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MUHIMBILI UNIVERSITY OF HEALTH AND  
ALLIED SCIENCES (MUHAS)

**14<sup>TH</sup>**

**MUHAS SCIENTIFIC  
CONFERENCE**

# ABSTRACT BOOK

**THEME:** Innovating for Resilient and Sustainable  
Universal Health Coverage in the Era of Shifting  
Global Health Financing



**EACoECVS, MUHAS  
Mloganzila Campus**



**July 1<sup>st</sup> - 3<sup>rd</sup> 2026  
Dar es Salaam, Tanzania**

**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES 14TH MUHAS  
SCIENTIFIC CONFERENCE**

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**Innovating for Resilient and Sustainable Universal Health Coverage in the  
Era of Shifting Global Health**

**EACoECVS, MUHAS Mloganzila Campus**

**JULY 1ST - 3RD, 2026**

**ABSTRACT BOOK**

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### 1. Title: Assessing a Health Facility Governing Committees Strengthening Intervention to Improve Social Accountability in Tanzania

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**Presenter:** Hussein Athuman Kapuya

**Authors:** Hussein Athuman Kapuya, Stephen Oswald Maluka, Anna-Karin Hurtig, Miguel San Za

**Background:** Tanzania's 1990s health reforms promoted inclusiveness by involving stakeholders in facility-level social accountability. Health facility governing committees, established in 1999 and comprising community members, facility staff, local government leaders, private health service providers, and non-governmental organisations (NGOs), were created to support this role. However, despite more than two decades having passed, stakeholder awareness and participation remain limited.

**Objectives:** To assess an intervention implemented to strengthen HFGC through training members and community sensitisation to raise awareness and participation

**Methods:** A convergent mixed methods design was used. Post-intervention interviews conducted in 2025 captured the views of various stakeholders on changes in dimensions of accountability and stakeholder participation. Community-based surveys were also conducted in 2022 (pre-intervention) and 2025 (post-intervention). The qualitative data were analysed thematically, and the quantitative data estimated absolute differences (AD) using a generalised linear regression model.

**Results:** The intervention strengthened the HFGC members' accountability and increased stakeholder awareness of and participation. The greatest improvements were observed among facility users, facility in-charges, and local government leaders. Survey results showed statistically significant gains across most outcomes in both crude and adjusted models. The largest gains were seen in community support (AD=24.3; 95% CI: 20.6-28.0) and HFGC members' accountability (AD=42.7%; 95% CI: 39.2-46.2). Challenges included limited accountability among members, low participation by certain stakeholders, and gaps in representation.

**Conclusion:** Strengthening HFGCs through targeted training and community sensitisation improved stakeholder awareness and participation in two semi-rural districts in Tanzania. While substantial gains were observed, persistent challenges related to incentives, representation, and engagement of some stakeholder groups highlight the need for complementary strategies to sustain and deepen accountability at the facility level.

**Recommendation:** District governments across the country should promote education relating to the role of the HFGCs among key health-related stakeholders and their participation in the activities of the committees to promote social accountability in the local health system.

## **2. Title: Evaluating the Performance of Monitoring and Evaluation System in HIV/AIDS Intervention: A Case Study of TACAIDS**

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**Background:** Monitoring and evaluation (M&E) systems are critical for improving the effectiveness, accountability, and sustainability of HIV/AIDS interventions, particularly in resource-constrained settings. In Tanzania, the Tanzania Commission for AIDS plays a central role in coordinating the national multi-sectoral response to HIV/AIDS. However, concerns remain regarding the performance and utilisation of M&E systems in informing decision-making and programme improvement.

**Objectives:** Specifically, the study assessed the effectiveness of existing M&E frameworks, examined stakeholder capacity in data management and use, and explored communication

**Methods:** A qualitative research approach was employed, using purposive sampling to select key informants, including programme officers, monitoring and evaluation specialists, and government officials. Data were collected through semi-structured interviews, focus group discussions, and document reviews and were analysed thematically.

**Results:** Findings revealed that the M&E system is well-structured and aligned with national strategic frameworks; its effectiveness is constrained by limited technical capacity, inadequate data quality assurance mechanisms, and weak integration of digital technologies. Additionally, although stakeholders are involved in data collection processes, their participation in data analysis and utilisation remains limited, reducing the impact of M&E findings on policy and programme decisions. Communication gaps and insufficient feedback mechanisms further hinder the use of evidence for improving HIV/AIDS interventions.

**Conclusion:** The study concludes that strengthening stakeholder capacity, improving data quality systems, and enhancing the use of digital technologies are essential for optimising M&E system performance.

**Recommendation:** 1. strengthening stakeholder capacity, 2. enhancing the use of digital technologies, 3. Improving the data quality system

## **3. Title: Challenges Facing HFGCs and Their Impact on Quality Health Service Delivery in Mtwara Municipal**

**Presenter:** Isaac Dawa

**Authors:** Isaac Dawa, Elizabeth Kitonka

**Background:** Health Facility Governing Committees (HFGCs) are user committees that represent the preferences of the grassroots in health matters. They were introduced to improve community involvement in health service delivery through enhancing accountability, coverage, access, and effective utilisation of resources. Despite their presence, health facilities are not performing well.

**Objectives:** To assess challenges facing HFGCs and their effect on the provision of quality health services in Mtwara Mikindani Municipal Council.

**Methods:** A cross-sectional study design was employed in eight government health facilities in Mtwara Mikindani Municipal Council: Likombe Health Centre, Ufukoni Dispensary, Chuno Dispensary, Naliendele Dispensary, Mbawala Chini Dispensary, Rwelu Dispensary, Mikindani Dispensary, and Mtawanya Dispensary. Data were collected using interviews, questionnaires, Focus Group Discussions, observation, and document review. Both qualitative and quantitative methods were used. Data were analysed using SPSS V.20 and content analysis after data cleaning and sorting.

**Results:** Findings show challenges facing HFGCs include inadequate finance, lack of training, inadequate knowledge among members, and a low level of education. Poor communication between HFGCs and the community and poor attendance at meetings were also reported. These challenges affected the accomplishment of roles such as planning, budgeting, resource mobilisation, and approval of health facility activities. Accountability of HFGCs was low, and this affected the provision of quality health services in public primary health facilities in Mtwara Mikindani Municipal Council.

**Conclusion:** HFGCs are important structures in improving accountability and health service delivery. However, challenges such as a lack of training, inadequate funding, limited knowledge, and poor communication affect their performance. These limitations reduce their effectiveness in planning, budgeting, and community engagement. Strengthening capacity building, improving members' knowledge, and enhancing communication between committees and communities are important lessons learned to improve performance.

**Recommendation:** There is a need for training of HFGC members after selection to improve understanding of responsibilities. An adequate budget allocation should be provided for HFGC activities to support the implementation of their duties. Strengthening communication between HFGCs and communities is also important. Implementation of guidelines should be reinforced to improve accountability and ensure better quality health service delivery in public health facilities.

#### **4. Title: Financial Vulnerability and Targeted Inpatient Support in a Rural Hospital Setting: A Descriptive Programme Review**

**Presenter:** Samwel Kikaro

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**Background:** Financial barriers to inpatient care remain common among socioeconomically vulnerable populations in rural Tanzania despite ongoing universal health coverage reforms. Solidar Med supported the implementation of a vulnerable patient programme at Lugala Hospital, a mission hospital that accounted for 32% of all district hospital admissions between 2023 and 2025 (8,225/25,354). Understanding the scale and characteristics of hospital-based financial support programmes may help inform practical approaches for reducing exclusion from essential inpatient care.

**Objectives:** To describe implementation trends, coverage, and support provided through the SolidarMed Tanzania Vulnerable Patient Programme at Lugala Hospital between 2023 and 2025.

**Methods:** We conducted a retrospective descriptive review of all patients enrolled in the SolidarMed Tanzania Vulnerable Patient Programme from January 2023 to December 2025. Patients were identified through systematic social and clinical screening at admission. Programme indicators included the annual number of beneficiaries, the proportion of total

inpatient admissions supported, and the categories of essential services covered. Descriptive statistics were used to summarise implementation trends over the three years.

**Results:** From 2023 to 2025, the programme provided financial support to 682 inpatients. Coverage rose from 71 patients (2% of 3,543 admissions) in 2023 to 343 patients (16% of 2,114 admissions) in 2024, then fell to 268 patients (10% of 2,568 admissions) in 2025. These year-to-year changes may reflect shifts in implementation capacity, funding, and patient identification processes. Support covered essential inpatient services, including admission fees, medications, investigations, and procedures. The programme improved access to hospital care for patients who might otherwise have been excluded.

**Conclusion:** The Lugala Hospital Vulnerable Patient Programme demonstrates the operational feasibility of implementing targeted financial support for vulnerable inpatients in a rural hospital setting. The findings highlight the continued presence of financial barriers to inpatient care and the importance of practical mechanisms for identifying and supporting socioeconomically vulnerable patients within routine hospital systems in low-resource settings.

**Recommendation:** Rural hospitals and health programmes should strengthen routine mechanisms for identifying financially vulnerable patients and integrate targeted support approaches within existing care systems. Further studies incorporating patient demographics, treatment categories, and programme cost analyses are recommended to inform better long-term sustainability and policy discussions related to financial protection in healthcare.

## **5. Title: Evaluation of Implementation of Newborn Screening for Sickle Cell Disease Programme in Selected Hospitals**

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**Background:** Sickle cell disease (SCD) is a major public health concern in Tanzania, where approximately 11,000 children are born with the condition annually. Newborn screening (NBS) enables early diagnosis and timely intervention. Despite the proven effectiveness of NBS in reducing early mortality from SCD, implementation in Tanzania remains limited to pilot programmes at facilities such as Temeke and Amana Regional Referral Hospitals (RRHs) in the city of Dar-es-salaam.

**Objectives:** This study evaluated the implementation of NBS for the SCD Programme at Temeke and Amana RRHs.

**Methods:** An explanatory mixed-methods process evaluation was conducted between January 2022 and December 2024. Quantitative data were extracted from hospital registries and REDCap, while qualitative data were obtained from key informant interviews with 17 healthcare workers. Quantitative data were analysed using SPSS v29.0, while qualitative transcripts were thematically analysed using NVivo software version 15 to explore operational factors influencing implementation. A total of 10,711 newborns were screened across the two hospitals.

**Results:** Among screened newborns, 0.70% had homozygous SCD (HbS/S) and 12.53% had sickle cell trait (HbA/S). Enrolment of infants with SCD into comprehensive care declined markedly,

from 65.6% in 2022 to 10.5% in 2024 at Temeke RRH, while Amana RRH recorded no enrolments after the first year. Facilitators included maternal awareness, interdepartmental collaboration, and trained staff. However, inadequate refresher training, delayed incentives, supply shortages, and parental hesitancy linked to cultural beliefs hindered implementation and contributed to declining enrolment into care.

**Conclusion:** Early implementation benefited from trained staff and interdepartmental collaboration, but sustainability was limited by inadequate refresher training, delayed incentives, supply shortages, and parental hesitancy.

**Recommendation:** Addressing these gaps through regular capacity building, improved supply chains, timely incentives, and culturally sensitive community education is essential for improving enrolment, continuity of care, and supporting national scale-up of newborn screening for SCD in Tanzania.

## **6. Title: Effectiveness of Structured-Handover-Checklist in the Post-Anaesthesia-Care-Unit in Reducing Complication Rates at MNH**

**Presenter:** Shivangi Mandania

**Authors:** Shivangi Mandania, Respicious Boniface, Moses Mulungu, Mpoki Ulisubisya

**Background:** Effective communication during patient handover is essential for patient safety in the post-anaesthesia care unit (PACU). Unstructured handovers can lead to important information being missed, thereby increasing the risk of complications.

**Objectives:** Evaluate the effectiveness of using a structured handover checklist in reducing information loss and complication rates at PACU.

**Methods:** A prospective, before-after quasi experimental study was conducted among post-anaesthesia patients at Muhimbili National Hospital (MNH). Baseline handover practice was obtained before the implementation of the checklist, followed by staff training and post-implementation evaluation. Data obtained was analysed using SPSS. Continuous variables were summarised using mean or median. Categorical variables were presented as frequencies and percentages. Chi-square and odds ratio were calculated; p-value <0.05 was considered statistically significant with 95% confidence interval.

**Results:** A total of 332 patients participated, with an equal number (166) in the before and after phases. The use of a structured handover checklist resulted in significant improvement in handover completeness, with good handovers increasing from 10% to 81.3% ( $p < 0.001$ ). The rate of complications reduced from 32% in the pre-implementation phase to 18% in the post-implementation phase ( $p = 0.004$ ). Patients in the post-implementation phase had 48% lower odds of experiencing complications than those in the pre-implementation phase. Good handover completeness remained independently associated with a lower risk of complications (adjusted OR=0.06, 95% CI: 0.02-0.17,  $p < 0.001$ ).

**Conclusion:** Introducing a structured handover checklist significantly improved the quality of handovers and reduced complication rates without prolonging handover duration.

**Recommendation:** Standardised handover tools should be integrated into routine clinical practice to strengthen patient safety in the PACU.

## **7. Title: Developing a Centre of Excellence for Essential Emergency and Critical Care in Tanzania**

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**Background:** Critical illness causes preventable deaths in low-income countries due to failure to recognise and treat patients early. Within the EECCiT programme – a government-led initiative implemented across 79 primary healthcare facilities in Tanzania – Vwawa District Hospital was designated an EECC Centre of Excellence, receiving the most intensive implementation support. This presentation reports outcomes achieved and key ingredients that enabled this transformation.

**Objectives:** To describe the development of a centre of excellence in a low resource setting Primary health facility.

**Methods:** A mixed-methods implementation research design was applied. Quantitative data included pre/post knowledge tests, clinical simulation scores, monthly Vital Signs Censuses, resource readiness assessments, and patient outcome data comparing July-August 2024 versus July-August 2025. Qualitative data were collected through in-depth interviews and focus group discussions. The EECC Centre received 100% staff and leader training, a dedicated EECC coordinator, weekly monitoring, regular CME sessions, and intensive MUHAS mentorship.

**Results:** Staff knowledge rose from 31% to 67%, with retention at 65% four months later. Simulation "done" scores increased by 129%, from 34% to 78%. Ward readiness reached 88%, and EECC coverage achieved 100% – the only facility in the programme to do so. Inpatient mortality fell by 55%, referrals dropped 66%, and average hospital stay decreased by 20%. Neonatal mortality declined by 34%. These gains were three to four times greater than other implementation bundles.

**Conclusion:** Achieving 100% EECC coverage – not partial coverage – drove the greatest mortality reductions. Essential enablers were universal staff training, a dedicated coordinator, intensive monitoring, strong leadership, and simple job aids embedded into daily routines. This model is feasible, affordable, and replicable as a national scale-up blueprint

**Recommendation:** Adopt the EECC Centre model as the preferred national scale-up approach, designating one district hospital per district as a hub. Ensure 100% staff training coverage, appoint dedicated EECC coordinators, embed job aids into daily routines, and integrate EECC into routine supervision and data systems. This low-cost model is ready for immediate replication across Tanzania and similar settings.

## **8. Title: Beyond Health Facilities: Exploring Community Drug Outlets as Vaccination Platforms in Tanzania**

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**Presenter:** George Bwire

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**Background:** Expanding immunisation coverage in Tanzania remains challenging, particularly in rural and underserved communities where access to health facilities is limited. Community-based medicine outlets, including retail community pharmacies and Accredited Drug Dispensing Outlets (ADDOs), are widely utilised for primary healthcare services and may offer an alternative platform for vaccine delivery. This study explored stakeholder perceptions and implementation readiness for introducing vaccination services within these outlets.

**Objectives:** To evaluate the acceptability, appropriateness, feasibility, and implementation considerations of integrating vaccination services into community drug outlets, including community pharmacies.

**Methods:** An explanatory sequential mixed-methods study was conducted between March and June 2025 in Dar es Salaam and Pwani, Tanzania. The quantitative phase used a cross-sectional survey to assess perceptions regarding the integration of vaccination services into community drug outlets. This was followed by a qualitative phase involving focus group discussions, in-depth interviews, and key informant interviews to further explore stakeholder perspectives, implementation barriers, and opportunities.

**Results:** The quantitative component enrolled 672 respondents, including clients and dispensers, while the qualitative inquiry involved 46 stakeholders through focus group discussions, in-depth interviews, and key informant interviews. Most clients indicated interest in receiving vaccines from community drug outlets. Positive perceptions were more common among participants living further from health facilities and among those willing to receive or provide vaccination services. In contrast, older participants and respondents from rural settings expressed more reservations. Qualitative findings revealed that community pharmacies were viewed.

**Conclusion:** Community pharmacies appeared relatively more prepared for implementation than ADDOs because of existing staffing and infrastructure differences. However, several concerns were identified across both outlet types, including training needs, cold-chain requirements, regulatory guidance, waste management, and service costs. These findings suggest that careful planning and gradual implementation would be important before introducing vaccination services through community drug outlets.

**Recommendation:** Further pilot studies are needed to assess operational readiness and practical implementation of vaccination services within community drug outlets. Strengthening provider training, infrastructure, regulatory guidance, and supervision may improve implementation capacity. Collaboration between health authorities, regulators, and community drug outlet stakeholders will also be important to support safe and acceptable delivery of vaccination services in different Tanzanian settings.

## **9. Title: Community Pharmacies as Emerging Platforms for HIV Prevention and Treatment Delivery in Urban Tanzania**

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**Presenter:** George Bwire

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**Background:** Community pharmacies (CPs) are increasingly recognized as potential decentralized platforms for HIV prevention and treatment services, including pre-exposure prophylaxis (PrEP) and antiretroviral therapy (ART) refills. In Tanzania, HIV services remain concentrated in public facilities, contributing to long waiting times, transportation costs,

stigma, and limited accessibility. However, evidence regarding the acceptability and implementation requirements of CP-based HIV service delivery remains limited.

**Objectives:** To assess the acceptability of community pharmacy-based PrEP delivery and ART refills and explore stakeholder perspectives on the feasibility

**Methods:** A sequential explanatory mixed-methods study was conducted in Dar es Salaam, Tanzania. Quantitative surveys were administered to women engaged in transactional sex and people living with HIV (PLHIV) to assess willingness to obtain PrEP or refill ART through community pharmacies. Qualitative data collection followed and included in-depth interviews with women engaged in transactional sex, pharmacists, pharmacy owners, and policymakers, as well as focus group discussions with PLHIV.

**Results:** Among 93 women engaged in transactional sex, 74.2% were willing to receive PrEP from community pharmacies, while 66.0% of 341 PLHIV were willing to refill ART there. Participants highlighted convenience, shorter waiting times, flexible hours, and easier access as major benefits. Key concerns included stigma, confidentiality, user fees, and limited HIV expertise among pharmacy staff. Stakeholders emphasized the need for trained personnel, private consultation areas, sustainable financing, strong regulation, and integrated digital systems for the successful implementation of pharmacy-based HIV services.

**Conclusion:** Community pharmacies were perceived as promising complementary platforms for decentralised HIV prevention and treatment services in Tanzania. However, successful integration into national HIV programmes will require strengthened regulatory systems, workforce training, confidentiality safeguards, and sustainable financing mechanisms to ensure safe, acceptable, and effective implementation.

**Recommendation:** Further implementation research is needed to evaluate the real-world feasibility, safety, cost-effectiveness, and long-term outcomes of pharmacy-based HIV service delivery models before large-scale integration into Tanzania's differentiated HIV care system.

## **10. Title: Standardised Patients' Experiences of Portraying Clients with Sexual Health Concerns in Sexual Health Curriculum Development**

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**Presenter:** Gift Lukumay

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**Background:** Standardised Patient(SPs) play a vital role in sexual health education in many high-income countries, yet their use in low-resource and culturally sensitive settings, such as Tanzania, remains limited. In these contexts, SPs often face emotional, cognitive, and sociocultural challenges, particularly when portraying sexual health scenarios. Understanding their experiences is important for improving training quality.

**Objectives:** To explore the experiences of SPs involved in developing and delivering a sexual health curriculum for healthcare professional students in Tanzania

**Methods:** We explored the experiences of SPs who portrayed sexual health scenarios during the implementation of a sexual health curriculum for healthcare professional students in Tanzania. In-depth interviews were conducted between April and May 2025. Data were analysed using content analysis, supported by NVivo software, to identify key themes related to role development, challenges, supportive factors, and suggested improvements.

**Results:** SPs shared a range of experiences that reflected the evolving nature of their roles and the complexities of simulating sexual health scenarios. Five themes were developed through analysis: the progressive development of SPs' competence; cognitive and role-based challenges; sociocultural and interpersonal barriers; the value of structured preparation and support; and the need to improve training and learning environments. These themes reveal both the difficulties SPs encountered and the factors that helped them perform effectively.

**Conclusion:** Despite challenges such as mental fatigue, role conflict, and cultural discomfort, SPs contributed meaningfully to sexual health education. Structured training, rehearsal sessions, checklists, and supportive environments were key to their success. These findings emphasise the importance of designing culturally sensitive, well-supported SP programmes to enhance sexual health training in Tanzania and similar settings.

**Recommendation:** Teaching Institutions should strive to design culturally sensitive, well-supported SP programmes to enhance sexual health training in their settings.

## **11. Title: Implementation of New WHO Postpartum Haemorrhage Diagnostic Criteria in Routine Care: A Multi-Country Mixed-Methods Study**

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**Background:** Postpartum haemorrhage (PPH) is a leading cause of maternal death globally. To support earlier diagnosis and treatment of PPH, WHO recently introduced new diagnostic criteria based on objectively measured blood loss of  $\geq 300$  mL with any abnormal haemodynamic sign, or  $\geq 500$  mL, whichever occurs first within 24 hours after birth. Our study assessed the feasibility, fidelity, acceptability, impact, and cost implications of applying the new criteria.

**Objectives:** We conducted a prospective, multi-country, mixed-methods study in 18 facilities across Colombia, India, Kenya, Nigeria, Tanzania, July to October 2025.

**Methods:** Eligible health workers received training on the diagnostic criteria and PPH first-response treatment bundle. Observers prospectively recorded blood loss, haemodynamic signs, PPH diagnoses, and treatments for all births over five consecutive weeks. Health workers completed pre-training and post-implementation surveys and participated in semi-structured interviews. Descriptive statistics were used for quantitative data and mean-unit-cost per woman was estimated. Quantitative and qualitative findings were integrated to generate triangulated inferences.

**Results:** Objective blood loss volume and at least one postpartum clinical assessment were recorded for 82.8% (4 361/5 264) of births during the study period. Health workers considered the new criteria feasible (97.6%; 528/541) and acceptable (96.8%; 338/349). Overall PPH incidence was 20.8% (908/4 361) using the new criteria compared with 14.7% (701/4 760)

using the conventional  $\geq 500$  mL threshold. PPH incidence with the new criteria was more than double for caesarean (30.7%) compared with vaginal birth (13.7%).

**Conclusion:** In routine clinical care settings, implementing the new PPH diagnostic criteria was feasible and acceptable, and increased early diagnosis with modest additional treatment costs.

**Recommendation:** Adherence to the new PPH definition observed in the short term suggests meaningful uptake, although strengthened implementation processes, particularly for caesarean births, will be required to support sustained use and scale-up.

## **12. Title: Factors Associated with Vulnerability and Response Preparedness to Ebola Virus Disease in Six High-Risk Regions**

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**Background:** Ebola Virus Disease (EVD) is a severe haemorrhagic illness with high fatality rates. Following the 2022 Sudan ebolavirus outbreak in Uganda, Tanzania issued a national EVD alert and identified high-risk regions bordering Uganda and DRC, including Zanzibar due to tourism and porous ports. In response to limited socio-anthropological evidence, researchers from MUHAS-led assessment in 2023 to examine social, cultural, economic, and environmental factors influencing EVD vulnerability and preparedness in Tanzania.

**Objectives:** To assess socio-cultural, economic, knowledge, and environmental factors influencing Ebola transmission and containment in high-risk regions of Tanzania.

**Methods:** A qualitative ethnographic design guided by grounded theory principles across high-risk regions was used. Data were collected through observations, in-depth interviews, key informant interviews, and focus group discussions involving community leaders, health workers, youths, fishermen, and traditional leaders. Sites included borders, refugee camps, fishing hubs, and tourist areas. Ethical approval was obtained from MUHAS, and data were analysed using open, axial, and selective coding to identify major socio-cultural and economic vulnerability themes.

**Results:** The study identified widespread EVD awareness alongside major misconceptions, particularly beliefs about airborne transmission and traditional cures. Deeply rooted socio-cultural practices such as caregiving, funeral rituals, communal eating, and handshaking were found to increase transmission risks during outbreaks. Economic activities including cross-border trade, fishing, transport, and crowded markets further amplified vulnerability. Weak risk perception, gender roles, leadership dynamics, and limited health communication effectiveness were also identified as critical factors influencing preparedness and response.

**Conclusion:** Study demonstrates that EVD vulnerability in Tanzania is deeply shaped by interconnected socio-cultural, economic, gender, and structural factors embedded within community life. Effective preparedness and response require culturally sensitive, community-centred, and multi-sectoral approaches that strengthen surveillance, IPC, RCCE, WASH, and cross-border coordination. Engagement of trusted local actors and context-specific interventions remains critical for reducing transmission risks and improving outbreak preparedness

**Recommendation:** The study recommends urgent strengthening of Tanzania's EVD preparedness through coordinated leadership, surveillance, IPC, RCCE, psychosocial support, points of entry screening, and WASH interventions. Priority actions include myth-busting campaigns, PPE pre-positioning, community-based surveillance, cross-border coordination, strengthening isolation centres, and engaging trusted local leaders and traditional healers.

### **13. Title:** Effectiveness of Priority Setting for the Provision of Health Care Services at Chs in Tanzania

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**Presenter:** Malale Tungu

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**Background:** Introduction of effective priority setting is key to ensuring sustainable and improved health services provision at the primary healthcare setting in low-resource countries like Tanzania. Different reforms have been adopted by the government, including the introduction of Direct Health Facility Financing (DHFF), aiming to improve the priority setting at the primary healthcare setting. However, outcry exists on access to quality and sustained health services at the primary healthcare setting.

**Objectives:** To assess factors which influence the effectiveness of priority-setting for the provision of health services at PHC in Tanzania.

**Methods:** A qualitative case study design was conducted in Kisarawe and Mkuranga districts using primary and secondary data sources. Data were collected through interviews, focus group discussions, and reviews of DHFF policy documents and planning guidelines. Participants included health workers, planners, health managers, and local government officials. Interviews were transcribed verbatim, translated from Kiswahili to English, and analysed through coding of condensed meaning units to generate categories and themes.

**Results:** Findings revealed gaps in health workers' planning competencies, although mentorship and technical support strengthened planning capacity. Community participation was promoted through CHWs, HFGCs, local leaders, and multi-level meetings. Planning relied on established guidelines, community feedback, facility data, and bottom-up approaches. However, poor data quality, inadequate documentation, resource constraints, and political interference limited effective evidence-based decision-making and influenced the selection and implementation of health priorities.

**Conclusion:** The effectiveness of priority setting at primary healthcare facilities in Tanzania is influenced by workforce capacity, stakeholder engagement, planning tools, resources, and political factors. Despite existing planning structures, technical skill gaps, poor data quality, resource limitations, and political interference constrain evidence-based priority setting. Strengthening capacity, improving data systems, enhancing community participation, and promoting adherence to planning guidelines are essential.

**Recommendation:** There is a need to strengthen the capacity of health workers through regular training, mentorship, and supportive supervision on planning and evidence-based priority setting. Efforts should also focus on improving data quality systems, strengthening community participation mechanisms, and enhancing adherence to planning guidelines while minimizing political interference in priority-setting processes.

#### **14. Title: Tramadol Use and Associated Factors among Commercial Motorcyclists in Mwanza City, Tanzania**

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**Background:** Tramadol, being an OTC medication, is readily available in Tanzania. The evidence of its abuse and dependence is emerging in various countries. Evidence has shown that motorcyclists who abuse tramadol are more vulnerable to road traffic accidents. This study aimed to estimate the prevalence and associated correlates of tramadol use among commercial motorcyclists in Mwanza City, Tanzania.

**Objectives:** To determine magnitude of tramadol use and its associated factors among commercial motorcyclists.

**Methods:** A cross-sectional study was conducted from April to May 2025 among 280 commercial motorcyclists in Ilemela and Nyamagana, Mwanza. Data were collected using structured questionnaires and analysed in Stata 17, with descriptive and inferential statistics.

**Results:** Of the 280 respondents (all male, mean age 33.8 years), 63.9% reported tramadol use, and 83.2% of these used it without a prescription. Most users consumed tramadol occasionally (67.1%), typically two tablets/capsule daily. Longer working hours ( $p \leq 0.001$ ) and secondary education levels ( $p \leq 0.001$ ) were significantly associated with non-prescription tramadol use. Most of those who used tramadol after prescription had a university education ( $P \leq 0.001$ ).

**Conclusion:** This study demonstrates that non-prescription tramadol use is highly prevalent among commercial motorcyclists in the study area. The significant factors associated with non-prescription use include longer working hours and a lower education level. This raises concerns about the potential risks of abuse and road safety among motorcyclists.

**Recommendation:** Targeted health education campaigns should be introduced to increase awareness of the risks associated with non-prescription tramadol use •Future research should explore tramadol use across broader populations, including female riders and other informal sector workers, using both qualitative and biological validation methods.

#### **15. Title: Healthcare Workers' Knowledge About Essential Emergency and Critical Care in Primary Health Care in Tanzania**

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**Presenter:** Aneth Kaliza

**Authors:** Aneth Charles Kaliza, Anna Hvarfner, Karima Khalid, Abbas Kiwae, Ulrika Baker, Agripa Elirehema, Maryam Hemed, Theresia Haule, Tim Baker, Godfrey Barabona, the EECCiT investigators

**Background:** Tanzania has recently introduced a national strategy for the provision of essential emergency and critical care (EECC) to all critically ill patients in the country. EECC is a simple and cost-effective approach for reducing mortality from critical illness; however,

gaps in its provision remain, particularly in primary healthcare (PHC) facilities. HCWs) need to have adequate knowledge to be able to deliver EECC, but the baseline knowledge levels are unknown

**Objectives:** To assess knowledge about essential emergency and critical care among HCWs in Tanzania

**Methods:** We conducted a cross-sectional analysis of knowledge scores obtained from testing acute HCWs working in district hospitals, health centres and dispensaries in six regions of Tanzania. Knowledge was assessed using a tool covering the foundational identification and treatment of critical illness that comprises EECC. Descriptive statistics were computed, and results were compared across subgroups stratified by cadre, facility level and years of professional experience.

**Results:** The mean EECC knowledge score among HCWs was 31% (95% CI: 30-32). Knowledge score for the identification of critical illness was 19% and treatment was 32%. Medical doctors had mean knowledge scores of 44%, clinical officers 32% and nurses 29%. HCWs working in dispensaries, health centres and district hospitals scored 26%, 32%, and 31% respectively. No correlation was found between knowledge scores and years of professional experience in clinical care, nor in the critical care fields.

**Conclusion:** HCWs in primary healthcare facilities have a low level of knowledge about essential emergency and critical care. This is likely a significant barrier to the provision of effective EECC.

**Recommendation:** Prioritising increased EECC knowledge is essential if effective care is to be provided and mortality among critically ill patients in Tanzania is to be reduced.

## **16. Title:** HIV Service Provision Cost at Two Health Facilities Linked to Expanded Total Facility Approach in Tanzania

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**Presenter:** Alicia Kahumuza

**Authors:** Alicia Kahumuza, Linda B. Mlunde, Jessie Mbwambo, Bonny Betson, Richmond Owusu, Emma Gyamera, William Osafo-Mahama, Phillimon Ndubani, Musonda Simwinga, Nosiku Ilukena, Virginia Bond, Laura Nyblade, Fiameta Bozzani

**Background:** The expanded Total Facility Approach (eTFA) in Tanzania is a project addressing HIV stigma and discrimination in two hospitals. It trains facility staff to recognise and reduce stigma, aiming to improve overall HIV health outcomes. As part of the eTFA intervention, a cost analysis of HIV service provision was done. Up-to-date estimates of HIV service provision costs are essential for efficient resource allocation, given the current cuts in donor support.

**Objectives:** To assess the cost of HIV service provision at the two health facilities that were engaged in the implementation of eTFA.

**Methods:** Using a bottom-up approach, we collected cost data from the two facilities in November 2024. A provider perspective was considered, and data on resources used in HIV service provision (counselling, testing and ART) were collected retrospectively from facility records. Shared costs were distributed using appropriate allocation factors and capital costs annuitized at a 3% discount rate. Total annual costs and average costs per client are reported in 2024 US dollars.

**Results:** The annual cost of HIV service provision per person was \$471 and \$75.69 at Muhimbili and Mwananyamala, respectively, with recurrent costs predominating the total cost at both facilities. The main cost drivers were personnel and buildings for Muhimbili (43%, 27%) and for Mwananyamala, personnel and HIV medication (34%, 30%). Donor funding accounted for 49% and 17% of the total cost for Mwananyamala and Muhimbili, respectively, with 60% and 86% of donor funding going into HIV medication for Mwananyamala and Muhimbili, respectively.

**Conclusion:** These findings underscore the role of donor funding in HIV in Tanzania, particularly for procuring HIV medications. They also align with what McBain et al reported as high HIV service provision cost, characterised by high consumption of consumables for facilities with donor funding. This evidence is critical for policy makers to understand associated costs as they undertake resource allocation.

**Recommendation:** It is essential for the government to consider increasing fiscal space for HIV interventions through domestic resource mobilisation in order to meet the 2030 targets and preserve gains in tackling HIV, in order to avoid being set back by the funding cuts, given the funding cuts on HIV programmes that started in January 2025.

## **17. Title: Strengthening Stigma-Free Healthcare in Tanzania Through Expanded Total Facility Approach Intervention: Implementation and Best Practices**

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**Presenter:** Elizabeth Nguma

**Authors:** Elizabeth Nguma, Rahma Kova, Jessie K. Mbwambo, Bonny Betson, Virginia Bond, Laura Nyblade, Sarah T. Roberts, Emma Gyamera, William Osafu- Mahama, Phillimon Ndubani, Musonda Simwinga, Sue Clay, Mutale Chonta, Sophia Mlingi, Aminiel Uiso, Wilbroad Manyama, Pfiriael Kiwia, Linda B. Mlunde

**Background:** The Expanded Total Facility Approach (eTFA) intervention is implemented by MUHAS in collaboration with Muhimbili National Hospital (MNH) and MUCOHAS, to strengthen HIV stigma and discrimination reduction in Tanzania's health system. It integrates pre-service, in-service training, and continuous medical education (CME) to promote stigma-free, client-centred care for clients. It is implemented at MNH and the Mwananyamala Regional Referral Hospital in Dar es Salaam and includes Codes of Practice and Champion Teams.

**Objectives:** To describe implementation processes and best practices of the eTFA for reducing HIV-related stigma in Tanzanian health facilities.

**Methods:** eTFA used a whole-facility cascade implementation model at MNH and MRRH. A total of 28 health facility staff were trained as Trainers of Trainers (TOTs) to facilitate stigma reduction step-down trainings for clinical and non-clinical staff between March and August 2025. Participatory learning approaches and mentorship were used during implementation. During the final training sessions, participants developed facility-specific Codes of Practice, after which Champion Teams were established to support sustainability.

**Results:** Trained health facility staff (n=28) facilitated sessions. The training exceeded planned targets at both facilities, where at MRRH, 357; representing 102% of the target and 72% of the total number of facility staff and at MNH, 713 staff; 101% of the target and approximately 23% of the total facility staff were trained. Participatory facilitation approaches promoted active engagement and reflection on stigmatising practices. Facility-specific Codes of Practice and Champion Teams strengthened institutional ownership, accountability, and sustainability of stigma-reduction activities.

**Conclusion:** The eTFA demonstrated that integrating training, Codes of Practice, and Champion Teams can strengthen stigma reduction within health facilities. The cascade model achieved high training coverage and promoted institutional ownership of stigma-free, client-centred care. Continued implementation and scale-up of this approach may support long-term reductions in HIV-related stigma and improve healthcare experiences for PLHIV and other key populations in Tanzania.

**Recommendation:** Health facilities should strengthen routine stigma reduction initiatives through continuous staff training, mentorship, and regular reflection sessions involving both clinical and non-clinical staff. Greater investment in supportive supervision, monitoring, and staff engagement mechanisms is recommended to sustain respectful, equitable, and non-discriminatory service delivery for PLHIV and key populations.

## **18. Title: Sustaining HIV Stigma Reduction Practices Following the Total Facility Approach in Ghana and Tanzania**

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**Presenter:** Graca Marwerwe

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**Background:** HIV-related stigma in health facilities remains a significant barrier to equitable access to HIV services. While interventions such as the Total Facility Approach (TFA) have demonstrated effectiveness in reducing stigma among clinical and non-clinical healthcare workers, limited evidence exists on whether these practices are sustained within routine service delivery after external support ends.

**Objectives:** To explore the perceptions of health facility staff on the continuation of stigma reduction practices several years after TFA implementation.

**Methods:** This qualitative study draws on post-implementation Rapid Qualitative Assessments (RQAs) conducted in 2024 in selected former TFA facilities. Data were collected through in-depth interviews with facility leadership and focus group discussions with clinical and non-clinical staff and Champion Team members. Data were analysed using a rapid thematic approach.

**Results:** Several stigma-reduction practices introduced during TFA implementation were sustained, particularly those embedded in routine service delivery; however, those requiring external support were inconsistently sustained. These included orientation of new staff on stigma reduction and confidentiality, and discussions on these topics during staff meetings, and the use of visual messaging promoting non-discriminatory care. Key facilitators of sustainment included leadership support, integration into routine workflows, and staff ownership. Challenges included staff turnover, competing priorities, and limited resources. Structured training, mentoring, and material support declined after project completion.

**Conclusion:** Sustaining stigma reduction practices depends on their integration into routine facility systems. Practices embedded in daily workflows were more likely to persist, while those requiring external support declined. Future interventions should prioritise institutional integration and ongoing learning through routine mechanisms, such as staff orientation and informal refreshers, to support long-term stigma reduction.

**Recommendation:** Future stigma-reduction interventions should prioritise integrating activities into routine facility systems and workflows to enhance sustainability. Structured training, supervision, and resource support should also be institutionalised within health systems to maintain practices beyond project cycles.

## **19. Title: Health Insurance and Maternal Health Outcomes in Tanzania: The Moderating Role of Healthcare Service Quality**

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**Presenter:** Happyness Nyaborogo

**Authors:** Happyness Nyaborogo

**Background:** Tanzania has made progress in reducing maternal mortality, partly through increased utilisation of maternal health services. Health insurance is associated with increased utilisation by reducing out-of-pocket payments and improving financial protection. However, its effects are not uniform across settings, as utilisation gains vary by context. This raises concerns that the effectiveness of insurance may depend on service availability and readiness, especially in areas where access to healthcare remains limited.

**Objectives:** To examine whether service availability and readiness moderate the relationship between health insurance and maternal health outcomes in Tanzania

**Methods:** This study analysed Tanzania Demographic and Health Survey (TDHS) 2015/2016 data, merged with the Tanzania Service Provision Assessment Survey (TSPA) 2014/2015 data, using GPS coordinates. The propensity score matching approach was applied to examine the relationship between health insurance and maternal health outcomes (Antenatal care visits and facility-based delivery). Further, the study examined whether the quality of health services, measured at the facility level, moderates the relationship.

**Results:** Among 7,034 sampled women, only 7% were covered by health insurance. Health insurance positively influenced facility-based delivery but not antenatal care (ANC) utilisation. Women living in areas with higher service availability and readiness had higher utilisation of ANC and facility-based delivery than those in areas with lower service availability or readiness. Further, the effect of insurance was greater in areas with low service availability than in those with higher availability.

**Conclusion:** Health insurance coverage is associated with increased maternal healthcare utilisation, particularly facility-based delivery, but its effectiveness may be affected by supply-side factors. Stronger effects in areas with low service availability indicate that insurance plays a more critical role in improving access in underserved settings. This implies strengthening health service access alongside expanding insurance coverage is key to improving maternal health.

**Recommendation:** Improving access to health services, alongside expanding insurance coverage, is key to achieving meaningful improvements in maternal health. Both demand-side and supply-side factors should be considered when addressing maternal health outcomes in Tanzania. The policies aimed at improving maternal healthcare should adopt an integrated approach that combines financial protection with targeted investments in health service provision, particularly in resource-constrained areas.

## **20. Title: Baseline Assessment and Strengthening of Pharmaceutical Cold Chain Systems in Humanitarian and Rural Settings**

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**Presenter:** Manase Kilonzi

**Authors:** Manase Kilonzi, Alan Lwanga, Flora Michael Ringi, Beatrice Millu, Alphonse Ignace Marealle, Eliangiringa Kaale

**Background:** The Senselet Project, through its Cold Chain System Strengthening Flagship, aims to strengthen pharmaceutical cold chain systems in remote and underserved areas of Tanzania. The initiative focuses on humanitarian settings, particularly healthcare facilities serving refugee populations in Kigoma Region and the newly established New Msomera settlement in Handeni District, Tanga Region. Reliable cold chain systems are essential to maintain the quality, safety, and effectiveness of temperature-sensitive pharmaceuticals.

**Objectives:** The aim was to conduct a baseline Assessment and Strengthening of Pharmaceutical Cold Chain Systems in Humanitarian and rural settings

**Methods:** To inform implementation, MUHAS and the Kühne Foundation Tanzania conducted desk reviews and developed a standardised baseline assessment tool. The assessments were carried out between November and December 2025. In Kigoma Region, eight facilities were assessed, including warehouses, sub-stores, and healthcare facilities operated by Medical Teams International, the UNHCR, MSF, and TRCS within Nduta and Nyarugusu refugee camps. In Msomera settlement and the surrounding wards, eight healthcare facilities were assessed.

**Results:** Most facilities within the refugee camps had functional solar-powered cold chain systems. However, gaps were identified in temperature monitoring, and staff capacity for equipment management and troubleshooting. The Kasulu warehouse and Kibondo sub-store had weaker systems. In Msomera settlement and nearby wards, only one facility had a dedicated pharmaceutical refrigerator. The assessment identified a need for 54 pharmaceutical refrigerators across Handeni District Council.

**Conclusion:** The baseline assessment revealed important gaps in pharmaceutical cold chain capacity in both refugee camp settings and underserved rural communities, particularly in equipment availability, maintenance systems, temperature monitoring, and staff capacity.

**Recommendation:** The findings informed targeted interventions, including the procurement and deployment of solar-powered pharmaceutical refrigerators, which are expected to strengthen the reliability and sustainability of cold chain services for temperature-sensitive medicines in humanitarian and remote settings in Tanzania.

## **21. Title: Strengthening Health Supply Chain Management Capacity: Stakeholder Perspectives and Master's Programme Development in Tanzania**

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**Presenter:** Eulambius Mlugu

**Authors:** Eulambius M. Mlugu, Alphonse Mareale, Alan Lwanga, Betty Maganda, David Myemba, Erick Phillipou, Beatrice Millu, & Eliangiringa Kaale

**Background:** Efficient supply chain systems are essential for ensuring the continuous availability of health commodities, which directly influence health outcomes. Despite its

importance, Tanzania, like many low- and middle-income countries, faces persistent challenges in Health Supply Chain Management (HSCM), including stockouts, wastage, weak data systems, and limited last-mile delivery capacity. These issues are partly attributed to insufficiently trained personnel, fragmented systems, and the absence of structured, advanced academic training in HSCM.

**Objectives:** To undertake a needs assessment study to generate stakeholder-driven evidence that guides the development of a Master programme in HSCM

**Methods:** A needs assessment study employed a cross-sectional design with a mixed-methods approach, combining quantitative (n=214, from 27 regions) and qualitative data (n=18) from public and private institutions dealing with HSCM. Quantitative data were collected using a standard electronic questionnaire, while face-to-face structured interviews using a standard interview guide were used for qualitative data. Data analysis included descriptive statistics for quantitative data and thematic analysis for qualitative data.

**Results:** The findings revealed significant gaps in practical HSCM competencies, particularly in forecasting, financial management, data analytics, procurement, and technology use, contributing to stockouts and inefficiencies. Over 90% of respondents supported establishing an MSc in HSCM to strengthen workforce capacity. A blended, part-time learning model was preferred. Key themes included human resource gaps, weak data systems, procurement inefficiencies, poor coordination, import dependence, and the need for competency-based training. A validated curriculum with flexible delivery modes was developed.

**Conclusion:** The assessment demonstrates a clear need and strong demand for a specialised Master's programme in HSCM in Tanzania. Establishing such a programme would address critical skill gaps, improve supply chain performance, and contribute to stronger, more resilient health systems both nationally and regionally.

**Recommendation:** Implementation of the competency-based MSc programme with regular, evening, and online delivery options will meet the long-term workforce needs. Strengthening service training on HSCM, especially on key gaps, will improve efficiencies and reduce wastages of health commodities.

## **22. Title: Ubora: An Integrated Framework for Healthcare Quality Culture, Operational Excellence and Patient Safety**

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**Presenter:** Gregory G. Mandari

**Authors:** Gregory G. Mandari

**Background:** Global healthcare priorities, including those of Tanzania's Ministry of Health, are increasingly shifting toward quality, patient safety, accountability, and continuous improvement. However, many healthcare facilities, particularly within the private sector, continue to experience challenges translating quality standards into practical operational systems that deliver measurable institutional value beyond compliance and certification. Persistent governance, workforce, financial, and operational inefficiencies further constrain implementation efforts. The UBORA Health Operating System (U-HOS) was therefore developed.

**Objectives:** To develop and implement a practical integrated framework improving facilities' operational efficiency, quality culture, governance, accountability and patient safety.

**Methods:** The framework was developed through a contextual analysis of operational and quality management challenges affecting healthcare facilities in Tanzania, complemented by a review of internationally recognised healthcare quality and management frameworks. It integrates principles adapted from ISO 9001, ISO 7101, SafeCare, Star Rating Assessment, and operational excellence methodologies. Structured governance systems, operational domains, maturity-based assessment models, dashboards, and continuous improvement cycles were designed to strengthen sustainable governance, operational performance, accountability, and implementation.

**Results:** The framework's development phase is complete with core operational domains, governance structures, implementation cycles, maturity assessment tools, and performance monitoring dashboards established. The project is currently entering its early piloting phase, whereby willing facilities are being onboarded and specific stakeholder's needs are being assessed, presently there's demonstrated strong perceived relevance and need in implementing and adopting the framework to address key challenges around operational efficiency, quality and long term sustainability.

**Conclusion:** Early engagement has demonstrated that facilities face interconnected governance, financial, workforce, operational, and organisational culture challenges that significantly influence quality and patient safety outcomes. Facilities lack structured implementation support systems for operational efficiency and sustainable quality improvement. Context-sensitive operational frameworks embedded within routine service delivery appear more feasible and acceptable for strengthening accountability, staff engagement, operational coordination and improvement culture.

**Recommendation:** Quality improvement initiatives should prioritise integrated operational excellence systems that simultaneously address governance, patient safety, workforce performance, financial sustainability, and operational efficiency. Ministry of Health and other stakeholders should support scalable, context-appropriate implementation frameworks capable of strengthening institutional quality, culture and operational management capacity. Expanded pilot implementation, structured evaluation, and digital integration are recommended to assess long-term impact on quality.

### **23. Title: Improving the Quality of Sexual Reproductive Health Training in Pre-Service Medical Education in Tanzania**

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**Authors:** Fadhlun M. Alwy Al-beity Ali Said, Brian Muro, Akwinata Banda, Agness Massae

**Background:** Sexual and reproductive health (SRH) training for healthcare workers is inadequate worldwide, with the gap most severe in sub-Saharan Africa. In Tanzania, limited pre-service training—particularly in family planning and post-abortion care—leaves graduates underprepared. Cultural and societal barriers further restrict the delivery of quality SRH services.

**Objectives:** To strengthen SRH training at MUHAS by enhancing pre-service education to reduce the high maternal mortality and morbidities.

