and counseling within 3 months before Ramadan should be offered to diabetic Muslims who wish to fast.

Conclusion: Many Muslim diabetic patients participate in fasting during Ramadan and our role as healthcare providers is necessary for support

and guidance. This study aims to identify solutions by advocating early discussion and education with patients before Ramadan.

137 **Assessment of Council Health Management Team Compliance on Non-Communicable Disease Services provision in Katavi region: A Cross sectional study.**

Author: Medard Andrew Nguma

Affiliation: *University of Dodoma*

Background: Non-communicable diseases pose serious global public challenges in management. They affect individual physiological, social, and economical aspects if left to chronic mortality rate increased, current study aim was to assess the performance of council health management team in providing non-communicable diseases services in Katavi region.

Aim: This study was conducted to assess the performance of the council health management team in providing non-communicable diseases services in Katavi region.

Methodology: This cross-sectional study was undertaken 40 council health management teams were approached for the study, were structural self-administered questionnaire was used to assess with WHO standard tools with seven domains. Descriptive statistics were used for elaborating council profile, respondent's demographic characteristics while chi-squared test were used to identify the relationship between the study variables.

Results: Five Council Health Management team was assessed by using WHO PEN standard tools in NCDs services compliance. Seven domains, with a total score of 7(100) points were used in which 20% of the council showed good compliance. Furthermore, the study identifies the educational level of the council health management team have a significant relationship

on NCD compliance of NCD services ($P= 0.004$, CI.95%) as well as qualification and compliance in which ($P= 0.029$, CI.95%).

Conclusion: Poor compliance of the council's health management team in providing NCDs services contributes to much unavailability of NCDs clinics within the Health Centre and dispensaries despite having essential NCDs commodities.

Recommendation: All health facilities should have a specific clinic for NCD services even once per week for screening and minor management and link to a high center.

140 **The use of renal scan among attendees at Nuclear Medicine Department, Ocean Road Cancer Institute**

Authors: Lilian Salingwa, Zuhura Nkrumbih, Lilian Salingwa, Tausi Mafta, Lydia Yauleni

Affiliation: *Muhimbili University of Health and Allied Sciences*

Background: Renal scintigraphy is a nuclear medicine technique that uses radioactive isotopes (most commonly ^{99m}Tc is coupled to a radiopharmaceutical DMSA, DTPA or MGA3) for the evaluation of renal function. This provides important functional information which complements anatomic evaluation performed by other radiologic techniques such as intravenous urography, ultrasound imaging, computerized tomography, or magnetic resonance imaging. This functional imaging is done for renal function evaluation in living relative donors and transplant recipients, evaluation of renal obstructive nephropathy, hydronephrosis, renovascular hypertension, renal function evaluation of patient's urine leak, and vesicoureteral reflux in children.

Aim: This study aimed at assessing the use of renal scan among attendees at the nuclear medicine department at Ocean Road Cancer Institute (ORCI).

Methodology: A retrospective cross-sectional study was conducted at ORCI, where information on the usage of the renal scan was taken from the files and then data was analyzed by SPSS.

Results: In this study, Most of the attendees (61.6%) were males, and the proportion of renal scans was low (10.6%). However, 99mTc-DTPA was the commonly used radiopharmaceutical in renal scan currently in ORCI. Renal function quantification was the highest indication by 61.6%; in which prospective kidney donors were 35.5% and hydronephrosis was 20.5% being in patients with malignancies. We found that renal scan was done in 10.6% at ORCI, while the majority attended for bone and thyroid scans. Males were the majority, with 99mTc-DTPA being the common radiotracer used and the common indications were renal function quantification in, prospective kidneys donors and those with hydronephrosis.

Conclusion: A renal scan should be considered when thinking of renal quantification.

Recommendation: Doctors should consider renal scans when differential renal function is needed like in the prospective donor.

141 Clinical Profile, Management and 24 Hours Outcome of Patients with Extremity Injuries Attending Emergency Department – Muhimbili National Hospital – Tanzania

Authors: Kazoba Albinus, Said Kilindimo, Davis Amani

Affiliations: Muhimbili University of Health and Allied Sciences

Background: The burden of extremity injuries lies on not only quality of life of respective individual but also on health care system. Unintentional injuries still rank in the top ten global burden of diseases in both developed and developing countries, and are third in sub-Saharan Africa. Although these injuries are a major source of health care costs and poor social economic status; the clinical profile, pattern of injuries and its outcome at emergency department are not known.

Objectives: To describe the clinical profile, management and 24 hours Outcome of extremity injuries among patients attending EMD – MNH.

Methodology: Longitudinal (Cohort) study enrolled 406 participants. Data were collected using Interview forms and analyzed using descriptive statistical software SPSS 23.

Results: Majority (80%) were male and 284 (70%) were aged 18-35 years, mean age was 32.64(SD±9.1). Majority of injuries (94.6%) occurred at road/roadside with motor traffic accidents 374(92.1%) found to be the leading cause of extremity injuries and majority were involved in motorcycle accidents 173 (46.3%). Whereas passengers and drivers were the majority and equally injured 140 (37.5%), pedestrians were the second most common injured 94 (25.0%). About a third 326 (80.3%) received treatment at EMD and majority 395 (97.3%) required hospital admission.

Conclusion: Young adult males commonly succumb extremity injuries with motor traffic accidents being major cause and most injured patients required hospital admissions

Recommendations: Preventive strategies should be instituted and executed vigorously targeting motorcyclist and minibus drivers.

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Clinicopathological Features and Treatment Modalities of Primary Brain Tumours in Tanzania

Authors: Alita Mrema, Emmanuel Lugina, Salama Iddy, Mamsau Ngoma, Evelyne Mkuchika, Nanzoke Mvungi.

Affiliation: Ocean Road Cancer Institute (ORCI)

Background: Primary brain tumours (PBT) represent heterogeneous groups of malignancies of different origins, numerous risk factors, varied clinical presentations and that require different treatment modalities often combination of surgery, radiotherapy and chemotherapy. They are expensive to diagnose and treat and they are associated with significant morbidity and mortality. Data on the magnitude and clinical profiles of patients with these conditions are scanty in Tanzania.

Aim: To assess the clinical profiles, pathological features and the treatment modalities for patients with primary brain tumors.

Methodology: This was a retrospective chart review involving the files of patients aged 15 years onward who were admitted at Ocean Road Cancer Institute between 2017 and 2020 and had confirmed diagnosis of primary brain tumour (s). Using a structured questionnaire, information on patients' clinical profile and demographic characteristics, tumour location and its characteristics and, treatment modalities were abstracted. Both measures of central tendency and proportion were used to summarize the findings, X² test and Fisher's exact test were used to compare proportions and an independent sample t-test was used to compare means. A P-value of less than 0.05 was considered statistically significant.

Results: In this study, the median age of the participants was 41.4 years (15-73) and had slightly male predominance (1.2:1). Clinical profile and management varied; 91.8% of tumours were supratentorial and two thirds

(66%) were high grade. 64.8% of patients had headache as the presenting symptom and glioblastoma multiforme (GBM) was the highly prevalent (37.7%). 80% of patients received radiotherapy and complete excision was observed the most (25%) among patients with ependymoma tumours. Concurrent chemoradiotherapy was required by third of patients on radiotherapy.

Conclusion: At time of presentation, most patients with PBT have advanced tumours that are difficult to excise and require combination therapies.

Recommendations: To promote health seeking behaviours to ensure timely diagnosis of PBT so as to improve their prognosis.

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Prevalence of Middle Ear Effusion among Children with Allergic Rhinitis attending Muhimbili National Hospital.

Author: Sallim Mwabei Salim

Affiliation: Muhimbili University of Health and Allied Sciences

Background: Allergic rhinitis has been stated to be the commonest atopic disease that contributes to significant morbidity in children worldwide. There is existing evidence that allergic rhinitis causes middle ear effusion among these children, due to Eustachian tube dysfunction leading to middle ear effusion which can play a potential role in hearing loss. Therefore, further studies are needed to broaden the knowledge of middle ear effusion in children with allergic rhinitis.

Aim: To determine the prevalence and associated factors of middle ear effusion among children with allergic rhinitis attending Muhimbili National Hospital.

Methodology: It was a cross-sectional study using quantitative research methods that were done at ORL and general pediatric clinics in allergic rhinitis children attending Muhimbili national hospital, with a minimum sample size of 142 participants. Data was collected by using structured questionnaires from patients. Physical examination including otoscopy, (Valsalva maneuver done according to the appropriate age of the patient) was implemented as well as diagnostic tests of tympanometry were used to collect information regarding the tympanometry patterns.

Results: In this study, 142 children clinically diagnosed with allergic rhinitis were enrolled, with a mean age of 8.53 ± 4.3 , and the majority of them (74.6%) were males. The prevalence of middle ear effusion among children with allergic rhinitis was 44%, and among those with middle ear effusion had bilateral abnormal features on otoscopic examination with Valsalva maneuver. . There was a high degree of agreement between otoscopy and tympanometry in the diagnosis of MEE in children with allergic rhinitis, Cohen's Kappa = 0.884

Conclusion: There was a high prevalence of MEE among children with allergic rhinitis. Hence children with allergic rhinitis should be screened for MEE. Most children with MEE due to allergic rhinitis had bilateral disease. There was an association between otoscopic features and tympanometric patterns.

Recommendation: Children with allergic rhinitis should be screened for MEE. Tympanometry confirms the presence of fluid in the middle ear, therefore in the setting where tympanometry is not readily available, otoscopy with Valsalva maneuver or pneumatic otoscopy examination can be used alone to examine children with MEE.

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A retrospective survey of arthritis among inpatients at a consultant hospital in Northern Tanzania from 2017 to 2019.

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Background: Musculoskeletal (MSK) disorders affect many people worldwide, but there is minimal access to medical care in low and middle-income countries (LMICs). Few hospital-based studies on MSK disorders have been conducted and there is limited prevalence data on MSK diseases in sub-Saharan Africa (SSA). Arthritis is the most common MSK condition, reducing physical activity and increasing the risk of both disability and other non-communicable diseases (NCDs). Given the high prevalence of MSK disorders and the associated significant clinical and economic burden in developed countries, an estimate of the frequency of these conditions in SSA is overdue.

Aim: To determine the prevalence of arthritis and presenting clinical features among patients admitted at a tertiary care hospital in Northern Tanzania from 2017-2019.

Methodology: Medical records were reviewed retrospectively for all patients admitted to medical wards (aged 14 years and above) at

Kilimanjaro Christian Medical Centre, a zonal tertiary care hospital, over 3 years. Patient demographic characteristics were collected, including age, gender also, diagnoses and outcome. Diagnoses specifying arthritis were specifically sought. The prevalence of arthritis was determined. Analysis was conducted using STATA version 15 with categorical variables summarized using frequency and percentage.

Results: A total of 8023 patient files were examined with a slight majority of males 4181(52.1%). Arthritis was recorded in 129 (1.6%) with 71 (55%) aged ≥ 60 years and 74 (57.4%) females. The commonest presenting symptoms were joint pain in 69 (53.5%), swelling in 38 (29.5%) and stiffness in 18 (14%). Their overall mortality was 12.4% while the highest mortality among all inpatients was 23.4% for people admitted with hypertension and the lowest mortality rates were for people admitted with peptic ulcer diseases 2.6%. In addition, a diagnosis of SLE was recorded in a further 16 (0.2%) patients.

Conclusion: The recorded prevalence of arthritis among hospital inpatients in this study was low but the mortality was high.

Recommendation: may indicate the need for improved awareness of MSK diagnostic and management strategies.

145 Pattern and Management outcomes of Head and Neck Hemangiomas: A Prospective study from Tanzania.

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Affiliations: Muhimbili National Hospital, Muhimbili University College of Health and Allied Sciences

Background: Hemangiomas arise from the proliferation of endothelial cells surrounding blood-filled cavities, with about 60 - 70% occurring in the head and neck region. Various medical and surgical treatment options are available.

Objectives: To determine the pattern and management outcomes of head and neck hemangiomas in Tanzania.

Methodology: This was a one-year prospective, cross-sectional study that involved all consecutive patients with head and neck hemangiomas treated in Muhimbili National Hospital. A structured questionnaire was used to collect information including age and sex of the patient, chief complaint, duration, size, and site of the lesion. Treatment modalities were surgery and/or intralesional bleomycin injection (IL-Bleo). A standard dose of bleomycin was 0.3 to 0.6 mg/kg per injection not exceeding 15 units per cycle with a maximum of 6 cycles. Frequency distribution and cross-tabulation were performed. Association between variables was assessed by Chi-square test, the p-value set at $p < 0.05$.

Results: A total of 58 patients were included in the study. The male to female ratio was 1:1.4, the median age was 6.15 years. The majority (74%) of patients had infantile hemangioma. The most common complaint of patients/guardians was facial disfigurement (94.8%). The most frequently involved sites were lips (55.2%). There was a 100% reduction in the size of the lesion in patients treated surgically. Of those treated with bleomycin, reduction in the area of the lesion ranged from 8.33% to 100% with a mean of 72.6%. Only 6% of patients had post IL-Bleo complications.

Conclusion: Head and Neck hemangiomas are more common in females and majorities are infantile hemangiomas. Facial disfigurement is the

commonest presenting complication, while lips and cheeks are mostly affected.

Recommendation: Intralesional bleomycin is an effective treatment modality, with low complication rates.

146 Evaluation of Self-care Practices and Management of People with Type 2 Diabetes Mellitus in Arusha Municipality, Arusha Region

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Affiliation: Sokoine University of Agriculture

Background: Self-care is integral to the effective management of diabetes. Understanding and evaluation of factors influencing diabetes self-care management help to improve self-care practices such as achieving glycaemic control and preventing diabetes complications.

Objectives: To evaluate self-care and management practices of type 2 diabetes in Arusha municipality.

Methodology: A cross-sectional study was used whereby data were collected once from the respondents by using a structured questionnaire developed from Diabetes Self-care Knowledge (DSCK-30) and Summary of Diabetes Self-Care Activities (SDSCA) measure. The study sample was selected using a purposive sampling method for all patients attending diabetic clinics. The entire study sample had an equal chance of being selected for the study. Patients demonstrated a high level of self-care knowledge. The level of self-care was however not up to a desired level of recommendation. Financial constraints were the main barrier to self-care.

Results: The score for general diet was relatively high (5.07 ± 1.7 days per week) compared to a specific diet (3.6 ± 1.21) physical exercise

(5.97 ± 1.93) and foot-care (5.55 ± 1.97). Consumption of vegetables was low whereby 83.6% of the respondents consumed less than one cup per day. Barriers hindering adherence to healthy diet plan, physical exercise, foot care practices, and clinic attendance were identified in which financial constraints, busy working schedule, lack of knowledge concerning foot care, poor services in the clinic were major barriers identified in each aspect respectively.

Conclusion: Duration of living with diabetes was significantly associated with self-care knowledge.

Recommendation: Future intervention should focus on strengthening health services such as diabetes education and providing quality services to diabetic patients. Promoting sustainable education programs to healthcare professionals and diabetes educators to have a broad knowledge and understanding concerning self-care and management practices and encouraging homestead food production to ensure availability of enough and healthy foods.

147 Survival rate and Associated factors among patients with Xeroderma pigmentosum at Muhimbili National Hospital, Tanzania

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Affiliation: Muhimbili University of Health and Allied of Sciences

Background: Xeroderma Pigmentosum (XP) is a rare hereditary disease of defective deoxyribonucleic acid repair defined by extreme sensitivity to sunlight, resulting in sunburn, pigment changes in the skin, and a greatly elevated incidence of skin cancers. The estimated prevalence is between 1 to 50 per million population. Mortality mainly occurred secondary to malignancy from the 2nd decade of life.