**Methods:** The project pursues multiple objectives in parallel. It began with a gap analysis and desk review of five curricula for medical and nursing undergraduate and postgraduate students engaged in sexual and reproductive health (SRH). Based on this review, areas

requiring reinforcement were revised, leading to the development of competency-based curricula that are both culturally and contextually relevant. A well-equipped simulation laboratory was also established at the university to support practical.

**Results:** We anticipate that graduates and the future healthcare workforce will demonstrate enhanced skills, supported by improved teaching and learning at the university. Building a cadre of skilled SRH professionals will reinforce the government's initiatives to advance public health and establish new best practices that can be scaled across other universities nationwide.

**Conclusion:** We will share the lessons learned during gap analysis, curriculum review and collaborative work between the School of Clinical Medicine and the School of Nursing in advancing undergraduate and postgraduate training for medical, nursing and midwifery pre-service education

**Recommendation:** • Strengthen faculty development through continuous professional development programmes, which should be established to equip teaching staff with advanced SRH knowledge and pedagogical skills, ensuring consistency in training quality. • Lessons learned should be documented and shared with other universities in Tanzania and across sub-Saharan Africa to foster replication and broader impact. • Align with national health priorities.

## **24. Title:** The Economics of Kidney Replacement Therapy in Tanzania, Generalizable State Transition Model for Policy-Driven Cea

**Presenter:** Fransia Arda Mushi

**Authors:** Fransia Arda Mushi, Josip Plascevic, Christopher Chambo, Jacqueline Shoo, Jonathan Mngumi, Daniel Msilanga, Masumbuko Mwashambwa, Mekdim Tadesse Siyoum, Lina Mohammed, Peace Bagasha, Somkanya Tungsanga, Aminu K. Bello, Rashmi Bharadwaj, Stefano M. Bertozzi, Peter G. Stock, Anton Avanceña, Tracy Kuo Lin, Alan Zambeli-Ljepović

**Background:** Relative to hemodialysis (HD), kidney transplantation (KT) is more cost-effective in the long term, improves survival and quality of life in middle- and high-income countries. Such economic analyses have not been performed in LICs where KT programmes are relatively new and not yet integrated into national health strategies.

**Objectives:** To evaluate the effectiveness of KT versus HD in Tanzania and identify policy targets that could maximise access.

**Methods:** We developed a Markov model to examine cost-effectiveness of three KRT strategies. We calculated costs using time-driven activity-based costing. We used a willingness-to-pay threshold (WTP) of 32,603,200 TZS/DALY. We adopted a ten-year time horizon in the base case, which we varied (one year to lifetime) in scenario analyses. We conducted deterministic and probabilistic sensitivity analysis (10,000 simulations) to assess model uncertainty, focusing on parameters that represent actionable policy targets.

**Results:** In 10yrs cost and survival for patient on HD vs. KT were 2.0B vs. 1.5B TZS and 1.2% vs. 38%, respectively. HD-to-KT was cost-effective with incremental cost-effectiveness ratio (ICER) of 26,630,957 TZS/DALY compared to HD alone. On one-way sensitivity analysis, annual probability of KT [p(KT), [0.01-0.2] was the main driver of incremental net monetary benefit. HD alone was cost-effective first 6yrs and at low WTP; current p(KT) of 0.01, HD-to-KT was cost-effective from 7yrs; p-KT became cost-effective at higher WTP.

**Conclusion:** In Tanzania, as in higher-income settings, KRT strategies favouring KT can be cost-effective within a clinically and policy-relevant timeframe.

**Recommendation:** Key policy levers include increasing p(KT) and reducing disproportionate costs of immunosuppression. This model can be applied as a KRT decision-support tool for any country that offers both HD and KT.

## 25. Title: Critical Illness in Primary Health Care Facilities in Tanzania

**Contact:** abbasfk007@gmail.com Presenter: Abbas Kiwae

**Authors:** Abbas Kiwae, Alma Damasy, Anab Issa, Anna Hvarfner, Rafael Shayo, Elibariki Mkumbo, Aneth Kaliza, Sabra Hussein, Tim Baker, Karima, Godfrey Barabona, the EECCiT investigators

**Background:** Critical illness contributes substantially to preventable morbidity and mortality in low-resource settings, yet little is known about the burden and characteristics of critically ill patients presenting to primary healthcare (PHC) facilities in Tanzania.

**Objectives:** To describe the characteristics of critically ill patients in primary healthcare facilities in Tanzania.

**Methods:** We conducted monthly vital signs censuses of inpatients and referrals for outpatients' departments in 23 dispensaries, 43 health centres, and 13 district hospitals across five regions of mainland Tanzania and Zanzibar. The census was conducted on one day every month between August 2025 and March 2026. Critical illness was pragmatically defined by the presence of one or more severely deranged vital signs.

**Results:** A total of 6,783 patients were censused, of whom 1,788(25%) were aged under 12 years. The overall prevalence of critical illness was 1,116/6,783 (16%), with rates of 14% in dispensaries, 16% in health centres, and 17% in district hospitals. Prevalence was 26% among patients below 12 years and 14% in those 12 years and above. Among critically ill patients, 719 (64%) had respiratory failure requiring oxygen, 379(34%) circulatory failure, 336 (30%) obstructed airways and 213(19%) had low level of consciousness.

**Conclusion:** Critical illness is common among referred and admitted patients in all PHC level in Tanzania.

**Recommendation:** Prioritising the identification and management of critical illness in PHC is essential if Tanzania is to prevent avoidable loss of lives.

## 26. Title: Addressing Health Supply Chain Management Capacity Gaps in Tanzania Through Continuing Professional Development

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**Presenter:** Betty A. Maganda

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**Background:** Efficient Health Supply Chain Management (HSCM) is essential for ensuring continuous availability of quality health commodities and strengthening health systems.

However, many low- and middle-income countries, including Tanzania, continue to experience significant HSCM capacity gaps, including weak quantification knowledge and skills, poor inventory management, limited data use for decision-making, inadequate warehousing practices, and inefficient distribution systems.

**Objectives:** To assess HSCM) capacity gaps among healthcare workers in Tanzania and inform the development of Continuing Professional Development Interventions.

**Methods:** A nationwide survey using a mixed-methods approach was conducted to inform HSCM interventions in Tanzania. Qualitative interviews were conducted in Dodoma and Dar es Salaam with key stakeholders from the Ministry of Health, POM-RALG, Pharmacy Council, TMDA, PSPTB, Medical Stores Department (MSD), healthcare facilities, private distributors, and implementing partners. A quantitative virtual survey was conducted across all 26 regions of Mainland Tanzania and Zanzibar.

**Results:** A total of 202 respondents participated in the quantitative survey, while 18 stakeholders participated in the qualitative study. Among participants, 123 (55.9%) were male. Findings showed moderate knowledge in quantification, data analysis and use, inventory management, LMIS, and healthcare commodities financing among 103 (51%) participants. Key challenges included limited competencies in forecasting, supply planning, cold chain management, procurement, and data utilisation. In response, five accredited CPD courses were developed, and 53 healthcare workers completed training on Forecasting and Supply Planning.

**Conclusion:** This study demonstrates the importance of structured CPD-based interventions in strengthening HSCM competencies among healthcare workers. Scaling up these interventions is expected to improve supply chain performance and increase the availability of health commodities in Tanzania.

**Recommendation:** 1. Scale up CPD training in HSCM across all regions of Tanzania and Zanzibar to strengthen healthcare workers' competencies. Institutionalise regular refresher training programmes in HSCM for healthcare workers at all levels of the health system. Strengthen collaboration among government institutions, academic institutions, implementing partners, and supply chain stakeholders to ensure sustainable HSCM capacity building.

## **27. Title: “We Feel Invisible”: How Critically Ill Patients and Families Experience Hospital Care in Tanzania**

**Contact:** elibarikimkumbo@gmail.com Presenter: Elibariki Mkumbo

**Authors:** Elibariki Mkumbo, Alma Damassy, Helle Mölsted Alvesson, Fadhlun Alwy Al-Beity, Tim Baker

**Background:** Quality critical care should respond to patient and family needs. In low-resource hospital settings, little is known about the experiences of care during critical illness. We explored the experiences of critically ill patients and relatives in Tanzania.

**Objectives:** This study explores experiences of critically ill patients, survivors, and families in Tanzania to guide patient-centred critical care, service improvement,

**Methods:** An exploratory qualitative study using semi-structured interviews in two hospitals serving communities in Dar es Salaam and Pwani Regions. 22 participants were recruited from three groups: 9 were critically ill patients; 4 were survivors recently discharged after critical

illness; and 9 were patient relatives. Interviews were conducted in Swahili, audio-recorded, transcribed, translated into English, and analysed thematically.

**Results:** Participants described experiences in five themes: (1) fear when facing life-threatening uncertainty; (2) frustration from feeling abandoned and poorly informed; (3) turning to faith for comfort and meaning; (4) acceptance of systemic limitations and low expectations of care; (5) appreciation for health workers' kindness and effort. These were united by an overarching sense of powerlessness due to their extreme vulnerability and yet exclusion from information and inability to influence care.

**Conclusion:** Critical illness was experienced with a sense of powerlessness in Tanzania. Improving communication, information, and family involvement, alongside strengthening essential emergency and critical care, may shift care toward partnership and safety.

**Recommendation:** Strengthening communication, and fostering inclusion of patients and families in decisions could transform experiences in resource-limited settings - empowerment may itself be a form of treatment. Implementing such changes with global priorities such as essential emergency and critical care would ensure that dignity, inclusion, and accountability are not optional extras but core elements of quality critical care and shift critical.

## **28. Title: Comprehensive Analysis of the Research Portfolio of Muhimbili University of Health and Allied Sciences (MUHAS)**

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**Presenter:** Lilian Gratton Mbelwa

**Authors:** Siana Nkya Mtatiro, Lilian Gratton Mbelwa, Joyce Mwakilembe, Yohana Mtali, Erick Phillipo

**Background:** This report presents a comprehensive analysis of the research portfolio of Muhimbili University of Health and Allied Sciences (MUHAS), drawing on data submitted by 164 researchers through the institutional research database. The analysis covers seven analytical domains: research scope and portfolio distribution, research funding, scientific productivity, innovation and commercialisation, capacity building, policy and societal impact, and comparative theme performance. These findings will inform institutional research management.

**Objectives:** This analysis examined MUHAS's research scope, themes, funding sources, productivity, innovation, capacity building, policy impact, strengths, gaps, and planning priorities.

**Methods:** A cross-sectional descriptive analysis was carried out using data from the MUHAS Research Portfolio Database hosted on REDCap. Research information was self-reported by Principal Investigators, Co-Principal Investigators, and team members using standardised electronic forms. The study included all projects recorded up to June 2026. It assessed research themes, funding sources, publications, innovation outputs, capacity-building activities, and policy engagement through descriptive statistics and qualitative synthesis of open-ended responses.

**Results:** The analysis covered 161 research projects involving 164 researchers. Non-Communicable Diseases were the dominant theme (83.2%), followed by Health Systems Research (17.4%). Reported projects mobilised over USD 10.84 million in total funding, with an average grant of USD 208,400, led by the NIH. Outputs included 464 publications, 112 DOIs,

and 6 patents. These research projects have supported postgraduate training, postdoctoral development, workforce strengthening, and community engagement, and more than 60 projects have informed policy or clinical guidelines.

**Conclusion:** The MUHAS research portfolio demonstrates strong performance in attracting international funding, producing scientific publications, strengthening research capacity, and contributing to health policy, particularly in non-communicable diseases and health systems research. However, strategic efforts to diversify research themes, strengthen innovation and commercialisation, improve data completeness, and enhance support for female and early-career researchers could further maximise institutional impact and sustainability.

**Recommendation:** The report recommends institutionalising the MUHAS research portfolio database as a continuous monitoring system with quarterly updates. It also calls for strengthened capacity-building for researchers, enhanced dissemination of publications, and promotion of innovation outputs. Additionally, it suggests aligning future funding with strategic institutional and national research priorities.

### 1. Title: MRI Patterns and Determinants of Cervical Disc Degeneration in Atraumatic Neck Pain Patients at MOI

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**Presenter:** Aamir Mohamedraza Kanji

**Authors:** Aamir Mohamedraza Kanji, Violeth Kalinga, Mohamed Manji, Mboka Jacob

**Background:** Atraumatic neck pain is a major contributor to global disability, with cervical spine degenerative disease (CSDD) recognised as its predominant cause. Despite this, data on MRI patterns of CSDD in East Africa remain scarce, limiting evidence-based clinical management in this setting.

**Objectives:** To determine the MRI patterns of cervical disc degenerative disease and their associated factors among patients presenting with atraumatic neck pain.

**Methods:** A hospital-based prospective cross-sectional study was conducted at MOI from March to June 2025. 384 adult patients with atraumatic neck pain referred for cervical spine MRI were enrolled using systematic random sampling. Standardised data collection tools captured demographic, clinical, and radiological data. MRI findings were assessed using established grading systems. Chi-square tests and multivariate logistic regression were used to identify factors associated with CSDD, with significance set at p-value of  $\leq 0.05$

**Results:** Of 384 patients, 82% had imaging evidence of degenerative disc disease. Females predominated (67%), with a mean age of approximately 50 years. The most common MRI findings were disc bulge (66.4%) and loss of disc signal intensity (62.2%), predominantly at C5/C6 and C4/C5 levels. Spinal canal stenosis was present in 18.2% and nerve root compression in 9.1% of patients. Age was the only significant independent predictor of CSDD (p -value  $\leq 0.001$ ). Sex, occupation, and smoking status were not significantly associated.

**Conclusion:** CSDD is highly prevalent among Tanzanians presenting with atraumatic neck pain, with age as the dominant risk factor. Disc bulge and loss of signal intensity at C5/C6 are the predominant MRI findings. These results support routine cervical MRI in older adults with neck pain and provide a local evidence base for clinical and preventive strategies in Tanzania.

**Recommendation:** cervical MRI should be prioritised for older adults presenting with atraumatic neck pain in Tanzania, given the high prevalence of degenerative disc disease and age as the dominant risk factor. Clinicians should pay particular attention to C5/C6 and C4/C5 levels. Larger multi-centre studies across East Africa are needed to strengthen the regional evidence base and inform preventive strategies.

### 2. Title: Clinical Profile, Prevalence, and Associated Factors of Adverse Events among Adults Undergoing Procedural Sedation

**Contact:** humphreymedarakini@gmail.com

**Presenter:** Humphrey Medarakini

**Authors:** Fiona Mercy, Said Kilindimo, Biita Muhanuzi, Alphonse Simbila, Ellen Weber, Humphrey Medarakini

**Background:** Procedural sedation is now recognised as a core competence in emergency medicine. The prevalence of adverse events during procedural sedation varies between settings. In high-income countries, the scope of procedural sedation is wide, and the prevalence of adverse events is low. However, in low-resource settings, several barriers exist that potentially impact the clinical practice around procedural sedation, and the prevalence of adverse events in adults is not well published.

**Objectives:** Clinical profile, prevalence, and associated factors of adverse events among adults undergoing procedural sedation at Muhimbili National Hospital Emergency Department.

**Methods:** A prospective study conducted between April-June 2025, where 106 patients aged  $\geq 18$  years or older were enrolled. Clinical characteristics, medications used, and outcomes were recorded. The primary outcome was the prevalence and factors associated with adverse events. Secondary outcomes were: Success of the procedures. Descriptive statistical used, and logistic regression analysis was performed to identify independent factors associated with adverse events. Odds ratios were reported with 95% CI; P values  $\leq 0.05$  were considered statistically significant.

**Results:** Prevalence of adverse events was 44% (95%CI; 35-54). Patient factors associated with adverse events included: American Society of Anesthesiology class IV physical status classification, age 50 years and above, presence of cardiovascular disease, hypoxia and hypoglycemia at arrival. Multivariable analysis identified Physical status classification class IV (aOR = 3.19, CI: 1.15-8.84, p = 0.026), hypoglycemia at arrival (aOR =0.04, CI; 0.002- 0.72, p=0.029) and long duration under sedation (aOR = 1.03, CI; 1.001-1.06, p = 0.042) as independent patient factors associated with adverse events.

**Conclusion:** Procedural sedation in the Emergency Department at Muhimbili National Hospital has a significant prevalence of adverse events. These findings suggest the need for adequate pre-sedation screening for risk stratification, tailoring of sedation approach, and consideration of patients' baseline vitals to mitigate adverse events

**Recommendation:** Pre-sedation risk assessment to be done for all patients receiving procedural sedation at the emergency department. This will enable the identification of high-risk patients and the tailoring of sedation techniques. Enhanced monitoring of patients under sedation to enable early identification of adverse events and the institution of early interventions. Implementation of this could mitigate the development of sentinel adverse events.

### **3. Title: Clinical Profile, and Factors Associated with Outcomes among Non-Traumatic Critically Ill Adult Patients in Zanzibar**

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**Presenter:** Asia Mohamed

**Authors:** Asia Suleiman, Said Kilindimo, Alphonse Simbila, Ellen Weber, Humphrey Medarakini

**Background:** Non-traumatic critical illnesses are a significant cause of morbidity and mortality in emergency departments(ED's), particularly in resource-limited settings like Zanzibar. Despite their high burden, the prevalence, clinical characteristics, and short-term outcomes of critically ill adult patients in Zanzibar's EDs remain scarce. This study aims to

determine the proportion of critically ill non-trauma patients, clinical profiles, 24- and 48-hour mortality rates, and factors associated with mortality in regional hospitals across Zanzibar.

**Objectives:** To determine the clinical profile and factors associated with outcomes among non-traumatic critically ill adult patients presenting at the regional referral hospitals' emergency departments in Zanzibar.

**Methods:** A prospective observational cohort study conducted at Mnazi Mmoja and Lumumba Regional Referral Hospital, enrolling non-traumatic critically ill adult patients aged  $\geq 18$  years. Critically ill patient was defined as one presenting with a triage early warning score (TEWS) of  $\geq 7$  and/or requiring emergency critical interventions. Descriptive statistics summarised demographic and clinical variables. Bivariate analysis performed to determine factors associated with 24-hour and 48-hour mortality. Statistical significance set at p value of  $\leq 0.05$ .

**Results:** Between May and June 2025, 119 non-traumatic critically ill adult patients were enrolled from the EDs of regional referral hospitals in Zanzibar, accounting for 15.3% of all 779 adult ED visits. Most patients were male (60.5%), aged 18-35 years (33.6%). Early mortality was significant, with 9.2% dying within 24 hours and 22.7% within 48 hours. Factors significantly associated with mortality included older age, shortness of breath, altered consciousness, low Glasgow Coma Scale, and receipt of intubation or cardiopulmonary resuscitation.

**Conclusion:** Non-traumatic critically ill adult patients accounted for over 15% of ED visits. Early mortality was associated with clinical features such as respiratory distress, low consciousness level, and the need for critical interventions like intubation and CPR. These findings underscore the need for improved triage, timely intervention, and resource allocation to reduce preventable early deaths in Zanzibar's EDs.

**Recommendation:** Emergency departments in Zanzibar should adopt standardised triage tools, such as Early Warning Scores (EWS), and structured protocols for monitoring patients with hypoxemia, altered consciousness, or respiratory distress. This will support timely recognition and intervention, addressing the major predictors of early mortality identified in this study.

#### **4. Title:** Accuracy of Dipstick Gravity Versus Point-of-Care-Ultrasound for Volume-Status in Hyponatremic Critically-Ill Adults Presenting at Emergency Department

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**Presenter:** Saktai Siyami

**Authors:** Saktai Diyami, Said Kilindimo, Alphonse Simbila, Ellen Weber, Humphrey Medarakini

**Background:** Accurate assessment of volume status in hyponatremic critically ill patients is essential for guiding therapy in emergency settings. Urine dipstick specific gravity (USG) is simple and accessible, but its diagnostic accuracy compared with point-of-care ultrasound (POCUS) remains unclear.

**Objectives:** To evaluate the accuracy of urine-specific-gravity compared to point-of-care ultrasound in determining volume status among critically ill adult patients with hyponatremia at the Emergency department.

**Methods:** We conducted a cross-sectional diagnostic study at the emergency department of Muhimbili National Hospital from May to June 2025. Critically ill adults ( $\geq 18$  years) with confirmed hyponatremia (serum sodium below 135 mEq/L) underwent USG and POCUS evaluation. Volume status was classified as hypovolemic, euvolemic, or hypervolemic using predefined USG cut-offs and inferior vena cava collapsibility/distensibility indices on POCUS (reference standard). Diagnostic accuracy of USG was assessed using sensitivity, specificity, predictive values, and likelihood ratios.

**Results:** Of 220 patients (median age 51 years, 51.8% male), 59.1% had mild hyponatremia. USG identified 71.3% as hypovolemic, 25.9% euvolemic, and 2.7% hypervolemic. Compared to POCUS, USG had sensitivity 76.7% (95% CI: 68.0-84.1) and specificity 34.6% (25.6-44.6) for hypovolemia; sensitivity 25.0% (14.0-38.9) and specificity 73.8% (66.5-80.3) for euvolemia; and sensitivity 9.6% (3.2-21.0) and specificity 99.4% (96.7-100.0) for hypervolemia.

**Conclusion:** USG demonstrates limited diagnostic accuracy for volume status in hyponatremic critically ill adults. While it may provide preliminary information in resource-constrained settings, it is unreliable for detecting euvolemia and hypervolemia. POCUS using inferior vena cava assessment should be prioritised whenever available to guide fluid management

**Recommendation:** When POCUS is unavailable, emergency physicians should use USG only as a preliminary tool for planning management when hypervolemia is detected. To enhance diagnostic accuracy at the bedside, emergency departments should promote the use of POCUS among physicians caring for critically ill hyponatraemic patients.

## **5. Title: Predictive Performance of Perfusion Index, Shock Index, and NEWS-Score in Critically-Ill Adult Patients at Emergency**

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**Presenter:** Anushka Somaiya

**Authors:** Anushka Somaiya, Said Kilindimo, Alphonse Simbila, Ellen Weber, Humphrey Medarakini

**Background:** Patients with critical conditions demand prompt care to prevent impending adverse events. Shock index (SI) and the National Early Warning Score (NEWS score) have been widely used in the emergency department (ED) to predict adverse outcomes, though both have limitations. The perfusion index (PI) is readily available on cardiac monitors, but its performance in predicting adverse events is not well-studied in the ED.

**Objectives:** To compare the performance of shock-index, NEWS-score, and perfusion-index in predicting adverse events among critically ill adult patients presenting at the emergency department.

**Methods:** Prospective cohort study conducted at MNH between March and April 2025. Patients triaged as “emergencies” were consecutively recruited. The primary outcome was the occurrence of adverse events at the ED. The AUROC for the SI, NEWS score, and PI in predicting adverse events was compared using DeLong’s test. Cut-offs used were SI ( $\geq 1$ ) and NEWS score ( $\geq 5$ ). Youden’s index was used to determine the optimum threshold value for the PI, which was set at  $< 1.5$

**Results:** A total of 347 patients were included, and 91 had adverse events. Abnormal values in each index tests were significantly associated with adverse outcomes. With an AUC of 0.729 (0.670 - 0.788), PI demonstrated good discriminatory ability in predicting adverse outcomes

among critically ill patients at baseline, outperforming both SI ( $p = 0.031$ ) and NEWS score ( $p = 0.002$ ).

**Conclusion:** PI demonstrated good discriminatory ability in predicting adverse outcomes, and its performance was shown to be superior to the other index tests on arrival at the ED.

**Recommendation:** To facilitate early recognition of critically ill patients, the NEWS score and PI should be incorporated into routine triage protocols. ED staff should be trained on how to interpret these index tests and promote their use as an adjunct, not replace clinical gestalt. Further research needs to be done on serial measurements of PI, PI-guided therapy and its outcomes.

## **6. Title: Post-Stroke Depression at MNH-Mloganzila: Correlates and Impact on Quality of Life and Functional Outcomes**

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**Presenter:** Mudhihir Hamisi

**Authors:** Mudhihir Hamisi, Sibtain Moledina, Henrika Kimambo, Johnson Mshiu

**Background:** Stroke is the rapid onset of focal or global brain dysfunction lasting > 24 hours (or leading to death) of vascular origin. Global burden: Estimated prevalence of 101 million; ischemic stroke accounts for 68.2% of cases. In Tanzania, it accounts for 25% of admissions among both young and older adults and is associated with a significant psychological morbidity (anxiety and depression), physical and cognitive deficits.

**Objectives:** Evaluating depression prevalence, risk factors, and their impact on quality of life and functional outcomes among stroke survivors

**Methods:** Hospital-based cross-sectional study at MNH-Mloganzila sampled 378 stroke survivors using systematic random sampling. Data were collected via structured questionnaires, evaluating depression (PHQ-9), quality of life (SIS-16), and functional outcomes (mRS). Analysis utilised Wilcoxon Rank-Sum tests and modified Poisson regression with robust variance. This approach estimated adjusted prevalence ratios and identified independent predictors of poor functional outcomes, while strictly adjusting for various socio-demographic and clinical variables.

**Results:** Post-stroke depression (PSD) prevalence was 37.3%. Multivariable analysis identified key predictors: stroke severity (NIHSS) increased depression prevalence by 4.4% per unit (aPR = 1.044), and left-hemisphere lesions yielded a 66.6% higher prevalence (aPR = 1.666). A significant negative correlation (-0.284) linked higher depression severity (PHQ-9) to poorer quality of life (SIS-16). Furthermore, depression independently exacerbated disability; each point increase in severity raised the odds of worse functional outcomes (mRS) by 1.09 times, highlighting PSD's profound impact on recovery.

**Conclusion:** Post-stroke depression affects over one-third of stroke survivors and is driven by stroke severity, left hemisphere lesions, and cigarette smoking. The strong, independent association between depression and reduced quality of life suggests that psychological distress is a major barrier to holistic recovery.

**Recommendation:** These findings underscore the urgent need to integrate routine PHQ-9 and SIS-16 screenings into clinical stroke protocols in Tanzania to optimise rehabilitation outcomes.

## **7. Title:** African Heritage Diet Modulates Innate Immune Responses and Improves Vaccine Responsiveness Obese Tanzanians

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**Presenter:** Eka Patricia Kisali

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**Background:** Obesity significantly impacts the immune system, leading to chronic low-grade inflammation alongside compromised innate and adaptive immune responses. In high-income settings, obesity has been linked to impaired antiviral immunity, increased susceptibility to severe infection, and attenuated vaccine responsiveness. However, it remains uncertain whether similar effects of obesity on the immune system affect African populations.

**Objectives:** To assess immune responses: firstly across BMI categories, secondly after 6-week dietary intervention with a Chagga diet or Mbege.

**Methods:** The study was conducted in Moshi in 2024. Cross-sectionally: n=50 normal-weight, n=34 overweight, and n=66 obese adults were assessed. Thereafter, randomised controlled trial: (1) Chagga diet n=31, (2) 'Mbege' n=31, (3) control n=28. Cytokine-responses, leukocyte counts, inflammatory and cardiometabolic proteomes were assessed at baseline, 4-weeks of interventions and 8-weeks after baseline. Vaccine responses to 13-serotype pneumococcal conjugate vaccine (PCV13) and tetanus toxoid (TT) were assessed at baseline and 4-weeks later.

**Results:** Overweight/obese adults had higher TNF-a but lower IFN-g with TLR7/8 stimulation, higher plasma inflammatory and procoagulant proteins compared to normal-weight. Four weeks of Chagga diet induced higher IL-10; lowered post-vaccination TNF-a and IL-6. Compared to controls, the diet arm showed a 1.7-fold increase (95% CI 0.8 - 3.8) post-vaccination PCV13-IgG; and male-specific boost in TT-IgG (5.6- fold increase vs control men). 'Mbege' improved post-vaccination IFN-g production, decreased TNF-a after 4-weeks, and improved TT-IgG responses in men (4.2-fold increase vs control)

**Conclusion:** In summary, our findings indicate that higher adiposity in Tanzanian adults living near Mount Kilimanjaro is associated with chronic low-grade inflammation and altered innate immune responsiveness. We show that a short-term dietary intervention can modulate these immune phenotypes and can significantly enhance PCV13 vaccine responsiveness, particularly with diet.

**Recommendation:** These results showcase the potential of heritage diets and traditional fermented beverages to mitigate aberrant immune responses and boost vaccine immunogenicity in an obese African population.

## **8. Title:** Postpartum Hyperglycemia and Associated Factors among Women Attending Postnatal Clinics

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**Presenter:** Marietha Holella

**Authors:** Marietha Holella, Amani Kikula, Bruno Sunguya, Kaushik Ramaiya

**Background:** The prevalence of Gestational Diabetes Mellitus in Tanzania is rising, paralleling its contribution to maternal morbidity and mortality. Studies have reported a prevalence of postpartum hyperglycemia in Africa to be 15%, with 48% of the women progressing to T2DM five years postpartum. A carbohydrate-dense diet has been correlated with glucose intolerance in most pregnant women. However, evidence is scarce and not systematic on factors associated with postpartum hyperglycemia in Tanzania.

**Objectives:** To determine nutritional and lifestyle factors associated with postpartum hyperglycemia among women attending postnatal clinics in Dar es Salaam.

**Methods:** We conducted an analytical, hospital based cross-sectional study in postnatal clinics based in Dar es Salaam, Tanzania. A multistage cluster sampling method was used to determine the three health centres and recruit women attending the postnatal clinic between April and June 2025. Structured questionnaires were used to collect data; descriptive statistics were performed using mean, proportion and the chi-square test. And univariable and multivariable modified Poisson regression analysis was used to determine the association

**Results:** We enrolled 392 postpartum women from Sinza (HC) (48%), Magomeni HC (28.3%), and Kinyerezi HC (23.7%), with a mean age of 31.52 ( $\pm 7.54$ ). Postpartum hyperglycemia was prevalent among 18.6% of the women. The prevalence of postpartum hyperglycemia was higher among women with higher BMI (overweight and obese), (APR= 8.1 95% CI 3.4-19.6,  $p < 0.001$ ), (APR 11.6 95% CI 4.5-30.1,  $p < 0.001$ ) respectively and those with high-glycemic carbohydrate pattern (APR= 1.54 95% CI 1.1-2.3,  $p = 0.022$ ), diet rich in legumes and vegetables was protective

**Conclusion:** Postpartum hyperglycemia is a significant public health concern, especially among women with higher BMI and carbohydrate dietary patterns. Where one in five postpartum women had hyperglycemia.

**Recommendation:** Therefore, we recommend integrating postpartum screening, nutrition counselling and lifestyle interventions into the existing antenatal and postnatal care pathways. While strengthening postnatal and antenatal care guidelines to include postpartum follow-up for glucose monitoring and dietary support, hence preventing progression to type 2 diabetes and improving maternal health outcomes.

## **9. Title:** Tanzania's NCD Transition: A Comparative Analysis of Healthy Lifestyle Behaviours for Hypertension Prevention between Rural

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**Background:** Hypertension remains a major public health concern in Tanzania, yet little is known about how modifiable lifestyle behaviours for its prevention are managed between rural and urban populations.

**Objectives:** This study examined the socio-demographic factors and the adoption of healthy lifestyle behaviours among adults in two contrasting settings in

**Methods:** An analytical cross-sectional study involving 838 adults was conducted in Kilombero District Council and Morogoro Municipal Council. A composite index of healthy behaviours was established. Participants were divided into high or low behaviour adoption groups, and multivariable logistic regression was employed, stratified by location, to estimate adjusted odds ratios with 95% confidence intervals.

**Results:** Adoption of healthy lifestyle behaviours was significantly higher in rural Kilombero than in urban Morogoro (55.5% vs. 47.0%). In rural areas, lifestyle adoption varied by income, employment, and age, while in urban Morogoro, income was the primary socio-demographic factor associated with healthy lifestyle adoption. Overall, rural residents were more likely to engage in protective lifestyle behaviours, while urban residents showed patterns associated with higher behavioural risk.

**Conclusion:** Significant rural-urban differences were observed in the adoption of healthy lifestyle behaviours for hypertension prevention in Morogoro Region. Rural adults reported higher overall adoption, particularly for physical activity and normal BMI, while income remained an important determinant across settings. These findings highlight the influence of contextual socioeconomic and environmental factors on healthy lifestyle behaviours.

**Recommendation:** Context-specific interventions are needed to strengthen hypertension prevention efforts in Tanzania. Urban programmes should prioritise promoting physical activity and a healthy diet, while rural interventions should focus on sustaining active lifestyles and healthy traditional practices.

## **10. Title: Patients' Lived Experience During Intensive Care Unit Stay at Benjamin Mkapa and Dodoma Regional Hospitals**

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**Presenter:** Justine D. Bunzari

**Authors:** Justine D. Bunzari, Golden Mwakibo Masika

**Background:** Patients admitted to the ICU experience complex medical interventions, emotional challenges, unique personal perceptions. Understanding patients' lived experiences is essential for improving recovery, satisfaction, and quality of care. Despite advances in critical care, previous research has focused mainly on clinical outcomes while giving limited attention to patients' personal stories. Exploring these experiences can provide valuable insights for healthcare professionals and support the delivery of more holistic, patient-centred ICU care.

**Objectives:** Exploring the critical ill and severe injured patients' lived experience during ICU stay at Benjamin Mkapa and Dodoma regional hospital

**Methods:** The study was conducted in a qualitative approach with a phenomenological type of study design where 10 respondents who had recently been admitted to the ICU were recruited, this study used an interview guide as its data collection tool together with sound recording. These interviews were focused on the patients' reflections and memories while at ICU. The data were analysed to identify themes, Sub-Themes, and patterns.

**Results:** The study identified four major themes shaping ICU patients' lived experiences: inner coping and personal meaning, bodily experiences and clinical care encounters, ICU environment and systemic aspects, and human connections and support dynamics. Patients described emotional reflection, vulnerability, physical disruption, noise, disorientation, and

delays in care, alongside the value of compassionate communication and human presence. These revealed both trauma and resilience during critical illness. The findings highlight the need to strengthen patient-centred care and improve supportive services within ICU settings.

**Conclusion:** ICU stay is both a clinical and human experience marked by fear and healing through connection. Findings emphasize integrating emotional support into care and shifting to person-centred approaches that uphold dignity. These insights encourage holistic care to improve outcomes and guide future research on patient-centred critical care locally and globally.

**Recommendation:** The study recommends strengthening patient-centred ICU care through compassionate communication, timely clinical interventions, emotional support, and improved environmental management. Healthcare providers should integrate psychosocial support with medical care to enhance patient recovery and satisfaction. Further research is recommended to explore long-term experiences of ICU survivors and develop strategies for improving holistic critical care services.

## **11. Title: Analysis of Social Determinants of Health (SDOH) on Outcomes in Patients with Acute Myocardial Infarction**

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**Presenter:** Ben Anania Tweve

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**Background:** ST-Elevation Myocardial Infarction remains a major cause of morbidity and mortality worldwide, particularly in low- and middle-income countries. Delays in seeking treatment significantly worsen clinical outcomes. Existing research focuses mainly on clinical factors, with limited attention to sociobehavioral determinants, decision-making processes, and healthcare access. Understanding how social determinants, cognitive biases, and emerging health technologies influence prehospital delay is essential for developing patient-centred interventions and improving cardiovascular outcomes.

**Objectives:** To assess the impact of Social Determinants of Health on clinical outcomes in patients with AMI

**Methods:** This study will employ a mixed-methods design combining quantitative and qualitative approaches. Quantitative data will assess prehospital delay, social determinants of health, decision-making factors, and clinical outcomes among STEMI patients using structured questionnaires and hospital records. Qualitative interviews will explore patient experiences, symptom interpretation, emotional responses, and barriers to timely care. Statistical analysis and thematic analysis will be integrated to identify key predictors, behavioral pathways, and opportunities for patient-centred interventions

**Results:** Preliminary findings indicate that prehospital delay in ST-Elevation Myocardial Infarction is strongly influenced by low health literacy, socioeconomic barriers, poor symptom recognition, and cognitive biases. Patients experiencing delayed presentation demonstrated higher complication rates and prolonged hospital stay. Early qualitative insights also reveal that fear, denial, cultural beliefs, and limited emergency access contribute significantly to delayed healthcare-seeking behaviour. Ongoing analysis aims to identify targeted, patient-centred strategies to improve timely cardiac care.

**Conclusion:** This study demonstrates that ST-Elevation Myocardial Infarction outcomes are strongly influenced by social determinants, health literacy, and decision-making behaviours. Integrating decision science with cardiovascular care helps explain prehospital delays and supports development of patient-centred interventions. Improved awareness, timely healthcare access, and technology-assisted strategies may reduce delays, improve treatment outcomes, and strengthen equitable cardiac care in resource-limited settings

**Recommendation:** It is recommended that healthcare systems integrate social determinants of health and decision science into cardiovascular care strategies to reduce prehospital delay in ST-Elevation Myocardial Infarction. Public awareness programmes, improved emergency access, community-based education, and digital health technologies should be strengthened. Future research should focus on patient-centred, context-specific interventions that address socio-behavioral barriers and improve timely treatment and clinical outcomes.

## **12. Title:** Prevalence and Factors Associated with Depression and Anxiety among Medical Students at University of Dodoma

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**Presenter:** Daniel Daniel

**Authors:** Daniel J. Daniel, Maximilian Wenceslaus

**Background:** Globally, as per WHO, 4.4%, and 3.6% of the population suffers from depression and anxiety respectively. Studies have reported a high burden of depression and anxiety among medical students than the general population with the female sex being the most pronounced victims of the burden.

**Objectives:** This study aimed to determine prevalence and factors associated with depression and anxiety among medical students at UDOM.

**Methods:** It was a cross-sectional study, which involved 873 medical students done from April to October 2024. Consecutive sampling was used to enroll students online using Google Forms. Patient Health Questionnaire (PHQ-9) and General anxiety disorder (GAD-7) were administered to assess depression and anxiety respectively. SPSS version 25 was used for statistical analysis.

**Results:** The prevalence of depression and anxiety were 65.3% and 12.3% respectively. Among participants, 81.7% of all females and 54.6% of all males were depressed and pertaining anxiety, all participants 12.3% who had anxiety were female students. Factors associated with depression were age, gender, marital status and repeating the year of study. Factors associated with anxiety were age, gender, year of study, repeating year of study, source of funding, and having any chronic illness.

**Conclusion:** There is a high burden of depression among medical students at UDOM with a high burden of both depression and anxiety observed among female students.

**Recommendation:** Efforts should be made to relieve pressure to newly admitted first year student and the exit examination class, fifth year especially during examinations and end of the year of study. Goal oriented cost effective strategies should be implemented by the University to help improve the welfare of these future custodians of the health sector especially female students.

### **13. Title:** Treatment Pathways and Early Outcomes among Tanzanian Women with Breast Cancer by HIV Status

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**Presenter:** Sarah Kutika Nyagabona

**Authors:** Sarah Kutika Nyagabona, Angela Pallangyo, Charles Pallangyo, Katherine Van Loon, Alan Paciorek, Crispin Kahesa, Bruno Sunguya, Elia John Mmbaga

**Background:** Breast cancer survival in sub-Saharan Africa remains poor, and reports from the ABC-DO study show that women living with HIV are at increased risk of adverse outcomes. In Tanzania, local data examining early survival after breast cancer diagnosis in the context of HIV remain limited. Understanding survival patterns and time to treatment initiation may clarify whether early mortality is primarily associated with HIV status or reflects broader oncology care challenges

**Objectives:** To compare treatment pathway progression and 24-month early outcomes among Tanzanian women with breast cancer by HIV status.

**Methods:** A multicentre analysis of 425 women with histologically confirmed breast cancer receiving care at 3 tertiary hospitals in Tanzania. Crude 24-month survival was assessed from date of diagnosis to status confirmation, with women alive at follow-up censored at 24 months. Time to treatment initiation was calculated from date of diagnosis to initiation of first cancer-directed therapy, defined as the earliest valid chemotherapy, surgery, or radiotherapy. Comparisons were made by HIV status.

**Results:** Among 425 women, 47 (11.1%) were living with HIV. Women living with HIV had greater nodal involvement (95.7% vs 81.5%) and more baseline neutropenia. Crude 24-month survival was similar (44.7% vs 44.4%). In matched analyses, treatment initiation and surgery uptake remained comparable. Radiotherapy receipt was lower among women living with HIV (21.3% vs 37.2%)

**Conclusion:** Women living with HIV entered oncology care with greater baseline vulnerability, but early treatment initiation and 24-month outcomes were similar to HIV-negative women. Differences may emerge later in multimodality treatment completion rather than initial oncology linkage.

**Recommendation:** Strengthening earlier breast cancer awareness, timely referral, and coordinated oncology care pathways is critical to improving survival among Tanzanian women. Future implementation science research should evaluate contextually appropriate strategies to improve early detection, care coordination, and completion of multimodality breast cancer treatment in resource-constrained settings.

### **14. Title:** Clinical Characteristics and Predictors of In-Hospital Mortality among Cervical Cancer Patients Presenting with Renal Dysfunction

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**Presenter:** Jackson Duma

**Authors:** Jackson Duma, Daniel Msilanga, Jacqueline Shoo

**Background:** Renal dysfunction is a common and serious complication among women with cervical cancer in low-resource settings and is associated with poor clinical outcomes. In

Tanzania, most patients present with advanced cervical cancer, and renal dysfunction due to obstructive uropathy further complicates management and contributes to high in-hospital mortality. However, data on the magnitude of in-hospital mortality and its predictors among this population remain limited.

**Objectives:** To describe clinical characteristics and predictors of in-hospital mortality among cervical cancer patients presenting with renal dysfunction at MNH/ORCI

**Methods:** This prospective observational cohort study was conducted at MNH and ORCI between March and November 2025. Adult women with histologically confirmed cervical cancer and renal dysfunction (eGFR  $\leq 60$  mL/min/1.73 m<sup>2</sup>) were consecutively enrolled and followed until discharge, death, or 28-day censoring. Baseline sociodemographic, clinical, laboratory, and renal management data were collected. The primary outcome was 28-day in-hospital mortality, analysed using incidence rates, Kaplan-Meier curves, and Cox regression to identify predictors.

**Results:** A total of 214 women (median age 51 years) were enrolled. Most had advanced cervical cancer (79.9%), urinary tract obstruction (73.4%), and severe renal impairment (79%). Median creatinine was 543  $\mu$ mol/L and haemoglobin 7.4 g/dL. Nephrostomy and dialysis were indicated in 66.9% and 51.9%, but received by 42.6% and 35.1%. Over 2,175 patient-days, 72 (33.6%) deaths occurred, yielding 3.3 deaths/100 person-days. Multivariable Cox regression identified severe renal dysfunction and hyperkalemia as mortality predictors, while nephrostomy reduced risk.

**Conclusion:** Cervical cancer with renal dysfunction carries a poor in-hospital prognosis at MNH and ORCI. Mortality is driven by renal failure severity and electrolyte imbalance rather than cancer stage. Severe dysfunction and hyperkalemia predict death, while timely nephrostomy improves survival. Early recognition of renal complications and better access to interventions are critical to reducing preventable deaths.

**Recommendation:** All cervical cancer patients at MNH and ORCI should receive early renal and electrolyte assessment, with prompt hyperkalemia correction and timely nephrostomy. Strengthening collaboration, standardised protocols, and emergency dialysis access are vital. Public health efforts must prioritize screening, early diagnosis, and community awareness to prevent obstructive uropathy, reduce complications, and improve survival outcomes.

## **15. Title: When an Intervention Become a Stress; Mental Distress-PrEP Interlinkages among Msm in Tanga, Tanzania**

**Presenter:** Nuruel R. Kitomary

**Authors:** Nuruel Robert Kitomary, Emmy Metta, Melkizedeck T. Leshabari, Elia J. Mmbaga, Kåre Moen

**Background:** Use of pre-exposure prophylaxis (PrEP), usually with tenofovir disoproxil fumarate/emtricitabine (TDF/FTC), requires good health, including stable mental health, for consistent use and effective prevention of human immunodeficiency virus (HIV) infection, with proven effectiveness of up to 99 percent. While uptake and acceptability is above 90%, the retention in PrEP services remains below 50% among users in Tanzania. Quantitative research suggests that mental health concerns may help explain this low retention.

**Objectives:** We explored, from the perspectives of same-sex attracted men, PrEP use-mental distress interlinkages, and coping strategies in Tanga, Tanzania.

**Methods:** We conducted twenty in-depth interviews at Tanga NH/C region between February-July 2025 with men who have sex with men enrolled in the PrEP programme. Participants were aged 18-58 years old, purposively selected based on their information reach and diversified by retention status on PrEP, sex preference, and level of education. We used a semi-structured guide to conduct interviews in Swahili, lasting 45-60 minutes, were analysed using reflective thematic analysis approach.

**Results:** Participants described PrEP-mental distress interlinkages as PrEP causing mental distress through fear of being misinterpreted as HIV positive, fear of health risks from PrEP side effects. Mental distress influenced PrEP use through priority shifting and depressive symptoms. Substances influenced substance negatively through intoxication, neglect, and pleasure preference. All these stem from PrEP-HIV-homosexuality stigma, while these interlinkages resulted in interrupted/complete discontinuation from PrEP use. They coped by seeking social support from peers, seeking professional help, group sex, and substance use.

**Conclusion:** While HIV pre-exposure prophylaxis is a strong intervention in preventing HIV acquisition, it relates bidirectional with mental distress and so limits its retention.

**Recommendation:** We recommend strong anti-PrEP stigma campaigns, self-support groups, and clubs for health education on PrEP while addressing substance use behaviour by promoting healthier coping strategies to achieve a good retention status.

## **16. Title: Recurrence Patterns and Associated Factors among Early Breast Cancer Patients Undergoing Breast-Conserving Surgery Versus Mastectomy**

**Presenter:** Simon Elizeus

**Authors:** Simon Elizeus, Nashivai Kivuyo, Yona Ringo, Zephania Gega

**Background:** Breast-conserving surgery (BCS) and modified radical mastectomy (MRM) are established treatment options for early breast cancer. However, limited evidence exists regarding recurrence patterns and survival outcomes following these procedures in resource-limited settings. This study compared recurrence patterns, disease-free survival, and overall survival among early breast cancer patients who underwent BCS versus MRM over a five-year follow-up period.

**Objectives:** To compare recurrence patterns and associated factors among early breast cancer patients undergoing breast-conserving surgery versus modified radical mastectomy.

**Methods:** A retrospective cohort study was conducted among 392 early breast cancer patients attended follow-up clinic at Ocean Road Cancer Institute in Dar es Salaam, Tanzania. Sociodemographic, clinico-pathological, treatment-related, recurrence, and survival data were extracted from medical records, Kaplan-Meier survival analysis and log-rank tests were used to compare disease-free survival and overall survival between surgical groups. Multivariate logistic regression analysis identified factors independently associated with recurrence.

**Results:** Among 392 patients, 107 (27.3%) underwent BCS and 285 (72.7%) MRM. Overall recurrence was 24.0%, predominantly distant (94.7%), with lung metastasis most common (66.0%). Recurrence was independently associated with stage II disease (aOR=3.88), grade 3 tumours (aOR=7.48), non-hormone receptor positive subtypes (aOR=44.42), lack of adjuvant radiotherapy (aOR=2.58), and incomplete adjuvant therapy (aOR=6.04). Disease-free survival (p=0.834) and overall survival (p=0.627) were similar between BCS and MRM.

**Conclusion:** Despite slightly higher local recurrence among patients who underwent BCS, disease-free survival and overall survival were comparable between BCS and MRM. These findings support the oncologic safety of breast-conserving surgery among appropriately selected early breast cancer patients in resource-limited settings.

**Recommendation:** Breast-conserving surgery is a safe and effective option for selected early breast cancer patients when supported by appropriate adjuvant therapy and follow-up. Timely completion of radiotherapy and hormonal therapy, and regular surveillance are essential to reduce recurrence risk and detect metastasis early. Larger prospective multicentre studies are needed to confirm findings and evaluate long-term outcomes in resource-limited settings.

## **17. Title: Predictors of Early Postoperative Outcomes after Colorectal Cancer Resection at Muhimbili National Hospital**

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**Presenter:** Rajab Siaba Msemu

**Authors:** Rajab Msemu, Daniel Kitua, Nashivay Kivuyo, Larry Akoko, Kitembo Kibwana, Ally Mwanga

**Background:** Colorectal cancer is the third most common cancer globally, and the second most common cause of cancer-related mortality (more common in developing countries). In Tanzania, the incidence of colorectal cancer has increased significantly. Surgical resection remains the cornerstone of curative intent. Less is known regarding predictors of surgical outcomes following colorectal resection for malignancy.