Aim: To determine the survival rate and associated factors among pediatric patients with Xeroderma Pigmentosum attending Muhimbili National Hospital (MNH), Tanzania. **Methodology:** This was a retrospective cohort study conducted among patients with XP who attended either the pediatric oncology unit or dermatology clinic of MNH from June 2011 to December 2020. Files and database records of registered patients with XP were extracted using a structured data collection tool.

Results: Of the 100 enrolled patients, half were male. The mean age was 5.45 ± 4.12 years. Thirty-six percent (36%) had a family history of XP while only 8% had a history of consanguinity. The mean age at first symptom presentation was 1.15 ± 1.82 years. The cutaneous manifestation was found in 99% of the patients, of which 41% had cutaneous squamous cell carcinoma (cSCC). Ninety-three percent had ocular findings in which 25% had developed ocular squamous cell carcinoma. Only 14% of XP patients had documented oral squamous cell carcinoma. Surgical therapy, chemotherapy, and radiotherapy were received by 54%, 31%, and 25% respectively. At the end of the study follow-up period, 39% of enrolled patients were alive and still on active follow-up, while 35% of patients had been lost to follow up and death had been confirmed among 26%. The median survival was 14.1 years (IQR= 11.70 – 17.23). The estimated overall survival rate was 90%, 64%, and 46% at 5, 10, and 15 years respectively. Those with cSCC had a lower survival rate, 87% and 55% at 5 and 10 years respectively.

Conclusion: Cutaneous squamous cell carcinoma was found to be a strong predictor of mortality among patients with XP.

Recommendation: We recommend early identification of patients with XP and initiation of preventive measures to reduce morbidity and mortality.

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Low awareness about paediatric cancer contributing to late hospital presentation and treatment abandonment in Tanzania

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Background: Early hospital presentation and completion of treatment is crucial for better treatment outcomes in children with cancer. There are thousands of children who die of cancer each year without ever being diagnosed in Tanzania. The finding from this study will help to develop contextually and culturally tailored healthcare-seeking behavior education materials in Kiswahili to be used in Tanzania and other Swahili speaking countries

Objectives: To describe community awareness and beliefs about paediatric cancer in Mwanza, Kilimanjaro, and Dar-es-Salam regions in Tanzania.

Methodology: This was a descriptive qualitative study conducted in Mwanza, Kilimanjaro, and Dar- es Salaam regions. Community members aged ≥ 18 years from 3 rural and 3 urban communities were purposively selected to participate in seven focus group discussions (each with 8-12 respondents) between March and June 2021. Data were transcribed, coded and analyzed by thematic content analysis with the support of NVIVO software.

Results: A total of 72 participants were interviewed. Many had heard of breast or cervical cancer however; awareness of pediatric cancer was low. The belief that cancer in children is caused by witchcraft led to initial evaluation by traditional healers leading to delayed presentation to the hospital. Additional community concerns included the cost of transportation

and investigations, duration of treatment and community influence on families to abandon hospital treatment for spiritual or traditional treatment.

Conclusion: Low community awareness about pediatric cancer, late hospital presentation and treatment abandonment remains a challenge in most parts of Tanzania. The common belief that childhood cancer is a result of witchcraft and superstition contributes to limited health-seeking behavior, especially in rural areas.

Recommendation: Cultural and contextually relevant awareness interventions are needed to increase cancer knowledge and cancer health-seeking behavior in Tanzanian communities. Furthermore, the availability of pediatric cancer treatment in lower-level health facilities i.e., Regional and District hospitals will increase accessibility to health care and services to parents.

149 Aortic aneurysm lesions in Echinococcus infection. A review of cases in literature.

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Affiliations: Department of Parasitology and Medical Entomology, Muhimbili University of Health and Applied Science.

Background: Parasitic infections are common in developing countries due to poor sanitation and inadequate personal hygiene. Undiagnosed and untreated parasitic infections can have severe acute and chronic consequences; Arterial aneurysm lesions have been described in patients with several diseases of parasitological interest including Schistosomiasis, amoebiasis and cysticercoses. Available data are limited to sporadic case

reports in literature, and further studies are needed to analyse further aortic aneurysm in Echinococcus infection.

Aim: To describe the occurrence of aortic aneurysm in patients with Echinococcosis, clinical patterns, the management and the outcome of patients

Methodology: Literature was reviewed through MEDLINE, EMBASE and Scopus databases using as key words “Echinococcus” OR “Hydatidiasis” AND aortic aneurysm.

Results: A total of 9 case reports has been included in the study. Mean age of patients was 41.7 ± 12.2 years (range 12 -54). Five patients were male and four female. Vascular pathology presentation was chronic in the majority of cases (5 cases, 55.5%) acute in three (33.3%), and subacute in one case. Serology for Echinococcus, assessed in four patients, was positive in 2. Pathological assessment of surgical specimens was carried out in all patients, except one. Anti-helminthic therapy was prescribed in five cases in association to surgical management; no therapy was prescribed in 2 and prescription occurred years after surgical treatment in one case because Echinococcus diagnosis was only ascertained because of vertebral erosion after previous endovascular aneurysm repair. As for modality of treatment, surgical intervention was reported in the majority of cases (7 patients, 77.7%). Complications, reported at follow-up in the two patients treated by endovascular means, consisted of stenosis distal to endograft for recurrent aneurysm treatment, successfully stented. No death occurred in the cases included in the review. The mean age of patients was 41.7 ± 12.2 years (range 12 -54), Clinical presentation was acute in two cases and acute on chronic in one. Thoracic and abdominal pain were the most frequently reported symptom in chronic cases. The descendent thoracic aorta was the most frequently involved. Preoperative serologic

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tests for *Echinococcus* spp. were considered mandatory in patients from known endemic areas, even though serology can be negative in up to 50%. Treatment of choice depends on both patient and cyst characteristics. It has been suggested that aortic reconstruction should be the treatment of choice for aortic hydatidosis, whenever possible. Open surgical management was preferred in the majority while endovascular approach was used in 2 cases.

Conclusion: Management of echinococcal aortic aneurysm, require a clinical high suspicion for diagnosis and a tailored approach for surgical intervention.

Treatment's goal is focused on the correction of the vascular damage and removal of the associated hydatid disease.

Recommendation: Further studies are needed to provide details on these conditions and guide health care management in Sub-Saharan Africa.

150 Risk factors for Amputation among Diabetic Patients presenting with Diabetic foot at a Tertiary care Hospital, a Retrospective Pilot study

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Background: Diabetic foot is a debilitating condition accounting for more than half of total hospital admissions among diabetic patients. This includes infection, ulceration, or destruction of tissues of the foot of a person with currently or previously diagnosed DM. About 28.4% of patients with diabetes will end up with a loss of the affected limb. Various studies have shown that long hospital stays, increased cost of care, and poor quality of life are some of the consequences of diabetic foot.

Aim: To confirm risk factors and complications of diabetic foot as seen from other parts of the world and to plan for a comprehensive prospective quality foot care study.

Methodology: A retrospective analysis of patient files with diabetes presenting with diabetic foot admitted between Jan 2017 to Dec 2020. Data was extracted from patient files and the hospital electronic database. Risk factors associated with amputation were analyzed using a logistic regression model.

Results: Of the 56 adult patients enrolled in the study, 58.9% underwent amputation. The mean age was 60.55 years with an age range (36-89). The majority were males 78.6%. Foot infection, gangrene and high fasting blood glucose were important predictors of amputation. Patients with gangrene had a 26-fold increase in the risk of amputation [95% CI = (3.782-182.061), p-value = 0.0001], while those with foot infection had a 3-fold increase in the risk of amputation (95% CI = 0.371-27.227, p-value 0.291). Peripheral vascular disease has also been an important risk factor for amputation as more than half (63.6%) of patients who were amputated had both ischemic and neuropathic issues

Conclusion: Glycemic control is of ultimate importance among patients with diabetes to minimize the risk of foot complications.

Recommendation: Early diagnosis, appropriate treatment, proper foot care and education are essential in preventing diabetic foot to save the limb.

151 Indications and Therapy-related Complications associated with Dialysis at Muhimbili National Hospital in Dar -es- salam, Tanzania

Author: Deogratias Bundala

Affiliation: Muhimbili University of Health and Allied Sciences.

Background: Dialysis is a life-saving renal replacement therapy, usually done in case of either acute or chronic illness. Indications for dialysis include metabolic acidosis, severe hyperkalemia, overload of fluid, intoxication, uremia, and GFR < 6 mL/min/1.73m², with/without other symptoms/signs in patients with end stage renal disease. Therapy-related complications occur during dialysis, post-dialysis, and in the long term and include intradialytic hypotension, abdominal discomfort, nausea, vomiting, restlessness, dizziness, headache, muscles cramps, and infections.

Aim: To determine the frequency of common indications for the initiation of dialysis and therapy-related complications that occur during different dialysis sessions at MNH in Dar es salaam, Tanzania.

Methodology: This was a retrospective study, I reviewed hemodialysis registers, charts, filled case files and electronic medical records of 123 adult patients dialyzed from January 2020 to August 2020 at the MNH-adult dialysis unit. Structured checklists were used for data collection. Waiver of consent for participation was provided. All data collected were coded and entered in a computer software program; Statistical Package for Social Sciences (SPSS), version 20.0 for analysis. Data were summarized in form of percentages and frequency tables for categorical variables

Results: Out of 125 patients, 83 (66.4%) were males, 42 (33.6%) were females. Their mean age was 51 years. All patients were on hemodialysis. Indications for hemodialysis were metabolic acidosis-17 (13.6%), hyperkalemia -26 (20.8%), hyponatremia-1(0.8%), high creatinine levels-13(10.4%), end stage renal disease-6(4.8%), increased urea-6(4.8%), intoxication-16 (12.8%), fluid overload-11(8.8%), refractory pulmonary edema-11(8.8%), uremia and its complications-21 (16.8%), oliguria-5 (4%), and anuria-14 (11.2%). However, some patients presented with multiple

indications. Therapy related complications were observed as follows; 5 (4%) -hypotension, 4 (3.2%) - pruritis, 3 (2.4%) - nausea and vomiting; 2(1.6%)-abdominal discomfort; 3(2.4%)-headache; 1 (0.8%) -restlessness; and 1 (0.8%)- seizure.

Conclusion: This study revealed that most patients present with hyperkalemia for dialysis. Hypotension was found to be the leading complication of dialysis. Further studies are needed to identify the primary causes of hyperkalemia and the complications of dialysis.

152 Profile of Childhood Malignancies in Dar es salaam, Tanzania

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Background: Almost 90% of children with cancer live in low and middle-income countries (LMIC) where malnutrition and infectious diseases such as HIV and malaria are rampant. The majority of children with cancer in these countries present late with advanced disease and comorbidities such as severe malnutrition which complicate treatment and compromise outcomes.

Aim: To describe the spectrum and clinic-pathological characteristics of childhood malignancies in Dar es salaam, Tanzania.

Methodology: A descriptive longitudinal hospital-based study was conducted at Ocean Road Cancer Institute. Participants were enrolled consecutively as they presented to the hospital. Demographic data, parents/guardians' level of education, HIV status, and clinical diagnosis were determined and recorded. Nutritional status was assessed using mid-

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upper arm circumference (MUAC). Each patient was followed up until a final diagnosis was reached and investigations for staging the patient were completed.

Results: A total of 151 patients were enrolled in this study, 51.7% were males. The mean age at presentation was 5.8 years (range 3-17years). The mean duration from symptoms to reaching ORCI was 7 months (range one week to six years). There was a significant delay between a visit to a first health facility and reaching ORCI (mean difference 5.5 months). Retinoblastoma was the commonest malignancy (29.1%) followed by Nephroblastoma (11.3%), Burkitt lymphoma (10.6%), and Acute Lymphoblastic Leukemia (10.6%). Majority of patients with solid tumors presented with either locally advanced or metastatic disease (86%). Only 4 patients (2.8%) had HIV infection and 12% of patients had severe wasting.

Conclusion: LMIC hosts the majority of children with cancer, has limited resources for health care, and unfortunately starts the battle against childhood cancer disadvantaged by prevalent advanced disease and complications such as severe malnutrition.

Recommendations: LMIC host the majority of children with cancer, have limited resources for health care, and unfortunately starts the battle against childhood cancer disadvantaged by prevalent advanced disease and complications such as severe malnutrition. To improve the survival of children with cancer in these regions we must change this paradigm.

153 Class II Malocclusion Treatment, Using the Modified Twin Block Appliance Before Coordinated with Fixed Orthodontics In 11 Years Patient

Author: Mafele Ihoyelo

Affiliation:

Background: Mandibular retrognathism is the main contributor to Class II malocclusion which necessitates the use of advancement or functional appliances that enhance and/or redirect the growth in a favorable direction. Twin Block appliance is the most commonly used functional appliance to induce supplementary lengthening of the mandible by stimulating increased growth at the condylar cartilage.

Objectives: This paper aims to present a case report of mandibular deficiency treated with Twin Block appliance in a male patient with cervical vertebral maturation index stage four

Methodology: Modified Twin Block was given to the patient for 8 months. Final coordination will be achieved with fixed appliances in both arches. At the end of the twin block treatment, the profile of the patient improved, crowding was relieved, and Class I relationship with normal overjet and overbite was achieved.

Results: Modified Twin Block was given to the patient for 8 months. Final coordination will be achieved with fixed appliances in both arches. At the end of the twin block treatment, the profile of the patient improved, crowding was relieved, and Class I relationship with normal overjet and overbite was achieved

Conclusion: At the end of the twin block treatment, the profile of the patient improved, crowding was relieved, and Class I relationship with normal overjet and overbite was achieved.

154 Deployment of Machine Learning Algorithm Towards Improving Cardiovascular Health in Tanzania

Authors: Asifiwe Makawa, Mussa Ally, Elingarami Sauli

Affiliations; Nelson Mandela African Institution of Science and Technology (NM-AIST)

Background: The Cardiovascular epidemic in Sub Saharan Africa region is driven by changing lifestyles, including physical inactivity, increased alcohol consumption, tobacco use, consumption of foods high in saturated fat, salt, and sugar. Non-communicable diseases (NCD) including cardiovascular diseases (CVD) now contribute to about a third of all deaths in the country and are a source of an increased disability in Tanzania. This study aimed at deploying a machine learning algorithm for the improvement of cardiovascular health by using phenotypic data which combines both demographic and clinical data for the early prediction of CVD.

Aim: This study aimed to develop and deploy a predictive model for the improvement of cardiovascular health by using phenotypic data

Methodology: A database of 380 synthetic patient records was created using MATLAB. A synthetic database was chosen to allow complete control on feature choice and feature distribution to provide a wide range of training scenarios for the Support Vector Machine (SVM). The second aspect of data processing is feature extraction from the phenotypic data that was used to feed the SVM algorithm. Features captured: Body Mass Index (BMI), systolic and diastolic blood pressure, pulse rate, fast blood sugar, lipid profiles, LDL and HDL, sex, and age.

Results: The SVM had an accuracy of 92.6% and it took 89 seconds to train the data. This can be used to configure the model for optimized accuracy and generalization. Using cross-validation is an analytical approach to determining the optimal point. However, over penalizing lowers the generalization of the algorithm. The kernel width achieves higher accuracy with increased generalization.