**Objectives:** To evaluate the association between clinicodemographic characteristics and adverse early postoperative outcomes (mortality and morbidity) among patients undergoing colonic resection.

**Methods:** A retrospective cross-sectional analysis of 132 patients managed at MNH from January 2020 and December 2025. All data were extracted from MNH database. Statistical analysis was performed using SPSS version 27, Stata version 18, and R, employing both univariate and multivariate logistic regression to identify independent predictors of in-hospital mortality and postoperative complications. Results were presented in tables and figures. Statistical significance set at  $p < 0.05$ .

**Results:** The cohort had a mean age of 55 ( $\pm 15$ ) years, male to female ratio is 1: 1. Late clinical presentation was common, with a median symptom duration of 6 months. The overall in-hospital mortality was 6.1%, and postoperative complications occurred in 31.8% of patients. ASA Physical Status III/IV proved to be the most significant independent predictor of mortality (aOR: 8.065, 95% CI 1.467-44.35,  $p=0.016$ ).

**Conclusion:** Adverse surgical outcomes are higher in this setting than in high-income regions. High ASA scores should be utilized as a critical risk-stratification tool to prioritize patients for intensive postoperative care.

**Recommendation:** formal "prehabilitation" protocols be mandated to correct reversible risk factors, specifically targeting the high prevalence of preoperative anaemia and malnutrition. Additionally, implementing risk-stratified perioperative care is advised, ensuring that patients classified as ASA III/IV are automatically referred to High Dependency Units (HDUs) or Intensive Care Units (ICUs) post-surgery to mitigate the risk of "failure to rescue".

## **18. Title: Factors Determining the Surgical Outcomes in Infantile Hypertrophic Pyloric Stenosis at Muhimbili National Hospital, Tanzania**

**Contact:** rogerluhizo@gmail.com

**Presenter:** Rajabu Athumani Bakari

**Authors:** Rajabu Athumani Bakari, Ally Mwanga, Daniel Kitua, Nashivai Kivuyo, Alfred Chibwae, Meshack Brighton, Mohammed Sultan Salim, Kitembo Salum Kibwana

**Background:** Infantile hypertrophic pyloric stenosis (IHPS) is the most common surgical cause of non-bilious vomiting in infants, necessitating timely surgical intervention. Despite established treatment protocols, outcomes vary widely based on clinical and demographic factors.

**Objectives:** This study aimed at assessing the factors determining the surgical outcomes in IHPS at Muhimbili National Hospital (MNH).

**Methods:** This was a retrospective cohort study of 100 infants with intra-operatively confirmed IHPS who underwent pyloromyotomy between 2015 and 2024. Data on demographics, clinical presentation, biochemical markers, surgical details, complications, and outcomes were analysed. Chi-square and multivariate logistic regression were applied to determine associations, with  $p < 0.05$  considered statistically significant.

**Results:** IHPS constituted 12.24% of all paediatric laparotomies. The median age was 45 days, with a male-to-female ratio of 4.3: 1. Vomiting (100%), weight loss (17%), and visible gastric peristalsis (21%) were common presentations. Electrolyte imbalances were frequent: hypokalemia (64%), hyponatremia (58%), and hypochloremia (66%). Surgical complications occurred in 30% of infants, with a mortality rate of 6%. Significant factors associated with prolonged hospital stay included preterm birth (AOR=8.05,  $p=0.032$ ) and low haemoglobin ( $p=0.040$ ).

**Conclusion:** IHPS is a common and surgically manageable condition in infancy. However, preoperative factors such as prematurity and anaemia significantly affect outcomes. Strengthening preoperative optimisation could improve survival and reduce hospital stay.

**Recommendation:** Healthcare workers should strengthen early recognition and referral of infants with persistent non-bilious projectile vomiting to reduce treatment delays. Standardised preoperative optimisation protocols for dehydration, electrolyte imbalance, and anaemia should be implemented before surgery. Preterm infants require closer perioperative monitoring because of increased risk of prolonged hospitalization. Multicentre prospective studies with long-term follow-up are recommended to evaluate broader outcomes.

## **19. Title: Anterior Chest Wall Leiomyoma in a 4-Year-Old Girl: A Rare Paediatric Case**

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**Presenter:** Rajabu Athumani Bakari

**Authors:** Rajabu Athumani Bakari, Alfred Chibwae, Gerald Mpemba, Alex Mashaka, Mohammed H. Kawambwa, Amos Brighton, Georvin Marco Haule, Mathayo Shadrack, Petronilla Joseph Ngiloi, Charles Komba

**Background:** Leiomyoma is a benign smooth muscle tumour commonly found in the uterus, while extra-uterine chest wall involvement is exceptionally rare in children. Paediatric anterior chest wall leiomyomas may mimic malignant tumours clinically and radiologically, creating diagnostic challenges. Histopathology and immunohistochemistry are essential for accurate diagnosis and exclusion of malignancy. This report describes successful management of a rare paediatric anterior chest wall leiomyoma at Muhimbili National Hospital.

**Objectives:** To describe diagnosis, surgical management, and outcome of a rare paediatric anterior chest wall leiomyoma in a young girl.

**Methods:** This descriptive case report involved a 4-year-old girl presenting with a progressively enlarging anterior chest wall mass. Clinical assessment, chest CT scan, MRI, histopathological examination, and immunohistochemistry were performed for diagnostic evaluation. Differential diagnoses including Ewing sarcoma, rhabdomyosarcoma, inflammatory myofibroblastic tumour, and chest wall tuberculosis were excluded. Complete surgical excision with chest wall reconstruction was performed, followed by postoperative follow-up evaluation.

**Results:** Imaging demonstrated a well-defined anterior chest wall mass arising from the pectoralis major muscle without rib destruction or intrathoracic extension. Histopathology revealed spindle-shaped smooth muscle cells arranged in interlacing fascicles without atypia, necrosis, or significant mitotic activity. Immunohistochemistry showed strong smooth muscle actin positivity and ALK-1 negativity, confirming leiomyoma and excluding inflammatory myofibroblastic tumour. Complete surgical excision achieved clear margins. The postoperative course was uneventful, with no evidence of recurrence during follow-up.

**Conclusion:** Anterior chest wall leiomyoma is an exceptionally rare benign paediatric tumour that may resemble malignant chest wall lesions clinically and radiologically. Histopathological examination with immunohistochemistry is crucial for accurate diagnosis and exclusion of aggressive differentials. Complete surgical excision with reconstruction provides excellent outcomes, favourable recovery, and a minimal risk of recurrence in affected paediatric patients.

**Recommendation:** Paediatric chest wall masses should undergo comprehensive radiological, histopathological, and immunohistochemical evaluation to differentiate benign from malignant lesions accurately. Clinicians should consider leiomyoma among differential diagnoses of paediatric chest wall tumours. Complete surgical excision with adequate margins remains the preferred treatment, while long-term follow-up is recommended to monitor recurrence.

## **20. Title:** Rare Case of Long Retained Button Foreign Body in Esophagus Removed by Esophagotomy

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**Presenter:** Rajabu Athumani Bakari

**Authors:** Rajabu Athumani Bakari, Georvin Marco Haule, Alfred Chibwae, Charles Oswald Ruboha, Diana Batuel Ngulo, Gerald Mpemba, Hilda Makungu, Abdulrahman Abdallah Amin, Ally Hamisi Mwanga, Zaitun M. Bokhary, Kitembo Salum Kibwana, Charles Komba

**Background:** Esophageal foreign body ingestion is a common paediatric emergency that may cause significant morbidity when diagnosis and treatment are delayed. Most ingested foreign bodies pass spontaneously or are removed endoscopically, while surgical intervention is rarely

necessary. Long-retained esophageal foreign bodies may result in fibrosis, obstruction, perforation, or airway compromise. This report describes a rare paediatric case of prolonged button impaction successfully managed by thoracotomy with esophagotomy at Muhimbili National Hospital.

**Objectives:** To describe diagnosis, surgical management, and outcome of a long-retained esophageal button foreign body in a child.

**Methods:** This descriptive case report involved an 8-year-old boy presenting with progressive dysphagia for one year. Clinical evaluation, esophagogastroduodenoscopy, and contrast-enhanced chest CT scan were performed to identify the retained esophageal foreign body and associated complications. Following failed endoscopic retrieval, right thoracotomy with esophagotomy was performed for extraction. Postoperative clinical assessment and imaging were conducted to evaluate esophageal patency, recovery, and surgical outcomes.

**Results:** Esophagogastroduodenoscopy revealed a metallic foreign body partially embedded within esophageal mucosa with suspected fistula formation. CT scan demonstrated a metallic object compressing the thoracic esophagus and trachea without confirmed tracheoesophageal fistula. Intraoperatively, extensive esophageal fibrosis was identified, and a 4 cm button was successfully extracted through esophagotomy. Nasogastric tube insertion and tube thoracostomy were performed. The postoperative course was favourable with improved swallowing and satisfactory recovery without major complications.

**Conclusion:** Long-retained esophageal foreign bodies may cause severe morbidity and diagnostic challenges in children. Early recognition and timely intervention are essential to prevent fibrosis, perforation, and airway compromise. Although most cases are managed endoscopically, thoracotomy with esophagotomy remains an effective surgical option for complex retained foreign bodies when endoscopic retrieval is unsuccessful or unsafe.

**Recommendation:** Children presenting with persistent dysphagia should undergo early evaluation for possible esophageal foreign body ingestion, even without a clear ingestion history. Prompt imaging and endoscopic assessment are essential to reduce complications. Surgical intervention should be considered in complex or long-retained cases unsuitable for endoscopic retrieval.

## **21. Title:** A Case of Hydrocele of the Canal of Nuck Mimicking Inguinal Hernia in Young Girl

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**Presenter:** Rajabu Athumani Bakari

**Authors:** Rajabu Athumani Bakari, Alfred Chibwae, Nanyokye Nasira Kidoko, Mwajabu Rashidi Mbagu, Zaitun M. Bokhary, Victor T. Ngotta

**Background:** Hydrocele of the canal of Nuck is a rare developmental condition in females resulting from failure of processus vaginalis obliteration. Because of its rarity and similarity to inguinal hernia, diagnosis is frequently challenging. Patients usually present with painless inguino-labial swelling requiring careful clinical and radiological evaluation. This report describes a rare case of hydrocele of the canal of Nuck successfully managed surgically at Muhimbili National Hospital.

**Objectives:** To describe diagnosis, surgical management, and outcome of hydrocele of the canal of Nuck in a young girl.

**Methods:** This descriptive case report involved a 13-year-old girl presenting with progressive painless left inguino-labial swelling. Clinical evaluation, laboratory investigations, echocardiography, and ultrasound examination were performed preoperatively. The patient was initially diagnosed with an inguinal hernia and scheduled for elective herniotomy. During surgical exploration, a hydrocele sac extending from the internal ring to the labia majora was identified, excised completely, and ligated at the deep inguinal ring.

**Results:** The patient presented with a soft, fluctuant, non-tender, irreducible left inguinal swelling measuring 4×3 cm. Ultrasound examination suggested a reducible inguinal hernia with bowel loops and surrounding fluid collection. Intraoperatively, a hydrocele of the canal of Nuck adjacent to the round ligament was identified extending into the labia majora. Complete excision and high ligation were successfully performed. The postoperative course was uneventful, with no recurrence or significant complications during follow-up.

**Conclusion:** Hydrocele of the canal of Nuck is a rare but important differential diagnosis of female inguinal swelling. Clinical and radiological findings may mimic those of an inguinal hernia, leading to diagnostic difficulties. Surgical exploration remains definitive for diagnosis and treatment. Complete excision with ligation of the patent processus vaginalis provides excellent outcomes and a low risk of recurrence.

**Recommendation:** Clinicians should maintain a high index of suspicion for hydrocele of the canal of Nuck in girls presenting with inguinal swelling. Careful radiological assessment is necessary to differentiate it from inguinal hernia and other groin pathologies. Early surgical excision and ligation are recommended to prevent recurrence and misdiagnosis.

## **22. Title: Laparoscopic-Assisted Abdominal Perineal Resection (APR) in a Low-Resource Setting**

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**Presenter:** Rajabu Athumani Bakari

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**Background:** Abdominoperineal resection (APR) remains the standard surgical treatment for low rectal cancers when sphincter preservation is not feasible. Laparoscopic-assisted APR offers advantages including reduced postoperative pain, shorter hospital stay, and faster recovery. However, implementing minimally invasive colorectal surgery in low-resource settings is challenging because of limited infrastructure, trained personnel, and financial constraints. This report describes successful laparoscopic-assisted APR for rectal cancer at Muhimbili National Hospital, Tanzania.

**Objectives:** To describe laparoscopic-assisted APR management and outcome of low rectal adenocarcinoma in a resource-limited surgical setting.

**Methods:** This descriptive case report involved a 54-year-old woman presenting with rectal bleeding, painful defecation, and weight loss. Clinical examination, colonoscopy, biopsy, and thoraco-abdominopelvic CT scan were performed for diagnosis and staging. Histopathology confirmed moderately differentiated rectal adenocarcinoma staged clinically as cT3N1M0. Following preoperative optimisation, laparoscopic-assisted APR using three ports and total mesorectal excision principles was performed with permanent end colostomy creation.

**Results:** The patient had a low rectal tumour located 3 cm from the anal verge without distant metastasis. Laparoscopic-assisted APR was completed using a hybrid minimally invasive approach despite limited resources and a lack of high-definition imaging. Total mesorectal excision and permanent end colostomy were achieved without intraoperative complications. The specimen was delivered trans-anally, and the perineal wound was closed after drain placement. Postoperatively, the patient demonstrated satisfactory recovery with a functioning colostomy and no significant complications.

**Conclusion:** Laparoscopic-assisted APR is feasible and safe in selected patients within low-resource settings when performed by experienced surgical teams. Despite infrastructural and financial limitations, adherence to oncological principles and strategic resource utilisation can achieve favourable outcomes. Minimally invasive colorectal surgery may improve postoperative recovery, reduce wound complications, and expand access to advanced surgical care.

**Recommendation:** Low-resource hospitals should strengthen training in minimally invasive colorectal surgery and gradually invest in laparoscopic infrastructure to improve surgical outcomes. Careful patient selection and multidisciplinary collaboration remain essential for safe implementation of laparoscopic-assisted APR. Further prospective studies comparing laparoscopic and open colorectal surgery outcomes in low-resource settings are recommended.

### **23. Title: A Rare Case of Paediatric Gastric Inflammatory Myofibroblastic Tumour (IMT) Mimicking Gastrointestinal Stromal Tumour (GIST)**

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**Background:** Inflammatory myofibroblastic tumour (IMT) is a rare mesenchymal neoplasm characterised by spindle cell proliferation within an inflammatory stroma. Gastric involvement is extremely uncommon in children and often presents with nonspecific gastrointestinal symptoms, creating diagnostic challenges. Radiological and endoscopic findings may mimic gastrointestinal stromal tumour (GIST), requiring histopathological confirmation for diagnosis. This report describes a rare paediatric gastric IMT successfully managed with subtotal gastrectomy at Muhimbili National Hospital.

**Objectives:** To define the diagnosis, surgical management, and outcome of paediatric gastric inflammatory myofibroblastic tumour mimicking gastrointestinal stromal tumour.

**Methods:** This descriptive case report involved an 11-year-old boy presenting with gastric outlet obstruction, epigastric discomfort, anaemia, and abdominal mass. Clinical examination, abdominal ultrasound, thoracoabdominal CT scan, and esophagogastroduodenoscopy were performed for evaluation. Histopathology from the endoscopic biopsy was inconclusive because of necrosis. Following suspicion of gastric GIST, exploratory laparotomy with D2 subtotal gastrectomy, Billroth II reconstruction, and Braun anastomosis was performed with histopathological and immunohistochemical evaluation.

**Results:** Imaging demonstrated a large heterogeneous gastric mass causing luminal obstruction with mild ascites and para-aortic lymphadenopathy. Intraoperatively, a hard

polypoid tumour involving the distal stomach with intact serosa was identified without liver metastasis or peritoneal carcinomatosis. Histopathology showed spindle cell proliferation in storiform and fascicular patterns with inflammatory infiltrates. Immunohistochemistry demonstrated SMA and ALK-1 positivity with negative CD117, DOG1, and S100 staining, confirming IMT and excluding GIST. The patient achieved a favourable postoperative recovery following a subtotal gastrectomy.

**Conclusion:** Paediatric gastric IMT is an exceptionally rare tumour that may clinically and radiologically mimic GIST, leading to diagnostic difficulties. Histopathological examination with immunohistochemistry remains essential for definitive diagnosis. Complete surgical excision through subtotal gastrectomy provides favourable outcomes and low recurrence risk when adequate tumour clearance is achieved.

**Recommendation:** Clinicians should consider IMT among the differential diagnoses of paediatric gastric tumours presenting with gastric outlet obstruction. A comprehensive histopathological and immunohistochemical evaluation is essential to distinguish IMT from GIST and other mesenchymal tumours accurately. Complete surgical excision remains the cornerstone of management, while long-term follow-up is recommended to monitor recurrence.

#### **24. Title: Call for Sustainable Universal Health Coverage: High Burden of Variceal Bleeding among Patients at MNH**

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**Presenter:** Innocent Ndabila

**Authors:** Innocent Ndabila, David G. Paulo, Eva Uiso

**Background:** Variceal bleeding is associated with high morbidity, mortality and drives up healthcare costs, particularly in low-resource settings where there is a high burden of chronic liver disease driven by alcohol use, viral hepatitis, and schistosomiasis. At Muhimbili National Hospital (MNH), Tanzania's principal tertiary referral centre, contemporary data on the prevalence and clinical predictors of variceal bleeding among patients undergoing endoscopy are limited, hindering effective risk stratification and evidence-based preventive care.

**Objectives:** To determine the prevalence and associated factors of variceal bleeding among patients with upper gastrointestinal bleeding undergoing endoscopy at MNH.

**Methods:** A cross-sectional study was conducted at MNH between August 2025 and January 2026. A total of 381 adults with upper gastrointestinal bleeding undergoing endoscopy were consecutively enrolled. Demographic, clinical, and endoscopic data were collected using structured tools and patient records. Analyses were performed with SPSS version 27. Modified Poisson regression identified factors associated with variceal bleeding, reported as prevalence ratios with 95% confidence intervals; p-values <0.05 were considered statistically significant.

**Results:** Of 381 patients enrolled, the median age was 50 years (IQR: 39-63), the majority were male (63.3%), and 50.7% were not insured. The prevalence of variceal bleeding was 35.4%. The majority had high-risk stigmata (91.9%), and none had primary prophylaxis. In the multivariable analysis, splenomegaly (aPR 3.78, p<0.01), radiological features of cirrhosis (aPR 2.00, p<0.01), periportal fibrosis (aPR 1.80, p=0.04), alcohol use (aPR 1.34, p=0.029), thrombocytopenia (aPR 1.64, p=0.045), and hypoalbuminemia (aPR 1.62, p=0.014) were independent predictors of variceal bleeding.

**Conclusion:** Variceal bleeding accounts for over one-third of UGIB cases undergoing endoscopy at MNH, with splenomegaly, radiological features of cirrhosis and periportal fibrosis, alcohol use, thrombocytopenia, and hypoalbuminemia identified as independent predictors. The majority of these patients are uninsured, potentially limiting access to early care, including screening and prevention. The complete absence of primary prophylaxis represents a critical care gap.

**Recommendation:** Screening endoscopy should be established for patients with chronic liver disease to enable primary prophylaxis. For patients with upper gastrointestinal bleeding, splenomegaly, thrombocytopenia, and hypoalbuminemia, early risk stratification and urgent endoscopy. Alcohol cessation counselling and schistosomiasis control programmes should be strengthened. Hepatitis B vaccination coverage requires expansion. Universal health coverage should be expedited to ensure early care access.

## **25. Title: The Role of Nutrition Therapy in Recovery from Severe Burns at Muhimbili National Hospital Mloganzila**

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**Presenter:** Arafa E. Mkumbo

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**Background:** Severe burn injuries are associated with profound hypermetabolic and catabolic responses that significantly increase nutritional requirements. Effective nutritional management is crucial for promoting wound healing, minimizing complications, and improving recovery outcomes, especially in resource-limited settings.

**Objectives:** The aim is to highlight the self practice of applying nutritional strategies used to manage a person with extensive burn

**Methods:** 30-year-old male was admitted to Muhimbili National Hospital-Mloganzila following a motor traffic accident, sustaining deep second-degree burns over 53% of his total body surface area (TBSA), including the trunk, back, forearms, lower limbs, and buttocks. Upon admission, he presented with fluid imbalance, hypoalbuminemia, and functional feeding limitations. Nutritional needs were calculated using the Curreri formula, and a tailored nutrition care plan was developed. Fluid resuscitation followed the Parkland formula.

**Results:** The individualised nutrition plan, supported by interdisciplinary collaboration and caregiver education, contributed to achieving target nutritional intake and clinical improvements. The patient showed gradual recovery with stabilised albumin levels, improved wound healing, and reduced complications.

**Conclusion:** In resource-limited settings, effective burn nutrition therapy is feasible using locally available foods, targeted supplementation, and multidisciplinary coordination.

**Recommendation:** Early nutrition screening and assessment, tailored interventions, caregiver engagement, and regular monitoring are critical to successful burn recovery outcomes.

## **26. Title: Determinants of Healthy Eating Knowledge and Practices among Undergraduate Students at Muhimbili University of Health**

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**Presenter:** Samiri A. Mkoma

**Authors:** Samiri Ahmedi Mkoma, Emmy Metta, Restituta Mushi

**Background:** Poor dietary quality is a major, modifiable cause of premature death from non-communicable diseases (NCDs), driving cardiovascular disease, type 2 diabetes, stroke, and some cancers. This burden is highest in low- and middle-income countries undergoing rapid nutrition transitions, where traditional foods are increasingly replaced by energy-dense, nutrient-poor ultra-processed foods. In urban sub-Saharan Africa, food-system change, aggressive marketing, and uneven nutrition literacy worsen this. University students are at a key turning.

**Objectives:** To assess healthy eating knowledge and dietary practices among undergraduate students at Muhimbili University of Health and Allied Sciences (MUHAS)

**Methods:** Cross-sectional survey of 337 students (response rate 91.1%) using stratified random sampling across programmes and academic years. A pretested questionnaire measured knowledge, practices, and determinants. Analyses included Pearson chi-square/Fisher's exact tests, Cramér's V, Wilson 95% CIs, and  $p < 0.05$  (two-tailed, unadjusted).

**Results:** High knowledge was reported by 56.4% (95% CI 51.0-61.6) with no sociodemographic associations. Good practice was observed in 52.2% (95% CI 46.9-57.5). Practice varied by year ( $\chi^2(3)=63.74$ ,  $p<.001$ ,  $V=0.44$ ; surviving correction) and programme ( $p=0.003$ ). Good practice declined from 70.2% (Year 1) to 12.5% (Year 4). Insufficient income was the main barrier to breakfast; 75.4% reported financial constraints limiting food choices.

**Conclusion:** Shows a knowledge-practice gap and progressive deterioration across academic years, cross-sectional, self-reported data limit causal inference.

**Recommendation:** Multi-level MUHAS interventions are recommended to address affordability, campus food provisioning/culture, and peer norms.

## **27. Title: Prevalence and Factors Associated with Depressive Symptoms among Healthcareworkers at Health Centres in Ilala District**

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**Presenter:** Ismail Rashid Ndaile

**Authors:** Ismail Rashid Ndaile, Samuel Likindikoki, Dorothy Mushi, Mrema Noel Kilonzo

**Background:** Depression affects 4% of the global population, including healthcare workers who face a higher risk of mental illnesses like depression. This affects their well-being and compromises healthcare quality and patient outcomes. Existing literature focused mainly on higher-income settings and the COVID-19 pandemic, leaving a gap in understanding depressive symptoms among healthcare workers in low- and middle-income countries, particularly in primary care. This study addresses this gap in Tanzanian healthcare workers.

**Objectives:** To determine the prevalence and factors associated with depressive symptoms among healthcare workers at health centres in Ilala District.

**Methods:** A cross-sectional survey of 304 healthcare workers in Ilala District used a semi-structured questionnaire to collect data on socio-demographics, interpersonal and work-related factors, and depressive symptoms assessed using the Patient Health Questionnaire-9. Data were analysed in Stata version 17.0 using descriptive statistics. A modified Poisson regression model was used for bivariate analysis to identify variables with p-values < 0.2, followed by multivariable analysis reporting adjusted prevalence ratios at  $p < 0.05$ .

**Results:** Of the 304 healthcare workers, 55.3% were female with a median age of 32 years. Most were married (57.9%), held diplomas (60.9%), and worked in inpatient departments (56.6%), with nurses forming the largest group (25.3%). Overall, 13.5% had clinically significant depressive symptoms, with 33.6% mild and 3.0% moderate symptoms. Factors associated with depressive symptoms included a higher daily patient load, nursing role, longer daily commutes, perceived social support levels, and older age groups.

**Conclusion:** Depressive symptoms remain a notable concern among healthcare workers in Ilala District. Higher daily patient loads and longer commutes were associated with lower prevalence, while being aged 30 years or older and working as a nurse were associated with higher prevalence. Moderate and strong perceived social support reduced depressive symptoms, highlighting the protective role of psychosocial resilience and workplace factors.

**Recommendation:** Regular psychosocial screening should be implemented among healthcare workers to identify early depressive symptoms. Strengthening social support networks and integrating mental health into occupational health policies is essential. Priority should be given to nurses and older healthcare workers. Further interventional research is recommended to explore effective strategies for reducing depressive symptoms and improving overall mental health in primary healthcare settings.

## **28. Title: Clinical, Radiological, and Pulmonary Function Test Findings among Connective Tissue Disease Patients with Respiratory Symptoms at Muhimbili National Hospital**

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**Presenter:** Noorein A. Omar

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**Background:** Pulmonary complications are common in connective tissue diseases (CTDs) and contribute significantly to morbidity and mortality. However, data on the pulmonary profile of symptomatic CTD patients in Sub-Saharan Africa remain limited. This study assessed pulmonary symptoms, spirometry, and radiological abnormalities among CTD patients presenting with respiratory symptoms at the rheumatology clinic of Muhimbili National Hospital (MNH).

**Objectives:** To describe pulmonary symptoms and associated spirometry and radiological abnormalities among symptomatic CTD patients attending the rheumatology clinic

**Methods:** A hospital-based cross-sectional study conducted at MNH from August 2025 to January 2026. Patients with confirmed CTDs and respiratory symptoms underwent spirometry and HRCT review where available. Findings were analysed using medians, interquartile ranges, frequencies, and percentages.

**Results:** Among 160 enrolled patients, median age was 48 years and 90% were female. Systemic lupus erythematosus (SLE) and seropositive rheumatoid arthritis were most common. Dry cough was most frequent symptom. Spirometry showed restrictive pattern in 39.5%. HRCT

findings included reticular opacities, ground-glass opacities, traction bronchiectasis, fibrotic nonspecific interstitial pneumonia (NSIP) and definite usual interstitial pneumonia (UIP) as leading patterns.

**Conclusion:** CTD patients at MNH were predominantly women with SLE and rheumatoid arthritis. Dry cough was the most common complaint. Fibrotic interstitial lung involvement and restrictive spirometry patterns were the leading findings. Early clinical suspicion and targeted pulmonary evaluation are essential in symptomatic CTD patients.

**Recommendation:** Routine respiratory symptom screening should be integrated into CTD care. Symptomatic patients should undergo early spirometry and HRCT where indicated. Multidisciplinary collaboration between rheumatology, pulmonology, and radiology is essential. Larger studies are needed to validate findings and establish stronger evidence linking clinical, functional, and radiological abnormalities in CTD-related lung disease.

## **29. Title: Prevalence and Factors Associated with Alcohol Use Disorders among Commercial Bus Drivers in Dar es Salaam**

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**Presenter:** Safiel Meta

**Authors:** Safiel Meta, Pamela Kaduri, Dorothy Mushi

**Background:** Alcohol Use Disorders among commercial bus drivers pose a public health and road safety concern globally, with particularly severe implications in low- and middle-income countries. In Tanzania, alcohol use among commercial drivers remains a growing concern, contributing substantially to road traffic accidents (RTAs). Despite this, limited local data exist on the magnitude and factors of AUD among commercial bus drivers, highlighting the need for this study.

**Objectives:** To determine the prevalence of alcohol use disorders and associated factors among commercial bus drivers in Dar es Salaam.

**Methods:** A cross-sectional study was conducted among commercial bus drivers in Dar es Salaam between December 2025 and January 2026. The Gerezani Bus Terminal was purposively selected, and drivers were recruited through convenience sampling across four major routes. Data were collected via structured interviews using AUDIT, Brief COPE, and the Work Stress Scale. Descriptive statistics and logistic regression were used to identify independent factors associated with alcohol use disorder, with significance set at  $p < 0.05$ .

**Results:** Over half (54.4%) of commercial bus drivers met criteria for alcohol use disorders. Hazardous use accounted for 34.7%, harmful use 14.0%, and probable dependence 5.7%. Drivers aged 25-34 had twice the likelihood of AUD compared to other age groups (AOR = 2.42). Seeking social support reduced risk by 37%, while shorter work hours and longer rest lowered risk by 33% and 49%, respectively. Other factors, including stress and coping styles, were not significant after adjustment.

**Conclusion:** Alcohol use disorders (AUD) are common among commercial bus drivers, with hazardous, harmful, and dependent patterns identified. Younger drivers were more vulnerable, while supportive coping strategies, shorter working hours, and adequate rest were protective. AUD can compromise driver alertness, increasing the risk of road traffic accidents. This endangers not only drivers' health but also the safety of passengers and pedestrians.

**Recommendation:** Transport authorities should enforce regulations on working hours, rest periods, and introduce routine alcohol screening for drivers. Bus company management should ensure consistent supervision and supportive workplace practices. Public health agencies should lead awareness campaigns targeting younger drivers, addressing occupational stress and alcohol misuse to improve drivers' health and protect passenger and pedestrian safety.

### **30. Title:** Prevalence and Associated Factors of Non-Communicable Diseases among People Living with HIV Compared to HIV-Negative Potential Blood Donors

**Contact:** anaamkadri07@gmail.com

**Presenter:** Anaam Kadri

**Authors:** Anaam Kadri, Patricia Munseri, Joan Rugemalila

**Background:** Human Immunodeficiency Virus (HIV) remains a major public health challenge in low- and middle-income countries such as Tanzania, where it coexists with the growing burden of non-communicable diseases (NCDs). People living with HIV (PLHIV) face increased risks of hypertension, obesity, hyperglycemia, and proteinuria due to chronic inflammation, aging, and long-term antiretroviral therapy. Comparative evidence between PLHIV and HIV-negative populations in Tanzania is limited..

**Objectives:** To compare the prevalence and factors associated with NCDs among PLHIV and HIV-negative potential blood donors at Muhimbili National Hospital

**Methods:** A cross-sectional study was conducted among 614 participants, including 307 PLHIV and 307 HIV-negative potential blood donors at Muhimbili National Hospital. Data were analysed using SPSS version 27. Hypertension, hyperglycemia, obesity, and proteinuria were assessed as NCD outcomes. Frequencies, proportions, medians, and interquartile ranges summarized the data. Modified Poisson regression identified factors associated with NCDs, with statistical significance considered at  $p$ -value  $< 0.05$ .

**Results:** The median age of participants was 40 years (IQR 29-52), with PLHIV generally older than HIV-negative potential blood donors. The prevalence of NCDs was significantly higher among PLHIV (72.3%) than HIV-negative donors (46.6%) ( $p < 0.001$ ). Hypertension, obesity, hyperglycemia, and proteinuria were more prevalent among PLHIV. Factors associated with NCDs among PLHIV included older age, marital status, and increased waist circumference, while among HIV-negative donors, older age, female sex, marital status, and increased waist circumference were significantly associated with NCDs

**Conclusion:** This study demonstrated a high burden of NCDs among PLHIV compared to HIV-negative potential blood donors.. The findings highlight the need for strengthened routine screening, prevention, and management in both HIV care and general healthcare settings.

**Recommendation:** Routine screening for hypertension, hyperglycemia, obesity, and proteinuria should be strengthened in HIV clinics and general healthcare settings to improve early detection and management of NCDs. Health education should emphasize central obesity and lifestyle modification, as waist circumference was a significant factor in both groups. Further multicentre longitudinal studies are recommended to better understand the relationship between HIV infection and NCDs.

### **31. Title: Problem Gambling among Undergraduate Students at Muhimbili University of Health and Allied Sciences, Tanzania**

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**Presenter:** Helena Mwaipopo

**Authors:** Helena Mwaipopo, Frank Masao, Dorothy Mushi

**Background:** Gambling, often viewed as recreation, can become problematic, affecting personal well-being, relationships, academic performance, and finances. University students are among the affected populations.

**Objectives:** To determine the prevalence and associated factors of problem gambling among undergraduate students at Muhimbili University of Health and Allied Sciences (MUHAS)

**Methods:** An institution-based analytical cross-sectional study was conducted among 499 undergraduate students. The Problem Gambling Severity Index (PGSI) assessed gambling behaviour. Bivariable and multivariable analyses were conducted to determine the factors associated with problem gambling.

**Results:** The prevalence of problem gambling among undergraduate students at MUHAS was 16.6% (n=83). In multivariable analysis, living in privately rented houses (APR = 3.55, 95% CI: 2.16-5.83,  $p < 0.001$ ), being a final-year student (APR = 1.85, 95% CI: 1.18-2.90,  $p = 0.007$ ), and having a chronic medical condition (APR = 2.62, 95% CI: 1.80-3.82,  $p < 0.001$ ) were significantly associated with problem gambling.

**Conclusion:** Problem gambling among MUHAS undergraduates is relatively high, with significant associations observed among those in private housing, final-year students, and those with chronic medical conditions.

**Recommendation:** Government policies should promote responsible gambling and provide clear warnings for students. MUHAS should implement routine screening and preventive strategies. Qualitative research is recommended to explore contextual drivers and inform targeted interventions.

### **32. Title: Silent Struggles: Burnout among Health Professionals at Mirembe National Mental Health Hospital, Dodoma, Tanzania**

**Contact:** narmienaomi@gmail.com

**Presenter:** Naomi Godlisten Mrina

**Authors:** Naomi Mrina, Esther Mzilangwe, Sarea Lawala

**Background:** Burnout among health professionals is increasing and often overlooked in a culture that values constant productivity. Unaddressed burnout contributes to absenteeism, reduced performance, workforce attrition, and mental disorders such as depression and anxiety, ultimately compromising healthcare quality and organisational sustainability. Despite growing global recognition of burnout, evidence from Tanzania, particularly in mental health settings, remains scarce.

**Objectives:** To estimate the prevalence and identify factors associated with burnout among health professionals at Mirembe National Mental Health Hospital (MNMH).

**Methods:** A cross-sectional study was conducted among health professionals at MNMH using census sampling. Data were collected with a semi-structured questionnaire. Burnout was assessed using the Maslach Burnout Inventory-HSS, social support with the Oslo Social Support Scale, and job satisfaction with the MSQ-SF-20. Analysis was performed in STATA version 17. Ethical approval and informed consent were obtained.

**Results:** The response rate was 97%. Among 310 health professionals, 72.3% were aged 26-44 years. The prevalence of burnout was 41.9%. In multivariable analysis, burnout was significantly associated with age 45-59 years (APR = 4.87; 95% CI: 2.46-9.62;  $p < 0.001$ ), being a doctor (APR = 1.52; 95% CI: 1.01-2.28;  $p = 0.044$ ), and being a pharmacist (APR = 1.63; 95% CI: 1.02-2.62;  $p = 0.041$ ).

**Conclusion:** Approximately four in ten health professionals at MNMH experience burnout. Older staff, doctors, and pharmacists are at higher risk, highlighting the influence of age and professional role.

**Recommendation:** Targeted workplace mental health interventions, routine burnout screening, and psychosocial support programmes are needed, particularly for high-risk groups. Strengthening staffing, promoting work-life balance, and implementing institutional wellness strategies may reduce burnout and improve care quality.

### **33. Title: Prevalence of Internalized Stigma and Associated Stigma and Associated Factors among Out-Patients with Severe Mental Illness at MNH**

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**Presenter:** Rehema Nina

**Authors:** Rehema Nina, Sylvia Kaaya, Helen Ciril

**Background:** In sub-Saharan Africa, internalized stigma affects 24% to 32% of people with severe mental illness and reduces their confidence to engage fully in treatment, social, and occupational activities. However, no study has examined the prevalence of internalized stigma among individuals with severe mental illness in Tanzania. Understanding the burden and factors associated with internalized stigma is important for developing strategies to improve mental healthcare services in Tanzania and similar settings.

**Objectives:** To determine the prevalence of internalized stigma and associated factors among outpatients with severe mental illness at Muhimbili National Hospital

**Methods:** A hospital-based cross-sectional study was conducted among 341 adults with severe mental illness, selected through simple random sampling. Internalized stigma was assessed using the ISMI-29, and psychosocial factors were evaluated using adapted tools. Data were analysed in SPSS version 28 using bivariable and multivariable modified Poisson regression analysis with robust estimators. Associations were expressed as prevalence ratios (cPR and aPR) with 95% confidence intervals. Statistical significance was set at  $p=0.05$

**Results:** Among 341 individuals with severe mental illness, the prevalence of high internalised stigma was 10.3%, while 89.7% reported lower levels of internalised stigma. Factors independently associated with high internalised stigma included unemployment ( $p=0.041$ ), low self-esteem ( $p=0.004$ ), mild or moderate symptom severity ( $p=0.021$ ), and missing scheduled clinical visits within the past six months ( $p=0.001$ ). In contrast, individuals aged 31-40 years were associated with a lower prevalence of high internalised stigma ( $p=0.025$ )

**Conclusion:** Although the prevalence of high internalised stigma among outpatients with severe mental illness at MNH was relatively low, fundamental components of stigma, notably alienation and perceived discrimination, were high. Therefore, addressing modifiable factors such as low self-esteem, unemployment, and clinic attendance may help reduce stigma-related barriers to mental health-seeking behaviours and improve treatment and social engagement within this population.

**Recommendation:** This study recommends strengthening patient-clinician interactions, implementing routine stigma screening, and training healthcare providers in stigma-sensitive care. It also recommends providing occupational therapy interventions, including vocational skills training and support for income-generating activities. Further analytical research is recommended to capture the experience of stigma, effectively and community-based research is necessary to identify individuals who are not engaged in care.

### **34. Title:** Health Effects of Sustained Dietary Changes in 14 Sub-Saharan African Countries: A Modelling Study

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**Presenter:** Castory Munishi

**Authors:** Castory Munishi, Heavenlight A. Paulo, Linda S. Paulo, Elaheh Javadi Arjmand, Lise M. Thomassen, Lars T. Fadnes, Bruno Sunguya, Ryan McBain, Chantelle Boudreaux, Øystein A. Haaland, Kjell Arne Johansson

**Background:** Unhealthy diets are a major risk factor for non-communicable diseases (NCDs). In the last decade, deaths attributable to diet and metabolic-related risk factors in sub-Saharan Africa (SSA) increased by 38.9%, reaching 1.7 million deaths annually. Improvements in diet can help reduce the burden of NCDs.

**Objectives:** To estimate changes in life expectancy and the probability of premature mortality in 14 sub-Saharan African countries

**Methods:** This study used demographic life tables built on the Food4HealthyLife approach to estimate changes in life expectancy and the probability of premature death, based on diet-dose response curves and mortality data. Background mortality data were obtained from the Global Burden of Disease Study 2023, and diet data were obtained from the Global Individual Food Consumption Data Tool.

**Results:** Sustained dietary changes would increase life expectancy and reduce the probability of premature death in SSA. Differences in health gains between countries were large, ranging from 2.2 years to 9.7 years for dietary changes starting at age 20. There were substantial reductions in the probability of premature mortality due to dietary changes in all study locations, for both males and females, ranging from 3.5% to 16.5%. Switching to a Western diet decreased life expectancy.

**Conclusion:** This study indicates that sustained healthy dietary changes in SSA can significantly improve life expectancy and reduce the risk of premature mortality. Health gains were mainly driven by increased consumption of plant-based foods, fish, and reduced intake of added sugar and sugary beverages. By contrast, a continued transition towards Western diets would most likely add harm.

**Recommendation:** Governments should implement multisectoral strategies to promote healthy diets.

### **35. Title: Prevalence and Correlates of Prediabetes among Adults in Mbeya City, Tanzania: Community-Based Cross-Sectional Study**

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**Presenter:** Agnes J. Yongolo

**Authors:** Agnes J. Yongolo, Belinda J. Njiro, David Urassa, Gladys Reuben Mahiti

**Background:** Prediabetes is a growing public health concern and an early warning stage before diabetes onset. Data on prediabetes are limited. In Mbeya, where obesity is common, it affects 28% of males and 53% of females. Prediabetes is both preventable and potentially reversible with timely intervention. Understanding its burden and correlates is essential for reducing the future risk of diabetes.

**Objectives:** To determine the prevalence and identify factors associated with prediabetes among adults in Mbeya City, Tanzania.

**Methods:** A community-based cross-sectional study was conducted among 320 adults in Mbeya City and Mbeya District Council between May and June 2025. Data on sociodemographic, behavioural, nutritional, and clinical characteristics were collected using questionnaires and blood glucose testing. Prediabetes was defined as FBG of 6.1-6.9 mmol/L or RBG of 7.8-11.0 mmol/L. Modified Poisson regression was used to determine factors associated with prediabetes while controlling for age, sex, alcohol use, physical activity, BMI, and family history.

**Results:** A total of 320 adults were enrolled, with a mean age of 52.3 years, and 60.3% were female. The prevalence of prediabetes was 26.6% (n=85). Alcohol consumption (aPR: 1.10; 95% CI: 1.03-1.18), family history of diabetes (aPR: 1.44; 95% CI: 1.09-1.90), obesity (aPR: 1.51; 95% CI: 1.06-2.15), and low physical activity (aPR: 1.53; 95% CI: 1.14-2.05) were independently associated with prediabetes.

**Conclusion:** Prediabetes was common among adults in Mbeya, Tanzania. Alcohol consumption, low to moderate physical activity, obesity, and a family history of diabetes were significantly associated with prediabetes. Early screening and lifestyle interventions targeting these risk factors may help prevent progression to diabetes. Strengthening health education and promoting healthy behaviour could reduce the future burden of diabetes and other non-communicable diseases.

**Recommendation:** Prediabetes prevalence among adults in Mbeya was high and associated with alcohol consumption, family history of diabetes, obesity, and low physical activity. We recommend that the Ministry of Health, healthcare providers, and public health practitioners strengthen health education on physical activity, healthy diets, and reduced alcohol use, integrate routine prediabetes screening into primary healthcare services, and implement early lifestyle interventions.

### **36. Title: Prevalence of Erectile Dysfunction and Its Associated Factors among Male Patients Attending Psychiatry Outpatient Clinic**

**Presenter:** Upendo S. Kimaro

**Authors:** Upendo S. Kimaro, Nuruel Kitomary, Dorothy Mushi

**Background:** Erectile dysfunction (ED) is a globally rising concern, sharing a complex, bidirectional relationship with mental health disorders. Neuroendocrine disruptions, psychotropic medications, and psycho-social stressors like social isolation or unstable relationships exacerbate ED risk. Consequently, ED often triggers poor treatment adherence among mental health patients, emphasising the need to understand its impact on male psychiatric patients.

**Objectives:** To determine the prevalence of Erectile dysfunction and its associated factors among male patients attending a psychiatry outpatient clinic.

**Methods:** This analytical, hospital-based cross-sectional study at Muhimbili National Hospital utilised convenience sampling. ED was measured using the IIEF, mental disorders via MINI 7.2.0, self-esteem using RSES, and medication adherence via MMAS-8. Data were analysed using STATA 18. Bivariate and multivariate analyses identified significant associations ( $p < 0.05$ ). Ethical approval and permission were granted by the Institutional Review Board at MUHAS and Muhimbili National Hospital, respectively.

**Results:** Among 304 psychiatric outpatients (100% response rate), erectile dysfunction (ED) prevalence was 79.6%. Independent risk factors included advanced age (40-54 years:  $aPR=1.27$ ,  $p<0.0001$ ;  $\geq 55$  years:  $aPR=1.21$ ,  $p=0.015$ ) and comorbidities. Compared to other mental illnesses, ED was significantly higher in substance-related disorders ( $aPR=1.87$ ,  $p=0.003$ ), depressive disorders ( $aPR=1.76$ ,  $p=0.009$ ), and schizophrenia spectrum disorders ( $aPR=1.69$ ,  $p=0.010$ ). Furthermore, medium ( $aPR=1.20$ ,  $p=0.004$ ) and high ( $aPR=1.25$ ,  $p=0.023$ ) medication adherence levels were strongly associated with increased ED prevalence.

**Conclusion:** Erectile dysfunction is highly prevalent yet overlooked among Tanzanian psychiatric outpatients. It is strongly associated with advanced age, high medication adherence, and specific conditions (depressive, substance-related, and schizophrenia spectrum disorders).

**Recommendation:** Psychiatric facilities should implement standardised sexual health screening using validated tools, establish protocols for managing treatment-emergent side effects, and conduct continuous medical education to reduce clinical stigma.

### **37. Title: Weaning Patterns and Outcomes of Mechanically Ventilated Adult Patients in the ICU at MNH**

**Presenter:** Elias M.

**Authors:** Elias M., Mrutu S., Jongo A.

**Background:** Mechanical ventilation (MV) can cause complications in patients, such as pneumonia, respiratory muscle weakness, and mechanical lung injury. Timely and effective liberation from MV is crucial for complication minimisation and improved patient outcomes. Despite global advancements in weaning protocols, significant practice variations persist, particularly in developing countries.

**Objectives:** To assess weaning patterns and outcomes of MV adult patients in the intensive care unit (ICU) at Muhimbili National Hospital (MNH).

**Methods:** A cross-sectional study was conducted among MV adult patients in the ICU at MNH from May 2025 to February 2026. The outcomes were weaning success, length of ICU stay, and mortality. The statistical analysis was done using chi-square tests or Fisher's exact test and multivariate modified Poisson regression.

**Results:** A total of 317 MV patients were assessed. Weaning success was 61.2%, with a median ICU stay of 4 (2-8) days and mortality of 41%. HIV-positive patients (APR = 1.71, p = 0.018) were significantly associated with a higher prevalence of weaning failure. Patients ventilated for less than 2 days (APR = 0.53, p = 0.006), patients ventilated for 2-7 days (APR = 0.55, p = 0.004), and patients weaned using a T-piece (APR = 0.48, p = 0.003) were significantly associated with a lower prevalence of weaning failure.

**Conclusion:** The T-piece was the most commonly used weaning strategy and showed higher success rates than other methods. HIV infection was associated with a higher prevalence of weaning failure, while shorter ventilation duration and T-piece weaning strategy had a lower prevalence of failure.

**Recommendation:** Implementation of standardised weaning protocols with daily readiness assessment and individualised weaning strategies. Institutionally, ICU-specific guidelines and staff training should be strengthened. Further multicentre, prospective, and interventional studies are needed to evaluate protocolized and advanced weaning methods and assess long-term patient outcomes.

### **38. Title: Diagnostic Performance of Point of Care Creatinine Test in Identifying Kidney Dysfunction among Nephrology Patients**

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**Presenter:** Beatrice Ronald Ngowi

**Authors:** Beatrice Ronald Ngowi

**Background:** Chronic kidney disease (CKD) poses a significant global health burden, particularly in low-resource settings where early detection remains a challenge. Conventional laboratory methods for assessing renal function, such as serum creatinine measurement, often face limitations related to infrastructure, cost, and turnaround time. The Nova StatSensor® point-of-care (POC) creatinine testing device offers the potential for rapid, decentralised assessment, facilitating timely diagnosis and intervention.

**Objectives:** This study aimed to evaluate the diagnostic accuracy of the Nova StatSensor® POC creatinine device in detecting kidney dysfunction.

**Methods:** A cross-sectional diagnostic accuracy study was conducted from April to September 2025, enrolling 122 adult patients attending the MNH nephrology clinic. Each participant underwent simultaneous POC creatinine measurement using the Nova StatSensor® device and standard laboratory serum creatinine testing. Data collected included demographic and clinical characteristics. The diagnostic performance of the POC device was assessed and the agreement between the two methods was established.

**Results:** Participants had a mean age of  $51 \pm 16$  years, with 59% being male. 65.6% had eGFR below  $60\text{-mL}/\text{min}/1.73\text{ m}^2$ , indicating prevalent kidney impairment. The Nova StatSensor® device demonstrated a sensitivity of 96.3% and a specificity of 81.0% in detecting CKD. The ROC curve showed excellent discriminative ability with an area under the curve (AUC) of 0.886 (95% CI: 0.811-0.960). The correlation between POC and laboratory creatinine measurements was strong ( $R^2 = [0.796]$ ,  $p < 0.001$ ), with a Cohen's kappa of 0.794

**Conclusion:** The Nova StatSensor POC creatinine device demonstrated excellent diagnostic performance in detecting kidney dysfunction at Muhimbili National Hospital. It showed high sensitivity, specificity, and overall accuracy, with strong discriminatory ability on ROC

analysis. Although it slightly underestimates creatinine levels, the difference is not statistically significant and remains clinically acceptable, supporting its reliability as a screening tool in practice.

**Recommendation:** Its rapid, reliable results support its utility as a screening tool in resource-limited environments, enabling earlier diagnosis and ultimately improving patient outcomes. These findings support the WHO's recommendation for the use of rapid, reliable POC diagnostic tools to expand access and improve early detection of CKD in underserved populations. Implementing such devices could facilitate timely intervention and reduce healthcare costs.

### **39. Title: Circulating Tumour DNA, EBV-Derived Markers, and Survival in Children and Young Adults with Hodgkin Lymphoma**

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**Presenter:** Clara Chamba

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**Background:** Hodgkin lymphoma (HL) is frequently associated with Epstein-Barr virus (EBV), particularly in low- and middle-income settings where EBV-positive disease is more prevalent. Circulating tumour DNA (ctDNA) and EBV-derived plasma DNA have emerged as minimally invasive biomarkers with diagnostic and prognostic potential. In addition, fragmentomic features of cell-free DNA (cfDNA) may reflect tumour biology and host-tumour interactions. However, the prognostic significance of these circulating molecular characteristics in real-world HL cohorts remains unclear.

**Objectives:** To evaluate the association of ctDNA and EBV DNA characteristics with survival outcomes in patients with newly diagnosed Hodgkin lymphoma

**Methods:** Fifty patients with newly diagnosed HL were prospectively enrolled. Plasma cfDNA was analysed for EBV-derived markers, cfDNA and EBV DNA fragmentomics, and mutation-derived measures. Overall survival (OS) and event-free survival (EFS) were assessed using Kaplan-Meier methods, with landmark survival probabilities calculated at 6 and 12 months. Associations between molecular markers, clinical variables, and survival outcomes were evaluated using univariate Cox proportional hazards models.

**Results:** Median follow-up was 74.7 weeks, during which 7 deaths and 18 EFS events occurred. Six- and 12-month OS were 93.8% and 86.1%, respectively. Corresponding EFS rates were 81.6% at 6 months and 64.0% at 12 months. In univariate Cox analysis for EFS, elevated lactate dehydrogenase and a higher EBV fragment size ratio, reflecting the relative abundance of 180-200 bp EBV DNA fragments, were associated with inferior event-free survival. All other markers were not significantly associated with survival.

**Conclusion:** Assessment of the tumour mutation profile, EBV DNA quantification, and fragmentomic patterns using cfDNA is feasible in this setting and provides insight into the underlying biology of HL. EBV fragmentomics may provide additional insight beyond

quantitative markers. Larger longitudinal studies are needed to define the role of circulating molecular markers in risk stratification and disease monitoring.

**Recommendation:** Future studies should include larger, multicentre cohorts with longitudinal sampling to evaluate changes in ctDNA, EBV-derived markers, and fragmentomic features during treatment and follow-up. Broader genomic profiling and validation of clinically relevant EBV thresholds are also needed to determine the utility of circulating molecular biomarkers for risk stratification, response assessment, and disease monitoring.

#### **40. Title:** Prevalence and Associated Factors of Ilds Diagnosed by HRCT for Patients Attending Pulmonology Clinic

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**Presenter:** Shabir Rashid Mhando

**Authors:** Shabir Rashid Mhando

**Background:** Interstitial lung disease encompasses a heterogeneous group of pulmonary disorders marked by diffuse infiltrates, progressive fibrosis, and impaired respiratory function. It contributes significantly to global morbidity and mortality. High-resolution computed tomography (HRCT) has improved ILD diagnosis by providing detailed imaging for accurate, noninvasive classification of disease patterns. In low-resource settings like Tanzania, ILD is often underdiagnosed due to a focus on diseases such as tuberculosis and pneumonia.

**Objectives:** This study aimed to determine the prevalence of ILD among patients attending the pulmonology clinic at Muhimbili National Hospital, Tanzania,

**Methods:** A cross-sectional descriptive study was conducted over six months among patients undergoing HRCT scans at Muhimbili National Hospital's pulmonology unit. Data were collected through structured interviews on socio-demographics, occupational exposure, comorbidities, symptoms, and exposure history. Expert radiologists and pulmonologists interpreted HRCT scans to confirm ILD and classify subtypes. Data analysis using SPSS version 23 included descriptive statistics, Chi-square tests, and multivariate logistic regression.

**Results:** Among 190 patients, the prevalence of HRCT-confirmed ILD was 14%. Hypersensitivity pneumonitis was most common, followed by usual interstitial pneumonia and non-specific interstitial pneumonia. Occupational exposure to dust, fumes, or chemicals was the strongest independent predictor, increasing odds nearly fivefold (AOR: 4.97; 95% CI: 1.94-12.74;  $p < 0.001$ ). Other factors, including age, sex, smoking history, prior respiratory illness, and biomass fuel use, showed no significant association in multivariate analysis ( $p > 0.05$ ).

**Conclusion:** This study found a 14.8% prevalence of HRCT-confirmed interstitial lung disease (ILD) among patients at the pulmonology clinic of Muhimbili National Hospital. Although ILD subtypes were not a primary objective, hypersensitivity pneumonitis was most common, followed by usual interstitial pneumonia and non-specific interstitial pneumonia. Occupational exposure was the strongest independent risk factor for ILD, with nearly fivefold higher odds (aOR)

**Recommendation:** These findings underscore the importance of enhancing access to HRCT imaging and strengthening occupational health policies to reduce inhalational hazards. Furthermore, increasing awareness and integrating ILD screening into routine respiratory care could facilitate early diagnosis and improve patient outcomes. Our results contribute valuable

epidemiological data to guide targeted interventions and resource allocation within similar settings.

#### **41. Title: Prevalence and Risk Factors of Acute Respiratory Infection Symptoms among Under-Fives in Tanzania**

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**Presenter:** Henry Mwalongo

**Authors:** Henry Mwalongo, Pancras Luoga, Simon Mamuya

**Background:** Tanzania's urban regions are quickly developing, and solid fuels remain the primary source of household energy. Despite this, there is a lack of nationally representative data linking household air quality indicators to caregiver-reported acute respiratory infection (ARI) symptoms in children under the age of five.

**Objectives:** Assessment of the prevalence of ARI symptoms and their correlations with mother, child, household, environmental, seasonal, and geographic factors.

**Methods:** We performed a cross-sectional study utilising data from the 2022 Tanzania Demographic and Health Survey. The analytic sample comprised 2,982 urban children aged 0 to 59 months. The results were caregiver-reported ARI symptoms within the previous two weeks, defined as coughing followed by short, fast breaths in the chest. The exposures included sociodemographic and household variables. Survey weights, grouping, and stratification were used, yielding a design effect of 1.490.

**Results:** The weighted prevalence of ARI symptoms was 3.3% (100 of 2,982 kids). In adjusted models, most household-level air quality indicators (fuel type, indoor smoking, kitchen location, wall material), child-level covariates (age, gender, nutritional status), maternal education, household income, crowding, and season had no independent association with ARI. The geographic zone was the sole constant predictor. Children in the Northern (adjusted odds ratio 15.4, 95% confidence interval 3.02-78.07), Lake (13.5, 95% confidence interval 2.91-62.54), and Eastern (17.0, 95% confidence interval 3.58-80.42).

**Conclusion:** ARI symptoms were infrequent among Tanzanian urban children under five. After controlling for household and child variables, the geographic zone remained the best predictor. These findings emphasise the importance of regionally targeted surveillance, improved exposure quantification, and objective clinical outcome assessment. They also highlight the limits of proxy indicators and uncommon outcomes in cross-sectional survey data.

**Recommendation:** ARI symptoms among urban Tanzanian under-fives were rare (3.3%). Household and child-level factors showed no independent associations, while geographic zone remained the strongest predictor. Findings highlight the need for regionally targeted surveillance, improved exposure measurement, and objective outcome assessment, underscoring limitations of proxy indicators in cross-sectional survey data.

#### **42. Title: Genotyping of CYP2D6 Alleles in Tanzanian Breast Cancer Patients Using Oxford Nanopore: A Pilot Study**

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**Presenter:** Justice D. Kasindo

**Authors:** Justice D. Kasindo, Mohamed Zahir, Florence Urio, Abdilahi Kiula, Christina V. Malichewe, Emmanuel Josephat Seukiwa

**Background:** The CYP2D6 gene encodes the CYP2D6 enzyme, which catalyses the metabolism of more than 25% of clinically used drugs. Reduced-function CYP2D6 alleles are associated with poor breast cancer clinical outcomes during therapies. The majority of pharmacogenetic models are based on Asian and Caucasian cohorts, often overlooking African communities' distinct genetic makeup. This study gives a preliminary distribution and investigation of CYP2D6 alleles in Tanzanian breast cancer patients.

**Objectives:** To genotype CYP2D6 alleles in Tanzanian breast cancer patients using Oxford Nanopore

**Methods:** The Ocean Road Cancer Institute (ORCI) in Tanzania was the study site for this descriptive cross-sectional investigation. Convenience non-probability sampling was used in the study. 60 ORCI breast cancer patients were recruited; 24 were genotyped. PCR analysis and Oxford Nanopore sequencing were performed in the Haematology Clinical Research Laboratory at MUHAS. Statistical and bioinformatics techniques were used to investigate genetic and patients' characteristics.

**Results:** CYP2D6\*1, \*2, \*4C, \*10, \*17, \*27, \*32, \*39, \*43, \*45, \*84, \*132, and \*162, were 9 (18.8%), 9 (18.8%), 1 (2.1%), 4 (8.3%), 10 (28.8%), 3 (6.2%), 1 (2.1%), 2 (4.2%), 3 (6.2%), 3 (6.2%), 1 (2.1%), 1 (2.1%), and 1 (2.1%) respectively. Normal, intermediate, unclassified, and non-function CYP2D6 alleles were 26 (54.17%), 14 (29.17%), 7 (14.58%), and 1 (2.08%), respectively. Normal, intermediate, and unknown metabolizers were 14 (58.33%), 3 (12.5%), and 7 (29.17%).

**Conclusion:** Preliminary findings indicate that low-cost Oxford Nanopore genotyping can accurately identify CYP2D6 alleles in Tanzania. Reduced and unclassified CYP2D6 alleles are at a high frequency in Tanzanian breast cancer patients; these alleles can give poor clinical outcomes during breast cancer treatment in Tanzania.

**Recommendation:** Identifying CYP2D6 alleles in breast cancer patients should be considered for breast cancer medication in Tanzania. Integrating Oxford Nanopore in breast cancer medication by genotyping CYP2D6 alleles can be crucial to lowering breast cancer recurrences and chemotherapy drug reaction expenses.

#### **43. Title:** Post-Stroke Cognitive Impairment among Stroke Survivors at Mloganzila Hospital, Tanzania: Prevalence and Associated Factors

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**Presenter:** Mahmoud Idrisa Abeid

**Authors:** Mahmoud Idrisa Abeid, Basil Tumaini, Brighton Mushengezi

**Background:** Post-stroke cognitive impairment (PSCI) is a frequent but under-recognised consequence of stroke, limiting rehabilitation, independence, and quality of life. In Tanzania, local data to guide routine cognitive screening and post-stroke care remain scarce

**Objectives:** To determine the prevalence and factors associated with PSCI among stroke survivors attending follow-up clinics at Mloganzila Hospital, Dar es

**Methods:** A hospital-based cross-sectional study was conducted from August to December 2025 among stroke survivors attending follow-up clinics. Cognitive function was assessed using the Kiswahili Montreal Cognitive Assessment (K-MoCA), with PSCI defined as a K-MoCA score  $\leq 20$  in participants without clinically significant depression on PHQ-9. Disability was assessed using the modified Rankin Scale. Sociodemographic, lifestyle, rehabilitation-related, and clinical factors were analysed using chi-square tests and modified Poisson regression to estimate aPRs.

**Results:** Among 415 stroke survivors attending follow-up clinics, 350 were analysed. Mean age was  $61.3 \pm 10.8$  years, and 52.3% were male. Ischaemic stroke accounted for 64.6% of cases, while hypertension was the commonest comorbidity (94.9%). The prevalence of post-stroke cognitive impairment (PSCI) was 42.6%. PSCI was significantly more common among survivors with recurrent stroke and right-handedness. Multivariable analysis showed recurrent stroke and right-handedness were independently associated with PSCI.

**Conclusion:** PSCI affected more than two in five stroke survivors receiving follow-up care at Mloganzila Hospital. The strong association with recurrent stroke highlights an actionable opportunity for reducing cognitive morbidity through intensified secondary stroke prevention.

**Recommendation:** Routine cognitive screening with locally validated tools should be integrated into post-stroke follow-up care, and longitudinal studies are needed to define cognitive trajectories and clarify the observed association with handedness.

#### **44. Title: Cross-Sectional Study Evaluating Chest Radiography for Detecting Aortic Arch Atherosclerosis among Adults at JKCI, 2024-2025**

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**Presenter:** James Mwakaheya -

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**Background:** Aortic arch atherosclerosis is an important marker of cardiovascular disease. Computed tomography (CT) is the reference standard for detecting vascular calcification, but chest radiography is more accessible in resource-limited settings.

**Objectives:** To determine the diagnostic accuracy of chest radiography in detecting aortic arch atherosclerosis among adults at the Jakaya Kikwete.

**Methods:** A hospital-based cross-sectional study with both descriptive and analytical components was conducted among 185 adults who underwent both chest X-ray and CT between 2024 and 2025. Chest X-ray findings were compared with CT findings as the reference standard. Logistic regression was used to identify factors associated with aortic arch calcification. Diagnostic performance was assessed using sensitivity, specificity, predictive values, likelihood ratios, and area under the receiver operating characteristic curve (AUC).

**Results:** The median age was 65 years (IQR: 50-73), and 58.9% were female. CT detected aortic arch calcification in 48.1% of participants, while chest X-ray detected calcification in 33.5%. Chest X-ray demonstrated sensitivity of 59.6% (95% CI: 48.6-69.8%) and specificity of 90.6% (95% CI: 82.9-95.6%), with an AUC of 0.75 (95% CI: 0.69-0.81). The positive and negative predictive values were 85.5% and 70.7%, respectively. Increasing age (AOR = 1.18, 95% CI: 1.12-1.24;  $p = 0.001$ ) and hypertension (AOR = 0.20,

**Conclusion:** Chest radiography demonstrated moderate diagnostic accuracy with high specificity for detecting aortic arch atherosclerosis and may serve as a useful preliminary screening tool in resource-limited settings where CT is not readily available.

**Recommendation:** Chest radiography should be routinely used to screen for aortic arch calcification, with CT for confirmation and quantification. Awareness and reporting of aortic arch calcification as a marker of systemic atherosclerosis should be strengthened. Control of cardiovascular risk factors and training in chest X-ray interpretation should be improved. Future multicentre, longitudinal, and AI-based studies are needed to improve prognostic evaluation.

#### **45. Title: Chest Radiographic Findings and Short-Term Outcomes in Adults with Severe Traumatic Brain Injury at MOI**

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**Presenter:** Mboje Lyeselo Maduhu

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**Background:** Severe traumatic brain injury (STBI) is a major cause of mortality worldwide, particularly in low- and middle-income countries where road traffic crashes predominate. Thoracic injuries are common in STBI and may worsen outcomes through respiratory compromise, but their prognostic value remains underexplored in Tanzania.

**Objectives:** To determine chest radiographic findings and short-term outcomes of adults with STBI at MOI from January 2025 to March 2026

**Methods:** A hospital-based retrospective cross-sectional study was conducted at MOI. A total of 120 adults with STBI were reviewed between January 2025 and March 2026. Data were extracted from medical records via e-Medical and PACS. Chest radiographs were reviewed. Outcomes at 6 weeks' observation included mortality, neurological outcome, ICU length of stay, and hospital length of stay. Analysis was performed using SPSS version 27. Chi-square test and multivariable logistic regression were applied ( $P < 0.05$ ).

**Results:** Most patients were male (90%) with a median age of 32 years. Road traffic crashes accounted for 87%. Brain oedema and cerebral contusions were common CT findings. Abnormal chest radiographs occurred in 43%, mainly pulmonary contusions. Mortality was 27%, while 38% had poor neurological outcomes. Abnormal chest radiographs were significantly associated with increased mortality and poor neurological outcomes and independently predicted both outcomes. No significant association was found with ICU or overall hospital stay duration.

**Conclusion:** Chest radiographic abnormalities are strong predictors of mortality and poor neurological outcome in STBI. Early chest imaging should be routine in STBI assessment to improve prognostic evaluation and management.

**Recommendation:** Prospective longitudinal studies should be conducted to better establish causal relationships and assess long-term outcomes among patients with severe traumatic brain injury. Chest radiographs of trauma patients should routinely be reviewed and formally reported by consultant radiologists to improve diagnostic accuracy.

**46. Title:** Role of MRI Knosp Classification in Assessing Cavernous Sinus Invasion by Pituitary Macroadenoma at MOI

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**Background:** Pituitary macroadenomas are benign pituitary tumours measuring  $\geq 10$  mm that may compress nearby structures, causing headaches, visual disturbances from optic chiasm compression, and hormonal imbalances due to hormone excess or pituitary dysfunction. Radiologically, the MRI-based Knosp-Steiner classification evaluates cavernous sinus invasion by assessing the tumour's relationship to the internal carotid artery. It grades extension from no invasion to complete arterial encasement, helping predict surgical difficulty, outcomes, and guiding operative planning.

**Objectives:** To determine the role of MRI Knosp-Steiner classification in assessing cavernous sinus invasion by pituitary macroadenoma among patients attended.

**Methods:** A cross-sectional study at MOI reviewed patients with pituitary macroadenoma from January 2022 to March 2026 using medical records and PACS data. MRI-based Knosp grades (0-4) assessed cavernous sinus invasion by evaluating tumour relationship to the intracavernous internal carotid artery. Sociodemographic, clinical, and MRI findings were recorded. Data were analysed using STATA 17 with descriptive statistics and Fisher's exact test to assess associations; statistical significance set at  $p \leq 0.05$ .

**Results:** Among 46 patients with pituitary macroadenoma, the mean age was  $49.8 \pm 12.0$  years, with 52.2% aged 41-60 years. Males constituted 52.2%, Mean tumour size was  $3.3 \pm 1.6$  cm, most tumours measuring  $>2-5$  cm. Visual disturbance occurred in all patients, followed by headache (87.0%) and loss of vision (69.6%). Knosp grade 0 was most common (41.3%), while advanced grades 3-4 were more frequent in females. Sex was significantly associated with Knosp grade ( $p=0.039$ ), unlike age, headache and loss of vision.

**Conclusion:** MRI Knosp-Steiner classification was important for assessing cavernous sinus invasion in pituitary macroadenoma patients at MOI. Visual disturbance, headache, and loss of vision were the main clinical presentations. Knosp grade 0 was the most common; many patients had advanced grades, indicating invasion. Female sex was significantly associated with higher KNOSP grades. The classification helps radiological evaluation, invasiveness, and preoperative surgical planning.

**Recommendation:** Routine MRI evaluation using the Knosp classification should be incorporated into radiological reporting of pituitary macroadenomas for assessment of cavernous sinus invasion and surgical planning. Neuroimaging is recommended for patients with persistent headaches and visual disturbances. Larger multicentre and prospective studies are needed to validate sex-related KNOSP differences, assess long-term outcomes, and correlate MRI findings with histopathological and intraoperative results.

**47. Title:** An Integrated Community-Based Approach to Strengthening Blood Donation and Sickle Cell Disease Awareness in Tanzania

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**Background:** Blood transfusion is a keystone for the management of Sickle Cell Disease (SCD), a major public health challenge in sub-Saharan Africa. Despite this, there is a persistent shortage of voluntary blood donors, affecting access to lifesaving transfusions in SCD patients. Also, SCD awareness is limited, leading to delayed care, stigma, and inadequate health system support. Addressing these gaps is essential for improving both immediate patient outcomes and long-term disease control.

**Objectives:** To Strengthening Voluntary Blood Donation and Sickle Cell Disease Awareness in Tanzania

**Methods:** Between 2021 and 2025, an integrated community-based model was implemented in Tanzania linking voluntary blood donation with structured SCD awareness and, subsequently, point-of-care genotype screening. The approach leveraged community platforms and incorporated digital donor registration to enhance coordination and sustainability.

**Results:** Over the implementation period, 96 community-based campaigns were conducted, resulting in the collection of 5,083 blood units, with a steady increase in annual collections and improved efficiency in units collected per event. SCD awareness activities reached 22,405 individuals. In 2025, screening was introduced at selected sites, with 811 individuals tested, demonstrating the feasibility of integrating diagnostic services into outreach platforms.

**Conclusion:** Integrating blood donation with SCD awareness and screening is feasible and can strengthen both the blood supply and community engagement. This approach offers a scalable model for addressing interconnected haematology challenges in high-burden settings.

**Recommendation:** National Blood Transfusion Services and key stakeholders should integrate disease-specific education, particularly on SCD, into routine blood donation campaigns. Embedding targeted awareness messages within donor mobilisation activities can strengthen public understanding, reduce stigma, and enhance early care-seeking. This approach leverages existing outreach platforms to simultaneously improve donor recruitment and advance national SCD awareness efforts.

#### **48. Title: Maternal Intimate Partner Violence and Under-Five Undernutrition: Analysis of the 2022 Tanzania Demographic Health Survey**

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**Background:** Undernutrition (stunting, wasting, and underweight) among children under five has remained pervasive for decades in Tanzania. Several studies have established an association between Intimate partner violence (IPV) and undernutrition elsewhere; however, the results are inconsistent, and little is known in a Tanzanian context. Understanding the association between IPV and undernutrition in Tanzania is important to inform the development of integrated IPV and undernutrition services in the country.

**Objectives:** We determined co-occurring forms of undernutrition and the association between maternal exposure to IPV and undernutrition among under-fives in Tanzania.

**Methods:** We analysed secondary data of 2,756 mother-child dyads from the 2022 Tanzania Demographic Health Survey. Weights were integrated to adjust for the survey design. Descriptive statistics were summarised using unweighted frequency and weighted proportions. Differences in maternal and child demographic characteristics by IPV exposure status were examined using the Rao-Scott chi-square test. Multivariable Poisson regression, controlling for maternal sociodemographic factors, was conducted to assess the association between IPV and undernutrition.

**Results:** Median ages (IQR) of women and children were 29 (24, 35) years and 20 (10-33) months, respectively. Overall, 30.96% of children experienced at least one form of undernutrition, while 36.29% of women reported exposure to at least one form of IPV. Stunting was the most prevalent form of undernutrition, commonly co-occurring with underweight. Maternal exposure to at least one IPV form was significantly associated with lower prevalence of undernutrition among under-five children (aPR: 0.84, 95% CI: 0.73-0.98; P=0.022)

**Conclusion:** The prevalence of undernutrition and IPV is high. In contrast to our hypothesis, we observed a negative association between IPV and undernutrition. This suggests that women experience IPV and provide adequate nutrition to their children despite the violence they endure. It is also possible that undernutrition results from an interaction between IPV and other factors rather than IPV alone.

**Recommendation:** We recommend extensive evaluation and monitoring of nutritional interventions. In addition, these interventions should prioritise children experiencing multiple forms of undernutrition. Strategies to increase awareness, prevention, and response to intimate partner violence (IPV) should also be strengthened.

#### **49. Title: Call for Innovation in Care: High Multimorbidity Burden among Chronic Kidney Disease Patients at MNH**

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**Background:** Chronic kidney disease (CKD) is a major public health problem globally and is frequently associated with multi-morbidity, complicating management, worsening clinical outcomes and inflicting heavy financial burdens on already strained healthcare systems and communities. In Tanzania, limited data exist regarding the burden and functional impact of multi-morbidity among CKD patients, hindering efforts to innovate care strategies that address this problem. This study was designed to fill this gap.

**Objectives:** To determine the prevalence, severity, associated factors, and functional impact of multi-morbidity among CKD patients attending the Nephrology clinic at MNH.

**Methods:** A hospital-based cross-sectional study was conducted among 297 adult CKD patients attending the MNH Nephrology clinic between April and September 2025. Data were collected using structured questionnaires and clinical record reviews. Multi-morbidity was assessed using the Charlson Comorbidity Index (CCI) and functional status using the Eastern Cooperative Oncology Group (ECOG) scale. Descriptive statistics summarised participant characteristics.

Modified Poisson regression determined factors associated with multi-morbidity and poor functional status and  $p < 0.05$  denoted statistical significance.

**Results:** Participants' median age was 61 years (IQR 51-70), 57.6% being male. Almost three-quarters (74.1%) had advanced (stage 4-5) CKD and 51.9% were taking  $\geq 5$  medications. Multi-morbidity was 76.4% prevalent, and 82.2% had moderate-to-severe multi-morbidity (median CCI score: 4; IQR 3-6). Participants aged  $\geq 65$  years had a 32% higher prevalence (aPR 1.32; 95% CI 1.03-1.68;  $p = 0.032$ ) compared to those 19-34. Moderate-to-severe multi-morbidity was independently associated with poor functional status (aPR 2.08; 95% CI 1.27-3.40;  $p = 0.004$ ).

**Conclusion:** Multi-morbidity is highly prevalent among CKD patients attending the Nephrology clinic at MNH, with more than three-quarters having two or more chronic conditions on top of CKD. These overlapping conditions complicate clinical care, as reflected in the high level of polypharmacy. Older age is independently associated with multimorbidity, and moderate-to-severe multimorbidity is associated with poor functional status.

**Recommendation:** Routine assessment of comorbidity burden and functional status using standardised tools such as the CCI and ECOG scales should be integrated into CKD care to inform risk stratification and comprehensive care. Innovative approaches are urgently needed to prevent and integrate the care of these multiple comorbidities, minimise their social and financial impact, and ensure the resilience and sustainability of healthcare services.

## **50. Title: Socioeconomic Determinants of Minimum Dietary Diversity among Women of Reproductive Age in Tanzania**

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**Background:** Minimum dietary diversity (MDD) is a key indicator of diet quality among women of reproductive age (15-49 years), yet remains low in Tanzania amid persistent micronutrient deficiencies and ongoing nutrition transition. Micronutrient deficiencies, such as anaemia affecting 57% of pregnant women, significantly threaten maternal and child health, worsened by socioeconomic challenges, food insecurity, and a shift toward processed foods.

**Objectives:** To explore the socioeconomic and geographic factors shaping MDD among women of reproductive age in Tanzania

**Methods:** We analysed data from 15,254 women in the 2022 Tanzania Demographic and Health Survey and the Malaria Indicator Survey 2022. MDD was defined as consumption of  $\geq 5$  out of 10 food groups in the previous 24 hours. Modified Poisson regression was used to identify factors associated with MDD.

**Results:** Higher MDD was significantly associated with greater wealth, higher education, employment, media exposure, health service use, and health insurance coverage. After adjustment, other factors remained strong predictors, while urban-rural differences were less pronounced.

**Conclusion:** Socioeconomic inequalities are key drivers of dietary diversity; targeted interventions are needed to improve access to diverse, nutrient-rich diets, particularly among poorer and less-educated women, while addressing the challenges of the ongoing nutrition transition

**Recommendation:** Targeted interventions such as nutrition education, economic empowerment, and media-driven awareness campaigns are needed to improve dietary diversity, reduce micronutrient deficiencies, and promote long-term health for women and their children.

## **51. Title:** Sickle Cell Disease Stigma and Health-Related Quality of Life among Adolescents and Young Adults with

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**Background:** Sickle cell disease (SCD) is a chronic condition that negatively affects well-being and quality of life through recurrent complications such as pain crises. Adolescents and young adults (AYAs) with SCD often face challenges managing the disease after transitioning from parent-dependent childhood care, which may reduce health-related quality of life (HRQoL). As life expectancy increases among this population, understanding the impact of SCD on stigma experiences and HRQoL becomes increasingly important.

**Objectives:** This study was conducted to assess the proportion of SCD stigma and its association with HRQoL among AYAs with SCD.

**Methods:** An analytical cross-sectional study was conducted among 504 adolescents and young adults with sickle cell disease attending selected clinics in Dar es Salaam. Participants were recruited through simple random sampling using the lottery method. Data were analysed using R version 4.2.1. Multiple linear regression assessed the association between SCD-related stigma and health-related quality of life, while bivariate analysis examined associations with socio-demographic and clinical characteristics. Statistical significance was set at  $p < 0.05$ .

**Results:** A total of 405 adolescents and young adults with sickle cell disease were included in the analysis, with a median age of 14 years (Q1-Q3: 12-18). The proportion of SCD stigma was 43.3%, while disclosure concerns and expected discrimination showed the highest median scores among stigma domains. Increased stigma was associated with a 0.1-unit reduction in health-related quality of life (95% CI: -0.14, -0.05). However, this association was no longer significant after adjusting for potential confounding variables.

**Conclusion:** SCD-related stigma among adolescents and young adults remains a concern. Although stigma was not significantly associated with health-related quality of life, factors such as SCD admissions, priapism, unemployment, and recent hospitalisation were linked to poorer quality of life. These findings highlight the need to integrate psychosocial support, including behavioural therapies and coping skills, into SCD care to improve overall well-being.

**Recommendation:** Future studies should be conducted at the community and rural levels, where access to healthcare is limited, to understand better how differences in social determinants of health between rural and urban settings influence SCD stigma and its relationship with HRQoL. Longitudinal study designs and regression analyses are also recommended to establish causal relationships between SCD stigma and HRQoL.

## **52. Title:** Prevalence of Depression Associated Factors and Its Impact on the QOL among People with Epilepsy

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**Background:** Depression is among the commonest neuropsychiatric comorbidities in people with Epilepsy (PWE) globally—the WHO and ILAE advocate for integrating mental health screening and management into routine epilepsy care. Local data on the prevalence of depression, associated factors, and its impact on the quality of life (QoL) among PWE is lacking.

**Objectives:** To determine the prevalence of depression, associated factors, and its impact on the quality of life among people with epilepsy

**Methods:** A hospital-based, cross-sectional study was conducted at MNH-Mloganzila's Neurology unit, over a period of 4 months. A structured questionnaire was used for data collection. The PHQ-9 tool and the EQ-5D-3L tool were used to assess depression and its impact on the quality of life. Data were analysed using descriptive statistics. Chi-square was used to calculate the association between categorical and continuous variables, respectively. Ordinal logistic regression was used for multivariate analysis.

**Results:** A total of 358 participants were recruited, of whom 54.7% were female. Among the study participants, 44.1% had mild to severe depression. Factors associated with higher chances of depression were unemployment (aOR = 2.39), housewife status (aOR = 1.91), substance use (aOR = 2.31), and stigma (aOR = 2.86). Clinical improvement (with AED) was found to be protective (aOR = 0.32) by 68%. Quality of life declined with increasing level of depression severity, and the association was statistically significant.

**Conclusion:** Depression was common among PWE and significantly affected the quality of life. It is important to incorporate routine mental health screening and targeted psychosocial interventions into epilepsy management to improve overall patient outcomes.

**Recommendation:** Patients with epilepsy who attend a neurology unit (either outpatient or inpatient), especially those with poor seizure control or coexisting conditions like trauma, should be routinely screened for the risk of depression using simple tools like the PHQ- 9 questionnaire. Patients identified as being at high risk for depression through screening should be referred for management of depression.

## **53. Title:** Factors Associated with Overall Survival among Vulvar Cancer Patients at ORCI, Tanzania, 2019-2023

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**Background:** Vulvar cancer is a rare gynaecological malignancy worldwide, but still remains an important public health concern because it is frequently diagnosed at advanced stages in Sub-Saharan Africa. Despite the burden, limited local data exist regarding clinicopathological characteristics and treatment outcomes in Tanzania. This study aims to bridge the knowledge

gap by Assing factors associated with overall survival among vulvar cancer patients treated at ORCI between 2019 and 2023.

**Objectives:** To determine factors associated with overall survival among vulvar cancer patients treated at ORCI from January 2019 to December 2023

**Methods:** A hospital-based retrospective cohort study was conducted at ORCI involving patients with histologically confirmed vulvar cancer. Data were obtained from hospital records and follow-up calls using structured case report forms. Descriptive statistics summarised the clinicopathological characteristics. Kaplan-Meier analysis estimated overall survival, while Cox proportional hazards regression identified associated factors using SPSS version 27

**Results:** A total of 184 patients with histologically confirmed vulvar cancer were assessed. Most patients presented with advanced disease, prolonged symptom duration, and high HIV prevalence. Squamous cell carcinoma accounted for 93.5% of tumours. Median overall survival was 2.73 years (95% CI: 1.91-3.55). Patients receiving multimodal treatment demonstrated significantly improved survival compared with those without multimodal therapy (Adjusted Hazard Ratio: 4.31; 95% CI: 1.71-10.86;  $p=0.002$ ). No other variables retained statistical significance after adjustment analysis.

**Conclusion:** Overall survival among vulvar cancer patients at ORCI was poor. Multimodal treatment was the only independent factor significantly associated with improved overall survival. These findings highlight the importance of strengthening comprehensive treatment approaches, promoting earlier diagnosis, and improving access to Oncology care to enhance patient outcomes in Tanzania.

**Recommendation:** Efforts should focus on early detection, timely referral, and access to multimodal treatment of vulvar cancer patients. Strengthening oncology services, increasing public awareness of early symptoms, and enhancing multidisciplinary cancer care may improve survival outcomes. Furthermore, multicentre studies with larger sample sizes are recommended to provide nationally representative data and guide evidence-based management strategies in Tanzania.

#### **54. Title: Computed Tomography Patterns of Metastatic Cervical Lymph Nodes among Patients with Head and Neck Cancers**

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**Background:** Head and neck cancers have demonstrated an upward trend globally, largely attributed to the rise of risk factors such as alcohol consumption, smoking and recently human papilloma virus infection. The presence of cervical metastatic lymph nodes is considered an important prognostic factor in patients with head and neck cancers. The pattern of metastatic nodes may aid in predicting the primary tumour site and contribute to accurate staging and management planning.

**Objectives:** To determine CT patterns of metastatic cervical lymph nodes and associations with tumour clinicopathological characteristics in head and neck cancers.

**Methods:** A retrospective study at Muhimbili National Hospital involved 154 patients with histologically confirmed head and neck cancers who underwent CT scans. Data on sociodemographic characteristics, clinical presentation, tumour histology, site, stage, and cervical lymph nodes metastasis were retrieved from hospital records and CT scans using structured questionnaires. The association between tumour characteristics and the metastatic cervical nodal patterns was analysed using the chi-square test or Fisher's exact test.

**Results:** Most patients were male (68.2%) with a mean age of 55.98 years. Laryngeal cancer was the commonest primary tumour site (27.9%), and squamous cell carcinoma predominated. Advanced disease was frequent, with 61% presenting at the T4 stage. Cervical nodal metastasis occurred in 56.5%, mainly involving level II nodes, particularly in nasopharyngeal, oropharyngeal, and laryngeal cancers. Nodal distribution varied significantly by tumour site ( $p \leq 0.001$ ) and stage ( $p = 0.001$ ). Nasopharyngeal tumours showed the highest nodal positivity, while laryngeal tumours had the lowest.

**Conclusion:** Patterns of cervical nodal metastasis in head and neck cancers varied according to primary tumour site and stage. Level II lymph nodes were the most frequently involved, particularly in nasopharyngeal, oropharyngeal, and laryngeal cancers. Advanced tumour stage was significantly associated with higher nodal stage, highlighting the importance of early diagnosis and accurate radiological nodal assessment in disease staging and management.

**Recommendation:** Institutional protocols for the management of patients with head and neck cancers should be established, with an emphasis on cross-sectional imaging and routine HPV and EBV testing to ensure accurate staging, prognostication, and appropriate treatment based on the extent of disease burden.

## **55. Title: The Validation of Experienced Drug Use Stigma Measures among People WHO Use Drugs in Tanzania**

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**Background:** Contextually evaluated measures for assessing experienced drug use stigma among people who use drugs (PWUD) in sub-Saharan Africa are limited, although PWUD experience a high burden of drug use stigma.

**Objectives:** We assessed the structural validity and internal consistency of adapted experienced drug use stigma measures for family/community and health-care settings.

**Methods:** We conducted a cross-sectional study among 250 PWUD recruited in Dar es Salaam, Tanzania. We evaluated the measures' structural validity using exploratory factor analysis and one-factor confirmatory factor analysis, estimated internal consistency using Cronbach's alpha and omega, and assessed hypothesis-testing construct validity using bivariable associations with social support, depressive symptoms, and WHOQOL-BREF domains.

**Results:** Both the Experienced Drug Use Stigma Scale (EDUSS), assessing family/community stigma and the Experienced Drug Use Stigma Scale for Healthcare Settings (EDUSS-Health) had high internal consistency—alpha = 0.95 and alpha = 0.97, respectively. Participants (64.8%) reported that family members often avoided them, 75.3% reported that other people often

talked badly or gossiped about them, and 21.2% to 32.1% of eligible health-care users reported any stigma from health-care workers. Drug use stigma was associated with low social support and depression.

**Conclusion:** EDUSS and EDUSS-Health stigma scales showed high internal consistency among PWUD in Dar es Salaam. PWUD reported experiencing high drug use stigma from family members, community members, and healthcare workers.

**Recommendation:** EDUSS and EDUSS-Health stigma scales may be used in similar urban PWUD populations. Effective interventions are needed to address the high drug use stigma PWUD face from family members, community members, and healthcare workers.

## **56. Title: Perioperative Echocardiographic Profiles and Clinical Outcomes in Rheumatic Heart Disease at Jakaya Kikwete Cardiac Institute**

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**Background:** Rheumatic heart disease remains the primary leading cause of cardiovascular morbidity and mortality in developing nations, particularly within sub-Saharan Africa. It typically manifests with progressive valvular damage, most commonly affecting the mitral and aortic valves, presenting with debilitating symptoms of heart failure and arrhythmias. Although echocardiography is vital for diagnosing this condition, evidence demonstrating how valvular heart surgery dynamically alters longitudinal echocardiographic profiles in resource-limited operational settings remains critically sparse

**Objectives:** Assessed pre- and post-operative echocardiographic profiles and their implications on clinical outcomes among rheumatic heart disease patients at JKCI

**Methods:** A hospital-based, single-arm prospective cohort study was conducted at JKCI from September 2025 to May 2026. A total enumerative sampling technique consecutively enrolled ninety RHD patients listed for surgery. Serial echocardiograms were performed pre-operatively and at one and three months post-operatively by staff cardiologists using standardised institutional protocols. Longitudinal trajectories were modeled using descriptive statistics, Spearman's rank correlation, and Generalized Estimating Equations to evaluate quantitative changes across multiple clinical milestones

**Results:** Among ninety participants, 68.9% were aged forty or younger, and 66.7% were female. Advanced baseline clinical impairment was highly prevalent: 63.3% presented in NYHA Classes III/IV, the median left atrial diameter was 57 mm, and the median LVIDd was 50.9 mm. By month three, 78.9% achieved NYHA Class I status. Significant left-sided structural reverse remodeling occurred: median left atrial diameter fell to 50 mm and LVIDd to 46 mm. Conversely, median LVEF dipped to 52% at one month before recovering to 55%.

**Conclusion:** Valvular surgery at JKCI provides profound symptomatic relief and definitive left-sided structural reverse remodeling. However, early post-operative LVEF and TAPSE declines occur due to transient afterload mismatch and mechanical pericardial disruption. Pre-operative hypertension further delays left ventricular systolic function recovery over time, without significantly hindering geometric structural reverse remodeling, requiring specialized risk-stratification tailored directly to baseline clinical severity and profiles

**Recommendation:** Clinicians must implement strict post-operative blood pressure controls to safeguard left ventricular systolic recovery and optimize aggressive right ventricular protective strategies. Future institutional research protocols should extend clinical follow-up windows to twelve months to track long-term structural normalization. Furthermore, practicing clinical physicians must integrate tailored risk-stratification frameworks based on pre-operative comorbidity profiles to completely optimize patient clinical outcomes over time.

## **57. Title: Strengthening HIV Stigma Reduction Through Stakeholder Engagement: Experiences from the Expanded Total Facility Approach (Etfa)**

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**Background:** HIV-related stigma and discrimination in healthcare remain significant barriers to equitable access to prevention, treatment, and care services. The Expanded Total Facility Approach (eTFA) aims to reduce stigma among healthcare workers through facility-based interventions and integration into health and training systems. To support sustainability, eTFA project used structured stakeholder engagement in Tanzania, Ghana, and Zambia. This study describes the stakeholder engagement processes and their contribution to strengthening pre-service stigma-reduction education.

**Objectives:** To examine how stakeholder engagement supported integration of HIV stigma-reduction content into pre-service health professional education systems.

**Methods:** A descriptive implementation analysis (2024-2026) applied co-production and Good Participatory Practice principles. Stakeholder engagement groups were established in Tanzania, Ghana, and Zambia, involving Ministries of Health, training institutions, regulatory bodies, healthcare facilities, civil society, people living with HIV, and community representatives. Activities included consultative meetings, curriculum reviews, technical sessions, dissemination forums, monitoring visits, and cross-country exchanges. Meeting records, implementation reports, and curriculum review documents were analysed descriptively.

**Results:** Stakeholder engagement strengthened collaboration among health, education, regulatory, and community sectors in Tanzania, Ghana, and Zambia. Stakeholders supported the review and adaptation of HIV stigma-reduction training materials and implementation approaches. Engagement with academic institutions, professional councils, and Ministries of Health facilitated integration of stigma-reduction content into selected pre-service health professional curricula. Stakeholders also provided technical guidance on contextual adaptation, planning, and dissemination. Key lessons highlighted the importance of early engagement, inclusive community representation, regular feedback, and alignment with national priorities.

**Conclusion:** Structured stakeholder engagement promoted collaboration, shared learning, and integration of HIV stigma-reduction interventions within existing systems. Involvement of training institutions, regulatory bodies, health sector actors, and communities supported incorporation of stigma-reduction content into pre-service education. These experiences

demonstrate the value of participatory approaches in fostering ownership and strengthening integration of stigma-reduction initiatives within health professional training and service delivery systems.

**Recommendation:** Health ministries, training institutions, and regulatory bodies should institutionalize structured stakeholder engagement to support sustainable integration of HIV stigma-reduction content into pre-service and in-service training. Future initiatives should prioritize early and inclusive participation of affected communities, strengthen cross-sector collaboration, and align interventions with national health and education priorities to enhance ownership, relevance, and scale-up.

## **58. Title: Prevalence and Correlates of Non-Consensual Marriage among Adolescent Girls and Young Women in Tanzania**

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**Presenter:** Beatrice Maina

**Authors:** Beatrice Maina, Abbas Ismail, Grace Kayeke Chenya, Geoffrey Mchau, Alexander Kailembo

**Background:** Non-consensual marriage remains a major public health and human rights concern in Tanzania and other low and middle-income countries. It is linked to poor reproductive outcomes, intimate partner violence, and poor mental health among adolescent girls and young women (AGYW). Despite national efforts to end child marriage, evidence on non-consensual marriage remains limited. This study provides evidence to inform interventions and support progress toward Sustainable Development Goal 5 (Gender Equality)

**Objectives:** To determine the prevalence and correlates of non-consensual marriage among adolescent girls and young women (AGYW) aged 13-24 years.

**Methods:** We analysed data from the 2024 Tanzania Violence Against Children and Youth Survey, a nationally representative cross-sectional survey of youth aged 13-24 years. AGYW who responded to marriage practice questions were included. Non-consensual marriage was defined as a marriage arranged without choice or decided solely by the husband. Modified Poisson regression examined associations with residence, education, food insecurity, and age at marriage, reporting weighted adjusted prevalence ratios (aPR) and 95% confidence intervals

**Results:** Among 8,441 AGYW surveyed, 1,968 (23.3%) were ever married, and 1,967 responded to questions on non-consensual marriage. The prevalence of non-consensual marriage was 15.4% (95% CI: 12.2-19.4%). AGYW married before age 18 were twice as likely to report non-consensual marriage compared with those married at 18 years or older (aPR: 2.10; 95% CI: 1.28-3.44). AGYW with primary education had a higher prevalence than those with secondary or higher education (aPR: 1.84; 95% CI: 1.06-3.19). Residence and food insecurity were not significant.

**Conclusion:** Non-consensual marriage remains a significant challenge among AGYW in Tanzania, particularly among those married before 18 years and those with lower educational attainment. These findings show the continued vulnerability of young girls to limited autonomy in marital decisions. Addressing child marriage and improving access to education are essential steps toward empowering AGYW and promoting their rights, well-being, and informed decision-making

**Recommendation:** Multisectoral interventions focusing on the prevention of child marriage through legal protection, community awareness, and retention of girls in school may help reduce non-consensual marriage. Promoting secondary and higher education, life skills, reproductive health education, and decision-making autonomy among AGYW could further strengthen prevention efforts. Community-based initiatives addressing harmful social norms and empowering girls may also contribute to reducing non-consensual marriage.

## **59. Title: Assessment of Health Workers' Competency, Resource Availability, and Barriers to Effective Management of Severe Acute**

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**Presenter:** Frida Mollet

**Authors:** Frida Mollet, Karim Manji Winnie White

**Background:** Severe Acute Malnutrition (SAM) remains a significant public health challenge in Tanzania, requiring competent health workers, adequate resources, and well-functioning health infrastructure for effective management. Understanding health workers' competency levels and the barriers and facilitators influencing SAM service delivery is essential for improving child survival and nutritional outcomes.

**Objectives:** This study will assess health workers' SAM competency, resource availability, and barriers and facilitators affecting effective management in Dodoma region.

**Methods:** A qualitative study will be conducted in 25 health facilities in Dodoma region using in-depth interviews with healthcare providers, including nurses, nutritionists, and clinical officers involved in SAM management. Interview guides will assess knowledge, skills, resource availability, infrastructure, and perceived barriers and facilitators. Data will be audio-recorded, transcribed verbatim, and analysed using thematic content analysis to identify key themes and patterns.

**Results:** Expected Results: The study will identify key competency gaps among health workers, critical shortages in essential resources and infrastructure, and contextual barriers that hinder effective SAM management in the Dodoma region. Findings will also highlight existing facilitators that can be leveraged to strengthen SAM services.

**Conclusion:** Understanding health workers' competency and the resource landscape for SAM management will provide evidence-based recommendations for strengthening health systems capacity, improving training programmes, and enhancing service delivery for children with severe acute malnutrition in Dodoma region.

**Recommendation:** Strengthen competency-based training and refresher courses for health workers on SAM management. Ensure consistent availability of therapeutic feeds, essential medicines, and anthropometric tools through improved supply systems. Upgrade facility infrastructure for quality care and referral services. Enhance supervision and mentorship systems. Integrate SAM services into routine primary healthcare, planning, and monitoring to improve service delivery and child nutrition outcomes.