Conclusion: The model was successful in classifying a patient's CVD risk based on clinical and demographic data. For 380 patients, it would take humans several hours to complete while the SVM took an hour.

Recommendation: The best approach is to implement the SVM in the hospital information systems. We can obtain the phenotypic data and run the model to determine the level of CVD risk, prior to conducting other diagnostic methods.

155 Evaluation Of Mechanisms To Improve Mobile Phone Surveys For Non-Communicable Diseases Surveillance In Tanzania

Authors: John William, Farida Hassan, Irene Petro, Frank Kagoro

Affiliation: Ifakara Health Institute Research

Background: NCDs morbidity and mortality are rising at an alarming rate in Tanzania. A clear mapping of their burden and trends is paramount. It is vital to obtain a user-friendly and updatable methodology for data collection. With an increased number of mobile phone subscriptions in Tanzania and its usefulness, opportunities can be exploited focusing on mobile phones as an intervention in different public health issues. A more frequent collection of NCDs risk factors data using mobile phones could address gaps in NCDs surveillance.

Objective: To adapt and assess the feasibility, quality, and validity of mobile phone surveys (MPS) for collecting information on NCDs' risk factors.

Methodology: This study involved mixed-method study designs, qualitative methods to assess local perceptions and preferences. NCDs' risk factors questionnaire was used and sent randomly via short message services (SMS) and interactive voice responses (IVR) in randomized sub-

studies to assess key study outcomes of interest. Thematic framework analysis and STATA version 14 were used in the analysis.

Results: The majority of the MPS respondents were aged between 18-29 years, more males compared to females, from urban compared to rural. The number of complete interviews was higher followed by partial interviews and refusal. Overall, the completion rate was higher compared to refusal rates in both study arms. Illiteracy was reported as a barrier to the SMS surveys. Overall participants reported timing in administering MPS and the use of incentives after completion will influence completion.

Conclusion: Mobile phone surveys can be used as a feasible tool for the surveillance of NCDs in developing countries like Tanzania. Consideration of users' perceptions and preferences is critical for ease and successful optimization.

Recommendation: Exploration of relative advantages and disadvantages and costs associated with each modality is paramount.

156 Exploration of biobanking ethical issues among cancer patients and health care professionals at Bugando Medical Centre, Mwanza

Authors: Ibrahim W. Mgoo, Godwin P. Kalugira, Deodatus V.C Kakoko

Affiliation: Muhimbili University of Health and Allied Sciences

Background: Biobank researches represent the kind of bricks that provides a solid scientific foundation for future advances that will directly help patients. Biobanking is the World's demand for Medical Scientists to answer the question of individualized care to Cancer Patients. With no doubt, research participants, regardless of the site of care, ethnicity, or socioeconomic status, are willing to provide a biological sample for research purposes. This allows the investigators to determine the

researches to be done without re-contacting after the provision of individual simplified broad informed consent with a one-time binary choice.

Aim: To explore biobanking ethical issues among Cancer patients and Health Care Professionals at Bugando Medical Centre, Mwanza, Tanzania.

Methodology: The study used the exploratory study design involving Cancer Patients and Health Care Professionals. The participants were selected purposively from Bugando Medical Centre. Data were collected using In-depth interviews and the conversations were audio-recorded. The audios were then transcribed verbatim and the transcriptions were analyzed using content analysis with the help of NVivo 10 software to identify relevant themes and tracing of quotations.

Results: The findings in this study were inductively led to the formation of four main themes which are the perception of Cancer patients and health care professionals in decision making on biobanking; perception of cancer patients and health care professionals on privacy in biobanking; perception of cancer patients and health care professionals on ownership of stored biospecimens; and perception of cancer patients and health care professionals on commercialism in biobanking.

Conclusion: The clarity of information attracts donors to donate their samples; parents consent for their children to participate in biobanking study by considering that there should be a medical indication for sample collections from the children. This information is essential before the commencement of research in health care settings to address biobanking ethical issues among the participants should cover the expected future procedures of the study, its purpose, and related benefits of the research. And therefore, this will enhance decision-making among biobanking partners to allow a smooth implementation of biobanking practice at Bugando Medical Centre.

Recommendations: Bugando Medical Centre should have a standardized decision-making process that will include options for researches and diagnostic purposes. This will permit an extensive analysis of the biospecimen through research interest to advance and improve healthcare services to individuals.

157 Digital health: Trustworthiness and Safety of Remote Consultations for Chronic Diseases in Health Facilities, Tanzania

Authors: Beatrice Chipwaza, Titus Mashanya, Albino Kalolo, Sylvester Ndegese, Marcusy Balagaju, Flora Stephano & Senga Pemba

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

Background: In Tanzania, mobile phones usage and network coverage have expanded at a very high rate (75-80%). This is likely to remove the geographic and economic barriers to healthcare, particularly in emergencies and in taking care of people with long-term conditions. Due to the advancement of technology, the World Health Organization is advocating for remote delivery of healthcare. However, in low and middle-income countries, uncertainties arise on trust, confidentiality, and privacy of patients as well as the high cost of airtime and data if Remote Consultation in healthcare (REaCH) is to be adopted.

Aim: To explore the trustworthiness and safety of remote consultations to patients with chronic diseases attending rural health facilities.

Methodology: This is an experimental study using a 'Stepped-wedge Cluster Randomized Trial' design. The REaCH intervention is being rolled out to 20 health facilities/clusters throughout the trial in a staggered fashion. Health workers selected purposefully and trained on REaCH participate in the study. Randomly selected 100 adult patients with

diabetes, hypertension, chronic obstructive pulmonary disease, and coronary heart disease attending clinics from 20 healthcare facilities are included in the study. Interviews with patients to explore their perceptions and experiences of remote consulting and its impact on healthcare are being conducted.

Results: This study is ongoing and the final results will be presented after March 2022 when the study concludes. We expect to deliver REaCH training to 80 Tier 1 trainees (Medical Officers and Assistant Medical Officers) from 20 health facilities in Morogoro Region. The 80 Tier 1 trainees will each cascade to at least four other tiers 2 trainees resulting in education being cascaded to a further 320 learners from the 20 clusters/health facilities. Data for the first four months indicate that about 2,338 consultations were done face-to-face while 349 consultations were done through mobile consultations i.e. remotely by phone.

Conclusion/Recommendations: Conclusion and recommendations will be made available after analysis of all data on REaCH.

158 The relationship of mesencephalic astrocyte-derived neurotrophic factor with hyperlipidemia in patients with or without type 2 diabetes mellitus

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Affiliations: Catholic University of Health and Allied Sciences-Mwanza, Tanzania, Chongqing Medical University- Chongqing, China

Background: Cardiovascular complications due to hyperlipidemia remain to be the silent killer of type 2 diabetes (T2D) patients. Most diabetic patients with hyperlipidemia (HLD) do not have any symptoms until the late stage. Early detection and appropriate treatment for the underlying

pathophysiology of HLD is the focus of prevention of cardiovascular complications in T2D patients. Recently, an increasing number of studies have shown that the novel secreted protein mesencephalic astrocyte-derived neurotrophic factor (MANF) can regulate and alleviate endoplasmic reticulum (ER) stress in different diseases, especially diabetes mellitus.

Aim: To determine the relationship between MANF and lipid metabolism with or without type 2 diabetes mellitus (T2DM)

Methodology: Human serum samples were collected from 58 normal controls (NC), 40 subjects with hyperlipidemia (HLD) without T2DM, and 42 subjects with HLD and T2DM. Their MANF levels were detected using an enzyme-linked immunosorbent assay (ELISA). Subgroup analysis was performed in the group with HLD and T2DM based on fasting blood glucose (FBG) > 8.22 vs. ≤ 8.22 . Furthermore, the relationship between MANF levels and lipid indices was analyzed.