## **60. Title:** Experiences of HIV Stigma from Family Members of People WHO Use Drugs in Tanzania

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**Presenter:** Linda B. Mlunde

**Authors:** Linda B. Mlunde, David P. Urassa, Lisa R. Hirschhorn, Candida Moshiro, Emily H. Ho, Jessie K. K. Mbwambo, Laura Nyblade

**Background:** HIV prevalence among people who use drugs (PWUD) through injection is twice as high as HIV prevalence in the general population in Dar es Salaam, Tanzania. One of the challenges of the efforts to reduce new HIV infections among PWUD is HIV stigma. Support from family could ameliorate this challenge, however families may also be a source of HIV stigma for PWUD. Limited evidence exists in Tanzania about family this.

**Objectives:** To describe the types of HIV stigma and support that PWUD living with HIV face from their family members

**Methods:** Between 2025 and 2026, we conducted in-depth interviews in Swahili with PWUD (n=9) living with HIV who were on methadone treatment and their family members (n=9). The interviews were audio recorded, transcribed and translated to English. We then developed a codebook to guide the coding process. Using Nvivo software we coded the transcript using a mix of deductive and inductive methods and conducted a thematic analysis.

**Results:** Family is a source of both HIV stigma and support to PWUD who are living with HIV. Family members isolate, reject, and despise their relatives who are using drugs as reported by one family member, “in some families

**Conclusion:** when they find out that someone has HIV

**Recommendation:** they isolate them”. Family HIV stigma has a negative impact to PWUD including negative psychological effects, fear of seeking HIV testing, and antiretroviral therapy. However, support from their families, improves their health.

## **61. Title:** Prevalence of Liver Fibrosis in Hepatitis B Patients Using Transient Elastography and Non-Invasive Tests

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**Presenter:** Naveeda Adam

**Authors:** Naveeda Adam, Herieth F. Hyera, Amunga Meda, Ewaldo Komba

**Background:** Liver fibrosis is the key determinant of treatment eligibility in chronic hepatitis B (CHB), but the diagnostic performance of the serum-based fibrosis indices recommended by the World Health Organisation. The AST-to-platelet ratio index (APRI) and the fibrosis-4 index (FIB-4) has not been formally evaluated in Tanzanian CHB populations. We assessed their accuracy against transient elastography (TE).

**Objectives:** To determine the prevalence of liver fibrosis and assess the diagnostic accuracy of APRI and FIB-4 against transient elastography

**Methods:** A hospital-based, cross-sectional diagnostic accuracy study was conducted over six months at the CHB clinic at MNH. Consecutive HBsAg-positive adults were enrolled. APRI and

FIB-4 were calculated from same-visit blood samples and compared against TE, with fibrosis defined as TE >7 kPa in line with the 2024 WHO guidelines. Sensitivity, specificity, predictive values, and the area under the ROC curve (AUC) were calculated with 95% confidence intervals. Modified Poisson

**Results:** Of 282 patients enrolled, 279 had complete data (median age 38 years; 65.6% male). The prevalence of TE-confirmed fibrosis was 30.5% (85/279). At the WHO cut-offs, APRI ( $\geq 0.5$ ) had a sensitivity of 58.8% (95% CI: 48.2-68.7), specificity of 60.8% (53.8-67.4), and AUC of 0.638 (0.565- 0.711). FIB-4 ( $\geq 1.45$ ) had a sensitivity of 47.1% (36.8-57.6), specificity of 63.4% (56.4-69.9), and AUC of 0.564 (0.489-0.638). APRI missed 41.2% and FIB-4 missed 52.9% of patients with confirmed fibrosis, and neither test reached the AUC

**Conclusion:** About one in three CHB patients at MNH has significant liver fibrosis. At the standard WHO cut-offs, neither APRI nor FIB-4 is sensitive enough to serve as a standalone screening tool, with both missing more than 40% of treatment-eligible patients. Transient elastography should remain the preferred fibrosis-staging tool where available, while APRI is the better serum-based alternative in lower-level facilities.

**Recommendation:** Transient elastography should remain the preferred fibrosis-staging tool for CHB patients, with expanded access beyond tertiary hospitals. Where unavailable, APRI may be used cautiously, but negative APRI or FIB-4 should not exclude fibrosis. Tanzania needs standardised CHB care pathways, trained TE operators, local validation of APRI/FIB-4 cut-offs, stronger vaccination, screening, antiviral access, and community-based prevalence studies.

## **62. Title: Anaemia Affecting Half the Community with Malaria and Schistosomiasis Linked Haematuria in Maswa District, Tanzania**

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**Presenter:** Alex Joseph Mujuni

**Authors:** Alex Joseph Mujuni David Zadock Munisi Joram Buza

**Background:** Malaria, anaemia, and haematuria co-exist as overlapping health burdens in rural Maswa, Tanzania, yet their simultaneous community-level prevalence and sociodemographic determinants are rarely quantified together. We examined the prevalence of these three conditions among community members in Maswa District, Simiyu Region, Tanzania, and identified associated sociodemographic risk factors

**Objectives:** To assess the prevalence of anaemia, malaria and haematuria among community members in Maswa District, Tanzania, and associated sociodemographic risk

**Methods:** A community-based cross-sectional study was conducted in Maswa District. A total of 354 adult participants with complete sociodemographic, clinical, and laboratory data were enrolled. Malaria was diagnosed by rapid diagnostic test (mRDT); anaemia was defined using World Health Organisation (WHO) sex-specific haemoglobin thresholds (women: <12 g/dL; men: <13 g/dL); and haematuria was detected by urine dipstick. Descriptive statistics, chi-square tests of independence (Fisher's exact where applicable), univariable logistic regression, and

**Results:** Prevalence of malaria, anaemia and haematuria were 0.8% (n=3; 95% CI: 0.2-2.4%), 57.1% (n=202; 95% CI: 51.9-62.2%), and 5.6% (n=20; 95% CI: 3.5-8.6%) respectively. The mean haemoglobin was 12.23 g/dL (SD=2.54); females had lower mean haemoglobin than males (11.67 vs. 13.16 g/dL; p<0.001). Duration of residence was significantly associated with

malaria ( $\chi^2=13.263$ ;  $p=0.001$ ): where living in the area fewer than six month was 20 times more likely to have malaria infection (AOR=20.09; 95% CI: 1.76-229.00;  $p=0.015$ )

**Conclusion:** Malaria prevalence is low in Maswa district and it is concentrated among recent imigrants, anaemia consistuets a severe community wide public health emergence in the area. Haematuria findings are consistent with endemic urogenital schistosomiasis

**Recommendation:** Integrated, multi-disease community health programmes incorporating iron supplementation, community knowledge on type of diet that improve haemoglobin levels, malaria prevention for migrants, and mass drug administration for schistosomiasis are urgently needed.

### **63. Title: Dietary Diversity, Physical Activity, and Nutritional Education in NCDs Prevention among Scholarly Youths in Dodoma**

**Contact:** elizabethsimbeye@gmail.com

**Presenter:** Elizabeth Simbeye

**Authors:** Elizabeth Simbeye, Jean-Claude Nkurunziza, Gibson

**Background:** Tanzania is experiencing a double burden of communicable and non-communicable diseases(accounting for 34% of all deaths). NCDs are projected to become leading cause of mortality by 2030 in Sub-saharan Africa threatening the progress towards universal health coverage in Tanzania specifically in amid of constrained global health financing. Preventive and cost-effective school-based interventions promoting healthier behaviour may provide sustainable approaches for reducing future NCD burden among youths (34.4% of Tanzania population).

**Objectives:** To assess the association of dietary diversity, physical activity, and nutritional education in prevention of NCDs risks among scholarly youths.

**Methods:** A convergent Mixed method cross-sectional study was conducted among secondary school and VETA youths (414) in Dodoma. Quantitative data were collected by using questionnaire assessing 7-days dietary diversity, physical activity levels and nutritional knowledge. Qualitative data from focus group discussion and key informant interviews explored barriers and facilitators influencing healthy lifestyle behaviours for NCD prevention. Descriptive analysis by SPSS, thematic and framework analysis (guided by CFIR) by Nvivo were performed.

**Results:** 49% of youths had either overweight/obese, hypertension or at-risk waist circumference. Only 13% met recommended fruit and vegetable intake, 86.5% had consumed processed foods with 15.5% reported daily consumption, 74.6% did not achieve recommended physical activity levels although there were no statistical significant association with NCD risks. Despite that 76% of participants had received nutrition education, translating knowledge to practice remained challenging with barriers like: academic workload, limited recreation structures, unhealthy food environments and inconsistent school nutrition programmes.

**Conclusion:** The study demonstrated presence of unhealthy lifestyle behaviour among youths if not managed might increase future NCD risks. Integrating practical nutrition education, healthier food environment and physical activity promotion within school/VETA may serve as a cost-effective and sustainable approach for preventing NCDs among youths in Tanzania in order to achieve resilient health systems and long-term achievements of universal health coverage.

**Recommendation:** Including practical nutrition education in schools/VETA programmes even as extracurricular activities may help to increase awareness in NCDs and its risks and healthier lifestyles, creating supportive food environments for students so they can have healthier food choices, improve recreational facilities and encourage youths to engage, multi-stakeholder engagement and their collaboration can help to push the implementation of the interventions.

#### **64. Title: Optimisation of Experimental Parameters to Maximum Recovery of Viable Soil Bacteria for Antibiotic Discovery**

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**Presenter:** Benard Barnabas

**Authors:** Benard Barnabas Andrea, Nzagi Nyakirangani, Nelson Masota

**Background:** Antimicrobial resistance (AMR) is a major global health challenge associated with increased mortality and economic burden. Soil bacteria remain a primary source of antibiotics, contributing to 60% of currently available antibiotics. However, recovery of viable soil bacteria for antibiotic discovery is highly dependent on experimental parameters such as storage temperature and time, buffer systems, ultrasonication time, and centrifugation force and time, yet limited data exist on their optimal conditions.

**Objectives:** To optimize experimental parameters for maximum recovery of viable soil bacteria from soil for antibiotic discovery.

**Methods:** About 500 g of clay, sandy, and loamy soils were collected aseptically from different parts of Dar es salaam. Experiments evaluated storage temperatures between -40°C and room temperature, buffer systems using phosphate-buffered saline and normal saline, ultrasonication durations between 30 and 90 seconds, as well as centrifugation forces between 1000g and 5000 g at varying duration. Viable bacteria were quantified through serial dilution, inoculation, incubation and colony counting.

**Results:** Recovery was significantly influenced by experimental parameters. In sandy, clay and loamy soil, PBS consistently yielded countable, not aggregated and visible bacterial colonies as compared to normal saline. Ultrasonication at 40 seconds and centrifugation at 1000 g for 1 min yielded maximum colonies. Storage of soil at room temperature preserved bacterial survival better than their lower temperature.

**Conclusion:** Optimal experimental parameters established in this study represent a valuable addition to increasing likelihood of isolating higher number of antibiotic-producing microorganisms. Therefore, establishing standardised recovery conditions is critical for advancing antibiotic discovery and combating AMR.

**Recommendation:** Researchers aiming at isolating soil dwelling bacteria for antibiotics discovery and related applications should consider the use of optimal parameters established in this study. Employing these parameters warrants increased objectivity, resource optimisation and the potential recover bacteria with higher degree of diversity and novelty.

#### **65. Title: Minimum Dietary Diversity and Meal Frequency among Tanzanian Children Aged 6-23 Months in Stunted Regions**

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**Presenter:** Gladys Reuben Mahiti

**Authors:** Gladys Reuben Mahiti; Pankras Luoga; Heavenlight A. Paulo

**Background:** Globally, inadequate feeding practices are linked to various forms of malnutrition, particularly stunting among children. In Tanzania, the burden of stunting remains high at 30%, with remarkable regional variations. However, there is limited scientific evidence on factors associated with minimum dietary diversity (MDD) and minimum meal frequency (MMF) among children aged 6-23 months in the top ten regions with the highest burden of stunting in Tanzania

**Objectives:** To determine factors associated with MDD and MMF among Tanzanian children aged 6-23 months in top ten stunted regions

**Methods:** Secondary data of a total weighted 567 children and their mothers from 2022 Tanzania Demographic and Health Survey were analysed. Data were drawn from ten regions with stunting prevalence exceeding 30%: Ruvuma, Iringa, Tabora, Rukwa, Kagera, Njombe, Katavi, Simiyu, Geita, and Songwe. Descriptive analysis, Chi-square tests and pooled weighted logistic regression were performed. A threshold of p-value<0.05 at 95% confidence interval (CI) was used to determine the significant level.

**Results:** The study found prevalence of MDD (13.6%) and MMF (6.2%). Regional MDD proportions ranged from 5.61% in Ruvuma to 30.83% in Njombe, while MMF proportions ranged from 1.31% in Simiyu to 14.89% in Iringa. Children whose mothers had weekly access to mass media (aOR=2.79,95%CI: 1.13,6.89) had higher odds of MDD. Children whose mothers were working (aOR=11.15,95%CI: 3.03,41.01) had higher odds of MMF than those whose mothers were not working. Conversely, female children (aOR=0.30,95%CI: 0.10,0.87) had lower odds of MMF than male children

**Conclusion:** The findings highlighted a low prevalence of MDD and MMF in the top ten most stunting affected regions of Tanzania. Different determinants of the complementary feeding practices included mother's access to mass media, maternal working status and sex of a child

**Recommendation:** Addressing gender disparities and improving exposure to mass media to women should be prioritized in enhancing complementary feeding practices to improve the nutritional status of children aged 6-23 months in regions most affected by stunting. These interventions are critical to fighting against the burden of stunting in the top ten most affected regions in Tanzania.

## **66. Title: Short-Term Mortality Prediction by Systemic Immune-Inflammatory Index in Adult Patients with Sepsis in ICU, Tanzania**

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**Presenter:** Dorice Remmy

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**Background:** Sepsis remains a major driver of morbidity and mortality in critically ill patients, especially across low- and middle-income countries where delayed recognition and scarce critical care resources compound poor outcomes. While the Sequential Organ Failure Assessment (SOFA) score dominates prognostication, the Systemic Immune-Inflammation Index (SII) derived from a routine full blood count offers a low-cost, accessible alternative. Yet evidence validating its use in sub-Saharan African intensive care settings remains scarce

**Objectives:** To determine the diagnostic performance of the Systemic-Immune Inflammation index in predicting 28-day mortality among adult sepsis patients in Tanzania

**Methods:** This prospective cohort study enrolled 233 adult sepsis patients admitted to medical and surgical ICUs, followed for 28 days. Baseline demographic, clinical, laboratory, and outcome data were collected. Receiver operating characteristic (ROC) analysis assessed SII's predictive performance, with the optimal cutoff identified via Youden's index. Cox proportional hazards regression evaluated the association between SII and 28-day mortality, while the DeLong method compared SII against SOFA and the neutrophil-to-lymphocyte ratio (NLR).

**Results:** Of 233 participants, 145 (62.2%) were male, median age 50 years, with respiratory tract infection the leading sepsis source. Overall, 166 (71.2%) died within 28 days (5.84 deaths/100 person-days). SII demonstrated good discrimination (AUC=0.786); at an optimal cutoff of 3027.54, sensitivity was 75.9%, specificity 89.6%, PPV 94.7%, NPV 60.0%, and accuracy 79.8%. High SII independently predicted 28-day mortality (aHR=2.74), alongside elevated SOFA and vasopressor use. Although SOFA's AUC (0.818) marginally exceeded SII and NLR (0.764), pairwise comparisons showed no significant

**Conclusion:** SII may serve as a practical and valuable tool for early mortality risk stratification in critically ill patients with sepsis in resource-limited settings, as it is driven by routine full blood count, which is cheaper and accessible even in limited resource setting centres, compared to SOFA, which needs advanced laboratory to have all laboratory parameters, while performance is the same.

**Recommendation:** SII may serve as an adjunctive early risk-stratification tool for ICU sepsis patients in resource-limited settings, particularly at initial assessment. Markedly elevated admission SII warrants closer monitoring and timely escalation of supportive care. Further multicentre Tanzanian studies should validate the proposed cutoff, assess serial measurements, and compare SII with MEWS and NEWS2, including combined models for superior risk stratification.

## **67. Title: Systemic Immune Inflammatory Markers in Predicting Cervical Cancer Treatment Outcomes in Tanzania**

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**Presenter:** Deogratias Mtei

**Authors:** Deogratias Mtei, Emmanuel Lugina, Nazima Dharsee

**Background:** Cervical cancer remains the leading cancer among Tanzanian women, with about 10,000 new cases annually and high mortality. Prognosis after chemoradiation is heterogeneous, yet risk stratification remains limited in low resource settings. Conventional clinical factors incompletely predict outcomes. Complete blood count derived inflammatory indices, including systemic immune inflammatory index, systemic inflammatory response index, neutrophil lymphocyte ratio, and red cell distribution width, may offer inexpensive prognostic tools for oncology practice nationally.

**Objectives:** To determine whether baseline and early post treatment inflammatory markers predict two year outcomes after chemoradiation for cervical cancer patients.

**Methods:** We conducted a retrospective cohort study at Ocean Road Cancer Institute including women with histologically confirmed cervical cancer treated with curative concurrent

chemoradiation in 2022. Baseline and three month post treatment complete blood counts were used to derive SII, SIRI, NLR, and RDW. Outcomes within 24 months was assessed. Descriptive statistics, receiver operating characteristic analysis, Kaplan Meier methods, and Cox regression examined prognostic performance, recurrence, overall survival, and independent associations.

**Results:** Among 256 participants, mean age was  $53 \pm 11$  years, 21.7% were living with HIV, and 54.2% had stage IIB to IVA disease. Recurrence occurred in 12.9%, mainly locoregional. Pre and post treatment SII showed poor recurrence discrimination, with AUCs of 0.544 and 0.551. However, two year overall survival was 86%. High post treatment SII above 763.25 independently predicted mortality, adjusted hazard ratio 3.13, while HIV infection and advanced stage conferred excess mortality during follow up as well.

**Conclusion:** CBC derived inflammatory markers were not useful for predicting recurrence after chemoradiation, but post treatment inflammatory burden identified patients at increased risk of death with moderate clinical performance. In combination to known prognostic factors, these inexpensive markers may support follow up prioritization in low resource settings, especially for women with HIV or advanced disease.

**Recommendation:** This study shows the clinical utility of readily available markers of inflammation in aiding disease prognosis in the low resource setting. Multicentre studies should be done to improve the generalizability of these findings. The integration of these markers in description of cervical cancer prognosis is a possibility and can be considered in the clinical settings following validation studies.

## **68. Title: Prognostic Role of Chemotherapy-Induced Neutropenia among Colorectal Cancer Patients at Ocean Road Cancer Institute, Dar**

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**Presenter:** Debora Florens Samila

**Authors:** Debora Florens, Samila Emmanuel, Lugina Lugina, Tausi Kassim Maftah

**Background:** Chemotherapy-induced neutropenia (CIN) is a common and clinically significant complication among colorectal cancer patients receiving chemotherapy. CIN increases the risk of severe infections, treatment delays, and dose reductions, which negatively affect treatment outcomes and survival. Despite the extensive use of chemotherapy in Tanzania, limited data exist regarding the magnitude and prognostic significance of CIN among cancer patients

**Objectives:** To assess the magnitude of CIN and determine its prognostic role among colorectal cancer patients undergoing chemotherapy at ORCI.

**Methods:** This retrospective cohort study at the Ocean Road Cancer Institute (January 2019-December 2021) evaluated 379 adult colorectal cancer patients receiving chemotherapy. Data were extracted from files and registries using structured forms. Chemotherapy-induced nausea (CIN) was graded via CTCAE 5. Patient characteristics were summarized using descriptive statistics, predictors of CIN were identified using modified Poisson regression with robust standard errors, and survival outcomes were analysed using Kaplan-Meier and Cox regression

**Results:** Among 379, the median age of participants was 53 years. The incidence of CIN was 40.5%, with 24.8% developing grade III and 9.2% grade IV neutropenia. Independent predictors

of CIN included younger age, urban residence, cancer stage, and increasing chemotherapy cycles. Each additional chemotherapy cycle increased CIN risk by 12% (aRR = 1.12, 95% CI: 1.05-1.21). Patients who developed CIN had a 49% lower risk of mortality compared with those without CIN (aHR = 0.51, 95% CI: 0.27-0.96)

**Conclusion:** CIN was common among colorectal cancer patients at ORCI and was independently associated with improved overall survival, suggesting its potential role as a marker of adequate chemotherapy exposure.

**Recommendation:** Clinicians are advised to individualize chemotherapy-induced neutropenia (CIN) risk stratification by evaluating cumulative exposure, demographics, and prior toxicity to guide treatment intensity. Further, prospective, multicentre studies with larger cohorts are needed to validate these findings and analyse factors like nutritional status and pharmacogenetic variability in Tanzania and sub-Saharan Africa.

### **69. Title: Factors Associated with Two-Year Overall Survival Rate among Ovarian Cancer Patients Attended Ocean Cancer Institute**

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**Presenter:** Fredrick Kirori Mwita

**Authors:** Fredrick Kirori Mwita, Nazima Dharsee, Salum Lidenge

**Background:** Ovarian cancer is a major cause of gynecologic cancer mortality worldwide, often diagnosed late because of non-specific symptoms and limited screening. In sub-Saharan Africa, including Tanzania, the disease is under-recognized, with delayed diagnosis, inadequate diagnostic facilities, and limited access to specialized treatment contributing to poor survival outcomes. Reliable survival data in Tanzania remain scarce. This study aims to assess treatment outcomes and prognostic factors to support evidence-based management and improve patient care.

**Objectives:** To determine the 2-year overall survival rate and the factors associated with ovarian cancer patients treated at Ocean Road Cancer Institute.

**Methods:** A retrospective cohort study of 168 ovarian cancer patients treated at Ocean Road Cancer Institute will assess two-year survival and associated factors using medical records. Sociodemographic, clinicopathological, and treatment variables will be analysed in SPSS version 27. Kaplan-Meier, log-rank, and Cox regression analyses will identify survival predictors. Ethical approval and institutional permission will be obtained, and ethical principles strictly maintained.

**Results:** Among all 180 patients with ovarian cancer whom were followed for a period of 2 years it was found that the overall two-year survival rate was 47%, and the major associated factors which contributed to survival was age and tumour grade. Women between 40-60 years of age had better survival outcomes compared to women under 40 years and women over 60 years. Tumour grade 1 had better outcome compared to tumour grade 3 and 4.

**Conclusion:** The two year overall survival rate among ovarian cancer patients treated at ORCI was observed to be 47%, survival rate mainly influenced by age and tumour grade. Future prospective multicentre studies are needed.

**Recommendation:** Future prospective multicentre studies are needed to bridge the gap and come with conclusive results.

## **70. Title: Radiation Skin and Gastrointestinal Toxicity in Cervical Cancer: Comparison between Conventional and Hypofractionated Radiotherapy**

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**Presenter:** Ingrid. A. Masilenge

**Authors:** Ingrid A. Masilenge, Nazima Dharsee, Nanzoke Mvungi

**Background:** Cervical cancer remains a major cause of morbidity and mortality among women in Tanzania. Radiotherapy, delivered conventionally or in hypofractionated schedules, is central to treatment for locally advanced disease. Evidence suggests fractionation schedules differ in acute skin and gastrointestinal toxicities, influenced by patient and treatment factors. However, Tanzanian data comparing these toxicities are limited. This study aims to provide context-specific evidence to guide fractionation selection, supportive care, and treatment optimisation.

**Objectives:** To assess incidence and determinants of acute skin and gastrointestinal toxicities in cervical cancer patients receiving hypofractionated or conventional radiotherapy.

**Methods:** This prospective cohort study will compare acute skin and gastrointestinal toxicities and their determinants among cervical cancer patients receiving hypofractionated or conventional radiotherapy. A total of 334 FIGO stage IIB-IIIC patients aged  $\geq 18$  years will be recruited and followed weekly during treatment. Toxicities will be assessed using RTOG scales alongside sociodemographic and clinicopathological data. SPSS 27 and logistic regression will analyse determinants. Ethical approval and informed consent will be obtained.

**Results:** Among 126 cervical cancer patients treated with radiotherapy at Ocean Road Cancer Institute, acute skin and gastrointestinal toxicities were highly prevalent, occurring in 96.8% and 97.6% of patients, respectively, with Grade 2 toxicity predominating. No significant differences in toxicity incidence or severity were observed between conventional and hypofractionated radiotherapy techniques. Age above 50 years independently predicted acute skin toxicity (aOR=3.67,  $p=0.012$ ). Radiotherapy fractionation technique was not associated with increased acute skin or gastrointestinal toxicities among patients receiving treatment.

**Conclusion:** This interim analysis demonstrates a high incidence of acute skin and gastrointestinal toxicities among cervical cancer patients receiving radiotherapy, with no significant differences between conventional and hypofractionated techniques. Older age was independently associated with increased skin toxicity. However, as patient recruitment and follow-up are still ongoing, these findings remain preliminary and may change upon completion of the study and analysis.

**Recommendation:** The findings suggest hypofractionated radiotherapy may be a feasible alternative to conventional fractionation without increasing acute toxicities among cervical cancer patients. Enhanced supportive care and close monitoring, particularly for older patients, are recommended during treatment. Since this study is ongoing, continued patient recruitment and follow-up are necessary to confirm these preliminary findings and guide future clinical practice and policy recommendation.

## **71. Title: Role of Mammography in Breast Cancer Molecular Subtypes Differentiation among Patients Attending Muhimbili National Hospital**

**Contact:** marylenenaho@gmail.com

**Presenter:** Marylene A. Naho

**Authors:** Marylene Naho, Mwajuma Jumbe, Zuhura Nkrumbih

**Background:** Breast cancer has distinct molecular subtypes that exhibit varying clinical behaviours. Characterisation of breast cancer molecular subtypes has been the standard of care for breast cancer management with predictive and prognostic value for effective treatment after immunohistochemical markers testing. Focus is now on reducing the mortality rate through mammography screening and identifying correlative mammographic imaging features which can aid in treatment planning while histopathological classification remains the gold standard.

**Objectives:** To assess the role of mammography in differentiating the breast cancer molecular subtypes among women with breast cancer attending MNH.

**Methods:** A retrospective analysis of 148 patients diagnosed with breast cancer was conducted at MNH. Baseline clinical presentations, histopathological subtyping, and tumour grading were recorded. For the 125 patients with an identifiable mammographic mass, detailed lesion analysis was performed utilising standard BIRADS lexicon features, including mass density, shape, and margin characteristics. Bivariate associations were evaluated using Pearson's Chi-Square and Fisher's Exact tests.

**Results:** Among 148 patients, mean age was 52 years, Luminal was the predominant molecular subtype (72.3%), and invasive ductal carcinoma was the main histology (94.6%). Most presented with palpable lumps (97.9%). Significant statistical correlations emerged where Luminal tumours were overwhelmingly irregular (92.6%), while aggressive triple-negative (TN) and HER2-enriched subtypes frequently displayed benign-appearing round/oval shapes ( $p=0.005$ ) and circumscribed margins ( $p=0.027$ ). Additionally, calcifications were highly prevalent in HER2-enriched and Luminal cases but characteristically absent in 75.0% of TN tumours ( $p=0.006$ ).

**Conclusion:** Breast cancer molecular subtypes exhibit significantly different mammographic signatures. Aggressive non-luminal profiles, particularly triple-negative breast cancers, frequently display benign mammographic features such as round/oval shapes, circumscribed margins, and an absence of microcalcifications which can deceptively mimic benign conditions. These findings underscore the vital necessity of routine solid tissue biopsy regardless of benign appearing imaging parameters.

**Recommendation:** To optimize breast cancer care, immediate efforts must focus on promoting routine mammographic screening, standardizing histopathology reporting with structured templates, and establishing protocol driven multidisciplinary teams, all supported by larger future longitudinal studies to validate these findings.

## **72. Title: Knowledge, Perceptions, and Cervical Cancer Screening Uptake among Women Attending Health Facilities in Mtwara, Tanzania**

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**Presenter:** Jofrey Mteuele

**Authors:** Jofrey Mteweale, Jane Mlimbila, Ally Hussein

**Background:** Cervical cancer is a major public health problem in low- and middle-income countries, including Tanzania, where it ranks among the leading causes of cancer-related mortality. Despite the availability of effective screening services, uptake remains low, with Mtwara region reporting one of the lowest rates nationally. Women's knowledge and perceptions are key determinants of screening uptake, yet limited facility-based evidence exists on how these factors influence screening uptake in this setting.

**Objectives:** To assess the association between knowledge, perceptions, and cervical cancer screening uptake among women attending health facilities in Mtwara Region

**Methods:** A facility-based cross-sectional study was conducted among 509 women aged 25-49 years attending health facilities in Mtwara region. Multistage and systematic sampling techniques were applied. Data were collected using a structured questionnaire and analysed using Stata version 17. Bivariable and multivariable analyses were performed. A modified Poisson regression with robust error variance was used to estimate associations, reporting prevalence ratios and 95% confidence intervals.

**Results:** Cervical cancer screening uptake was 17.49% (95% CI: 14.42%-21.04%), with 66.6% (n=339) of women showing inadequate knowledge and 52.85% (n=269) having a positive perception. Women aged  $\geq 30$  years were five times more likely to screen than younger women (aPR 5.06, 95% CI: 2.20-11.63). Adequate knowledge was associated with higher uptake (aPR 2.87, 95% CI: 1.91-4.34), while a positive perception increased screening by nearly fivefold (aPR 4.96, 95% CI: 2.63-9.35), after adjustment for confounders.

**Conclusion:** Cervical cancer screening uptake in Mtwara region remains critically low. Younger age, inadequate knowledge, and negative perceptions toward screening were key determinants of poor uptake. Addressing these factors through targeted health education and community sensitization is essential to improving cervical cancer screening utilisation among women attending Reproductive and Child Health services in Mtwara Region.

**Recommendation:** The Ministry of Health should strengthen cervical cancer health education and integrate screening promotion into existing health services. Healthcare workers should enhance community sensitization and address barriers to screening access. Future research should explore structural, cultural, and socioeconomic factors influencing screening uptake to inform targeted interventions.

### **73. Title: Patterns and Risk Factors Associated with Physical Trauma among Patients Attending Tertiary Hospitals in Dodoma**

**Contact:** dannysaideya@gmail.com

**Presenter:** Daniel Abihudi Saideya

**Authors:** Daniel Abihudi Saideya, Secilia Kapalata Ng'weshemi

**Background:** Physical Trauma is one of the leading causes of morbidity and mortality globally, but especially in LMICs. World Health Organisation states that injuries account for more than 5 million deaths annually, equating to approximately 9% of global mortality, surpassing the cumulative deaths from HIV/AIDS, tuberculosis, and malaria combined. Increasing urbanization, road traffic injuries, occupational hazards, and interpersonal violence continue to increase the trauma burden in Tanzania.

**Objectives:** To assess the patterns and risk factors associated with physical trauma among patients attending Dodoma tertiary hospitals from Mar-Apr 2026.

**Methods:** A hospital-based cross-sectional study was conducted among 384 (158 from BMH, 226 from DRRH) trauma patients attending tertiary hospitals in Dodoma Region between March and April 2026, who were sampled using a random sampling method. Data were collected using a structured questionnaire in which, demographics and necessary data concerning the patterns and risk factors of trauma were collected. Collected data were analysed using SPSS to identify patterns and associated risk factors.

**Results:** Males accounted for 96.9% of all trauma cases, Road traffic injuries accounted for 71.9% of cases, where 50.7% were drivers, 28.3% were pedestrians and 29.1 were passengers. This was the most common pattern observed in injury mechanisms. As of body region affected injuries involving the extremities (especially lower limbs (60.1%)) and head regions (41.9%) were most common. Recurrent risk factors included alcohol exposure, unsafe transport practices, and delayed presentation to healthcare facilities. 93.2% of respondents had inconsistent use of protective equipment.

**Conclusion:** This study highlights the burden of trauma among young and economically active males. With road traffic injuries as the leading cause. Lower limb and head injuries were the most frequently affected body regions. Alcohol use, unsafe road practices, delayed healthcare access and poor use of protective equipment significantly contributed to trauma occurrence, emphasizing the need for strengthened road safety.

**Recommendation:** Physical trauma remains a significant public health concern in Tanzania. Strengthening road safety enforcement, promoting injury prevention education, improving emergency response systems, and enhancing public awareness on safety practices are recommended to reduce trauma-related morbidity and mortality.

#### **74. Title: Predictors of Urinary Autonomic Dysfunction in Patients with Type 2 Diabetes Mellitus in Zanzibar**

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**Presenter:** Hassan Thabit Haji

**Authors:** Hassan Thabit Haji, Ashabilan Ebrahim, Ramla Muhidin Ali, Ahmed Gharib Khamis, Reuben Mutagaywa, Kaushik Ramaiya, Fredirick L. Mashili

**Background:** Urinary Autonomic Dysfunction (UAD) is a common complication of Type 2 Diabetes Mellitus (T2DM) that impairs quality of life through bladder control problems, difficulty urinating, and incomplete bladder emptying. Despite its clinical significance, evidence on its prevalence and associated risk factors remains limited, particularly in low-resource settings.

**Objectives:** This study aimed to determine the prevalence of UAD and identify associated pharmacological, clinical, and lifestyle factors among T2DM patients

**Methods:** A cross-sectional study involving 364 patients with type 2 diabetes mellitus attending outpatient clinics in Zanzibar was conducted. Data were collected through structured interviews. Urinary autonomic dysfunction was assessed using the urinary subdomain of the COMPASS-31 questionnaire. Prevalence was determined as the proportion of participants meeting diagnostic criteria. Factors associated with urinary autonomic

dysfunction were identified among study participants using univariate and multivariate logistic regression analyses.

**Results:** The prevalence of UAD was 24.5% (n=89) out of 364 participants. A history of cigarette smoking was significantly associated with increased risk of UAD (AOR= 4.13, 95% CI: 1.46-11.67, p=0.007). Patients who reported consuming vegetables rarely or only one portion per day had a higher risk of UAD (AOR = 3.86, 95% CI: 1.67-8.89, p=0.002). Regarding the type of medication, the use of lipid-lowering drugs was associated with a higher risk of UAD (AOR = 4.21, 95% CI: 1.83-9.67, p=0.001).

**Conclusion:** UAD was found to be common for patients with type 2 diabetes in Zanzibar. In this study, dietary, lifestyle, and the type of medication used played a major role in UAD. Factors such as cigarette smoking, low vegetable intake, and the use of lipid-lowering medications were significantly associated with increased risk of UAD.

**Recommendation:** Therefore, routine screening and targeted interventions are warranted to prevent mortality and improve the quality of life. Further study may be needed to explore the neurological effects of lipid-lowering therapies in diabetic patients.

## **75. Title:** Clinical Characteristics, Short-Term Outcomes, and Their Predictors among Patients Admitted for Heart Failure in Ccu

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**Presenter:** Aloyce Oisso Mathew

**Authors:** Aloyce Oisso Mathew, Khuzeima Khanbhai, Jackson Mlay

**Background:** Heart failure is a major global and regional health problem. Patients admitted to coronary care units often have advanced disease, multiple comorbidities, and high risk of short-term adverse outcomes. In Tanzania, local data on heart failure patients admitted to CCU remain limited, particularly at JKCI.

**Objectives:** To determine the Clinical characteristics, Short-Term Outcomes, and their Predictors among patients admitted for heart failure in CCU at JKCI.

**Methods:** This was a hospital-based prospective cohort study among adults admitted with heart failure deterioration to the CCU at JKCI. A total of 134 eligible patients were included. Sociodemographic and clinical characteristics, treatment given in CCU, and short-term outcomes were summarized using descriptive statistics. Regression analyses reported hazard ratios for CCU mortality and prevalence ratios for extended CCU stay and renal function deterioration, with 95% confidence intervals.

**Results:** The mean age was  $58.4 \pm 16.5$  years, and 55.2% were male. Most patients presented in NYHA class IV, hypertension, pulmonary edema, and HFrEF. Short-term outcomes included CCU mortality in 34.3%, extended CCU stay in 33.6%, and renal function deterioration in 20.9%. Rheumatic heart disease and mechanical ventilation were associated with CCU mortality. Rheumatic heart disease, arrhythmia, and inotrope need were associated with extended CCU stay, while diabetes mellitus was associated with renal function deterioration.

**Conclusion:** Patients admitted with heart failure to the CCU at JKCI represented a high-risk group with severe clinical presentation and substantial short-term adverse outcomes. These findings provide local evidence that heart failure patients admitted to CCU at JKCI represent

a high-risk group requiring early risk recognition, close monitoring, and coordinated acute care.

**Recommendation:** Heart failure patients admitted to CCU at JKCI require early risk stratification, close renal monitoring, timely management of pulmonary edema, cardiogenic shock and arrhythmia, and strengthened follow-up for hypertension, rheumatic heart disease, cardiomyopathy and diabetes mellitus.

## **76. Title: Prevalence and Factors Associated with Psychological Distress among Caregivers of Severe Mental Illness Patients**

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**Presenter:** Charles Mwambigija

**Authors:** Charles Mwambigija, Saidi Kuganda

**Background:** Globally, Mental and behavioral disorders affect approximately 450 million people, with severe mental illness (SMI) posing significant challenges not only to patients but also to their caregivers. Family caregivers often provide continuous emotional, physical, and financial support, predisposing them to psychological distress. Despite growing evidence in high-income countries, data on caregiver distress in Tanzania remain limited.

**Objectives:** To determine prevalence and factors associated with psychological distress among caregivers of severe mental illness patients at Muhimbili National Hospital

**Methods:** A descriptive cross-sectional study involving 427 caregivers of patients with severe mental illness was conducted at Muhimbili National Hospital. Eligible participants were adults providing care for at least six months. Data were collected using structured questionnaires, including K10 and OSSS-3 scales. Convenience sampling was used. Data analysis employed STATA, with descriptive statistics and robust Poisson regression to identify factors independently associated with psychological distress, presented as adjusted prevalence ratios with.....(this statement is incomplete)

**Results:** The overall prevalence of psychological distress was 36.5%, with 16.8% mild, 12.2% moderate, and 7.5% severe distress. Factors independently associated with psychological distress included unemployment (aPR=1.77; 95% CI: 1.03-3.03), absence of caregiving assistance (aPR=1.56; 95% CI: 1.18-2.07), and poor to moderate social support (aPR=2.51; 95% CI: 1.21-5.21).

**Conclusion:** Psychological distress among caregivers of patients with SMI is a significant public health concern, affecting more than one-third of caregivers. Socioeconomic vulnerability and limited support systems play a critical role in increasing distress.

**Recommendation:** Integrating caregiver support into mental health services, improving social support networks, and addressing unemployment among caregivers are essential to reduce caregiver burden and improve overall mental health outcomes.

## **77. Title: Alcohol Use Disorder and Associated Factors among Road Traffic Injury Patients in Kibaha, Tanzania**

**Contact:** Kailacharles1990@gmail.com

**Presenter:** Charles Kaila

**Authors:** Charles Kaila, Ester Steven, Tasiana Njau, Hellen Siril

**Background:** Road traffic injuries (RTIs) remain a major public health challenge, especially in low and middle income countries, with alcohol use being a key modifiable risk factor. At Tumbi Regional Referral Hospital, the RTI mortality rate was 11.7% between May 2024 and April 2025, with motorcycle crashes accounting for over half of cases. Despite suspected alcohol involvement, there is limited evidence on the prevalence of Alcohol Use Disorder (AUD) and associated biopsychosocial..(this should be completed)

**Objectives:** To determine the prevalence of AUD and associated biopsychosocial factors among RTI patients at Tumbi Regional Referral Hospital.

**Methods:** A hospital based cross sectional study was conducted at Tumbi Regional Referral Hospital from 8th February to 29th April 2026 among adults with RTIs. Data were collected using AUDIT, PHQ-9, MRBQ, and breathalyzer testing with a BAC cutoff of 0.08%. Data were analysed using STATA 17. Descriptive statistics summarized participant characteristics, AUD prevalence, and recent alcohol intoxication, while modified Poisson regression identified factors associated with AUD at  $p < 0.05$ .

**Results:** Among 256 RTI patients (median age 29 years, IQR: 23-34), most were male (69.5%). The prevalence of Alcohol Use Disorder (AUD) was 21.9%, while 5.1% had recent alcohol intoxication (BAC  $\geq 0.08\%$ ). Hazardous drinking was the most common AUD pattern (55.4%). In multivariable analysis, risky driving behaviour was the only factor independently associated with AUD. Patients with high-risk and very high-risk driving behaviours were about 8 and 11 times more likely to have AUD, respectively ( $p < 0.001$ ).

**Conclusion:** Alcohol Use Disorder was common among RTI patients at Tumbi Regional Referral Hospital, with hazardous drinking being the predominant pattern. Risky driving behaviour was strongly associated with AUD, highlighting the important role of alcohol-related risky behaviours in road traffic injuries. These findings emphasize the need for early identification and targeted interventions for AUD among RTI patients.

**Recommendation:** Routine screening for Alcohol Use Disorder using standardised tools such as AUDIT should be integrated into RTI patient care at Tumbi Regional Referral Hospital. Health education and road safety interventions targeting risky driving behaviours should also be strengthened to reduce alcohol-related road traffic injuries.

## **78. Title:** Clinical Manifestations of Sickle Cell Disease in Africa and Its Association with Foetal Haemoglobin Parameters

**Presenter:** Siana Nkya

**Authors:** Evans Xorse Amuzu, Florence Urio, Elliot Eli Dogbe, Peter Ponsian, Suraj Yawnumah Abubakar, Chinedu Okeke, Olasinbo Olumuyiwa Balogun, Petronilla Jean Ozumba, Alex Osei-Akoto, Vivian Paintsil, Obiageli Nnodu, Emmanuel Balandya, Julie Makani, Madu Anazoeze, Daniel Ansong, Siana Nkya

**Background:** Prevalence of sickle cell disease (SCD) across African countries ranges between 1-3% and contributes up to 7-16% of under-five mortality. In order to bridge the gap in management and cognate research, the SickleInAfrica consortium was established in 2017. This study utilised the SickleInAfrica platform to study the levels of Foetal haemoglobin (HbF)

and F cells and their relationship with sickle cell disease clinical manifestations in Ghana, Nigeria and Tanzania.

**Objectives:** This work utilised the SickleInAfrica platform to study the levels of HbF and F cells and their relationship with SCD.

**Methods:** This study enrolled individuals with SCD aged five years and above who were confirmed to be at steady state and were hydroxyurea naïve. Clinical history was obtained using an interviewer-administered questionnaire. Haematological parameters were determined by an automated haematology analysers while quantification of HbF and F cells was implemented by high-performance liquid chromatography and flow cytometry, respectively. Age-adjusted logistic regression was employed to assess the associations.

**Results:** A total of 290 SCD patients were enrolled, with the most commonly reported complication requiring management in a hospital setting being pain crises, ranging from 66-96% with the highest levels reported in Tanzania and lowest in Ghana. HbF and F cell parameters show significant association with transfusion rates, frequency of painful crises and episodes of febrile illness.

**Conclusion:** This work highlights important differences and similarities across SCD populations in the three countries. This is important especially in development of interventions in the light of personalised medicine.

**Recommendation:** It is recommended that community screening programmes should target newborns and younger ages and inculcate measurement of HbF levels and F cell count, where possible, to help determine the disease severity and serve as a guide to the timing of the initiation of hydroxyurea. The screening programmes should also encompass education on prophylactic therapies and disease-modifying therapies like hydroxyurea.

## **79. Title: Assessment of Kap among Caregivers of People with Haemophilia Attending Clinic at MNH in Tanzania**

**Presenter:** Alfred Jubilate | **Authors:** Alfred Jubilate, Stella Rwezaula

**Background:** Haemophilia is a genetic bleeding disorder characterized by a deficiency in clotting factors. It is a lifelong condition that requires comprehensive management, including regular medical care, factor replacement therapy, and preventive measures. Caregivers play a crucial role in managing haemophilia, as they are often responsible for administering factor replacement therapy, recognizing bleeding episodes, and seeking timely medical attention.

**Objectives:** Assessing the knowledge, attitude, and practices among caregivers of people with haemophilia (PWH) attending Haemophilia Clinic at Muhimbili National Hospital (MNH) in Tanzania.

**Methods:** This was a hospital based-cross-sectional study that was conducted in April 2025. The target population was caregivers of people with haemophilia (PWH) attending clinic at Muhimbili National Hospital. Data was collected using a self-administered structured questionnaire that covers caregivers' socio-demographic information, knowledge and beliefs regarding haemophilia, and their practices regarding the care of PWH. Data were analysed using SPSS.

**Results:** Out of the 380 caregivers interviewed, 331 (97.1%) demonstrated good knowledge of haemophilia, while 49 (12.9%) had moderate knowledge. In terms of attitude, 356 (93.7%) of the participants exhibited a positive attitude towards haemophilia, whereas only 24 (5.0%)

had a negative attitude. Regarding caregiving practices, 263 (69.2%) reported good practices, while 117 (30.8%) showed poor practices in managing haemophilia. Statistically significant associations were identified between education level and caregiving practices, knowledge and practices towards haemophilia, and attitudes and practices ( $p=0001$ ).

**Conclusion:** The findings indicate that while the majority of caregivers possess good knowledge and positive attitudes, a substantial proportion still practice suboptimal caregiving methods.

**Recommendation:** The findings highlight the need for targeted educational interventions such as seminars and workshops to bridge the gap between knowledge and practice and improve the quality of care for people living with haemophilia.

## **80. Title: Association between the (Basic) MRI Score and Neurological Status in Traumatic Cervical Sci at MOI**

**Presenter:** Neema H. Hawanga

**Authors:** Neema Hawanga, Joel Bwemelo, Mboka Jacob

**Background:** Cervical spinal cord injury is a devastating condition often resulting in permanent disability. While CT and X-rays are standard initial assessments, Magnetic Resonance Imaging is the gold standard for evaluating injury severity and predicting outcomes. The Brain and Spinal Injury Centre score has emerged as a tool to improve diagnostic precision, yet its correlation with clinical neurological status in the Tanzanian context requires further validation to optimize management strategies.

**Objectives:** To determine the relationship between the (BASIC) severity score and neurological status (ASIA) among patients with cervical SCI at MOI.

**Methods:** A hospital-based cross-sectional study was performed at MOI (September 2025-April 2026), evaluating MRI data from September 2023 to April 2026 for 95 adults with cervical SCI. Inclusion required MRI assessment within 14 days of admission. Participants' neurological status was dichotomized into "poor" (AIS A-C) and "good" (AIS D-E) while MRI morphology was assessed using the BASIC score (0-4). Statistical significance was determined at using Chi-square tests for trend in SPSS25.

**Results:** The study population had a mean age of  $40.5\pm 12.6$  years and a significant male predominance (85.3%). Motor traffic accidents (56.8%) and falls (27.4%) were the primary mechanisms of injury. Most patients (72.6%) presented with poor neurological status, with AIS A (complete injury) being the most common category (35.8%). BASIC score distribution was: 0 (15.8%), 1 (10.5%), 2(22.1%) 3(32.6%) and 4(18.9%). A strong statistically significant dose-response relationship was found between higher BASIC scores and poor neurological status ( $p<0.001$ ).

**Conclusion:** Traumatic cervical SCI at MOI is characterized by high rates of severe neurological impairment, primarily driven by motor traffic accidents. The BASIC MRI score demonstrates a robust correlation with clinical neurological status, where higher scores (3 and 4) serve as strong indicators of severe impairment.

**Recommendation:** The BASIC score should be integrated into routine clinical practice for prognostic accuracy and treatment planning. Additionally, urgent public health strategies targeting road traffic safety are essential to mitigate the burden of SCI in Tanzania. For future

research a prospective transverse study is recommended to determine whether BASIC score at admission predicts neurological recover at 6- and 12-months post-injury.

### **81. Title:** Prevalence of Host and Determinants of Streptococcus (Group -a), Infection among School Children: A Cross-Sectional Study

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**Presenter:** Clement Kabakama, (fsass)

**Authors:** Clement Kabakama, Saniru Kimweri, Happiness Kumburu, Nuru Letara, Moses Ngilisho, Noel Nyelo, Baraka Jimson, Engarasia Kifai, Jil Donath, Helena Teisner, Helen Schill, Joel Manyahi, Nikolaus Haas

**Background:** Streptococcus (group A streptococcus) is an important species of gram-positive extracellular bacterial pathogens. Group A streptococci colonize throat or skin and are responsible for several suppurative infections and non-suppurative. Group A streptococcal infection registry will be a collaborative Multicentre study that involves Clinical Microbiological, Epidemiological, Cardiovascular medicine and Molecular Characteristics for GAS infections in Africa. The Strep A Study seeks to understand burden of GAS infections in Endemic Region in the Country.