Results: Serum MANF levels were found to be significantly higher in the HLD group, both with and without T2DM (5.62 (3.59–7.11) and 4.21 (2.87–6.11)), both $P < 0.05$ than that in those with $\text{FBG} \leq 8.22$. In addition, in the HLD without T2DM group, MANF levels were negatively correlated with total cholesterol, low-density lipoprotein cholesterol (LDL-C), and age. LDL-C and age were independently related to MANF levels. The area under the curve (AUC) in the ROC analysis of MANF for the diagnosis of HLD without T2DM and HLD with T2DM was 0.709 and 0.841, respectively ($P < 0.001$).

Conclusion: Serum MANF levels increased in the HLD with or without T2DM groups and were associated with lipid and glucose metabolism. MANF may be a useful marker for predicting the development of dyslipidemia in T2DM

Recommendations: Further mechanistic studies and clinical studies with larger sample sizes are needed to confirm the current results.

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Nutrition transition and non-communicable diseases in africa: an insight on the effects of ‘evolution of diets’ – a mini review

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Background: A sharp rise in non-communicable diseases (NCD) in Africa has been linked to rapid food globalization and urbanization leading to shifts in dietary (nutrition transition) and lifestyle patterns. The concept of nutrition transition is used to describe the deterministic patterns in the ‘evolution of diets’ and to inform analyses of the global spread of NCD. This is because of overwhelming evidence from research showing that the loss of traditional diets by food globalization may have an adverse impact on human health through the alteration of gut microbiota.

Objective: To examine the correlation between alteration in the diversity of gut microbiota, known as dysbiosis, and metabolic disorders – type 2 diabetes (T2DM) and obesity.

Methodology: In this review, we hypothesize that dysbiosis is directly related to increased plasma concentrations of gut microbiota-derived lipopolysaccharide (MLPS) which are produced from Gram-negative bacteria in the gut. MLPS triggers the production of a variety of cytokines and the recruitment of inflammatory cells, posing increased oxidative stress - a risk factor for NCD. The increased levels in MLPS have been linked with the ingestion of a high-fat diet. This results in poor gut microbiome health, which shifts the gut into a state of dysbiosis. This can then lead to metabolic deregulation, leading to increased insulin resistance and inflammation and in the inflammation of adipose tissue - key factors in the

development of T2DM and obesity, respectively. On the other hand, high-vegetable traditional diets increase colonic levels of short-chain fatty acid (SCFA) including acetate and butyrate ('fasting markers'), which are considered essential energy substitutes after glycogen storage depletion.

Results: Research shows the benefit of high-vegetable traditional diets on gut microbiota and suggests that high-fat and less-vegetable dietary habits alter gut microbiota resulting in the reduction of colonic SCFA.

Conclusion: The potential of therapeutics that preserve gut microbiota should be explored for preventive measures against T2DM and obesity.

160 Knowledge, attitude, and practices of artificial sweeteners consumption among hypertensive patients

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Background: Hypertension is one of the major cause of morbidity and mortality worldwide. The knowledge, attitude, and practices of artificial sweeteners and DASH diet on managing hypertensive patients there still challenge to reduce complication raised by hypertension among of Hypertensive in a rural and urban community especially young old aged 65-74 years.

Aim: To investigate knowledge, attitude, and practices of artificial sweeteners consumption among hypertensive patients.

Methodology: A total of 35 hypertensive patients were interviewed in the outpatient department (OPD) of Njombe Region Referral hospital for 2 weeks period. Out of them, 32 hypertensive patients were sample sizes for purposively study design, and data was collected through face-to-face

interviews with a structured questionnaire prepared to obtain information on knowledge, attitude, and practice of artificial sweeteners consumption among hypertensive patients.

Results: The mean (\pm SD) knowledge, attitude and practice score of the respondents was 1.66 ± 0.483 , 1.53 ± 0.507 , and 1.63 ± 0.492 , respectively. Among hypertensive patients 65.6% had low knowledge with only 34.4% indicated was good knowledge concerning artificial sweeteners consumption among hypertensive patients. The levels of attitude were respondents 53.1% had a bad attitude with only 46.9% had a good attitude and level practices only 37.5% was good practices on artificial sweeteners consumption among hypertensive patients following higher percent of 62.5% which indicated bad practices of the subjects of 32 participated in a research project. The results of hypertension condition before and after getting artificial sweeteners to the respondents was high in percentage, Hypertension before and after getting artificial sweeteners was 93.8%, 84.4% respectively and normal blood pressure before and after getting artificial sweeteners was 6.2%, 15.6% in sequence out of 32 participants

Conclusion: The majority of the respondents in this study had low levels of KAP on artificial sweeteners and some still consume sugar-sweetened beverages which might influence high levels of uncontrollable hypertension.

Recommendations: Hypertensive patients to read nutritive information (including sugary and artificially sweetened foods) on food labels and promote the DASH diet among hypertensive patients.

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The diagnostic value of argyrophilic nucleolar organiser regions technique in distinguishing benign from malignant salivary gland tumors

Authors: Denis Basyagile, Edda Vuhahula

Affiliation: Pathology Resident, Muhimbili University of Health and Allied Sciences

Background: Diagnosis of salivary gland tumors is challenging, because of the wide variation in differentiation and overlapping morphological features between malignant and benign tumors.

Aim: To determine whether there is diagnostic value of modified AgNOR technique in distinguishing benign from malignant, low from high-grade salivary gland tumors in resource-constrained settings.

Methodology: five years hospital-based retrospective cross-sectional study which 91 salivary gland tumors (SGT) cases diagnosed in the histopathology department were reviewed and classified according to 2017 WHO classification then 30 cases (7 benign and 23 malignancies) were stained with silver nitrate following a modified method by Bukhari et al. In each stained case, the number of AgNORs in nuclei were counted in 100 cells using a 100x oil immersion lens. The mean AgNORs values were then calculated for each case. The results obtained in the counting procedure were analyzed statistically, then the mean AgNOR count of each tumor was correlated with the type and grade of the tumor.

Results: There were a total of 91 eligible study participants for the whole study period. Their age distribution ranged from 14 to 95 years with a mean age of $52 \pm 18SD$. Males were 46 while females were 45. Parotid was the commonest site for both benign and malignant tumors accounting for 60.4% of all tumors followed by the submandibular gland (19.8%) and minor salivary gland (18.8). Pleomorphic adenoma was the most prevalent

histological type accounting for 31.9% followed by mucoepidermoid carcinoma (21.98%) and adenoid cystic carcinoma 20.88%. The mean AgNOR count for benign tumors ranged from 1.8 to 3.4 with a mean of 2.3 while for malignant tumors, the mean count ranged from 2.0 to 9.5 with a mean of 5.7. The difference in counts was statistically significant by ($P < 0.002$).

Conclusion: AgNOR stain technique can assist the diagnosis of salivary gland tumors by showing differences in counts between benign and malignant tumors and between different grades of the same tumor entity. This study demonstrated that occurrence of SGTs increases with age with an equal proportion between males and females. After 45 years the risk of getting malignant tumors is about three times that of getting benign tumors.

Recommendation: validate before the adoption of the test, MNH to adopt this technique as it is cost-effective, More studies are required to investigate the role of AgNOR staining in the diagnosis and prognosis of other tumors.

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Management of an Impacted Maxillary Canine with the Vertical Incision Subperiosteal Tunnel (VISTA) Technique using 3D lever arm

Author: Mafele J. Ihoyelo

Affiliation: Amana Hospital

Introduction: A 15 years female presented with a chief complaint (CC) of unerupted maxillary left canine (UL3).

Diagnosis: Bimaxillary protrusion (SNA 83.9, SNB 80.9) was associated with a full-cusp Class I malocclusion with an overjet of 2mm and an overbite of 2mm (25%). This malocclusion was complicated by a horizontally impacted UL3 that was associated with substantial root

resorption on the labial surfaces of both maxillary left central incisor and left lateral incisor (UL1 and UL2). The discrepancy index (DI) was 36.

Etiology: The cause of the severe impaction was apparently a deviated path of eruption that may be related to inadequate space in the arch due to a relatively small UL primary canine.

Treatment: Phase I treatment began by placing transpalatal arch (TPA). This transpalatal arch was used as anchorage for a VISTA submucosal procedure to retract the UL3 to its correct sagittal relationship in the arch using 3D lever arm, and then aligning it in the normal canine position. Once the UL3 was aligned, transpalatal arch was utilized to retract the anterior maxillary teeth to correct the overjet. The active treatment time was 11 months.

Phase II treatment will be indicated to improve the final alignment of the dentition after the third molars fully erupted or extracted.

Phase I treatment with the VISTA procedure was indicated to correct the impacted UL3 before it caused further root resorption of adjacent teeth. The VISTA approach for submucosal retraction of maxillary canine impactions using 3D lever arm is an ideal procedure for the critical esthetic zone and patient comfortability.

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The impacted UL3 was recovered and aligned in an ideal relationship. Phase I Cast-Radiograph Evaluation (CRE) was 26, due to major discrepancies in alignment and marginal ridges of the UL2 and UL4 respectively

Phase I treatment with the VISTA procedure was indicated to correct the impacted UL3 before it caused further root resorption of adjacent teeth. The VISTA approach for submucosal retraction of maxillary canine impactions using 3D lever arm is an ideal procedure for the critical esthetic zone and patient comfortability

163 **Going digital: Training Healthcare Workers on Delivering Remote Consultations to Patients with Long-term Conditions in Tanzania**

Authors: Albino Kalolo, Beatrice Chipwaza, Titus Mashanya, Sylvester Ndegese, Senga Pemba

Affiliation: St. Francis University College of Health and Allied Sciences, Ifakara

Background: Strengthening the prevention and treatment of Non-Communicable Diseases (NCDs) is currently a major challenge in this country. The health sector recognizes the need for action to reverse the rising trend of NCDs due to changing lifestyles and ageing of the population. Health workers with knowledge and skills on digital technologies have the capacity and ability to make consultations with their patients, order investigations, treat, and make follow up of patients.

Aim: To equip healthcare workers with knowledge and skills in using Digital Communication Technologies in enhancing health for patients with long-term conditions with due regard to professional standards

Methodology: This course was offered through Moodle Platform using text, video and voice and was facilitated by a trained Facilitator through scheduled WhatsApp discussions. Participants completed assignments, quizzes and evaluated the course materials and facilitation. Participants were selected from Health facilities (clusters) from six councils of Morogoro region (Ifakara Town Council, Ulanga, Mlimba, Malinyi, Kilosa and Mvomero). A Cascade training model was adopted for the delivery of the course. The Tier one trainees (mostly health workers with at least a degree or advanced diploma in medicine, nursing or pharmacy) were expected to cascade the course to Tier two trainees for 4 days. Embed in the course was a mixed-methods process evaluation guided by Kirkpatrick's model. Descriptive statistics and thematic analysis was used to analyze data

Results: The REaCH training program is under implementation after a successful pilot that enrolled twelve tier 1 trainees and 63 tiers 2 trainees in 2020 and consolidation of the curriculum. Currently a total of 25 and 48 participant from four clusters for tier one and tier two respectively have been trained. Stakeholders' views indicate that the course is highly demanded, builds relevant skills, useful in daily work (satisfaction, learning and perceived behaviour change). Technological infrastructure and support, and limited community awareness are barriers to program implementation

Conclusion: The REaCH course is under implementation and preliminary results indicate high demand and potentials to build capacity for remote consulting services for NCDs and other services. Moreover, it is feasible, acceptable and effective in changing participants' behaviour.

Recommendations: Stakeholder's support is required to facilitate the expansion of the program and remote consulting services in the health care system in Tanzania.

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The Power of Youth with Type-1 Diabetes in Tanzania

Authors: *Muchunguzi Aniceth, McLarty Dorothy, Kwayu George*

Affiliation: *Tanzania Diabetes Youth Alliance (TDYA)*

Background: Tanzania Diabetes Youth Alliance (TDYA) was conceived by young people living with Type-1 Diabetes (T1D). They felt that simply supplying free insulin, which is absolutely essential, wasn't enough. There was a need to establish a system of interventions to tackle the huge psychosocial problems faced in society and track the loss to follow-up. Problems faced by Insulin-dependent youth are often overlooked due to the huge rise in Type-2 diabetes. Youth/children must manage their condition 24/7. Therefore, the program aims to build an army of T1D confident youth who can self-manage their condition, become empowered leaders, grow up to have a long and productive life, free of medical complications in the future.

Aim: To actively support one another, bring awareness of T1D to the public, organize fundraising activities, initiate camps to bring unity and purpose among the youth, and strengthen data.

Methodology: We selected and trained TDYA-leaders from all clinics as Peer counselors and lost to follow-up trackers. We then conducted education programs in schools and regular media advocacy programs. Fundraising and conducting regional youth camps. Were done followed by setting up a Digital Swipe-Card system for each youth/child to compile accurate and reliable data. A T1D counseling center has been established at Muhimbili. 12 youth counselors were trained. We ran social media

campaigns, media interviews, and published news articles. Over 15 schools were visited in Dar-es-Salaam.

Results: TZS 27million was raised at Walkathon-2020. Personalized Medical Alert bracelets have been prepared for 4000 young people. Educative TDYA WhatsApp group, website, and social media pages have been set up.

Recommendations: NCD action plans must make it out of the office, into the field and involve the youth if T1D youth are to stay alive. TDYA is making every effort to do just that.

165 Frequency, types and socio-demographic characteristics of hematologic malignancies diagnosed at Muhimbili National Hospital, Tanzania from 2019 – 2020

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Background: Hematologic malignancies (HM) are a heterogeneous group of cancers that originate from a single cell in the bone marrow or peripheral lymphoid tissue that has undergone genetic alteration. HM include leukemia, myeloma, and lymphoma and these affect people worldwide.

Aim: To describe the frequency, types, and socio-demographic characteristics of hematologic malignancies in adult patients diagnosed at Muhimbili National Hospital (MNH) in Tanzania between 2019 and 2020.

Methodology: A retrospective descriptive study of adult patients diagnosed with HM between January 2019 and December 2020. Patients' medical data were extracted from the MNH laboratory information system using the RedCap survey tool before analysis. The FAB (French-American-

British) classification system has been taken into account in the analysis of myeloid neoplasms.

Results: A total of 348 cases of hematologic malignancies were recorded during the study period; 193 male and 155 female cases were included in this retrospective and descriptive analysis with a male to female ratio of 1.2, thus, overall, men were slightly more affected with HM than women. By contrast, a female predominance was observed in the case of acute myeloid leukemia (AML). The overall median age at diagnosis was 46 years (range, 18 – 86 years) which reflects the relatively young age presentation of HM in Tanzania. The majority of HM cases were recorded from patients residing in the Coastal Zone of Tanzania especially in Dar es Salaam, which accounted for 42.5% of all HM cases. Chronic myeloid leukemia (CML) was the most common HM accounting for 24.1% of all HM, followed by Non-Hodgkin's lymphoma (NHL), AML, multiple myeloma (MM), acute lymphoblastic leukemia (ALL), myelodysplastic syndromes (MDS), Hodgkin's lymphoma (HL), chronic lymphocytic leukemia (CLL), and other myeloproliferative neoplasms (MPN). Late-stage at diagnosis was observed in NHL and CLL cases contrary to HL cases, which mostly presented at early stages.

Conclusion: there is strong male predominance in all HM except AML where females were more affected. Most of the HM presented at a relatively younger age compared to developed countries. HM patients diagnosed at MNH resided in the Coastal Region probably as a result of MNH being nearby. However, some results had no statistical significance such as the high AML frequency and late-stage diagnosis for NHL and CLL, which might be due to the relatively small number of cases and lack of appropriate information for morphological classification of AML from patient's medical records.