**Objectives:** To Determine Prevalence of Host and Microbial Determinants of Beta - Hemolytic Streptococcus infection among Primary School Children in Tanzania.

**Methods:** Strep A study will be conducted prospectively in the endemic region, Babati Manyara for Screening of Sore throat among Children aged between 5 years and 16years attending Primary Schools in the nearby schools Dareda Kati Primary School, Dudia Primary School, and Gajal Primary School. Throat swabs will be taken and cultured to determine the presence of GAS pyogenes and isolates of GAS will be tested for antibiotic susceptibility.

**Results:** The Cross-sectional study revealed an Overall Prevalence of GAS carriage of 340/1200 28.3%, Among 1200 Children enrolled to the prospective study (Strep A Programme), cohort study only 889 /1200 74% reported for sore Throat. The Overall GAS - Positive rate for Sore Throat accounts for about 52% (624/1200).

**Conclusion:** The GAS Pharyngeal carriage rate seen in Endemic Region Babati 28.3% are Higher than recently pooled results Globally, Our Study suggest that substantial higher percentage of sore throat that was GAS -positive which accounts for 52% compared to other study that was conducted in the Northern part of Tanzania, Mbulu that accounted for only 6.9%.

**Recommendation:** This work is Recommends to anticipate a large number of enrolled Primary school Children and provide an acceptable Population to conclude the molecular epidemiology of GAS in the endemic Region- Babati, eventually isolates will be subjected to DNA isolation to allow characterisation by Molecular methods and Biorepository will serve in the future as a platform for Vaccine development in Africa.

### **82. Title:** Prevalence and Associated Factors of Chemotherapy-Induced Adverse Drug Reactions among Adult Cancer Patients in Dar es Salaam

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**Presenter:** Betty Maganda

**Authors:** Betty A. Maganda, Vanessa R. Rwejuna, Vitalis B. Mbuya, Erick G. Phillip

**Background:** Cancer is the third leading cause of death among individuals aged 15-59 years in Tanzania, accounting for 5.1% of all in-hospital deaths between 2006 and 2015. Chemotherapy remains one of the most commonly used cancer treatments. However, it is frequently associated with adverse drug reactions (ADRs) that may compromise treatment outcomes and patients' quality of life. Understanding the prevalence and predictors of chemotherapy-induced ADRs is essential for improving patient care.

**Objectives:** To determine prevalence and associated factors of chemotherapy-induced adverse drug reactions among adult cancer patients in selected Dar es Salaam

**Methods:** A hospital-based cross-sectional study was conducted among 161 adult cancer patients attending Ocean Road Cancer Institute, Rabinisia Memorial Hospital, and Besta Super-specialized Polyclinic Centre in Dar es Salaam, Tanzania. Convenience sampling was used to obtain the sample size. Data were collected using a semi-structured questionnaire and analysed using SPSS version 26. Descriptive statistics summarized variables, while linear regression was used to identify factors associated with adverse drug reaction occurrence.

**Results:** The majority of patients were female (61%) and aged above 50 years (56%). Most cancer cases were non-hematological malignancies (95.7%). Commonly used chemotherapy included Bevacizumab, Bleomycin, Bortezomib, Capecitabine, Carboplatin, Cisplatin, and Cyclophosphamide. The prevalence of chemotherapy-induced adverse drug reactions (ADRs) was high at 91.9%, with gastrointestinal symptoms being the most frequently reported (80.7%). Significant factors associated with ADRs included older age, comorbidities, cigarette smoking, and use of concomitant medications. Frequently used medications for ADR management included bisacodyl, ondansetron, and esomeprazole.

**Conclusion:** This study revealed a high prevalence of chemotherapy-induced ADRs among adult cancer patients in Dar es Salaam. Older age, comorbidities, smoking, and concomitant medication use significantly increased the risk of ADRs. Strengthening patient monitoring, individualized treatment approaches, and early ADR management may improve treatment outcomes and patient safety.

**Recommendation:** Healthcare workers should strengthen routine monitoring and early detection of chemotherapy-induced ADRs, particularly among high-risk patients. Patient education on smoking cessation and ADR reporting should be enhanced. Hospitals should establish standardised ADR management protocols and promote pharmacovigilance practices to improve patient safety and treatment outcomes.

### **83. Title: Magnitude and Predictors of Pelvic Fistula after Cervical Cancer Treatment at Ocean Road Cancer Institute**

**Contact:** ruthmanwele.e2@gmail.com

**Presenter:** Ruth Manwele

**Authors:** Ruth Manwele, Emmanuel Lugina

**Background:** Cervical cancer (CC) remains a major public health challenge globally, with the burden disproportionately affecting low- and middle-income countries. In Tanzania, CC is the leading cause of cancer incidence and mortality among women, accounting for approximately 25% of new cancer cases and nearly 7,000 deaths annually. Advances in cancer treatment have

improved survival; however, these gains are accompanied by late treatment-related complications. Pelvic fistulas, including vesicovaginal (VVF) and rectovaginal fistulas.

**Objectives:** To determine the incidence and identify predictors of pelvic fistula following treatment for LACC among women treated at the Ocean.

**Methods:** A retrospective cohort study examined 289 women with locally advanced cervical cancer treated with radiotherapy at ORCI in 2022. Data on sociodemographic, clinicopathology, treatment, and follow-up were collected from medical records. Descriptive statistics summarized patient characteristics and fistula incidence. Fistula-free survival was estimated using the Kaplan-Meier method, and Cox regression identified factors related to pelvic fistula development, with statistical significance set at  $p < 0.05$ .

**Results:** Among 289 cervical cancer patients treated with radiotherapy, pelvic fistula incidence was 4.8%, with rectovaginal fistula (57%) and vesicovaginal fistula (43%) being the predominant types. Urinary leakage was the most common symptom. Socio-demographic factors were not associated with fistula development. Advanced FIGO stage (III-IV) was strongly associated with fistula formation, and bladder involvement showed a borderline association. Treatment modalities and radiation dose parameters were not significant predictors. Two-year fistula-free survival was 93.4%.

**Conclusion:** Pelvic fistula occurred in 4.8% of cervical cancer patients following radiotherapy, with excellent fistula-free survival. Fistula development was strongly associated with advanced disease, and rectal involvement emerged as the only independent predictor. Treatment-related factors, including radiotherapy dose and chemotherapy intensity, were not significantly associated with fistula risk.

**Recommendation:** Patients with advanced-stage disease and rectal involvement should receive closer surveillance for early fistula detection. Optimised imaging and treatment planning may help reduce risk. Larger prospective multicentre studies with longer follow-up are needed to validate these findings and better define predictors of post-radiotherapy pelvic fistula

#### **84. Title: Mental Health Care Utilisation among Women WHO Use Drugs: Implementation Gap in Tanzania**

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**Presenter:** Frank Chitamwebw

**Authors:** Frank Chitamwebwa, Samuel Likindikoki, Kaitlyn Atkins, Stephanie Skavenski, Bareng Aletta Nonyane, Sifaely Mtaita, David Mwansa, Adela Luswetula, Laura Murray, Haneefa Saleem

**Background:** Women who use drugs experience disproportionately high rates of trauma, co-occurring mental and HIV vulnerabilities. Mental health is increasingly recognized as central to HIV prevention, treatment engagement, and recovery-oriented care, yet mental health services remain poorly integrated into harm reduction and HIV care programmes. Additionally, empirical data on mental health service utilisation among women who use drugs are limited.

**Objectives:** We document mental health disorder burden and care gaps among women who use drugs in Dar es Salaam, Tanzania.

**Methods:** We conducted a cross-sectional survey of women who screened positive for symptoms of depression, anxiety, and/or post-traumatic stress, recruited through community outreach workers and medically assisted therapy clinics in Dar es Salaam. Mental health burden was assessed using the PHQ-9, GAD-7, and Harvard Trauma Questionnaire. Mental health-related contact in the past three months was assessed across formal and informal sources. Predictors of mental health-related contact were examined using logistic regression.

**Results:** Among 123 participants, structural vulnerabilities were pervasive, including unstable housing (67.5%), recent incarceration (84.6%), and transactional sex in the past month (95.1%). Despite clinically significant psychological distress (92.7% reported moderate to severe depressive symptoms, 52.0% moderate to severe anxiety, and 22.9% elevated PTSD symptoms), only 21.1% reported any mental health-related contact in the past three months. In adjusted analyses, high polydrug risk was associated with significantly lower odds of any mental health-related contact (aOR=0.23, 95% CI: 0.08-0.62).

**Conclusion:** Mental health burden was high, yet mental health-related contact was strikingly limited. Women with the greatest drug use burden, such as poly-drug risk, were the least likely to access mental healthcare despite having the most significant needs.

**Recommendation:** These findings underscore the need for low-threshold, trauma-informed, community-based mental health interventions embedded within harm reduction programmes and highlight the critical importance of integrated and peer-delivered approaches for reaching the most underserved women who use drugs.

## **85. Title: Participatory Design of a Theater-Based Intervention to Reduce Stigma among Women WHO Use Drugs**

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**Presenter:** Carolyn Mwashwa

**Authors:** Haneefa T. Saleem, Sifaely Mtaita, Carolyn Mwashwa, Lilian Mbwambo, Kaitlyn Atkins, Faithness Kiondo, Fadhili Meta, Kwame Mchauru, Lawaliya Habibu Rajabu, Amna Mekki, Sophia-Joy Agbelese, Adela Luswetula, Samuel Likindikoki

**Background:** Women who use drugs (WWUD) in Tanzania experience pervasive intersectional stigma related to gender, drug use, poverty, criminalization, and, for some, sex work. Stigma contributes to social isolation, emotional distress, and barriers to healthcare and recovery services. Participatory arts-based approaches may offer opportunities to amplify marginalized voices, foster empowerment, and promote social dialogue, yet remain underutilized in harm reduction settings in sub-Saharan Africa.

**Objectives:** To co-design a theater-based intervention with WWUD to address intersectional stigma and promote dialogue and understanding.

**Methods:** Using a trauma-informed participatory co-design approach, we engaged 10 women with lived experience of drug use in Dar es Salaam, Tanzania. Activities included four narrative group sessions, a four-day co-design workshop with local artists, a follow-up focus group, and four performances targeting healthcare providers, police officers, community members, and WWUD. Qualitative data, field notes, and visual artifacts were analysed using the framework method to document implementation processes and participant experiences.

**Results:** Narrative sessions revealed experiences of healthcare discrimination, family rejection, criminalization, and internalized stigma, alongside stories of resilience, recovery,

and hope. These narratives informed collaboratively developed scenes portraying the realities of women's lives and possibilities for reintegration. Participants reported increased confidence, stronger peer connections, greater sense of belonging, and recognition of identities beyond drug use. Key implementation lessons included the importance of trauma-informed facilitation, partnerships with local artists, flexible scheduling, and opportunities for continued artistic skill development.

**Conclusion:** Participatory theater co-design created a safe and empowering space for WWUD to transform lived experiences into a culturally resonant stigma-reduction intervention. Centering participant voices strengthened ownership, authenticity, and relevance of the final product. The process demonstrated that trauma-informed, arts-based approaches can foster connection, agency, and collective reflection while generating interventions grounded in community priorities.

**Recommendation:** Future stigma-reduction initiatives should prioritize meaningful involvement of people with lived experience throughout intervention development and implementation. Partnerships with local arts organizations can enhance creativity, cultural relevance, and sustainability. Programmes should incorporate trauma-informed principles, flexible participation structures, and opportunities for ongoing artistic engagement. Additional research is needed to evaluate the intervention's effects on audience attitudes and stigma-related outcomes.

## **86. Title: Using Theatrical Arts to Reduce Intersectional Stigma and Promote Resilience among Women WHO Use Drugs**

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**Presenter:** Samuel Likindikoki

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**Background:** Entertainment-education (E-E) interventions use storytelling to influence attitudes and behaviours, yet the narrative mechanisms through which audiences engage with and respond to health messages remain understudied. In Tanzania, women who use drugs experience intersecting stigmas that contribute to social exclusion and poor health outcomes. Narrative theory suggests that transportation into storylines and identification with characters may reduce resistance to persuasive messages and promote empathy, attitude change, and reflection.

**Objectives:** To Explore how narrative involvement shapes audience engagement, emotional responses, and interpretation of a stigma-reduction play.

**Methods:** We employed a mixed-methods design using immediate post-performance surveys and facilitated discussion groups following performances of the Hadithi Zetu play. Participants included women who use drugs, healthcare providers, police officers, and community members (N=77). Survey measures assessed transportation, character identification, emotional reactions, parasocial interaction, and perceived persuasive intent. Quantitative data were analysed descriptively, while qualitative discussions explored audience interpretations of characters, storylines, and stigma-related messages.

**Results:** Preliminary findings suggest high levels of narrative involvement across audience groups. Nearly all participants reported being mentally involved in the performance (98.7%),

emotionally affected by the story (94.8%), and able to picture events taking place (90.9%). Character identification was also high, with most participants reporting understanding characters' experiences and perspectives. Emotional responses were dominated by sadness, empathy, happiness, and feelings of concern for the characters. Qualitative findings indicated that audiences connected storylines to real-world experiences of stigma, discrimination, and recovery.

**Conclusion:** The Hadithi Zetu intervention successfully engaged audiences through compelling narratives and relatable characters. High levels of transportation, character identification, and emotional engagement suggest that narrative involvement may be a key mechanism through which arts-based interventions influence attitudes toward women who use drugs. Findings support the value of culturally grounded storytelling approaches for addressing intersectional stigma.

**Recommendation:** Future entertainment-education interventions should intentionally leverage narrative mechanisms such as character identification, emotional engagement, and transportation to enhance impact. Additional research should examine how specific narrative processes influence stigma reduction and behavioral intentions over time. Larger studies incorporating longitudinal follow-up are needed to better understand the relationship between narrative involvement, attitude change, and sustained shifts in perceptions of marginalized populations.

## **87. Title: Impacts of an Arts-Based Intervention on Stigma Toward Women WHO Use Drugs in Tanzania**

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**Background:** Women who use drugs in Tanzania experience stigma across social settings, including from healthcare providers and law enforcement, which may serve as a barrier to drug treatment and other healthcare services. Entertainment-education approaches have the potential to reduce stigmatizing attitudes toward marginalized communities, but their use has not been rigorously evaluated among women who use drugs in sub-Saharan Africa.

**Objectives:** To evaluate the impacts of an arts-based intervention on stigmatizing attitudes toward women who use drugs in Dar es Salaam.

**Methods:** Police officers, healthcare workers, and community members viewed an entertainment-education play co-developed and performed by women with lived experience of drug use. Audiences completed surveys measuring their attitudes toward women who use drugs at baseline, immediate follow-up, and 12 weeks. Pairwise changes in sum scores were described using t-tests, and groups were compared via linear regression with group- by -time interaction, clustered standard errors, and adjustment for gender and education.

**Results:** Of 56 participants (64% women, 75% >secondary education), healthcare providers (n=18) reported significantly higher baseline stigma than police (n=19, p=0.005) and community members (n=19, p=0.003). Stigma declined across all groups. Police and community showed greatest immediate score reductions (-10.1%; -9.4%, both p=0.003), attenuating at 12 weeks (-4.9%, p=0.05; -8.3%, p=0.02). Healthcare providers showed modest

immediate declines (-5.0%,  $p=0.06$ ) and increased reduction at 12 weeks (-10.7%,  $p=0.002$ ). In adjusted models, stigma reductions were greater among healthcare providers than police ( $\beta=-0.51$ ,  $p=0.033$ ).

**Conclusion:** This arts-based intervention engaging women with lived experience of drug use shows promise for reducing stigma toward women who use drugs across diverse audiences, with potential for more sustained effects among healthcare providers, who are critical to reach given their role in shaping access to services. Co-development of the intervention with affected communities may have enhanced relevance and impact.

**Recommendation:** Future work should examine mechanisms of effect, optimal audience composition, and strategies to sustain attitude change over time-particularly among police and community members, where preliminary effects were more modest and showed signs of attenuation. Booster sessions may be a promising way to sustain intervention effects.

## **88. Title: Distribution and Factors Associated with Under-5 Stunting in Tanzania. a Cross-Sectional Analysis of the 2022 Tanzania Demographic and Health Survey**

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**Background:** Child stunting remains a critical public health challenge in Tanzania, hindering physical and cognitive development. Despite a national decline in prevalence from 42% (2005) to 30% (2022), regional disparities persist. This study aimed to identify the distribution and determinants of stunting among children under five years of age in Tanzania using the most recent national data.

**Objectives:** To identify the distribution and factors associated with under-5 stunting in Tanzania using the 2022 TDHS-MIS data.

**Methods:** An analytical cross-sectional study was conducted using secondary data from the 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey/Key Indicators Survey (TDHS-MIS). The study analysed a sample of 2,421 children under five with complete anthropometric and covariate records. The primary outcome was stunting (height-for-age z-score  $< -2$  SD). Data analysis, including descriptive statistics and modified Poisson regression, was performed using Stata 17 to determine adjusted Prevalence

**Results:** The prevalence of stunting in the study sample was 29.16%. Multivariable Poisson analysis revealed that rural residence significantly increased the risk of stunting (aPR = 1.31, 95% CI: 1.13-1.53). Maternal education served as a strong protective factor, with secondary education reducing the risk by 26.5% (aPR = 0.74, 95% CI: 0.6-0.91). Female children were less likely to be stunted than male children (aPR = 0.82, 95% CI: 0.72-0.92). Children born to overweight and obese mothers were less likely to be stunted.

**Conclusion:** These findings highlight the multifactorial nature of stunting and the need for comprehensive interventions addressing both child-level and social determinants. Key priorities include improving maternal and child health services, preventing low birth weight, promoting appropriate feeding practices, enhancing female education, strengthening family support systems, and implementing targeted nutrition programmes in rural areas to reduce stunting and improve child growth outcomes.

**Recommendation:** Prioritize nutrition-sensitive interventions in rural areas by improving food security, healthcare, water, and sanitation. Promote girls' education and integrate nutrition education into schools. Strengthen maternal and newborn health services to reduce low birth weight through improved antenatal care and maternal nutrition. Enhance Infant and Young Child Feeding (IYCF) practices by promoting dietary diversity and appropriate complementary feeding. Address gender disparities.

## **89. Title: Antibiotic Price Formulation in Tanzania: Evidence from National Regulatory Import Permit Data 2010-2016**

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**Background:** Antibiotic pricing is a key determinant of access and stewardship in low- and middle-income countries (LMICs), yet empirical evidence on how prices are formed within pharmaceutical markets remains limited. However, there is little longitudinal evidence on how antibiotic prices behave within national pharmaceutical supply systems. This study evaluated the patterns and determinants of systemic antibiotic pricing in Tanzania using national regulatory import permit data.

**Objectives:** Study aims to provide empirical evidence relevant to pharmaceutical market structure, procurement strategies, and access to essential antibiotics in Tanzania.

**Methods:** We conducted a retrospective analysis of antibiotic importation records from TMDA for 2010-2016. Systemic antibiotics for human use imported via oral or parenteral routes were included. Unit prices (USD per smallest unit of measure) were summarized using the median and interquartile range (IQR). Prices were compared by route of administration, supplier country, and product naming practice (INN-named versus brand-named) using Mann-Whitney U and Kruskal-Wallis tests with false Discovery rate adjustment.

**Results:** Of the 14,301 records, 10,894 (76.2%) met the inclusion criteria. Oral antibiotics predominated (89.6%). Although the median oral antibiotic prices declined over time, substantial price dispersion persisted across all study years. Parenteral antibiotics were consistently more expensive (USD 0.755-3.370) and more variable than oral antibiotics. Importation was concentrated in a few medicines, with amoxicillin-clavulanate (16.7%) and amoxicillin (11.4%) accounting for over one-quarter of records, and in a few supplier countries, with India representing 44.9% of the records.

**Conclusion:** Antibiotic import prices in Tanzania exhibit systematic and reproducible variations associated with formulation type, supplier origin, and product naming practices. The findings indicate that procurement structure and supplier participation strongly influence pricing in the import-dependent pharmaceutical market. Monitoring import-level prices can serve as an upstream indicator of market conditions and support evidence-informed procurement, pricing regulations, and antimicrobial stewardship policies.

**Recommendation:** monitoring import-level prices can function as an upstream indicator of pharmaceutical market behaviour. Integrating import price surveillance into procurement planning, pricing policy, and antimicrobial stewardship may support more efficient purchasing and improve access to affordable, quality-assured antibiotics in Tanzania and other low- and middle-income countries dependent on pharmaceutical imports.



## Communicable Diseases and Antimicrobial Resistance

### 1. **Title:** Clustering of Multiple Risk Behaviours among Young Adults in Tanzania: A Nationally Representative Cross-Sectional Study

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**Background:** Risk-behaviour clustering, defined as the simultaneous engagement in multiple risky behaviours, amplifies vulnerability to HIV and other blood-borne infections among young adults. Despite the growing burden of co-occurring risk behaviours in sub-Saharan Africa, data on the prevalence and correlates of risk behaviour clustering among young adults in Tanzania remain limited. This study determines the prevalence and correlates of risk-behaviour clustering among young adults aged 15-35 years in Tanzania.

**Objectives:** To determine the prevalence and correlates of risk behaviour clustering among young adults aged 15-35 years in Tanzania.

**Methods:** This study utilised data from the Tanzania HIV Impact Survey (THIS) 2022, a nationally representative community-based cross-sectional survey. The analytic sample comprised 12,058 young adults aged 15-35 years who completed the individual interview and provided a biological specimen. Survey-weighted modified Poisson regression with jackknife variance estimation was used to estimate crude and adjusted prevalence ratios (PR) with 95% confidence intervals.

**Results:** The overall prevalence of high-risk behaviour clustering was 17.0% (95% CI: 16.1-17.9%). Males were the strongest correlate of high-risk behaviour clustering (APR=5.63, 95% CI: 4.98-6.35,  $p<0.001$ ). Young adults aged 20-24 years were 33% more likely to be in the high-risk group compared to those aged 15-19 (APR=1.33, 95% CI: 1.14-1.55,  $p=0.001$ ). Being married was protective (APR=0.75, 95% CI: 0.67-0.85,  $p<0.001$ ), while divorced or separated (APR=1.40, 95% CI: 1.17-1.69,  $p=0.001$ ) and widowed (APR=1.79, 95% CI: 1.12-2.85,  $p=0.017$ ) were associated with high risk.

**Conclusion:** High-risk behaviour clustering is common among Tanzanian youth, affecting about one in six individuals. It is strongly associated with male sex, older youth age, marital disruption, lower education, and Hepatitis B seropositivity. These findings highlight the intersection of social, demographic, and health factors in shaping vulnerability, underscoring the need for integrated and context-specific prevention strategies targeting at-risk subgroups.

**Recommendation:** Targeted, gender-responsive interventions should prioritise young men, individuals experiencing marital disruption, and those with lower education levels. Integrating behavioural risk reduction with Hepatitis B screening and prevention services is essential. Programmes should emphasise health education, social support, and early engagement of youth to mitigate clustering of risk behaviours and reduce transmission of HIV and Hepatitis B in Tanzania.

## **2. Title: Bringing Advanced Diagnostics Closer: National Public Health Laboratory Mobile Biosafety Level-3 Units Strengthen Marburg Response**

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**Background:** Marburg Virus Disease (MVD) is a highly fatal viral hemorrhagic fever with case fatality rates of up to 88%. Tanzania has experienced two outbreaks in the Kagera region in 2023 and 2025. During such events, reliance on centralised laboratories can prolong the time to diagnosis. To address this, the National Public Health Laboratory deployed mobile biosafety level-3 units to bring high-containment diagnostic services closer to affected communities.

**Objectives:** To evaluate National Public Health Laboratory mobile biosafety level-3 units' role in improving rapid diagnosis and Marburg outbreak response.

**Methods:** A combined operational evaluation was conducted across both outbreaks. Mobile laboratory units were deployed near outbreak epicentres and used real-time RT-PCR to test 291 suspected cases (96 in 2023; 195 in 2025). Key performance indicators included diagnostic accuracy, turnaround time (TAT), and operational efficiency. Diagnostic concordance was assessed through comparison with reference testing at the National Public Health Laboratory.

**Results:** A total of 11 MVD cases were confirmed across both outbreaks, with 9 cases in 2023 and 2 cases in 2025. The mobile biosafety level-3 units achieved 100% diagnostic concordance with the reference laboratory. The average turnaround time (TAT) was 8 hours, enabling same-day confirmation of suspected cases. This rapid diagnostic capacity supported timely isolation, effective contact tracing, and interruption of transmission chains. Additionally, integrated syndromic testing identified other febrile illnesses such as malaria, HIV, and hepatitis, improving patient management.

**Conclusion:** National Public Health Laboratory mobile biosafety level-3 units played a critical role in strengthening outbreak response by providing rapid, accurate, and decentralised diagnostics. Their successful deployment across two outbreaks demonstrates their importance in enhancing preparedness, accelerating containment, and improving national and regional health security.

**Recommendation:** We recommend scaling up National Public Health Laboratory mobile biosafety level-3 units and investing in more advanced, truck-based mobile laboratories. We also recommend strengthening sustainability through continuous workforce training, reliable supply chains, and routine maintenance. Expanding diagnostic panels and enhancing cross-border collaboration will further support faster detection, coordinated response, and improved regional health security.

## **3. Title: Geospatial-Based Surveillance of Malaria Risk in Dar es Salaam Using a Hybrid 3DCNN+LSTM and Camodel**

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**Presenter:** Edmund Steven Kanjagaile

**Authors:** Edmund Steven Kanjagaile

**Background:** Malaria risk in Dar es Salaam is associated with environmental factors, with a higher risk found close to vegetation, inland water and swamps (Kabaria et al., 2016). The city also faces pressure from urbanisation, environmental degradation, and climate impacts, such as floods and droughts, both of which can increase malaria transmission (Rugai & Kassenga, 2014).

**Objectives:** To identify, map and predict malaria risk areas in various climate, environmental and social circumstances Using 3DCNN+LSTM+CA Model

**Methods:** Data acquisition from DHIS2, NBS and satellite based data feeds into preprocessing and feature engineering; engineered predictors then used to train a hybrid 3DCNN+LSTM model whose outputs propagated spatially by a Cellular Automata (CA) module. The results were then validated against reported malaria cases and projected forward to 2060.

**Results:** High-risk wards (risk values 0.67-1.00) included Pembamnazini, Tundwi, Msongola, Zingiziwa, Chamanzi, Kivule, and Mbweni. Medium-risk wards (0.34-0.66) include Kisarawe II, Toangoma, Buyuni, Mjimwema, Mianzini, Mzinga, Tunji, Temeke, and Kurasini, together with city-centre wards such as Gerezani, Kariakoo, Ilala, Kivukoni, Ukonga, Gongolamboto and Upanga. These risk classifications closely track current malaria case distributions and local breeding sites, particularly in densely populated wards, such as Msongola, Zingiziwa, Jangwani, Ukonga, Gongolamboto and Tundwi.

**Conclusion:** The study identified a concentrated malaria risk in Pembamnazini, Tundwi, Msongola, Zingiziwa, Chamanzi, Kivule, and Mbweni wards. The hybrid deep-learning model (3DCNN+LSTM+CA), which combines environmental and socio-demographic predictors, reproduced these spatial patterns with strong agreement with reported cases. Projections to indicate a steady annual increase in risk of 0.0022 units/year, equivalent to a 7.7% cumulative rise over 35 years

**Recommendation:** Overall, the findings highlight the role of climate and environmental factors in malaria dynamics and support the need for spatially targeted interventions, improved health facility access in peri-urban wards, and integrated urban planning to contain future risks under shifting demographic and climatic conditions.

#### **4. Title: Association between Climate Variability and Age-Specific Malaria Incidence in Selected Regions of Tanzania, 2021-2024**

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**Background:** Malaria remains a major global health concern, with cases rising from 244 million in 2021 to 249 million in 2022, primarily in the WHO African Region. According to climate change projections, an additional 1.6 million people in East Africa will be at risk of contracting malaria by 2030, and by 2050, that number will rise to 1.8 million. Children under five are particularly vulnerable to severe malaria outcomes.

**Objectives:** To determine age-specific vulnerability of malaria due to temperature, precipitation and relative humidity in Kilimanjaro, Songwe, Tanga and Kagera.

**Methods:** The study uses an ecological design, selecting 23 councils through stratified sampling based on malaria transmission risk across four regions. Malaria incidence data were obtained from the National Malaria Control Programme, while climate parameters were sourced from the Tanzania Meteorological Authority. Time-series analysis identified trends and seasonality in climate variables and malaria incidence for the second objective, and multiple linear regression addressed the first and third objectives.

**Results:** Malaria incidence varied significantly, peaking in Ngara and Kilindi DCs, while Moshi and Siha remained the lowest. Vulnerability was highest among individuals aged five and older, especially during the March-May wet season. While minimum temperature and humidity were strong predictors for older groups, climate variables only explained about 4% of the variability (adjusted  $R^2 = 0.039$ ). This suggests that while weather patterns influence transmission, non-climatic factors play a dominant role. Targeted interventions should prioritise high-risk councils and older age groups.

**Conclusion:** People aged  $\geq 5$  years are more vulnerable to malaria due to climate variability as compared to those aged  $< 5$  years. The seasons of the year, particularly the wet seasons (March to May), contribute to a much higher trend in malaria incidence. Average minimum Temperature and Average Relative humidity are the strong predictors of malaria due to climate,

**Recommendation:** Health strategies should prioritise resources and prevention in hotspots such as Ngara and Kilindi, focusing on individuals aged 5 and above. Interventions must align with seasonal peaks using climate data while investigating non-climatic drivers like net usage. This integrated approach addresses both high-risk zones and the significant variability not explained by weather, ensuring more effective malaria control across diverse regional dynamics.

## **5. Title: Retention in HIV Pre-Exposure Prophylaxis among Men at Risk in Tanga, Tanzania**

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**Presenter:** Faithness Kiondo

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**Background:** Men at highest risk and burden of HIV globally and in Tanzania are men who have sex with men (MSM), with HIV prevalence 4.9 times higher than the general population. Pre-exposure prophylaxis (PrEP) has up to 99% effectiveness in preventing HIV transmission. However, retention in PrEP care has been reported to be low globally, with limited evidence from real-world settings in Tanzania.

**Objectives:** To assess retention and associated predictors of PrEP care among men at high risk of HIV in Tanga, Tanzania.

**Methods:** A cross-sectional study involving 369 men was conducted in Tanga. Eligibility criteria included identifying as MSM, being HIV negative, aged 18 years and above, residing in Tanga for at least six months, having had same-sex intercourse within the past three months, and willingness to initiate PrEP. Participants were recruited through respondent-driven sampling, and a modified Poisson regression analysis identified predictors of one-month PrEP retention.

**Results:** A total of 369 men (mean age, 24.7 ( $\pm$  5.5 years)) participated in the study. After one month, 87 participants (23.6%) were retained in PrEP care. Independent factors

associated with retention included assuming a receptive position in anal sex (aPR 1.6, 95% CI: 1.0-2.6,  $p = 0.030$ ), having initiated sexual activity with anal, oral, or thigh sex (aPR 2.1, 95% CI: 1.2-3.8,  $p = 0.011$ ), and having adequate social support (aPR: 1.6, 95% CI: 1.0-2.6,  $p = 0.030$ ).

**Conclusion:** Retention in PrEP care among men at high risk of HIV was low. Social support and sexual behaviour patterns significantly influenced retention, emphasizing the importance of supportive healthcare systems, peer networks, and tailored interventions that address the lived realities of men at risk to improve retention in PrEP services for effective HIV prevention.

**Recommendation:** PrEP programmes should strengthen peer support systems, integrate psychosocial support services, and promote nonjudgmental healthcare environments to improve retention among men at risk of HIV. Community-based interventions addressing PrEP-related stigma, social support needs, and barriers to sustained engagement in care are needed to enhance retention and maximise HIV prevention outcomes.

## **6. Title: Diagnostic Accuracy of Inflammatory Markers for Detection of Bloodstream Infections and Mortality Prediction in Muhimbili National Hospital**

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**Presenter:** Emmanuel Stephano

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**Background:** ICU patients have a 3-fold higher risk of acquiring bloodstream infections (BSIs) compared to other hospitalised individuals. Established risk factors include advanced age, immunosuppression, and invasive procedures. Procalcitonin (PCT) and C-reactive protein (CRP) are widely used biomarkers for BSI diagnosis but have limited accuracy and prognostic value. Although blood culture remains the gold standard, it is hampered by contamination-related false positives, delayed results, and sub-optimal sensitivity. A multi-modal approach integrating

**Objectives:** Aim: To determine the diagnostic accuracy of PCT, CRP, and neutrophil-to-lymphocyte ratio (NLR) for detecting BSIs (Blood culture as reference)

**Methods:** The cross-sectional study at Muhimbili National Hospital enrolled 142 ICU patients with suspected bloodstream infections over nine months. Suspected BSI was defined by clinical signs of infection. Blood samples were collected within 48 hours for procalcitonin, C-reactive protein, neutrophil-to-lymphocyte ratio, and blood culture (reference standard). Diagnostic accuracy for BSI and prognostic value for in-hospital mortality were assessed using ROC curves.

**Results:** Among 142 patients, 38 had true BSIs after excluding contaminants. PCT levels were significantly higher in BSI-positive patients (median 22.14 vs. 3.26 ng/mL;  $p=0.0006$ ), whereas CRP ( $p=0.931$ ) and NLR ( $p=0.126$ ) were not. PCT achieved the highest accuracy (AUC=0.695; 95%CI: 0.584-0.800). At optimal cutoff  $\geq 19.00$  ng/mL, PCT had sensitivity 57.9% and specificity 85.5%. On multivariable analysis, PCT was the only independent predictor (adjusted OR=1.471;  $p=0.003$ ). For mortality, all markers performed poorly (PCT AUC=0.589; CRP AUC=0.588; NLR AUC=0.547).

**Conclusion:** In this ICU population, PCT at an optimal cutoff of  $\geq 19.00$  ng/mL is a useful rule-in marker for BSI, offering high specificity (85.5%) but limited sensitivity (57.9%). Both CRP and NLR have no meaningful diagnostic value. None of the inflammatory markers reliably

predict in-hospital mortality. Blood culture currently remains the gold standard, and PCT should serve only as an adjunctive

**Recommendation:** We recommend using PCT at a cutoff  $\geq 19.00$  ng/mL as a rule-in adjunctive test for bloodstream infections in ICU patients, given its high specificity (85.5%). CRP and NLR should not guide BSI diagnosis due to poor accuracy. Blood culture remains essential. No inflammatory marker reliably predicts in-hospital mortality, so clinical judgment and microbiological confirmation stay paramount.

## **7. Title: Social and Economic Risks/harms of HIV Vaccine Trial Participation in Tanzania**

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**Presenter:** Judith Shayo

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**Background:** Recently, HIV vaccine trials have increasingly been conducted in low- and middle-income countries (LMICs) where the prevalence of the disease is comparatively higher. The physical risks of HIV vaccine trials, such as adverse effects and side effects, are usually documented as part of trial monitoring. However, non-physical risks are less explored and may persist long after the conclusion

**Objectives:** The aim of this study was to identify the social and economic risks/harms of HIV vaccine trial participation in Tanzania

**Methods:** This manuscript presents a portion of data obtained through the qualitative part of a sequential mixed method study designed to explore the risks and benefits of participating in HIV vaccine trials. Twenty-five participants and eleven researchers were recruited through snowball sampling technique from two research centres in Tanzania. We collected data through in-depth interviews and performed thematic analysis using NVivo 14 software.

**Results:** Social harms were prominent in this study and included time trade-offs and missed jobs due to restricted mobility. They stemmed from confidentiality breaches and vaccine-induced seropositivity (VISP). Participants were blamed for receiving large sums of money to join what was perceived as a “dangerous study”; family conflicts; inability to donate blood; and difficulty in finding a romantic partner. Social and economic harms were intertwined, with one often leading to the other.

**Conclusion:** Participants of completed HIV vaccine trials experience social and economic harms that may affect their quality of life long after participation. This manuscript identifies and documents the social and economic harms as part of the non-physical risks of clinical research participation. We documented the qualitative accounts of researchers and participants on the social and economic harms of the HIV vaccine.

**Recommendation:** We recommend a lived-experience study to examine the strategies utilised by participants living with social and economic harms of HIV vaccine trial participation, which would provide insights into harm minimisation strategies for non-physical risk.

## **8. Title: Molecular Characterisation of Antimicrobial Resistance and Virulence Genes in Escherichia Coli and Klebsiella Pneumoniae Isolated**

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**Background:** Urinary tract infections (UTIs) are prevalent globally, with *Escherichia coli* and *Klebsiella pneumoniae* as primary causative agents. They contribute 86.36% and 10.53% of UTI cases in Tanzania. These pathogens exhibit numerous antimicrobial resistance (AMR) and virulence genes, complicating treatment strategies. Thus, understanding their molecular characteristics is crucial for effective management.

**Objectives:** To investigate the molecular characteristics of AMR and virulence genes in *E. coli* and *K. pneumoniae* isolated from patients with UTI.

**Methods:** A cross-sectional study was conducted using 50 archived UTI isolates (25 *E. coli*, 25 *K. pneumoniae*). Five AMR genes and three virulence genes were detected using PCR. Phenotypic susceptibility was interpreted using CLSI 2025 guidelines. Associations were assessed using Chi-square, Spearman correlation, principal component analysis (PCA), and Cohen's kappa. False discovery rate correction (Benjamini-Hochberg) was applied to reduce false-positive results due to multiple testing.

**Results:** *Sul1* and *tetA* were the most prevalent genes in *E. coli* (48% each), while *aac(6')-Ib-cr* predominated in *K. pneumoniae* (48%). Virulence genes *mrkD* and *papC* were detected in 60% and 52% of *E. coli*, respectively. No robust gene-gene associations were observed; the only nominal association (*mrkD* vs *aac(6')-Ib-cr*,  $p = 0.042$ ) lost statistical significance after multiple testing correction. Correlations were weak ( $\phi = -0.18$  to  $+0.21$ ). Genotype-phenotype agreement ranged from substantial for *tetA*-tetracycline and *sul1*-trimethoprim to slight for  $\beta$ -lactams.

**Conclusion:** In this study, AMR and virulence genes seem to be largely independently distributed, with no statistically robust evidence of co-selection. The findings reflect the population structure to predominantly be driven by AMR determinants, with genotype-phenotype concordance varying with antibiotic class. These findings highlight the need for integrated molecular and phenotypic surveillance of uropathogens in Tanzania.

**Recommendation:** Based on our findings, I recommend strengthening integrated molecular and phenotypic surveillance of uropathogens, promoting rational antibiotic use through antimicrobial stewardship programmes, incorporating molecular diagnostics into routine testing, and conducting larger multicentre genomic studies to better understand antimicrobial resistance and virulence patterns in Tanzania.

## **9. Title: Bacterial Profile and Antibiotic Sensitivity among Patients Admitted in ICU at Mbeya Zonal Referral Hospital**

**Presenter:** Zumba M.

**Authors:** Zumba M., Mrutu S., Jongo A.

**Background:** Sepsis is a global health problem. Patients in the intensive care units (ICU) are at risk of acquiring sepsis due to their vulnerability and exposure to invasive medical devices. Understanding bacterial profiles and antibiotic-sensitivity patterns in the ICU is important for managing sepsis, optimising antimicrobial use, and improving patient outcomes.

**Objectives:** To determine bacterial profile and antibiotic sensitivity patterns among sepsis-suspect patients admitted to the ICU at Mbeya Zonal Referral.

**Methods:** A prospective cross-sectional study among sepsis-suspected patients. Data analysis was performed using SPSS Version 26. Categorical data were summarised as frequencies and percentages. The Fisher's exact test, chi-square test, and Modified Poisson regression were used to show the association between patients' clinical variables and bacterial profile at 95% CI. A statistical significance set at a p-value < 0.05.

**Results:** Out of 187 samples, 41.7% were culture positive. Gram-negative bacteria were commonly isolated (65.4%), with *K. pneumoniae* and *E. coli* being common isolates. All isolates were resistant to at least one of the commonly used antimicrobials in the ICU. Gram-negative bacteria were sensitive to carbapenems only. In multivariable analysis, post-laparotomy (aPR 3.53, 95% CI 1.516-8.228, p=0.003) and Intubated, mechanically ventilated patients (aPR 2.20, 95% CI 1.113-4.305, p=0.023) patients were independently associated with gram-negative bacteria.

**Conclusion:** Gram-negative bacteria with high level of resistance to commonly used antibiotics are commonly isolated in septic patients.

**Recommendation:** Local antimicrobial sensitivity pattern should guide empirical antibiotic therapy. Rational use of antibiotics, especially towards carbapenems which seem to be the last resort for Gram negative bacteria in the ICU. Strengthen antimicrobial stewardship in the ICU to mitigate antimicrobial resistance.

## 10. Title: Drivers Influencing Antibiotics Use in Paediatric Wards Across Five Public Hospitals in Zanzibar

**Presenter:** Faiza Mohamed Juma

**Authors:** Faiza Mohamed Juma, Abrahaman Said Msellem, Stanley Mwita, Muhiddin Omar, Khadija Omar, Daniel Joshua, Ahlam Amour, Hafidh Hassan, Salma Hashoul, Muhiddin A. Mahmoud, Simon Kühnert, Mayassa Said M. Ali, Ali Said, Jyoti Joshi, Fabian Maza, Brecht Ingelbeen, Eveline T. Konje, Anja Poulsen, Stine Lund, Jeremiah Seni, the Zan-TOTO collaborators

**Background:** Strengthening antimicrobial stewardship (AMS) is a major public health strategy to reduce inappropriate antibiotic use (AMU) and averting antibiotic resistance (AMR). Evidence on AMU and AMS programme implementation is widely documented in Tanzania mainland. However, there is limited information on AMU and AMS programmes to guide the implementation of the Zanzibar Action Plan on AMR.

**Objectives:** To determine AMU prevalence, associated factors, and assess AMS programme performance in paediatric wards across hospitals in Zanzibar.

**Methods:** A repeated cross-sectional study used the WHO Point Prevalence Survey (WHO-PPS) tool during February-April 2024 and December 2024-May 2025, alongside a one-time WHO Health Care Facility Core Element Indicators assessment in April 2024. The study included children aged ≤13 years admitted to paediatric wards in five public hospitals in Zanzibar. Healthcare providers and AMS teams assessed AMS indicators. WHO-PPS data were analysed using descriptive statistics and multivariate modified Poisson regression.

**Results:** Of 943 paediatric patients, 826 (87.6%) received at least one antibiotic. Community-acquired infections were the main reason for antibiotic use, with pneumonia (%) and sepsis

(%) most common, while gentamicin (%), ampicillin (%), and ceftriaxone (%) were frequently prescribed. Culture testing was low (%). Significant predictors of AMU included hospital tier (regional: aPR 1.39, 95%CI 1.30-1.50; and district level: aPR 1.35, 95%CI 1.26-1.46); and higher disease severity shown by ultimately fatal McCabe score, (aPR 1.20, 95%CI: 1.07-1.33). The AMS programme's performance was below 50%.

**Conclusion:** Antibiotic use among admitted children was markedly prevalent, notably by the Watch category of antibiotics, and limited reliance on bacteriological culture. These findings underscore the urgent need to strengthen AMS programmes through the establishment of regular monitoring and feedback of antibiotic prescription practices and improve diagnostic stewardship across hospitals in Zanzibar.

**Recommendation:** Future research should focus on long-term prescribing trends, AMU linkage with AMR patterns, structured AMS interventions, and comparison of AMS programmes between public and private hospitals.

## **11. Title: Metagenomic Profiling of Antibiotic Resistance Genes in the Gut Microbiota of Urban and Rural Populations**

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**Presenter:** Mbwana Mohamed Kasim

**Authors:** Mbwana Mohamed, Linda S. Paulo, Florence Urio, Emmanuel Saukiwa, Mohamed Zahir

**Background:** Antimicrobial resistance (AMR) is a major global health threat, particularly affecting low- and middle-income countries such as Tanzania. The human gut microbiome contains a diverse reservoir of antibiotic resistance genes (ARGs), known as the gut resistome, which can spread through mobile genetic elements and horizontal gene transfer. Despite high antibiotic use and limited surveillance capacity, Tanzania lacks shotgun metagenomic studies comparing gut resistomes between urban and rural populations.

**Objectives:** Aim: To determine the profile of antibiotic resistance genes in the gut microbiota of rural and urban participants in Tanzania.

**Methods:** A cross-sectional secondary analysis used shotgun metagenomic data from 224 adults in urban Dar es Salaam and rural Tanga. Antibiotic resistance genes (ARGs) were identified using the Resistance Gene Identifier pipeline with CARD. Alpha and beta diversity analyses assessed resistome variation, while DESeq2 and MaAsLin3 identified differentially abundant ARGs. Mobile genetic element associations were literature-classified, and ecological co-occurrence patterns were explored using Spearman correlation-based network analysis.

**Results:** Shotgun metagenomic analysis revealed a highly diverse gut resistome, with urban participants showing significantly higher ARG richness and diversity than rural participants. All major drug resistance classes were more abundant in urban samples, particularly rifamycin, macrolide, fluoroquinolone, aminoglycoside, and beta-lactam resistance genes. PERMANOVA confirmed significant urban-rural resistome separation. Rural samples were enriched with specific chromosomal and glycopeptide resistance genes, while urban participants carried more MGE-associated ARGs. Network analysis demonstrated distinct ecological structures and associations with socioeconomic and behavioural factors.

**Conclusion:** This study provides the first shotgun-metagenomics-based characterisation of the gut resistome in Tanzanian community populations, demonstrating that urban residence is

associated with a comprehensively expanded ARG repertoire, while rural gut resistomes carry disproportionately higher relative abundances of chromosomal and glycopeptide resistance determinants consistent with One Health transmission dynamics.

**Recommendation:** These findings call for targeted antimicrobial stewardship in urban settings, One Health-framed interventions in rural areas, and the institutionalisation of metagenomics-based AMR surveillance within Tanzania's national health research infrastructure.

## **12. Title:** Toolcap: Novel Tools to Improve Management of Paediatric Community-Acquired Pneumonia - a Randomised Controlled Trial

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**Presenter:** Mustafa Miraji

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**Background:** Lower respiratory tract infections are the leading infectious cause of death in children under five, especially in sub-Saharan Africa. WHO IMCI guidelines often lead to substantial antibiotic overuse despite low confirmed rates of bacterial pneumonia. Lung ultrasound is a portable, radiation-free diagnostic tool with high sensitivity and specificity for pneumonia diagnosis. However, multicountry randomised trials assessing its impact on antibiotic use and clinical outcomes in low-resource settings remain limited, evidence gaps.

**Objectives:** Evaluate LUS integration IMCI pneumonia reducing Day1 antibiotics without inferiority clinical failure Day8 TB imaging comparison sub-study TB confirmation proportion

**Methods:** ToolCAP is a multicountry study in Tanzania, Senegal, and South Africa evaluating Lung Ultrasound for paediatric pneumonia diagnosis. It includes a randomised controlled trial of 3,500 children, observational and TB sub-studies, qualitative research, and capacity building. The intervention compares Lung Ultrasound-guided IMCI care versus standard care. Outcomes include Day 1 antibiotic use, Day 8 clinical failure, TB diagnosis accuracy, and other clinical and treatment measures.

**Results:** Interim data from Dar es Salaam show 12,164 children screened, with 7,888 meeting criteria. Common symptoms include cough, fast breathing, and IMCI-defined pneumonia. The observational cohort enrolled 191 children, while the randomised trial enrolled 1,161 (578 intervention, 583 control). Follow-up rates are high ( $\approx 98\%$ ). The TB sub-study enrolled 44 participants. Recruitment is ongoing toward a 2,000-child target, with final analyses planned after completion of enrolment and follow-up.