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Knowledge of second-hand smoking and practices towards its exposure among women attending outpatient clinics at Muhimbili National Hospital

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Background: Second-hand smoking (SHS) is the involuntary smoking of exhaled smoke from smokers. There are more than 600,000 people die of SHS each year. Knowledge and practice towards SHS exposure are important preventive measures.

Aim: To assess the level of knowledge and extent of practices on second-hand smoke exposure among women attending outpatient clinics at Muhimbili national hospital.

Methodology: This was a cross-sectional descriptive hospital-based study conducted at Muhimbili National Hospital at the outpatient department. Total of 370 study participant was recruited in this study, using simple random sampling and questionnaires were administered.

Results: Among the 370 study participants, 35.7% were aged between 25-31years. (97.8%) of study, participants were aware that SHS increases the risk of lung cancer, Asthma (88.1%), and heart disease (53%) respectively. Only 4.6% of study participants have a high level of knowledge while 65.4% have a little level of knowledge on SHS exposure. The study shows a majority of study participants have a good extent of practice (97.6%) while only 2.4% have a poor extent of practice on SHS even though most of them have little knowledge on SHS smoke exposure. chi-square test was done where P-value was 0.228 ($P > 0.05$) hence there was no association between level of knowledge and extent of practices towards exposure to SHS.

Conclusion: This study contributes to the current understanding of SHS-related knowledge and practices held by women attending outpatient clinics at Muhimbili National Hospital. The appropriate practices towards exposure to SSH among study participants were good and were not associated with their level of knowledge. This means that, since the majority of study participant was aware that exposure to SHS increases the risk of lung cancer, they tend to take appropriate measures to avoid SSH even though they do not know other health-related risks like sudden infant death syndrome, ear infections, premature delivery, stroke and breast cancer that arises from exposure to SHS.

Recommendations: Practical and effective programs to increase self-efficacy and empowerment of non-smoker in avoiding SHS be established especially at home and workplace (No smoking restrictions at schools, hospitals) to attain a healthier community. Advertisement on health risks concerning exposure to SHS on mass media is recommended to increase awareness of side effects of SHS.

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Using of Cardiatek Application in interpreting electrocardiogram results in the health facilities of Tanzania

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Background: According to the World Health Organization estimates, cardiovascular diseases are the second most common cause of death in Africa. In 2015, almost 1.2 million people died because of cardiovascular diseases in Africa which is more than for Malaria and Tuberculosis combined.

Aim: To improve early diagnosis of heart diseases in rural and urban areas by introducing CardiacTek application in the health facilities of Tanzania which will enable clinicians to interpret early the findings obtained from electrocardiogram images and come with correct diagnosis and proper treatment plan for the patient.

Methodology: CardiacTek will be a mobile-based application that can run on Android smartphones. The system application will be fed with the data sets of normal electrocardiogram reports and abnormal electrocardiogram reports with their respective diagnosis. The Smartphones' built-in camera will capture the image from the electrocardiogram report and upload the image in the CardiacTek application where the system application will retrieve the data sent and display the results of the patients with their correct interpretations and suggested treatment. Currently, we are developing the prototype. Once the prototype is complete, It will be tested in a few selected health facilities in Dar es Salaam for its effectiveness in interpreting the electrocardiogram reports and the findings will be shared with the stakeholders for possible scaling the project in other health facilities of Tanzania.

Conclusion: Artificial Intelligence Model using Convolutional Neural networks have been proven to be really effective in a wide variety of computer vision tasks. By utilizing Convolutional neural networks, we will greatly speed up the prediction time and exceed the accuracy of clinicians in interpreting the results. CardiacTek is the new innovative artificial intelligence application that can be used to improve the early diagnosis of heart diseases in the health facilities of Tanzania especially in many areas where clinicians face difficulties in interpreting the electrocardiogram reports of the patients.

Recommendations; Clinicians at all levels should always bear in mind the possibility of secondary hypertension in all young patients presenting with refractory hypertension, and a proper cardiovascular examination must be conducted.

168 Regulation of expression of glia cell line-derived neurotrophic factor (GDNF) in voluntary and involuntary muscles at the cellular level

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Background: Neurotrophic factors are endogenous soluble proteins that regulate growth, survival, and plasticity of neurons. Glia cell line-derived neurotrophic factor (GDNF) is known as a potent neurotrophic factor for somatic and autonomic motor neurons. GDNF is synthesized in various neural target tissues including skeletal and cardiac muscles (Vianney et al., 2014). Whether the processes regulating GDNF production in skeletal (voluntary) and cardiac (involuntary) muscles is similar or different is poorly understood.

Aim: The current study examines whether cellular activation by neural cells, via neurotransmitter effects or directly electrical stimulation of the cells regulate GDNF in these muscle cell types, with emphasis of similarities and differences of GDNF concentration levels

Methodology: C2C12 skeletal muscle cells and HL-1 cardiac atrial cells were grown in culture. The ability of the cells to express GDNF was examined by immunocytochemistry, western blot, and ELISA techniques. Neural signaling was simulated by activating cells with neurotransmitters (acetylcholine, norepinephrine) or electrical stimulation for 30min to 48h to

determine whether neural activation is an important regulator of GDNF production. Samples of culture medium and cells were collected between 0h and 48h. ELISA was used to determine GDNF concentration in samples.

Results: Acetylcholine inhibits GDNF secretion in both cell types, whereas, norepinephrine increases GDNF synthesis in cardiac cells. Electrical stimulation has opposing effects on GDNF production, where GDNF levels increase with long-term electrical stimulation in skeletal muscle and decrease with long-term electrical stimulation in cardiac muscle.

Conclusion: This work suggests that GDNF expression may be regulated differently in cardiac and skeletal muscle.

Recommendation: More studies are needed so as to fully understand the regulation of GDNF production in voluntary and involuntary muscles to provide a better understanding of how these processes may be modulated therapeutically. Cellular studies should be included in research objectives as they are very important in determining how specific cells may respond to treatments, especially, in non-communicable diseases.

169 Assessment of Body Composition in Children Previously Treated for Moderate (MAM) and Severe Acute Malnutrition (SAM), and its Medium-Term

Benefits and Risks Using Nuclear Techniques in Mpwapwa District

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Background: Despite the evidence for improved short-term survival in children treated for moderate and severe acute malnutrition (MSAM),

literature on their medium and long-term health outcomes is scarce. Aberrant changes in overall nutritional status including body composition may occur with the rapid weight gain that usually follows MSAM treatment. A growing body of evidence implicates impaired body composition regulation as a key contributor in the pathogenesis of metabolic diseases, which may occur in children with MSAM later in adulthood. These data will help to uncover the links and mechanisms driving the transition from under to overweight and obesity and the associated outcomes. Understanding this link and mechanisms may help in setting up preventive interventions as part of NCDs control strategy.

Objectives: To evaluate the nutritional status and its related functional factors in children who were successfully treated for moderate and/or severe acute malnutrition.

Methodology: Children 3-6 years old previously treated for moderate and severe acute malnutrition at Mpwapwa district council will be identified using available medical records. Community health workers identified a matched control group. Detailed anthropometry, body composition by deuterium dilution was assessed in the two groups. Ethical clearance and all other administrative protocols were followed accordingly.

Data was analyzed using STATA version 13.0 (Stata Corp. US). Student T-test or chi square test was used to compare different variables between children previously treated for MSAM and their matched controls. Any differences with P value less or equal to 0.05 was considered significant.

Results: Protocol for this study has been developed.

Conclusion: Rapid catch-up growth as a result of successful treatment of moderate and severe acute nutrition, might result in aberrant regulation in body composition, consequently causing metabolic derangements.

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Recommendations: The recommendations will be based on the results after completion of the study

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