**Conclusion:** ToolCAP evaluates Lung Ultrasound as a point-of-care diagnostic tool for paediatric pneumonia in low-resource settings, aiming to reduce unnecessary antibiotic use while ensuring clinical safety. Interim results show strong recruitment, high follow-up completion, and successful multi-country implementation. Final analyses will assess whether Lung Ultrasound-guided care is non-inferior in clinical outcomes while significantly reducing antibiotic prescriptions. Findings could inform WHO IMCI

**Recommendation:** If final findings show reduced antibiotic use without harming outcomes, Lung Ultrasound should be integrated into paediatric pneumonia guidelines in sub-Saharan Africa. Sustainable training for clinicians should be strengthened. Future research should assess long-term effects on antimicrobial resistance and expand Lung Ultrasound use for

childhood respiratory diseases, including tuberculosis, to improve diagnosis and management in low-resource settings.

### **13. Title: Spectrum of Respiratory Diseases, Associated Factors and Quality of Life among Adult Patients at MNH**

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**Presenter:** Sebastian Marwa

**Authors:** Sebastian Marwa, Sibtain Moledina, Grace Shayo

**Background:** Respiratory diseases are major causes of global morbidity and mortality, contributing substantially to hospital deaths in Tanzania. Common conditions include asthma, COPD, pneumonia, tuberculosis, and lung cancer, with disease burden amplified by pollution, socioeconomic challenges, and limited healthcare access. These conditions significantly impair quality of life through chronic symptoms and functional limitation. However, data on disease spectrum, associated factors, and quality of life among respiratory patients in Tanzania remain limited

**Objectives:** To determine the spectrum of respiratory diseases, associated factors, and health-related quality of life among adult patients at MNH

**Methods:** A hospital-based descriptive cross-sectional study was conducted over 6 months at the respiratory unit of MNH involving adult inpatients and outpatients with respiratory diseases. A total of 320 participants aged  $\geq 18$  years were consecutively enrolled. A structured questionnaire consisting of socio-demographic characteristics, clinical parameters, respiratory risk factors, and final diagnoses was used. Health-related quality of life was determined by the WHOQOL-BREF Questionnaire.

**Results:** Pneumonia (21.6%), tuberculosis (19.1%), asthma (17.2%), lung tumours (14.7%), and COPD (9.1%) were the predominant diseases. Smoking, biomass exposure, obesity, HIV, occupational exposure, and cardiovascular comorbidities were major associated factors. Almost one-third of patients had poor quality of life (HRQoL), particularly among inpatients. Poor HRQoL was independently associated with having lung tumour, pneumonia, asthma, and any comorbidity; the physical and psychological domains were most affected. Environmental and lifestyle exposures significantly contributed to disease burden and impaired HRQoL.

**Conclusion:** Respiratory diseases were mainly infectious, obstructive airway diseases, and malignant conditions. Common modifiable risk factors included cigarette smoking, Indoor biomass exposure, occupational hazards, and prior TB. Nearly one-third of patients had poor quality of life, mainly affecting physical and psychological domains. Lung tumours, asthma, pneumonia, and comorbidities were independently associated with poor quality of life.

**Recommendation:** Strengthen control of modifiable respiratory risk factors, including tobacco use, biomass exposure, and occupational hazards through safer energy and effective PPE use. Integrate quality-of-life assessment into routine respiratory care and improve early diagnosis and access to specialised services. Conduct large prospective and multicentre studies across different healthcare levels to evaluate respiratory disease patterns, risk factors, and quality-of-life outcomes.

#### **14. Title: Knowledge Gaps and Practices of Pharmaceutical Personnel Towards Combating Antimicrobial Resistance in Tanzania's Community Pharmacies**

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**Presenter:** Flavian B. Sanga

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**Background:** Antimicrobial resistance (AMR) is among the leading global public health threats, particularly affecting low- and middle-income countries where community pharmacies are major antimicrobial sources. Irrational antimicrobial use contributes significantly to resistance development. Pharmaceutical personnel play an essential role in antimicrobial stewardship and rational dispensing practices. However, limited evidence exists regarding their knowledge and practice gaps in combating AMR in Tanzanian community settings, highlighting the need for this qualitative assessment study.

**Objectives:** To explore knowledge gaps, dispensing practices gaps, and proposed mitigation strategies towards combating antimicrobial resistance among pharmaceutical personnel in Tanzania.

**Methods:** An exploratory qualitative study was conducted among pharmaceutical personnel (Pharmacist, Pharmaceutical technician and Pharmaceutical assistants) working in community pharmacies and ADDOs in Dar es Salaam and Dodoma regions. In-depth interviews using semi-structured guides were employed to collect data on antimicrobial resistance knowledge, dispensing practices, and mitigation strategies. 18 participants were purposively selected. Interviews were audio-recorded, transcribed verbatim, and analysed thematically through coding, categorization, and development of themes and Sub-themes.

**Results:** Preliminary thematic findings revealed varying understanding of AMR among pharmaceutical personnel, particularly regarding resistance mechanisms and stewardship practices. Dispensing without prescriptions, patient pressure, financial motivations, and inadequate trainings emerged as contributors to irrational antimicrobial use. Participants acknowledged the burden of AMR but identified limited training opportunities, weak regulatory enforcement, and insufficient patient awareness as barriers to combating AMR. Suggested mitigation strategies included strengthened antimicrobial stewardship programmes extended to Community pharmacies, regular professional training, public education campaigns, and enhanced regulatory supervision.

**Conclusion:** The study identified important knowledge gaps and inconsistent antimicrobial dispensing practices among pharmaceutical personnel in Tanzanian community settings. Irrational dispensing behaviours, combined with weak antimicrobial stewardship implementation and limited professional development, may contribute to increasing antimicrobial resistance. Strengthening professional education, policy enforcement, and awareness initiatives is essential to improve rational antimicrobial use and support national efforts combating antimicrobial resistance.

**Recommendation:** The Ministry of Health and regulatory authorities should strengthen antimicrobial stewardship interventions within community pharmacies and ADDOs. Continuous professional development programmes focusing on antimicrobial resistance and rational dispensing practices should be regularly implemented for all pharmaceutical cadres. Public awareness campaigns and stricter enforcement of prescription-only antimicrobial policies are recommended to improve dispensing practices and reduce antimicrobial resistance in Tanzanian communities,

## **15. Title: Comparison of Determinants of Unfavourable Tuberculosis Treatment Outcomes among New and Recurrent Patients in Tanzania**

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**Background:** The burden of Tuberculosis (TB) is still high in sub-Saharan African countries, including Tanzania, with its impacts experienced across individual, family, and national levels. TB is associated with poorer outcomes when presenting as a recurrent infection compared to a new infection. However, evidence on the comparison of treatment outcomes and their determinants among new and recurrent TB patients in Tanzania is scarce.

**Objectives:** We compared the prevalence and determinants of unfavourable treatment outcomes among new and recurrent TB patients in Tanzania.

**Methods:** We analysed secondary data of 316,205 new and recurrent TB patients registered in the national TB database between 2018 and 2021. We used frequencies and proportions to summarize descriptive statistics and a chi-square test to perform bivariable analysis. A mixed-effects multivariable logistic regression, with clustering at the facility level, was used to identify factors associated with unfavourable outcomes among new and recurrent patients separately. The identified factors were then compared.

**Results:** Among 316,205 TB patients, 139,389 (44.08%) were aged 25-49 years, 190,534 (60.26%) were male, and 309,895 (98%) were new TB patients. Recurrent TB patients had a higher prevalence of unfavourable treatment outcomes relative to new patients. Shared determinants included age, geographical zone, DOT option, HIV status, and TB diagnostic method. The TB diagnostic method showed opposite associations: relative to clinical diagnosis, bacteriological diagnosis increased the odds among new patients (OR: 1.09, 95%CI: 1.05-1.14) but decreased the odds among recurrent patients (OR: 0.72, 95%CI: 0.53-0.97).

**Conclusion:** Recurrent TB patients are more likely to experience unfavourable treatment outcomes compared to new TB patients. The two patient groups had five common determinants of unfavourable outcomes, and all determinants, except the TB diagnostic method, showed relatively similar strengths and direction of association. The association between the TB diagnostic method and unfavourable treatment outcomes was reversed in the two groups.

**Recommendation:** The reported common determinants of poor treatment outcomes should be prioritised during resource mobilisation to improve treatment outcomes. Additionally, priority should be given to recurrent patients, as they are more likely to have unfavourable outcomes than new patients.

## **16. Title: Surveillance of Antibiotic Resistance in Clinical Isolates to Inform Antimicrobial Stewardship in Tanzania**

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**Presenter:** Annabel Itaeli

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**Background:** Antimicrobial resistance (AMR), particularly antibiotic resistance (AR), is a major global public health concern, with the impact being especially severe in low-resource settings. In Tanzania, the availability of national-level data on AR has remained limited, particularly following the COVID-19 pandemic.

**Objectives:** We synthesised recent evidence on AR patterns among clinical bacterial isolates to inform antimicrobial stewardship and guide national policymaking.

**Methods:** This systematic review and meta-analysis were conducted following PRISMA 2020 guidelines and registered in PROSPERO (CRD420251043755). PubMed, Scopus, and Embase were searched for studies published from inception to May 2025. Eligible studies reported antibiotic susceptibility testing (AST) results from clinical specimens collected in Tanzania between 2021 and 2025. Pooled resistance proportions with 95% confidence intervals (CI), heterogeneity ( $I^2$ ), and p-values were calculated using a random-effects model.

**Results:** Twelve studies were included; 11 qualified for meta-analysis. Penicillin showed the highest pooled resistance at 91%. The lowest resistance was observed for vancomycin (3%), nitrofurantoin (6%), and meropenem (5%). Neonates exhibited high resistance to ampicillin (83%; 95% CI: 47-97%;  $I^2 = 91%$ ;  $p = <0.0001$ ) and gentamicin (53%).

**Conclusion:** This study demonstrates a high burden of antibiotic resistance in Tanzania, with resistance proportions exceeding 50% in nearly 40% of the antibiotics analysed. The widespread resistance in community-acquired pathogens and first-line treatments, especially among neonates, reflects a critical threat to clinical effectiveness.

**Recommendation:** These findings highlight the urgent need for localised surveillance, data-driven AMS initiatives and the revision of access, watch and reserve antibiotics in Tanzania.

## **17. Title:** HIV-syphilis Co-Infection and Its Determinants among High-Risk Women in Njombe Region, Tanzania, 2026

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**Background:** Human immunodeficiency virus (HIV) and syphilis remain major public health concerns among women at high risk (WHR) due to shared transmission routes and overlapping behavioural risk factors. In Tanzania, WHR continues to bear a disproportionate burden of HIV and sexually transmitted infections despite ongoing prevention interventions. However, evidence on HIV-syphilis co-infection in high-burden settings such as Njombe Region remains limited.

**Objectives:** To determine the prevalence and determinants of HIV-syphilis co-infection among WHR in Njombe Region, Tanzania

**Methods:** An analytical cross-sectional study was conducted among 485 WHR in Njombe Region. Participants were recruited using respondent-driven sampling (RDS). Data were collected using a structured electronic questionnaire adapted from national integrated bio-behavioral surveillance tools and on-site dual HIV/syphilis rapid testing. RDS-II-weighted analysis was performed in Stata version 17 to account for the network-based sampling design.

Multivariable logistic regression identified determinants of HIV-syphilis co-infection. Statistical significance was set at  $p < 0.05$ .

**Results:** The weighted prevalence of HIV was 16.2% (95% CI: 13.2-19.8), while syphilis prevalence was 15.1% (95% CI: 12.0-18.7). HIV-syphilis co-infection prevalence was 5.5% (95% CI: 3.8-7.9). Women aged  $\geq 30$  years had significantly higher odds of co-infection than those aged 18-24 years (aOR = 3.12; 95% CI: 1.04-9.34). Participants who occasionally consumed alcohol had lower odds of co-infection than those who always consumed alcohol (aOR=0.34; 95% CI: 0.14-0.82).

**Conclusion:** HIV and syphilis remain substantially prevalent among WHR in Njombe Region. Older age and alcohol consumption were important factors associated with co-infection

**Recommendation:** Strengthening integrated HIV/STI interventions, including behavioural interventions targeting alcohol use, is essential to reduce new infections among WHR.

## **18. Title: Evaluating Disaster Response Capacity among Community Healthcare Workers in Dar es Salaam, Tanzania:**

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**Background:** Disasters affect nearly 200 million people annually and cause over 1.2 million deaths globally in the past two decades. Africa remains highly vulnerable due to weak emergency systems and limited resources. In Tanzania, recurrent floods, cholera outbreaks, COVID-19, and urban emergencies continue to strain healthcare systems, particularly in Dar es Salaam. Community healthcare workers (CHWs) are frontline responders in surveillance, referral, and health education; however, their disaster response capacity remains inadequate.

**Objectives:** This study aims to evaluate levels of disaster response capacity, barriers, and associated factors among Community Healthcare workers in Dar es Salaam.

**Methods:** A community-based convergent mixed-methods cross-sectional study was conducted among government-employed CHWs in Dar es Salaam. A total of 199 participants were included, with 177 in the quantitative and 22 in the qualitative component. Quantitative participants were randomly selected using structured questionnaires, while qualitative participants were purposively recruited for interviews and focus group discussions until saturation. Quantitative data were analysed using SPSS v20, and qualitative data were analysed thematically.

**Results:** More than half of CHWs demonstrated moderate disaster response capacity, with 110/177 (62.1%) moderate, 62/177 (35.0%) high, and 5/177 (2.8%) low capacity. Unmarried CHWs had higher odds of better response capacity than married CHWs (AOR = 2.14, 95% CI: 1.13-4.05,  $p = 0.020$ ). Qualitative findings showed CHWs mainly performed surveillance, referral, health education, and psychosocial support. Major barriers included inadequate training, lack of drills, PPE shortages, poor transport, weak coordination, and limited emergency-response skills.

**Conclusion:** More than half of the CHWs demonstrated moderate disaster response capacity; however, major gaps remained in practical emergency-response skills, disaster-specific training, coordination systems, and resource availability. CHWs mainly focused on

surveillance, health education, and referral activities rather than technical emergency management and advanced disaster response skills.

**Recommendation:** Strengthening practical disaster-response capacity among CHWs through regular drills, simulation exercises, triage, and first-aid training is necessary. Improving PPE availability, transport systems, communication infrastructure, emergency supplies, and institutional support mechanisms is essential to enhance effective community-level disaster response.

## **19. Title: Diagnostic Utility of Chest HRCT in Diagnosing Pulmonary Tuberculosis among GeneXpert-Tested Patients**

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**Background:** Pulmonary Tuberculosis (PTB) remains a major global health challenge, with 25% reported to be in Sub-Saharan Africa (SSA). Chest HRCT has emerged as a valuable tool in diagnosing PTB and has been made available up to the level of regional hospitals in our country; however, its diagnostic accuracy, compared with microbiological methods for evaluating PTB, remains uncertain.

**Objectives:** To determine the diagnostic Utility of Chest HRCT in Diagnosing Pulmonary Tuberculosis Among GeneXpert-Tested Patients.

**Methods:** A hospital-based cross-sectional study was conducted at Muhimbili National Hospital (MNH), involving patients suspected of having pulmonary tuberculosis who underwent chest HRCT scans between January 2023 and January 2026. Socio-demographic data, HRCT findings and GeneXpert results obtained from MNH's electronic medical records (EMR) system. Assessment of diagnostic accuracy against the microbiological confirmatory test was performed using sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and overall diagnostic accuracy.

**Results:** 301 participants were recruited, median age of 52 years (IQR: 35-66 years). Most participants were male (57.8%), and 54.5% were aged 51 years or older. Consolidation 67.1%, lymphadenopathy 48.1, nodules 37.3%, pleural effusion 34.8%, cavitation 31.6%, and tree in bud appearance 20.3% were the most common HRCT patterns observed. A total of 77 participants (25.58%) tested positive for PTB using GeneXpert. Chest HRCT demonstrated sensitivity of 84.4%, specificity of 58.5%, PPV of 41.1%, NPV of 91.6%, and overall diagnostic accuracy of 65.1%.

**Conclusion:** Chest HRCT demonstrated high sensitivity (84.41%) and high negative predictive value (91.60%) but moderate specificity (58.48%) in detecting pulmonary tuberculosis among suspected cases. Overall diagnostic accuracy was 65.12%, indicating that HRCT is more reliable for ruling out PTB than for confirming it. Therefore, HRCT should be used as a complementary tool alongside microbiological tests rather than as a standalone diagnostic test.

**Recommendation:** Chest HRCT can be used as a complement to microbiological testing in patients suspected of having PTB. Further multicentre studies with standardised HRCT interpretation protocols can provide guidelines to improve diagnostic accuracy and help clinicians make appropriate decisions.

## **20. Title: “How Will I Manage?”: Challenges of Aging with HIV in Urban Tanzania**

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**Background:** As people living with HIV survive into older age, determinants of quality of life extend beyond HIV to include aging-related comorbidities and social vulnerability. However, little is known about how older adults living with HIV in Tanzania experience and make sense of these challenges.

**Objectives:** To explore challenges affecting quality of life among older adults living with HIV in urban Tanzania.

**Methods:** We conducted a qualitative study using a phenomenological approach between April and June 2024. Twenty in-depth interviews were conducted with adults aged  $\geq 50$  years purposively recruited from seven HIV clinics in urban Dar es Salaam, Tanzania. Interviews explored six quality-of-life domains: physical health, psychological health, level of independence, social relationships, environment, and spirituality. Data were analysed thematically using a domain-guided coding framework.

**Results:** Participants were aged 50-79 years, half were female, and duration of living with HIV ranged 5-29 years. The greatest burdens were reported in physical health, independence, environment, and psychological wellbeing. Pain, fatigue, numbness, poor vision, and reduced strength limited mobility, work and daily functioning. For many, this loss of functioning contributed to low income, food insecurity, poor housing, transport barriers and unaffordable treatment for comorbidities, which in turn intensified worry, loneliness, shame and uncertainty about the future.

**Conclusion:** Among older adults living with HIV in Urban Tanzania, poor quality of life is shaped by interconnected physical, functional, environmental and psychological challenges. Interventions focused narrowly on HIV management alone are unlikely to address the main sources of suffering in this population.

**Recommendation:** HIV programmes, clinics, and policymakers should integrate screening for functional, psychological, and socioeconomic needs into routine HIV care, with referral pathways for comorbidity treatment, mental health support, and social protection for older adults living with HIV.

## **21. Title: Unlocking the Antimicrobial Potential of Endophytic Metabolites Against Antimicrobial Resistance: Fractionation and Integrative Omics Approaches**

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**Presenter:** Meshack Lugoba

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**Background:** Antimicrobial resistance (AMR) is a growing global health threat, demanding novel therapeutic strategies. Endophytic microorganisms are promising sources of bioactive metabolites with diverse antimicrobial properties. However, their potential remains underexplored due to limited systematic screening and characterisation. Integrating bioassay-guided fractionation with omics-based approaches offers a powerful strategy to identify, characterize, and optimize novel antimicrobial compounds targeting resistant pathogens.

**Objectives:** To identify and characterize antimicrobial metabolites from the isolated endophytes using bioassay-guided fractionation and integrative omics to combat antimicrobial resistance.

**Methods:** Endophytic microorganisms will be isolated from selected host plants and cultured under optimised conditions. Crude extracts will be prepared and screened for antimicrobial activity against resistant pathogens. Active extracts will undergo bioassay-guided fractionation to isolate potent compounds. Metabolomic and genomic analyses will be integrated to identify and characterize bioactive metabolites.

**Results:** Preliminary screening identified several endophytic extracts with significant antimicrobial activity against resistant bacterial strains. Bioassay-guided fractionation yielded distinct active fractions. Early metabolomic profiling suggests the presence of diverse secondary metabolites. Genomic insights indicate biosynthetic gene clusters linked to antimicrobial production.

**Conclusion:** Endophytes represent a promising and underexplored source of antimicrobial agents. Integrating bioassay-guided fractionation with omics approaches enhances discovery efficiency. Early findings support their potential in addressing antimicrobial resistance and guiding future drug development strategies.

**Recommendation:** Future studies should expand sampling of diverse host plants and environments to enhance metabolite discovery. Advanced omics integration and dereplication strategies are recommended to accelerate the identification of novel compounds. Further in vivo validation and toxicity assessments are essential. Strengthening interdisciplinary collaboration will improve translation of endophytic metabolites into viable antimicrobial therapies.

## **22. Title: First-Time Donor Dominance Sustains Transfusion-Transmissible Infection Risk in Tanzania**

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**Presenter:** Adam Kilungu

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**Background:** Voluntary non-renunerated blood donation (VNRBD) is the cornerstone of transfusion safety policy. Despite the expansion of voluntary donation across sub-Saharan Africa, transfusion-transmissible infection (TTI) prevalence among donors remains high. Most programme evaluations focus on donation type rather than donor pool composition. This study examines whether structural dominance of first-time donors sustains residual TTI risk in Tanzania's Southern Highlands Zone, even as voluntary donation expands.

**Objectives:** To characterise donor pool composition, quantify TTI risk gradients, and assess whether voluntary donation expansion reduces infection burden in the Southern highland zone of Tanzania.

**Methods:** Retrospective analysis of 174,543 consecutive blood donations (2019-2023) from Tanzania's National Blood Transfusion Service, Southern Highlands Zone. Two analytic populations were constructed: a donation-level dataset for temporal trends and a donor-year dataset (169,672 donor-years), restricting each donor to one observation per year. Multivariable logistic regression estimated adjusted odds ratios (aORs) for any TTI (HIV, HBV, HCV, syphilis), adjusting for age, sex, donation type, and calendar year.

**Results:** Annual donation volume more than doubled (2019-2023); voluntary donation recovered to 89.6% by 2023. However, repeat donors never exceeded 5.5% of unique donors. Older age (50-65 vs 18-19 years: aOR 2.27) and male sex (aOR 1.24) were independently associated with higher TTI odds. Replacement donation carried higher infection odds than voluntary donation (aOR 1.43). Adjusted TTI odds declined transiently in 2021-2022 but returned to 2019 levels by 2023. A significant year-donation type interaction was observed ( $p < 0.001$ ).

**Conclusion:** Despite expansion of voluntary donation and collection volume, TTI prevalence remained persistently high. The donor pool remained structurally dominated by first-time entrants, sustaining a structural floor for infection risk. Volunteer recruitment alone is insufficient; conversion of first-time donors into repeat participants is essential to realise the full transfusion safety dividend.

**Recommendation:** National blood transfusion programmes should incorporate donor retention metrics – including first-time-to-repeat conversion rates – alongside voluntary donation targets in performance frameworks. Retention-focused strategies such as appointment-based donation, donor feedback systems, and re-engagement of low-risk donors should be adopted as core systems-level interventions to accelerate reductions in transfusion-transmissible infection risk across sub-Saharan Africa.

### **23. Title: Time to First-Line ART Failure and Its Predictors among People Living with HIV in Tanzania**

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**Presenter:** Natorias Mgaya Salvatory

**Authors:** Raphael Z. Sangeda, Henry Gaspar Bahati, Natorias Mgaya Salvatory, James Mwakyomo, Veryeh Sambu, Prosper Njau

**Background:** Sustaining long-term viral suppression among people living with HIV (PLHIV) remains a major public health challenge in sub-Saharan Africa, despite widespread access to antiretroviral therapy (ART). Evidence on time to first-line ART failure and its predictors at a national scale remains limited, particularly for dolutegravir (DTG)-based regimens. We aimed to estimate the time to first-line ART failure and identify associated predictors among PLHIV in Tanzania using national programmatic data.

**Objectives:** To determine the time to first-line ART failure and identify its predictors among people living with HIV in Tanzania

**Methods:** A retrospective cohort study was conducted using Tanzania's National Care and Treatment Clinic (CTC-2) database. The study included PLHIV aged  $\geq 11$  years who initiated first-line ART between 2017 and 2021 and had at least six months of follow-up. Time to treatment failure was assessed using Kaplan-Meier analysis, while Cox proportional hazards models identified predictors of failure. An extended Cox model was applied to address non-proportional hazards for DTG-based regimens.

**Results:** The final cohort included 36,764 individuals and 789 first-line treatment failure events. Failure-free survival differed significantly by regimen anchor (log-rank  $p=0.001$ ). In multivariable analyses, age and gender were significant predictors of treatment failure. DTG-based regimens showed a time-varying protective effect, with lower hazards of failure compared with non-DTG regimens at 6 months (HR=0.37) and 12 months (HR=0.67), which diminished over time and was no longer evident at 24 months (HR=1.22).

**Conclusion:** Overall, the risk of first-line ART failure varied by regimen and patient characteristics. DTG-based regimens showed strong early protection against failure, but this effect diminished over time, highlighting the importance of continued virological monitoring after ART initiation. Time-to-event analyses using routine programmatic data provide important evidence for optimising ART delivery and informing HIV programme decisions in Tanzania and similar settings.

**Recommendation:** DTG-based regimens should remain the preferred first-line ART option, supported by sustained viral load monitoring to detect emerging treatment failure. Targeted interventions to improve retention in care and adherence, particularly among younger individuals and women, are recommended. Future research should incorporate comprehensive clinical and laboratory data to enhance risk stratification and optimise individualised HIV care.

#### **24. Title: Serial IGRA Testing of Tanzanian Adolescents to Detect TB in Households and Close Contacts**

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**Presenter:** Maryam Amour

**Authors:** Maryam Amour, Petra Joseph, Patricia Munseri, George Ruhago, Lulu Fundikira, Candida Moshiro, C. Robert Horsburgh, Christopher Whalen, Mecky Matee, Emmanuel Balandya, C. Fordham von Reyn

**Background:** Tuberculosis (TB) remains a leading infectious disease, with 10.7 million new cases in 2024, and nearly 25% were undiagnosed or reported. This reservoir of undetected disease sustains transmission. Active case finding, through screening of household contacts of diagnosed TB patients, typically identifies only 2-7% cases because transmission often occurred years earlier. We hypothesised that detecting recent TB infection in adolescents through serial interferon-gamma release assay (IGRA) testing could shift the case.

**Objectives:** To determine the proportion of persons with TB disease among close contacts of adolescents with TB infection using serial IGRA

**Methods:** We are conducting a 5-year prospective cohort study of 1,200 secondary school adolescents aged 13-15 years to screen for TB infection using T-SPOT.TB IGRA in two high-TB-burden districts of Dar es Salaam, Tanzania. Baseline negative adolescents are retested every four months for 16 months to detect incident infection. Adolescents are then categorised as having prevalent, incident or no infection. A total of 400 close contacts from IGRA categories are then..(this need to be completed)

**Results:** Now in fourth year, 1200 adolescents from 21 schools were enrolled. At baseline, 127 (10.6%) had prevalent infection, and among those initially IGRA-negative, 67 developed incident infection. We evaluated 249 contacts of 71 adolescents (46 incident, 25 prevalent). Eight microbiologically confirmed TB cases were identified by Xpert, including two rifampicin-resistant. Two confirmed cases were asymptomatic and would have been missed by symptom

screening. Three additional asymptomatic contacts had chest radiographs consistent with active TB despite negative Xpert results.

**Conclusion:** Serial IGRA testing identifies recent TB transmission and enables targeted reverse contact tracing to detect undiagnosed TB. DETEC-TB shifts case finding from a disease-based to an infection-driven strategy, moving control efforts closer to transmission. This method demonstrates a promising, scalable strategy for improving TB detection and interrupting transmission in high burden settings.

**Recommendation:** We recommend exploring school-based entry points as a practical and accessible strategy to strengthen early TB case detection among adolescents. Schools provide structured access to this age group, enabling timely identification of recent transmission and more focused evaluation of close contacts. This approach could complement existing active case finding efforts and offers potential for broader impact in Tanzania,

## **25. Title:** Why Are Severe Malaria Patients Still Dying? A Mixed-Methods Study in Katavi Region, Tanzania, 2024-2025

**Contact:** edkibango@gmail.com

**Presenter:** Edna Kibango

**Authors:** Edna Kibango, Ally K. Hussein, Billy Ngasala

**Background:** Malaria remains a major public health challenge in Tanzania. In 2024, Tanzania reported a malaria case fatality rate of 0.7%, above the national target of 0.4%, while Katavi Region reported a substantially higher rate of 2.6%. Delayed healthcare-seeking and health system challenges continue to contribute to severe malaria deaths. However, determinants of malaria-related mortality in high-burden settings remain poorly understood, particularly in resource-limited regions such as Katavi.

**Objectives:** To determine factors associated with malaria deaths and explore healthcare workers' perceptions among severe malaria admissions in the Katavi Region

**Methods:** A convergent parallel mixed-methods study was conducted in four selected health facilities in Katavi Region between 2024 and 2025. The quantitative component employed an unmatched case-control design among patients admitted with severe malaria. Logistic regression was used to estimate crude and adjusted odds ratios (AORs), with statistical significance set at  $p < 0.05$  and 95% confidence intervals (CIs). The qualitative component involved in-depth interviews with healthcare providers. Findings were integrated during interpretation.

**Results:** A total of 216 participants were enrolled, including 54 cases and 162 controls. Children aged below five years accounted for 72.7% of admissions. Convulsions (AOR: 5.61; 95% CI: 1.81-17.42), coma (AOR: 6.85; 95% CI: 2.21-21.24), and difficulty breathing (AOR: 4.13; 95% CI: 1.47-11.61) were independently associated with mortality. Healthcare providers identified delays in seeking, reaching, and receiving care, staffing shortages, and interruptions in blood transfusion and supportive care services as contributors to deaths.

**Conclusion:** Severe malaria mortality in the Katavi Region was strongly linked to neurological and respiratory complications alongside delays across the continuum of care. Health system limitations, including staffing shortages and gaps in supportive care services, further contributed to poor outcomes. These findings highlight the need for integrated strategies

targeting both clinical management and health system strengthening to reduce preventable severe malaria deaths.

**Recommendation:** The Ministry of Health, Prime Minister's Office-Regional Administration and Local Government, and health facility managers should strengthen severe malaria management through continuous clinical training, adequate staffing, improved supportive care services, and adherence to treatment guidelines. Strengthening supportive supervision and blood transfusion services may reduce preventable malaria-related deaths in high-burden settings. Community health education should promote early healthcare-seeking among community members.

## **26. Title: Tuberculosis Treatment Outcomes among Patients with Diabetes Mellitus at Muhimbili National Hospital, Dar es Salaam**

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**Presenter:** Erick Roman Kimario

**Authors:** Erick Kimario, Salim Masoud, Angel Charles

**Background:** Tuberculosis and diabetes mellitus are major public health problems in Tanzania. The coexistence of tuberculosis and diabetes mellitus may impair immune response, delay recovery, and increase the risk of relapse, loss to follow-up, and unsuccessful treatment outcomes. This study assessed tuberculosis treatment outcomes and factors associated with successful treatment outcomes among patients with diabetes mellitus at Muhimbili National Hospital, Dar es Salaam.

**Objectives:** To assess tuberculosis treatment outcomes and factors associated with successful outcomes among patients with diabetes mellitus at Muhimbili National Hospital.

**Methods:** A retrospective records-based study was conducted at Muhimbili National Hospital among TB-DM patients from January 2022 to December 2024. A census sampling approach included 82 eligible records. Data on treatment outcomes, TB regimen, missed TB doses, HIV status, TB type, and demographic characteristics were extracted using a structured form and analysed using SPSS version 26.

**Results:** Of the 82 tuberculosis-diabetes mellitus patients, 63(76.8%) had successful treatment outcomes; mostly unsuccessful treatment outcomes were TB relapse, 13(68.4%), and loss to follow-up, 6 (31.6%). Tuberculosis treatment regimen and missed tuberculosis doses were significantly associated with treatment outcome in bivariate analysis. In the regression model, patients receiving drug-resistant tuberculosis treatment had significantly lower odds of successful treatment outcome compared with those receiving first-line treatment (AOR = 0.202, 95% CI: 0.051-0.796,  $p = 0.022$ ). Age, sex, HIV status, and type

**Conclusion:** Most TB-DM patients achieved successful TB treatment outcomes. However, relapse and loss to follow-up remained important unfavourable outcomes. Drug-resistant TB treatment was significantly associated with reduced treatment success among TB-DM patients.

**Recommendation:** Strengthen integrated TB-DM care with closer follow-up for patients receiving drug-resistant TB treatment. Improve adherence counselling, monitoring of missed doses, and early tracing of patients at risk of loss to follow-up to improve TB treatment success.

## **27. Title: Early Effectiveness of Expanded Total Facility Approach Intervention in Addressing Stigma and Discrimination in Tanzania**

**Presenter:** Emilia Kitambala

**Authors:** Emilia Kitambala, Linda B. Mlunde, Bonny Betson, Nkatya Kasese, Ab Schaap, Teebeny Zulu, Sarah Roberts, Jessie Mbwambo, Emma Gyamera, William Osafo-Mahama, Laura Nyblade, Virginia Bond, on behalf of the eTFA study team

**Background:** HIV-related stigma and Discrimination (S&D) in healthcare settings is a significant barrier towards optimal HIV related services. In efforts to address stigma, various interventions such as expanded Total Facility Approach (TFA) are useful in creating awareness and encouraging value clarification to address the drivers and manifestations of S&D among health facility (HF) staff.

**Objectives:** This study evaluates the early effectiveness of the TFA intervention implemented in tertiary hospitals in Dar es Salaam, Tanzania.

**Methods:** A baseline-midline-survey was conducted as part of 3-time-points survey to evaluate effectiveness of TFA-intervention in two hospitals. The survey involved 600-at-baseline and 571 participants-at-midline, engaging clinical- and non-clinical HF-staff. At both surveys we assessed drivers (fear-of-HIV acquisition and negative attitudes) and manifestation of S&D (observed-enacted stigma and use-of-precautionary measures when caring for people living with HIV (PLHIV)); at midline we-also assessed acceptability and perception of usefulness of intervention. Pre-post analysis was conducted to assess early-effectiveness of the intervention in addressing HIV-S&D.

**Results:** We observed significant decline in stigma-drivers; fear-of-HIV declined by 28.3%; from 67.5% at baseline( $P<0.001$ ,  $CI=0.25-0.38$ ) and negative attitudes towards PLHIV dropped by 19.6% from 91.5%( $P<0.001$ ,  $CI=0.03-0.11$ ). Observed use of precautionary measures when caring for PLHIV declined by 13.4% from 82.2%( $P<0.001$ ,  $CI=0.37-0.60$ ). There was an insignificant decline of observed stigma, such as observing fellow staff unnecessarily disclosing HIV status ( $p=0.99$ ,  $CI=0.81-1.22$ ). Mean intervention acceptability was 4.7( $\pm 0.41$ ) where 98% of staff reported to like the training and 82% reported they observed other staff behave better towards clients in HFs.

**Conclusion:** TFA intervention demonstrated early effectiveness in addressing HIV S&D in HF through the decline in drivers and manifestation of S&D following the delivery of intervention in the two HFs. Baseline analysis of the same facilities showed the main drivers of S&D were both significantly impacted by the intervention therefore essential to improving quality of care.

**Recommendation:** With the effort to sustain HIV care in Tanzania, we urge for investment to increase stigma reduction training for health workers to improve the quality of care.

## **28. Title: Predictors of Loss to Follow-Up among Patients Receiving Antiretroviral Therapy in Njombe Region, Tanzania, 2017-2021**

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**Presenter:** Hillary Gideon Mushi

**Authors:** Hillary Mushi, Meshack D. Lugoba, Raphael Z. Sangeda, Ritah F. Mutagonda, James Mwakyomo, George Musiba, Veryeh Sambu, Beatrice Mutayoba, Mercy Mpatwa, Prosper Njau, Werner Maokola

**Background:** Loss to follow-up (LTFU) undermines the success of antiretroviral therapy (ART) programmes, especially in high HIV prevalence regions like Njombe, Tanzania. Understanding factors influencing LTFU is critical to enhance patient retention.

**Objectives:** To assess the prevalence and predictors of LTFU among people living with HIV receiving ART in Njombe, Tanzania, from 2017-2021

**Methods:** We conducted a retrospective cohort study using the National Care and Treatment Clinic (CTC2) database, defining LTFU as absence from care for 180 days or more. Logistic regression identified factors associated with LTFU. Data were cleaned using Microsoft Excel and analysed using IBM SPSS Statistics version 26. Descriptive statistics were used to summarise demographic and clinical characteristics, and logistic regression was used to identify independent predictors of LTFU.

**Results:** Of the 37,642 PLHIV initiated on ART, 13,411 (35.6%) were LTFU during the five-year study period. The highest annual incidence of LTFU occurred in 2020 (n = 4,069), coinciding with the onset of the COVID-19 pandemic. District-level disparities were substantial: Wanging'ombe recorded the highest disengagement prevalence (46.7%), while Makete recorded the lowest (23.7%). Multivariable analysis revealed that gender and age were not independent predictors of attrition ( $p > 0.05$ ). However, significant associations with LTFU were observed for lower pharmacy refill.

**Conclusion:** LTFU remains a critical challenge in the Njombe Region. Targeted interventions, including strengthened pharmacy refill monitoring, district-specific strategies, and psychosocial support for PLHIV, are essential to improve retention and sustain progress toward national HIV treatment goals.

**Recommendation:** As a chronic life-long disease, compliance to antiretroviral medication remain central to the success of HIV ART especially in Sub Saharan Africa where two third of the global HIV/AIDS population resides. Strengthening pharmacy refill monitoring and psychosocial support to HIV patients is very critical to combat loss to follow-up to improve treatment outcomes and reduce antiretroviral drug resistance.

## **29. Title:** Integrating CETA and Motivational Interviewing to Improve HIV PrEP Engagement among Women WHO Use Drugs

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**Presenter:** Samuel Likindikoki

**Authors:** Samuel Likindikoki, Kaitlyn Atkins, Stephanie Skavenski, Bareng Aletta Nonyane, Frank Chitamwebwa, Sifaely Mtaita, David Mwansa, Adela Luswetula, Laura Murray, Haneefa Saleem

**Background:** Women who use drugs (WWUD) in Tanzania experience HIV prevalence rates substantially higher than the general population and face barriers to HIV prevention, including stigma, violence, substance use, and mental health challenges. Although oral pre-exposure prophylaxis (PrEP) is available and acceptable, uptake remains low. Motivational Interviewing (MI) and the Common Elements Treatment Approach (CETA) offer complementary strategies

to address motivational and mental health barriers to sustained PrEP engagement among WWUD.

**Objectives:** Assess the feasibility, acceptability, and preliminary efficacy of MI-PrEP and CETA+MI-PrEP among Tanzanian WWUD.

**Methods:** PRE-HOPE is an individually randomised, three-arm pilot randomised controlled trial conducted in Dar es Salaam, Tanzania. Eligible participants are HIV-negative adult WWUD reporting recent HIV risk behaviours and symptoms of depression, anxiety, and/or PTSD. Participants are randomised (1: 1: 2) to MI-PrEP, CETA+MI-PrEP, or enhanced treatment as usual. Primary outcomes include PrEP initiation, adherence, and persistence; secondary outcomes include mental health symptoms, substance use, and violence exposure.

**Results:** The study is currently underway. Recruitment has demonstrated strong demand, with 123 eligible participants enrolled, representing approximately 62% of the target sample. Intervention implementation has been successfully launched, with trained paraprofessional counsellors delivering both MI-PrEP and CETA+MI-PrEP. Preliminary process indicators suggest high intervention acceptability among participants. Ongoing follow-up assessments will evaluate retention, intervention completion, PrEP outcomes, and changes in mental health and substance use indicators.

**Conclusion:** Early implementation findings suggest that recruiting and engaging WWUD with co-occurring mental health concerns into a PrEP-focused intervention trial is feasible in Tanzania. Integrating HIV prevention with mental health services through task-shifted delivery appears acceptable and operationally viable. Continued follow-up will provide critical information regarding intervention feasibility, retention, and preliminary effectiveness.

**Recommendation:** Future HIV prevention programmes targeting WWUD should consider integrated, syndemic-focused approaches that simultaneously address mental health, substance use, and HIV risk. Investments in task-shifted interventions delivered by peers and paraprofessionals may increase scalability and sustainability in resource-limited settings. Findings from this pilot study will inform refinement and testing in a fully powered effectiveness trial.

### **30. Title: Factors Influencing Pre-Exposure Prophylaxis Engagement among Women WHO Use Drugs in Dar es Salaam, Tanzania: A Qualitative Study**

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**Presenter:** Sifaely Mtaita

**Authors:** Sifaely Mtaita, Samuel Likindikoki, Kaitlyn Atkins, Stephanie Skavenski, Bareng Aletta Nonyane, Frank Chitamwebwa, David Mwansa, Adela Luswetula, Laura Murray, Haneefa Saleem

**Background:** Women who use drugs (WWUD) face a disproportionately high risk of HIV acquisition due to overlapping vulnerabilities, including substance use, engagement in sex work, unstable housing, and limited access to prevention services. Pre-exposure prophylaxis (PrEP) is an effective HIV prevention strategy, yet uptake and sustained engagement remain suboptimal among WWUD. Understanding factors influencing PrEP engagement is essential to inform tailored interventions and improve HIV prevention outcomes in this population.

**Objectives:** To explore individual, interpersonal, and structural barriers and facilitators influencing PrEP engagement among women who use drugs.

**Methods:** A qualitative study was conducted among WWUD and key informants in Dar es Salaam, Tanzania, between March and June 2024. Data were collected through in-depth interviews (n=30), key informant interviews (n=20), and focus group discussions (n=51), exploring experiences and perceptions regarding preferences in PrEP use, and factors influencing PrEP uptake, adherence, and retention. Audio-recorded interviews were transcribed, translated, and coded using NVivo and analysed thematically.

**Results:** Barriers to PrEP engagement emerged across ecological levels. Individual barriers included limited PrEP awareness, substance use, forgetfulness, mental health difficulties, pill loss, and challenges carrying daily pills. Interpersonal barriers included HIV-related stigma due to PrEP resembling ART and a lack of adherence support. Structural barriers included healthcare costs, housing instability, mobility, and inconsistent access across facilities. Facilitators included preference for long-acting injectable PrEP, positive mental health support, availability of PrEP services, and protection when condom negotiation with clients is difficult.

**Conclusion:** PrEP engagement among women who use drugs is shaped by interconnected individual, interpersonal, and structural factors. Daily oral PrEP poses significant adherence challenges due to stigma, mobility, unstable living conditions, and substance use. However, strong interest in long-acting injectable PrEP and recognition of HIV risk suggest opportunities to improve uptake and retention through more user-centred HIV prevention approaches.

**Recommendation:** Interventions should strengthen community and client education on PrEP, reduce HIV-related stigma, and integrate mental health and adherence support into PrEP services. Expanding access to long-acting injectable PrEP, decentralising service delivery, reducing financial and system barriers, and developing flexible refill mechanisms are recommended. Tailored approaches addressing housing instability and mobility may further enhance PrEP engagement among women who use drugs.

### **31. Title: Factors Affecting Availability of Viral Load Testing and Pharmacy Refill Trends on ART in Tanzania**

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**Presenter:** James Mwakyomo

**Authors:** James Mwakyomo, Raphael Z. Sangeda, Hamis Abdalla Kaniki, Jacob Aron Ndayomwami

**Background:** Viral load (VL) testing is the WHO-recommended method for monitoring antiretroviral therapy (ART) effectiveness, yet access remains uneven in Tanzania, particularly among adolescents.

**Objectives:** To identify patient-level factors associated with the availability of VL testing and to assess pharmacy refill adherence trends among adolescents

**Methods:** We conducted a retrospective longitudinal analysis of CTC2 records (January 2018 to December 2020). Demographic and clinical variables were extracted and analysed using descriptive statistics, chi-square tests, and independent t-tests. Pharmacy refill adherence was calculated and categorised as good ( $\geq 85\%$ ) or poor ( $< 85\%$ ).

**Results:** A total of 12,043 patients from 26 regions of Tanzania were included in the analysis. Age group, facility location and pharmacy refill adherence were significantly associated with whether patients received VL testing: adolescents and patients in remote regions had higher

proportions without VL tests, and patients with poor pharmacy refill adherence were substantially less likely to have VL testing. Age, location of facility and pharmacy refill adherence were among the

**Conclusion:** Targeted interventions to improve VL access for adolescents and in remote regions, together with strategies to strengthen pharmacy refill adherence, could improve monitoring and treatment outcomes in Tanzania.

**Recommendation:** Expand VL access in remote areas, strengthen specimen transport, prioritise VL equipment, and pilot point-of-care testing in underserved regions. Use a pharmacy refill as a screening tool. Routinely monitor refill adherence, flag patients with <85% adherence for follow-up and urgent VL testing.

### **32. Title: Comparative 48-Week Viral Load Suppression Across Antiretroviral Initiation Regimens: Dolutegravir Versus Non-Dolutegravir among People Living with HIV(PLHIV)**

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**Presenter:** Gwandumi Kayange

**Authors:** Gwandumi F. Kayange, Raphael Z. Sangeda, Prosper Njau

**Background:** Routine viral load monitoring is central to assessing treatment effectiveness in HIV care, and dolutegravir (DTG)-based regimens are now preferred in many treatment programmes. However, national routine data analyses comparing 48-week viral load suppression across antiretroviral therapy initiation regimens in Tanzania remain limited.

**Objectives:** To compare 48-week viral load suppression across antiretroviral therapy initiation regimens, focusing on DTG versus non-DTG, among HIV patients.

**Methods:** We conducted a retrospective cohort analysis using routinely collected HIV programme data from Tanzania's National AIDS, STIs and Hepatitis Control Programme database. After de-duplication and data processing, the working analysis warehouse contained 49,547 patients and 1,008,137 visits. The primary analysis included 6,991 patients with a valid viral load measured 48 weeks after initiation of antiretroviral therapy. Viral suppression was defined as a viral load <1,000 copies/mL.

**Results:** Of the 6,991 included patients, 6,113 achieved viral load suppression at 48 weeks. Suppression was higher among DTG initiators than non-DTG initiators (917/1,000, 91.7% vs. 5,196/5,991, 86.7%). TDF+3TC+EFV was the most common non-DTG initiation regimen, whereas TDF+3TC+DTG was the most common regimen among DTG initiators.

**Conclusion:** Viral suppression at 48 weeks was high overall but was significantly higher among patients initiated on DTG-based regimens compared to among those initiated on non-DTG regimens. By anchoring outcomes to a fixed post-initiation time point, this study complements existing Tanzanian evidence on viral load testing uptake and geographic variation. It provides regimen-specific insights into the effectiveness of early treatment under routine programmatic conditions.

**Recommendation:** Viral suppression at 48 weeks was high overall, but was higher among patients initiated on DTG-based regimens than among those initiated on non-DTG regimens. By anchoring outcomes to a fixed post-initiation time point, this study complements existing Tanzanian evidence on viral load testing uptake and geographic variation. It provides regimen-specific insights into the effectiveness of early treatment under a routine programme.

### **33. Title:** Association of Baseline Advanced HIV Disease(ahd) and Dolutegravir Versus Non-Dolutegravir Regimen Status with Viral Load Suppression

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**Presenter:** Hamisi Amiri Dani

**Authors:** Hamisi Amiri Dani, Prosper Njau, Raphael Z. Sangeda

**Background:** Dolutegravir (DTG)-based regimens are currently the preferred first-line therapy in many HIV programmes; however, the influence of baseline advanced HIV disease (AHD) on virologic outcomes in routine national data in the DTG era remains unclear.

**Objectives:** To determine the association of baseline AHD and dolutegravir versus non-dolutegravir regimen status with viral load suppression among patients on ART.

**Methods:** We conducted a retrospective cohort analysis using routinely collected data from Tanzania's NASHCoP database from 2017 to 2021. A simple random sample of 50,000 patients was drawn from the de-duplicated national dataset, yielding 49,863 patients after data processing. The analytic cohort included 4,044 patients with baseline CD4 and endpoint viral load measurements. Viral load suppression was defined as <1000 copies/mL. Associations between baseline AHD, regimen status, and suppression were assessed using risk ratios.

**Results:** Overall viral load suppression was 89.2% (3,607/4,044). Patients with baseline AHD had lower suppression than those without AHD (81.3% vs. 91.1%; RR 0.48, 95% CI 0.40-0.57). Suppression was higher among patients receiving DTG-based regimens than among those receiving non-DTG regimens (91.5% vs. 77.2%; RR 2.67, 95% CI 2.23-3.20). A significant interaction between AHD and DTG was observed (aRR 1.40, 95% CI 1.20-1.63), indicating that the relative benefit of DTG was greater among patients with baseline AHD.

**Conclusion:** Although viral load suppression was high in this Tanzanian routine-care cohort, patients with baseline AHD had poorer outcomes. DTG-based regimens were associated with improved overall suppression, with a greater relative benefit among patients with AHD. These findings support the continued prioritisation of DTG-based therapy and reinforce the importance of early diagnosis and targeted management of patients with AHD.

**Recommendation:** Programmes should continue to prioritise DTG-based regimens as the preferred ART backbone while strengthening efforts to identify patients presenting with AHD. Baseline CD4+ T-cell testing remains useful for clinical risk stratification, even in the test-and-treat era. Expanded HIV testing, earlier linkage to care, and more focused monitoring of patients with baseline AHD may further improve viral suppression outcomes.

### **34. Title:** Strong Notification, Weak Detection: A Multi-Regional 7-1-7 Assessment of Outbreak Response Timeliness in Tanzania

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**Background:** Timely outbreak detection, notification, and response are critical for reducing disease transmission and mortality. The 7-1-7 framework sets targets for detection, notification, and response initiation within 7, 1, and 7 days, respectively. While Tanzania has implemented the Integrated Disease Surveillance and Response (IDSR) strategy, empirical evidence regarding regional timeliness remains fragmented. We assessed outbreak timeliness using the 7-1-7 framework across five regions and proposed recommendations to strengthen performance.

**Objectives:** To evaluate the timeliness of outbreak detection, notification, and response using the 7-1-7 framework across five selected regions in Tanzania

**Methods:** We conducted a retrospective cross-sectional review of 14 public health events, including Mpox, cholera, and suspected viral hemorrhagic fever (VHF), reported in five regions between April 2023 and February 2026. Data were obtained from IDSR reports, line lists, laboratory records, and response reports, supplemented by key informant interviews. Event timelines from symptom onset to detection, notification, and response were reconstructed, and median intervals with interquartile ranges (IQR) were assessed against.

**Results:** Among 14 events analysed, 10 (71.4%) were cholera, 3 (21.4%) mpox, and 1 (7.1%) a suspected VHF. Median detection time was 4.5 days (IQR: 1-9); 10/14 (71.4%) events met the detection target. Median notification time was 0 days (IQR: 0-1); 12/14 (85.7%) events met the notification target. Median response time was 4 days (IQR: 1-6); 11/14 (78.6%) events met the response target. Overall, 6/14 (43%) events met all three targets.

**Conclusion:** Timely outbreak detection remains a major challenge in achieving the 7-1-7 targets, with delays occurring primarily at the detection stage. While notification and response were generally rapid once events were identified, weaknesses in community surveillance, care-seeking behaviour, and laboratory systems limited overall performance. Strengthening these areas is critical to improving outbreak control and enhancing public health emergency preparedness in Tanzania.

**Recommendation:** Strengthen community-based surveillance, risk communication, and health education to promote early detection and timely care-seeking. Improve laboratory capacity, specimen transport systems, and availability of essential logistics to support rapid response. Scale up best practices from high-performing regions such as Kigoma and Dar es Salaam, promote cross-regional learning, and align interventions with International Health Regulations (IHR 2005) requirements.

### 1. Title: The Hidden Burden: Psychological Distress among Pregnant Adolescent Girls in Malawi"

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**Presenter:** Teresa Mbewe

**Authors:** Teresa Mbewe

**Background:** In Malawi, nearly 29% of girls aged 15-19 experience pregnancy, yet mental health remains invisible in routine SRHR and antenatal services. Clinical observations at Bwaila Hospital, Lilongwe, during the eMAMA Postgraduate Maternal Mental Health Programme revealed a significant burden of psychological distress among adolescent attendees. Despite visible symptoms, mental health screening was largely absent. This gap drives poor maternal outcomes, disengagement from care, and long-term vulnerability among adolescent mothers.

**Objectives:** To document psychological distress among pregnant adolescent girls in Malawi and advocate for integrated mental health screening in youth-friendly SRHR

**Methods:** Clinical observations were conducted at Bwaila Hospital, Lilongwe. Approximately 150 women attending antenatal and postnatal care were screened using the Edinburgh Postnatal Depression Scale (EPDS) and GAD-7. Observations focused on adolescent attendees aged 15-19, documenting age distribution, behavioural presentation, and service engagement patterns. Qualitative insights were gathered through direct clinical interactions, capturing lived experiences, barriers to care-seeking, and help-seeking behaviour among pregnant adolescent girls.

**Results:** An estimated 8-10 adolescent pregnancies presented daily. Over 60% of adolescent attendees demonstrated psychological distress – anxiety, withdrawal, low mood, and disengagement from care. Stigma was a greater barrier to care-seeking than distance or cost. Recurring themes included shame, fear of family rejection, and absence of trusted social support. Several adolescents deliberately delayed seeking care to avoid disclosure. Mental health screening remained absent or inconsistent across most encounters despite visible distress.

**Conclusion:** Adolescent girls in Malawi face a dual burden of pregnancy and unaddressed mental health needs. Current SRHR services are not designed to identify or respond to psychological distress in this population. Stigma – not distance or cost – is the primary barrier. Integrated, youth-friendly mental health screening is both feasible and essential in low-resource settings.

**Recommendation:** Mandate routine mental health screening and mental health education at all adolescent antenatal and postnatal visits. Develop youth-friendly referral pathways linking SRHR to psychosocial support. Train frontline health workers in perinatal mental health. Scale community-based and digital interventions to reach girls who disengage from facility care. Strengthen multisectoral collaboration across health, education, and community sectors.

## **2. Title: Factors Associated with Puerperal Women's Adherence to the Utilisation of Postnatal Care Services in Moshi**

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**Presenter:** Baraka Edgar Mlalo

**Authors:** Baraka Edgar Mlalo, Shadia Ahmed Taha Yassin, Abeer Hassan Shamekh Taman

**Background:** The postnatal care service is a key to achieving the Sustainable Development Goals (SDGs), especially goal number three and its targets to reduce the maternal mortality rate and end preventable deaths of newborns. Nevertheless, its utilisation and adherence have been unsatisfactory and are subjected to a wide range of factors that have a substantial impact on maternity care utilisation.

**Objectives:** To determine the factors associated with puerperal women's adherence to the utilisation of postnatal care services in Moshi Municipality, Tanzania.

**Methods:** A descriptive research design was used at the outpatient infant immunisation clinics of four selected health facilities representing Moshi Municipality. A purposive sample of 360 women attending the selected settings was proportionally recruited according to the inclusion criteria.

**Results:** Adherence was found to be 25.3%. Factors significantly associated with adherence included receiving information about puerperium ( $p < 0.001$ ), place of delivery ( $p = 0.023$ ), receiving health education on postnatal visits ( $p < 0.001$ ), availability of transportation ( $p < 0.001$ ), receiving information about postnatal visit schedules from health personnel ( $p = 0.001$ ), waiting time at a health facility ( $p = 0.001$ ), methods of payment for hospital bills ( $p = 0.004$ ), initiation of seeking postnatal services ( $p = 0.024$ ), and provision of postnatal care by health personnel ( $p = 0.007$ ).

**Conclusion:** Adherence to the utilisation of postnatal care services in Moshi Municipality was very low and significantly associated with some reproductive and health services utilisation-related factors.

**Recommendation:** The responsible authorities should encourage the continuation of health services throughout the maternity cycle and the use of postnatal care services based on the recommended schedule.

## **3. Title: Developing and Testing the Effectiveness of a Contextualised mHealth Integrated System for Reporting Obstetric Violence**

**Contact:** jtheresia2008@yahoo.com

**Presenter:** Theresia John Masoi

**Authors:** Theresia J. Masoi, Lilian Teddy Mselle, Nathanael Sirili, Stephen M. Kibusi

**Background:** Obstetric violence remains a significant public health and women's rights concern that undermines respectful maternity care and contributes to poor maternal health outcomes. In Tanzania, reporting of obstetric violence is limited due to the absence of user-friendly reporting mechanisms.

**Objectives:** This study aimed to develop context-specific components of obstetric violence and test the effectiveness of a contextualised mHealth integrated system.

**Methods:** An exploratory, sequential, mixed-methods design was employed. The qualitative phase explored context-specific components of obstetric violence, which were validated through expert content and face validity testing. The validated components informed the development of the VOICE-TZ mHealth system, which incorporated anonymous reporting and educational messaging features.

**Results:** Seven main categories of obstetric violence, with 24 subcategories, were identified. At endline, knowledge levels improved in both groups, with a substantially greater increase in the intervention group (82.9%) compared to the control group (56.2%). Linear mixed model demonstrated to be significant ( $\beta = 0.400$ ;  $p = 0.005$ ). Additionally, the prevalence of reported obstetric violence was higher in the intervention group (60.6%) than in the control group (11.2%); the intervention group demonstrated twelve times higher odds of reporting incidents.

**Conclusion:** The contextualised VOICE-TZ mHealth integrated system effectively improved knowledge and strengthened reporting of obstetric violence incidents in both health facilities and community settings. The findings highlight the importance of culturally contextualised digital interventions in promoting respectful maternity care.

**Recommendation:** The Ministry of Health and other maternal health stakeholders may consider integrating the developed contextualised mHealth system into routine maternal health services to strengthen monitoring, accountability, and reporting of obstetric violence and respectful maternity care practices.

#### **4. Title: Effectiveness of Innovated Eye Shield for Phototherapy Compared to Improvised Materials and Imported Eye Shield:**

**Presenter:** Gloria Mrosso

**Authors:** Gloria Mrosso, Satrumin Shirima, Consolata Matee, Omari Pinda, Evelyne Assenga

**Background:** Neonatal jaundice accounts for 22% of all neonatal admissions globally, with South-East Asia and Africa having a high prevalence of 30.6% and 20.1%, respectively, with approximately 14.3% developing severe jaundice. Phototherapy remains the main treatment, but is associated with retinal damage and permanent vision loss if eyes are inadequately shielded. Many low-income settings use improvised materials like gauze despite uncertainty regarding their effectiveness in shielding and reducing neonatal discomfort.

**Objectives:** To assess the effectiveness of the Innovated Eye Shield for phototherapy and compare it with improvised materials.

**Methods:** An experimental comparative study measured irradiance transmission through three materials: gauze, an imported eye shield, and the Innovated Eye Shield for phototherapy. Testing used a double-sided LED phototherapy device (Firefly) at 15 cm. A custom-designed testing board with three cut-outs positioned materials uniformly. Irradiance was measured using an MTTs light meter with upper- and lower-sensor pairs. Baseline irradiance was first measured without any protective material, followed by measurements for each.

**Results:** The control setup without eye protection demonstrated a total irradiance of 64  $\mu\text{W}/\text{cm}^2/\text{nm}$ . The Innovated Eye Shield for phototherapy completely blocked irradiance transmission to the lower sensor (0  $\mu\text{W}/\text{cm}^2/\text{nm}$ ), with an upper sensor reading of 52  $\mu\text{W}/\text{cm}^2/\text{nm}$ , comparable to the imported eye shield, which also demonstrated complete lower sensor blockage (0  $\mu\text{W}/\text{cm}^2/\text{nm}$ ). In contrast, gauze allowed partial light transmission, with a lower sensor irradiance of 4  $\mu\text{W}/\text{cm}^2/\text{nm}$  and total irradiance of 59  $\mu\text{W}/\text{cm}^2/\text{nm}$ .

**Conclusion:** The Innovated Eye Shield for phototherapy demonstrated effective protection against phototherapy light exposure comparable to imported eye shields, and was superior to gauze commonly used in local settings.

**Recommendation:** This device can be adopted in low-resource settings, and its reusability after sterilisation makes it a cost-effective intervention.

## **5. Title: The Quality of Emergency Care for Children: Resources Disparities between National and Regional Hospitals**

**Presenter:** Satrumin Shirima

**Authors:** Satrumin Shirima, Deogratias Nkya, Ramadhan Sebea, Vanessa Rutabana, Brian Luyenga

**Background:** Child deaths in emergency departments are a major concern in low- and middle-income countries like Tanzania, where access to quality paediatric emergency care remains limited. Regional hospitals serve as initial care points before referral to higher-level facilities, yet evidence on disparities in availability and adequacy of paediatric emergency services between national and regional hospitals is limited.

**Objectives:** This study assessed disparities in the availability and adequacy of paediatric emergency care resources at MNH and SRRH.

**Methods:** A comparative observational assessment was conducted using ETAT and WHO Emergency facility checklists. Key domains evaluated included infrastructure, equipment, medications, human resources and training, patient safety systems, and guidelines. Scores were assigned as a percentage, calculated by dividing the facility score by the maximum possible score in a particular domain and then multiplying by 100%. The absolute percentage difference was utilised for comparison to identify variations within a specific domain.

**Results:** Both hospitals had designated paediatric emergency spaces; however, bed capacity was inadequate, with high occupancy rates (90% at MNH and 80-100% at SRRH). MNH consistently outperformed SRRH in the availability of paediatric emergency medications (72.7% vs. 40.9%), advanced paediatric monitoring equipment (92.9% vs. 60.7%), trained human resources, and patient safety systems (88.9% vs. 61%). SRRH demonstrated critical gaps in airway, ventilatory support, and monitoring equipment.

**Conclusion:** Significant disparities exist between national and regional referral hospitals in paediatric emergency care capacity, with staff training capacity being low in both hospitals.

**Recommendation:** Strengthen paediatric emergency care by improving infrastructure, ensuring equitable distribution of essential equipment and medications, and addressing critical gaps in regional hospitals. Implement standardised ETAT and WHO-based training programmes for all staff, enhance continuous professional development, and establish routine audits and quality improvement systems to reduce disparities between national and regional referral hospitals.

## **6. Title: Caregivers' Perceived Self-Efficacy on Uptake of HIV Early Infant Diagnosis among HIV-Exposed Infants in Tanzania**

**Presenter:** Dorine Mushi

**Authors:** Dorine Mushi, Emmy Metta

**Background:** HIV Early Infant Diagnosis is critical for the timely initiation of antiretroviral therapy and improved survival among HIV-exposed infants. Despite expanded Prevention of Mother-to-Child Transmission (PMTCT) services in Tanzania, HEID uptake remains below recommended targets. While structural barriers are well known, limited evidence exists on the role of caregivers' perceived self-efficacy in influencing HEID uptake in Tanzania.

**Objectives:** To explore caregivers' perceived self-efficacy on the uptake of HEID among HIV-exposed infants in Nanyamba Town Council.

**Methods:** A qualitative descriptive study was conducted in Nanyamba Town Council between April and May 2025. Twelve caregivers of HIV-exposed infants who experienced delayed HEID were purposively selected from public health facilities offering PMTCT services. Data were collected through in-depth interviews in Kiswahili, audio-recorded, transcribed, and translated into English. Thematic analysis was performed using Braun and Clarke's approach guided by Bandura's Social Cognitive Theory.

**Results:** Caregivers' self-efficacy influenced HEID uptake through mastery experiences, social persuasion and emotional responses. Confidence in caregiving success and positive expectations encouraged infant HIV testing, while support from healthcare providers and family strengthened motivation. Lack of partner support reduced confidence. Fear of HIV-positive results, stigma and confidentiality concerns discouraged timely testing. Although caregivers were motivated to protect infant health, these psychosocial barriers often delayed prompt HEID uptake.

**Conclusion:** Caregivers' perceived self-efficacy plays as a crucial influencer on HEID uptake.

**Recommendation:** HIV Early Infant Diagnosis interventions should strengthen caregiver self-efficacy through supportive counselling not only informative messages while addressing social and emotional barriers.

## **7. Title: Sutureless Abdominal Closure in Monozygotic Twin with Gastroschisis: A Case Report from Muhimbili National Hospital,**

**Contact:** rogerluhizo@gmail.com

**Presenter:** Rajabu Athumani Bakari

**Authors:** Rajabu Athumani Bakari, Alfred Chibwae, Rajab Siaba Msemu, William W. Kahabi, Caroline S. Kanuti, Salma J. Ali, Godfrey Sama Philipo, Zaitun M. Bokhary, Judith Lindert, Kokila Lakhoo

**Background:** Gastroschisis is a congenital anterior abdominal wall defect associated with significant neonatal morbidity and mortality, particularly in resource-limited settings. Twin gastroschisis is extremely rare and presents additional challenges in prenatal diagnosis, neonatal stabilisation, and surgical management. Recent advances in sutureless abdominal closure have improved outcomes by reducing anaesthesia exposure and the risk of abdominal compartment syndrome. This report describes the successful management of monozygotic twin babies with gastroschisis using bedside sutureless abdominal closure.

**Objectives:** To describe successful sutureless management and outcomes of monozygotic twin neonates presenting with gastroschisis in a resource-limited setting.

**Methods:** This descriptive case report involved monozygotic male twins delivered at 38 weeks with gastroschisis. Following referral to Muhimbili National Hospital, both neonates underwent clinical evaluation, laboratory investigations, neonatal stabilisation, nasogastric decompression, and bedside silo bag insertion. Daily bowel reduction was performed, followed by sutureless abdominal closure using Tegaderm dressings. Serial laboratory monitoring, postoperative care, feeding progression, and follow-up assessments were conducted to evaluate recovery, complications, and short-term surgical outcomes.

**Results:** Both twins presented with viable eviscerated bowel without associated congenital anomalies. Laboratory investigations were largely normal except for elevated CRP levels. Silo bag insertion and gradual bowel reduction were successfully achieved without abdominal compartment syndrome. Sutureless abdominal closure was performed on day five for the second twin and day eight for the first twin. Both neonates tolerated feeds, recovered well, and were discharged after three weeks. Follow-up demonstrated satisfactory wound healing and bowel function, although both later developed umbilical hernias requiring intervention.

**Conclusion:** Twin gastroschisis remains a rare congenital anomaly with significant diagnostic and management challenges in low-resource settings. This case demonstrates that bedside sutureless abdominal closure following silo reduction can achieve favourable neonatal outcomes without major perioperative complications. Early neonatal stabilisation, multidisciplinary collaboration, and careful postoperative monitoring contributed significantly to the successful recovery and survival of both twins at Muhimbili National Hospital.

**Recommendation:** Improved training in prenatal ultrasonography is needed to enable early detection of congenital anomalies in twin pregnancies. Resource-limited centres should adopt cost-effective, bedside, sutureless abdominal closure techniques where feasible. Multidisciplinary neonatal surgical care and structured postoperative follow-up are essential for monitoring complications, including umbilical hernias. Further studies should evaluate the long-term outcomes of sutureless closure for neonatal abdominal wall defects.

## **8. Title: Facilitators and Barriers for Health Care Providers in Implementing MBTP in the Management of Obstetric Haemorrhage**

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**Presenter:** Saada Abdallah Amous

**Authors:** Saada A. Amous, Peter Wangwe, Gladys Mahiti, Sabria Rashid

**Background:** Obstetric haemorrhage accounts for approximately 29% of maternal deaths in Tanzania. The Massive Blood Transfusion Protocol (MBTP) is a critical resuscitation strategy for managing severe haemorrhage. However, its implementation at Muhimbili National Hospital (MNH) remains critically low, with only 2.3% of patients receiving the correct blood product ratio. Qualitative evidence on healthcare providers' perceived experiences of MBTP implementation was urgently needed to identify contextual barriers and facilitators.

**Objectives:** To explore facilitators and barriers for healthcare providers in implementing the MBTP in the management of obstetric haemorrhage at MNH

**Methods:** A phenomenological qualitative study was conducted using purposive sampling of 12 healthcare providers from the Obstetrics and Blood Bank departments at MNH. In-depth interviews using semi-structured guides with probing questions were conducted until data saturation. All interviews were audio-recorded and transcribed verbatim. Thematic analysis

was applied for data analysis. Ethical clearance was obtained from MUHAS. The Consolidated Framework for Implementation Research (CFIR) informed the conceptual framework.

**Results:** Two themes emerged. Facilitators, which included the availability of essential resources and equipment, healthcare provider awareness through case-based seminars, supportive hospital management, and the use of existing MBTP guidelines. Barriers included chronic blood product shortages, such as platelets; inadequate human resources; patient financial constraints; absent dedicated multidisciplinary response teams; poor documentation and feedback mechanisms; inconsistent electronic system functionality; an absence of a standardised local MBTP guideline; and limited staff accountability and teamwork between clinical and laboratory personnel.

**Conclusion:** MBTP implementation at MNH is undermined by interrelated resource, system, and human factors. While some facilitators exist, structural barriers predominate. A locally developed, standardised MBTP guideline is urgently needed alongside dedicated multidisciplinary teams, simulation-based training, and robust feedback mechanisms. Addressing these gaps is essential to reducing preventable haemorrhage-related maternal mortality in low-resource settings.

**Recommendation:** MNH should develop and formally adopt a standardised local MBTP guideline. A dedicated multidisciplinary massive transfusion response team should be established. Regular simulation-based training and structured post-event debriefings should be institutionalised. Blood product availability, such as platelets and cryoprecipitate, must be improved. Accountability systems, electronic documentation reliability, and cross-departmental communication between obstetric and laboratory teams require strengthening.

## **9. Title: Person-Centred Maternity Care and Associated Factors among Women Delivering at Muhimbili National Hospital**

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**Presenter:** Leyla Mussa Natty

**Authors:** Leyla Mussa Natty, Lilian Mnabwiru, Furaha August

**Background:** Person-centred maternity care (PCMC) is an important component of quality maternal healthcare that promotes dignity, respect, communication, autonomy, and supportive care during childbirth. Despite increasing institutional deliveries in Tanzania, women continue to experience gaps in respectful maternity care and supportive care. Limited evidence exists regarding the status of PCMC and associated factors at tertiary referral hospitals such as Muhimbili National Hospital.

**Objectives:** To assess the level of person-centred maternity care and associated factors among women delivering at Muhimbili National Hospital.

**Methods:** A facility-based analytical cross-sectional study was conducted among 633 postnatal women at Muhimbili National Hospital between November 2025 and February 2026. Data were collected using the validated 30-item Person-Centred Maternity Care scale. Descriptive statistics and Pearson's chi-square test were used to assess associations between variables. Modified Poisson regression with robust standard errors was performed using SPSS version 27 to identify factors associated with high PCMC.

**Results:** The overall mean PCMC score was 67.55 out of 90 (75.1%). Women generally reported positive experiences of dignity and respect. However, gaps remained in communication,

autonomy, and supportive care. Women attending antenatal care at public hospitals (aPR=1.41, 95% CI: 1.11-1.77) and private facilities (aPR=1.50, 95% CI: 1.15-1.96) were more likely to report high PCMC. Women experiencing Pregnancy complications were significantly less likely to report high PCMC (aPR=0.72, 95% CI: 0.59-0.89).

**Conclusion:** Women delivering at MNH reported moderate to high levels of PCMC, particularly in dignity and respect. However, important gaps persist in communication, autonomy, and supportive care. ANC setting and presence of pregnancy were key determinants of PCMC. Improving respectful maternity care practices and provider communication is essential to enhance women's childbirth experiences, especially among women with pregnancy complications.

**Recommendation:** PCMC standards should be integrated into provider training and facility protocols at MNH and across Tanzanian tertiary hospitals. Targeted interventions should improve labour companionship, shared decision-making, and communication skills. Women experiencing pregnancy complications require dedicated attention, as they reported the lowest PCMC scores. Routine PCMC monitoring should be institutionalised to track progress and guide quality improvement efforts.

## **10. Title: A Rare Case of Spontaneous Rupture of Giant Sacrococcygeal Teratoma in Neonates**

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**Presenter:** Rajabu Athumani Bakari

**Authors:** Rajabu Athumani Bakari, Alfred Chibwae, Zubeir Omar Zubeir, Nanyokye Nasira Kidoko, Georvin Marko Haule, Mwajabu Rashidi Mbagga, Alex Mashaka, Victor T. Ngotta, Zaitun M. Bokhary

**Background:** Sacrococcygeal teratoma (SCT) is the most common congenital germ cell tumour in neonates, arising from totipotent cells in Hensen's node. Giant SCTs may cause life-threatening complications, including rupture, haemorrhage, anaemia, and shock, particularly in low-resource settings with delayed diagnosis. Prenatal detection remains limited in many developing countries. This report describes the spontaneous rupture of a giant sacrococcygeal teratoma successfully managed surgically at Muhimbili National Hospital, Tanzania.

**Objectives:** To describe the diagnosis, emergency surgical management, and outcome of a spontaneously ruptured giant sacrococcygeal teratoma in a neonate.

**Methods:** This descriptive case report involved a 10-day-old female neonate presenting with a giant sacrococcygeal mass complicated by spontaneous rupture. Clinical examination, laboratory investigations, and abdominopelvic MRI were performed for evaluation. Following rupture, preoperative stabilisation with fluids, antibiotics, and blood transfusion was undertaken. Emergency surgical excision of the tumour with coccygectomy was performed under general anaesthesia. Histopathological examination and postoperative follow-up assessments were conducted to evaluate recovery and recurrence.

**Results:** The neonate presented with a multilobulated giant sacrococcygeal mass measuring approximately 20×15 cm with mixed solid and cystic components. After spontaneous rupture, the patient developed anaemia, pallor, tachycardia, and serosanguinous discharge from necrotic skin. MRI demonstrated a large presacral mass extending into the pelvis and gluteal region. Complete tumour excision with coccygectomy was successfully achieved despite high

vascularity and rectal wall injury requiring repair. Histopathology confirmed mature benign sacrococcygeal teratoma without malignant transformation.

**Conclusion:** Spontaneous rupture of giant sacrococcygeal teratoma is a rare neonatal surgical emergency associated with significant morbidity and mortality risk. Prompt resuscitation and definitive surgical excision with coccygectomy are essential for survival and favourable outcomes. Early diagnosis and timely intervention can successfully prevent complications, even in resource-limited settings with limited prenatal detection.

**Recommendation:** Strengthening prenatal ultrasonography and antenatal referral systems is necessary for early detection of giant sacrococcygeal teratomas. Neonates with large SCTs should undergo urgent multidisciplinary evaluation to prevent rupture and hemorrhagic complications. Early surgical excision with coccygectomy remains the cornerstone of treatment, while long-term follow-up is recommended to monitor recurrence and functional outcomes.

## **11. Title: Factors Associated with Maternal Mortality among Referred Patients with Postpartum Haemorrhage WHO Underwent Surgical Management at Muhimbili National Hospital**

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**Presenter:** Mpoyi Mukeba Constantin

**Authors:** Mpoyi Mukeba Constantin, Brian Abraham Muro, Albert Magohe

**Background:** Postpartum haemorrhage is a leading cause of maternal morbidity and mortality, especially in low-income countries, with an estimated 70,000 deaths each year globally. For each reported maternal death, approximately 20 women survive. Their proportion (MMI) can provide better information regarding the quality of maternal healthcare, on which to base action to prevent further deaths.

**Objectives:** To determine factors associated with maternal mortality among referred patients with postpartum haemorrhage who underwent surgical management at MNH

**Methods:** This was a cross-sectional study of 573 patients, from Jun 1, 2015, to Jun 30, 2025. Data were analysed using IBM SPSS version 27.0. Competing-risk survival analysis using the Fine-Grey sub-distribution hazard model was performed to identify independent predictors of maternal death, with discharge alive treated as a competing event. Variables with  $p < 0.20$  in univariable analysis were included in the multivariable model, and statistical significance was set at  $p < 0.05$ .

**Results:** Among 2,543 referred women for further management of postpartum haemorrhage, 573 (22.5%) underwent surgical management. Following surgery, 96 (16.8%) maternal deaths occurred, mainly due to hypovolemic shock (45.8%). The independent predictors were age (<20 years) (aSHR 13.88, 95% CI 5.19-37.13), referral from Kigamboni (aSHR 2.95, 95% CI 1.09-7.98), unconsciousness on admission (aSHR 4.56, 95% CI 2.58-8.05), hypoxic-ischemic encephalopathy (aSHR 2.96, 95% CI 1.68-5.19), disseminated intravascular coagulation (aSHR 6.46, 95% CI 3.43-12.18), and hypovolemic shock (aSHR 11.29, 95% CI 6.65-19.16).

**Conclusion:** Mortality was overwhelmingly driven by preventable and time-sensitive complications. The association between age, referral origin, and unconsciousness at arrival highlights the critical role of delayed recognition, referral, and definitive care in determining

outcomes. These findings indicate that most deaths occur not because surgical treatment at MNH is ineffective, but because women reach definitive care too late and in advanced shock.

**Recommendation:** Need for well-equipped medical ambulances capable of providing ongoing resuscitation during transfer. Establishing emergency obstetric transport systems with trained staff, intravenous fluid resuscitation, oxygen therapy, and communication with receiving facilities could substantially reduce preventable deaths. Ensuring continuity of resuscitation from the referring facility to the tertiary hospital would shorten the second delay and improve survival among critical women with PPH.

## **12. Title:** Trial of Zinc Supplements for Young Infants with Clinical Severe Infection in Tanzania

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**Presenter:** Fredrick A. Maleko

**Authors:** Fred Maleko, Mwemezi Salvatory, Neema Samwel, Raban Rameck, Sarah Somji, Mohamed Bakari, Upendo Kibwana, Cecilia Msemwa, Karim Manji

**Background:** Sepsis, meningitis and pneumonia together account for approximately 33 % of neonatal deaths in Tanzania. The regional incidence of severe bacterial infection among neonates is about 6%, with death or major disability in nearly 40 % of cases. Zinc, an essential micronutrient that modulates innate and adaptive immunity and maintains epithelial integrity, may enhance recovery when given alongside antibiotics.

**Objectives:** Assess if 14-day oral zinc with antibiotics lowers 90-day mortality and treatment failure in Tanzanian infants with clinical severe infection.

**Methods:** We will conduct a randomised, double-blind, placebo-controlled trial enrolling 3,250 infants with CSI at three Tanzanian hospitals. All receive standard antibiotics and supportive care, then are randomised 1: 1 to receive either 10 mg/day oral zinc (dispersible tablets) or identical placebo for 14 days. Randomisation is stratified by hospital and uses variable block sizes. Caregivers, clinicians, and outcome assessors are masked. Analysis will follow an intention-to-treat approach.

**Results:** As of May 2026, 750 infants (median age 12 days [IQR 7-26], 58 % male) have been enrolled; no zinc-related serious adverse events have been reported. Data collection is ongoing. Preliminary reports indicate generally an improved outcome, and the DSMB done recently indicate that the study can continue.

**Conclusion:** If adjunct zinc proves effective, it offers an inexpensive, scalable strategy to reduce neonatal sepsis mortality & re-hospitalization in resource-limited settings.

**Recommendation:** Preliminary data support trial continuation and suggest zinc is a safe, feasible adjunct for neonatal severe infection. We recommend completing enrollment, initiating policy dialogue on zinc use, and strengthening hospital capacity for scale-up. Future research should assess cost-effectiveness and long-term outcomes to guide implementation in resource-limited settings.

### **13. Title: Barriers to Accessing Safe Menstrual Hygiene Management Services among Adolescent Girls in Mtwara District**

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**Presenter:** Elizabeth Michael Kitonka

**Authors:** Elizabeth Michael Kitonka

**Background:** Adolescents aged 10-19 years make up a large proportion of the population in Sub-Saharan Africa, yet many girls still face difficulties in managing menstruation safely. Challenges such as lack of facilities, high cost of sanitary pads, and low awareness of menstrual hygiene affect girls' health, dignity, and school participation. In rural areas of Tanzania, including Mtwara, schools often provide limited support, poor access to water and sanitation facilities, and little

**Objectives:** To explore the challenges and awareness levels related to menstrual hygiene management among school girls in Mtwara District.

**Methods:** This was a qualitative descriptive study conducted during the 2024 FAWOPA Menstrual Hygiene Management (MHM) Stakeholders Workshop in Mtwara. Participants included teachers, health workers, students, and community stakeholders. Data were collected through discussions, presentations, and reflections, then analysed to identify common barriers and awareness levels related to menstrual hygiene management.

**Results:** Economic barriers, especially the high cost of sanitary products, were commonly reported. Schools also had poor menstrual hygiene infrastructure, including lack of private spaces, water, and disposal systems. Low awareness was associated with limited menstrual hygiene topics in school curricula and a lack of health education sessions. Limited numbers of female teachers also made girls feel shy and unsupported. These challenges contributed to school absenteeism and health-related problems among girls.

**Conclusion:** Girls in Mtwara District face multiple challenges in managing menstruation safely, including poor facilities, stigma, low awareness, and unaffordable sanitary products. Improving school environments, strengthening menstrual hygiene education, and increasing access to affordable sanitary pads may support girls' health, confidence, and school attendance.

**Recommendation:** Schools should improve menstrual hygiene facilities by providing water, private rooms, and disposal systems. Menstrual hygiene education should be strengthened through school programmes and health talks. More female teachers and supportive environments are needed to help girls feel comfortable. Government and stakeholders should also make sanitary pads affordable and accessible, especially in rural areas like Mtwara.

### **14. Title: Barriers to Postpartum Family Planning Use among Women Delivered at Muhimbili National Hospital**

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**Presenter:** Kiswagala Issa

**Authors:** Kiswagala Issa, Ali Saidi, Maryam Shaki

**Background:** Postpartum family planning (PPFP) is critical for reducing maternal and infant mortality through the prevention of unintended pregnancies and the promotion of healthy

birth spacing. Despite its importance, uptake remains low in sub-Saharan Africa, where 65% of postpartum women have unmet contraceptive needs. In Tanzania, only 27% of postpartum women use modern contraception, and at Muhimbili National Hospital (MNH), PPFPP initiation remains suboptimal despite available services, pointing to unaddressed underlying barriers.

**Objectives:** To explore barriers to postpartum family planning use among women delivered at Muhimbili National Hospital.

**Methods:** A qualitative study using a phenomenological design was conducted at MNH's maternity ward. Fifteen postpartum women (delivered within 1-4 days) were recruited via convenience sampling. Data were collected through in-depth interviews (IDIs) conducted in Swahili, audio-recorded, and transcribed verbatim. Thematic analysis following Braun and Clarke's six-phase framework was applied, aided by NVivo 12 software. The Health Belief Model guided interview guide development and analytical framing.

**Results:** Two main themes emerged: (1) barriers to PPFPP uptake, comprising fear of side effects and infertility, socio-cultural and religious limitations, ideological rejection of modern contraception, and community-derived misinformation; and (2) perceptions of FP services at MNH, comprising systemic service delivery failures including absent counselling, women bypassing formal services in favour of private pharmacies. These findings highlight multidimensional individual, socio-cultural, and health system-level barriers.

**Conclusion:** Barriers to PPFPP use at MNH are multifaceted, encompassing deeply fixed socio-cultural norms, fear-driven misconceptions, and significant health system failures. Despite service availability, women experience poor-quality counselling and coercive interactions, eroding trust. Addressing these barriers requires culturally sensitive provider training, respectful client-centred counselling, male involvement strategies, and community-level health education to bridge the gap between service access and uptake.

**Recommendation:** Strengthen postpartum FP counselling quality and ensure privacy during sessions. Train providers in respectful, non-coercive communication. Integrate male partner involvement into PPFPP programmes. Develop community-level interventions targeting misconceptions about contraception. Improve method availability and reduce logistical barriers at MNH. Align counselling with women's cultural and religious contexts to enhance trust and increase postpartum contraceptive uptake.

## **15. Title:** Lived Experiences of Women WHO Have Undergone Emergency Peripartum Hysterectomy at MNH in Tanzania

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**Presenter:** Tamimu Said

**Authors:** Tamimu Rashid, Andrea B. Pembe, Peter Majinge

**Background:** Emergency peripartum hysterectomy (EPH) is a life-saving procedure for severe obstetric complications. While it reduces maternal mortality, it causes permanent fertility loss. Existing data focuses on clinical outcomes, but little is known about the lived experiences of women in low-resource settings like Tanzania. Understanding the experience, perception of care and coping strategies is critical for holistic maternal care.

**Objectives:** To explore the lived experiences, perceptions of care, and coping strategies of women after emergency peripartum hysterectomy at MNH.

**Methods:** A qualitative phenomenological design was used. 13 women who underwent EPH at MNH within one year were purposively sampled. Data were collected via in-depth interviews, transcribed verbatim from Swahili, and analysed using reflexive thematic analysis based on Braun & Clarke's framework.

**Results:** Five main themes emerged: Psychological and emotional response, social and marital consequences, physical and sexual experience, coping strategies and adaptation. experience of healthcare services. Many women felt their psychological needs were overlooked by providers, and most hide their surgery from their communities due to fear of being labeled "barren" as women.

**Conclusion:** EPH saves lives but devastates women's sense of womanhood and marital stability. The psychological impact often outweighs the physical recovery. Current care at MNH focuses narrowly on surgical wounds, neglecting severe emotional trauma, stigma, and lack of spousal disclosure, leaving women isolated in their suffering.

**Recommendation:** Integrate routine psychological counselling and peer support groups into postpartum EPH care. Train providers to offer empathetic, informative communication before discharge. Establish a formal follow-up system specifically for EPH patients to address chronic pain, sexual health concerns, and social reintegration, moving beyond mere survival to holistic recovery.

## **16. Title: Perceived Barriers to Early Ultrasound Utilisation among Pregnant Women Attending ANC at Mbagala Rangitatu Hospital**

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**Presenter:** Lilian Isack Marwa

**Authors:** Lilian Marwa, Matilda Ngarina, Matilda Alfred, Amani Anaeli

**Background:** Early ultrasound plays a critical role in pregnancy care, offering important benefits such as accurate gestational dating, early detection of fetal anomalies, and the identification of high-risk pregnancies. However, despite its recognised benefits, its utilisation remains limited in many low- and middle-income countries, thus contributing to the increasing number of maternal adverse effects and early neonatal deaths.

**Objectives:** To explore perceived barriers to early ultrasound utilisation among pregnant women attending ANC services at Mbagala Rangitatu Hospital

**Methods:** Exploratory Case study design was employed. Data were collected through in-depth interviews (IDIs) and key informant interviews (KIIs) from purposively selected pregnant women and healthcare workers, the district's reproductive and child health representative, and two health management team representatives at Mbagala hospital respectively. 17 participants were recruited. Interviews were audio-recorded, transcribed verbatim and analysed using Reflexive thematic analysis with deductive and inductive coding. NVivo software organises codes, enhancing the identification of recurring patterns and themes.

**Results:** Six barriers were identified. Healthcare worker-related barriers include inadequate knowledge and training, poor provider attitudes, and ineffective health education with restricted ANC service delivery. Patient-related barriers encompassed knowledge gaps, misconceptions, fear, mistrust, financial constraints, and poor health-seeking behaviour. Health facility barriers include technical and operational challenges. Community barriers involved sociocultural beliefs and practices, while household barriers include inadequate

partner support and limited women's autonomy—systemic barriers encompassed policy implementation challenges, inadequate infrastructure, and insufficient uss data monitoring and oversight.

**Conclusion:** Study revealed that barriers to early uss utilisation are not isolated challenges but rather deeply rooted across multiple levels, including the individual woman, her household, community, the healthcare facility, and the broader health system. Together, these barriers need to be addressed to improve pregnant women's access to early uss, thus reducing risks of complications and preventable adverse outcomes.

**Recommendation:** Addressing these barriers requires a coordinated and multilevel response that includes improving healthcare provider training and attitudes, strengthening health education provision and services delivered during ANC visits, enhancing facility infrastructure and human resources availability, establishing flexible and affordable payment options, and increasing community awareness about the importance of early use. Implementing these measures collectively will increase early uss utilisation.

## **17. Title: Knowledge, Attitude and Practice of Antenatal Health Care Providers on the Management of Gestational Diabetes**

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**Presenter:** Asha Abel

**Authors:** Asha Abel

**Background:** Gestational diabetes mellitus (GDM) is hyperglycaemia first detected during pregnancy, typically between 24-28 weeks, affecting approximately 16% of pregnancies globally, with prevalence reaching 14% in sub-Saharan Africa and 39% in Tanzania. GDM poses significant risks to maternal and fetal health. Adequate knowledge, positive attitudes, and sound clinical practices among antenatal healthcare providers are essential for preventing adverse maternal and fetal outcomes.

**Objectives:** To assess the knowledge, attitudes, and practices of antenatal healthcare providers on the management of gestational diabetes mellitus at Muhimbili

**Methods:** A descriptive cross-sectional study was conducted in December 2025 at a tertiary healthcare facility in Tanzania. A total of 300 antenatal healthcare providers were enrolled across various professional cadres. Data were collected using a structured self-administered questionnaire, coded, and analysed using SPSS version 27. Descriptive statistics were applied to compute frequencies and percentages.

**Results:** Of 300 antenatal healthcare providers, 44.3% demonstrated adequate knowledge of GDM, with obstetricians/gynaecologists (76.47%) scoring highest and nurses (24.44%) lowest. Positive attitudes were reported by 90% of participants, with staying updated on GDM guidelines being the most endorsed item (96.7%). Good clinical practices were demonstrated by 67.3% of participants, with counselling on hypoglycaemia and hyperglycaemia symptoms being the most frequently performed practice (83.0%) and dietitian referral the least reported (62.0%).

**Conclusion:** Although attitudes and practices among antenatal healthcare providers were largely positive, knowledge of GDM management remained inadequate, particularly among nurses. This highlights the need for targeted, cadre-specific training programmes and wider

dissemination of context-appropriate GDM clinical guidelines to improve the quality of antenatal care in low-resource settings.

**Recommendation:** Institutions should implement cadre-specific GDM training programmes, prioritising nursing staff. GDM content should be integrated into continuous professional development curricula. Referral pathways to dietitians/nutritionist for Medical Nutrition Therapy should be strengthened. Policymakers should prioritise developing and disseminating context-appropriate GDM clinical guidelines to address systemic knowledge gaps in low-resource settings.

## **18. Title: Emotional and Professional Impact of Maternal Death on Maternity Care Providers at MNH**

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**Presenter:** Emmanuel Mashyaka

**Authors:** Emmanuel Mashyaka, David H. Mvunta, Matilda Alfred Mkonyi, Fadhlun M. Alwy Al-Beity

**Background:** Maternal deaths remain a major concern in Tanzania. Beyond clinical causes and family consequences, these events may deeply affect maternity care providers who witness, manage, and review them. Understanding providers' emotional and professional experiences is important for strengthening provider wellbeing, supportive teams, maternal death review processes, and quality of maternity care.

**Objectives:** To explore maternity care providers' perceived emotional and professional impact of maternal death at Muhimbili National Hospital.

**Methods:** A qualitative descriptive study was conducted at Muhimbili National Hospital (MNH) among 15 maternity care providers with direct experience of maternal death. Participants were purposively selected across cadres. Semi-structured interviews were conducted mainly in Swahili, audio-recorded, transcribed verbatim, and de-identified. Data were analysed using reflexive thematic analysis, with primarily inductive, semantic coding and meaning-preserving Swahili-to-English analytical translation.

**Results:** Participants described maternal death as shocking, painful, and difficult to forget, particularly when death appeared sudden, preventable, or followed intensive clinical effort. Emotional responses included sadness, guilt, fear, anger, intrusive memories, and distress extending beyond work. Professionally, maternal death increased vigilance, early consultation, documentation, learning, and teamwork, but also reduced confidence, lowered morale, and intensified fear of blame. Coping involved peer discussion, family support, prayer, self-reflection, emotional control, and temporary withdrawal.

**Conclusion:** Maternal death affects maternity care providers emotionally and professionally, not only families and clinical outcomes. While many providers transform painful experiences into learning and safer practice, limited structured support leaves emotional distress largely managed informally.

**Recommendation:** MNH and similar facilities should provide structured psychological support, counselling, supportive debriefing, and short recovery time, where needed, for providers affected by maternal death. Maternal death reviews should promote learning and accountability while recognising providers' emotional burden. Strengthening staffing, referral

pathways, blood availability, and essential resources may reduce preventable deaths and provider distress.

## **19. Title: An Innovative Feeding Support Package for Small Vulnerable Infants to Improve Nutritional and Health Outcomes**

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**Presenter:** Raban Rameck

**Authors:** Raban Muhoza, Mwahija Ismail, Christopher Sudfeld, Christopher Duggan, Karim Manji, Sara Somji, Nahya Salim, Rodrick Kisenge<sup>1</sup>

**Background:** Small vulnerable newborns (SVNs), including preterm and LBW infants, contribute to more than half of global neonatal deaths, particularly in LMICs. These infants face increased risks of illness, poor growth, and feeding challenges. The LBW and Preterm Infant Feeding Trial and Supportive Care Package study evaluates an innovative Feeding Support Package Plus designed to strengthen lactation support, improve feeding practices, and enhance family-centred care for mothers of NICU-admitted SVNs

**Objectives:** To evaluate effectiveness, feasibility, and acceptability of the feeding support package plus in improving feeding and supportive care for SVNs.

**Methods:** A one-year adaptive implementation study was conducted in five public hospitals across India, Malawi, and Tanzania to evaluate lactation and feeding support for vulnerable newborns. Healthcare providers were trained to deliver support across 12 milestones from delivery through discharge. Three implementation models were evaluated and refined using qualitative interviews, quantitative matched analyses with baseline data, and continuous feedback from healthcare staff and research coordination teams to identify barriers and facilitators.

**Results:** After 12 months, breastfeeding and supportive care practices improved significantly. Early breastfeeding within one hour increased from 13% to 61% ( $p=0.001$ ). Infants receiving mother's milk increased from 55% to 87% ( $p=0.001$ ), while average daily feeding sessions rose from 7.9 to 9.6 ( $p=0.02$ ). Breast milk expression increased from 30% to 71% ( $p=0.001$ ). Skin-to-skin care improved from 30% to 47% ( $p=0.03$ ), with earlier initiation and longer duration. Immediate Kangaroo Mother Care increased from 0% to 12% ( $p=0.003$ ).

**Conclusion:** The Feeding Support Package Plus (FSP+) improved key initiation and maintenance of breast milk feeding despite facility policies and infrastructural challenges. This adaptive, integrated package focusing on care for SVNs and their caregivers is being disseminated as a global good and has the potential to scale to NICUs and prevent newborn death globally.

**Recommendation:** The FSP+ should be integrated into routine neonatal care to improve breastfeeding, skin-to-skin care, and newborn survival. Health facilities should strengthen provider training, supportive policies, privacy, and infrastructure while reducing workload barriers. Given its effectiveness and feasibility, FSP+ has strong potential for large-scale implementation across low- and middle-income countries to reduce mortality among vulnerable newborns.

## **20. Title: Understanding, Experiences, and Perceptions on Gestational Weight Gain among Pregnant Women at Mbagala Rangi Tatu**

**Presenter:** Kasindo Amandus Deusdedith

**Authors:** Kasindo Amandus Deusdedith, Amani Kikula, Alier Chuor Garang

**Background:** Gestational weight gain (GWG) is critical for maternal and neonatal health, yet many women gain outside recommended ranges. In Tanzania, only one-third achieve adequate GWG, with 40-45% gaining inadequately and 20-25% excessively. Despite ANC guidelines emphasising weight monitoring and counselling, inappropriate GWG persists. Understanding women's perspectives is essential to identifying personal and social factors influencing GWG and to developing effective, culturally resonant interventions.

**Objectives:** To describe pregnant women's understanding, experiences, and perceptions of GWG at Mbagala Rangi Tatu Hospital.

**Methods:** A descriptive qualitative case study was conducted at Mbagala Rangi Tatu Hospital. Thirteen third-trimester pregnant women were purposively sampled. In-depth interviews in Swahili guided by Social Cognitive Theory were audio-recorded, transcribed, and analysed using reflexive thematic analysis with inductive and deductive coding. NVivo 12 organised data until saturation was reached.

**Results:** Four themes emerged: (1) Incomplete understanding of GWG, participants lacked knowledge of weight recommendations, nutrition, and physical activity. (2) lived experiences included physiological discomforts, unstructured appetite-driven eating, financial constraints, reduced activity, and variable social support. (3) The healthcare system experiences revealed silent weighing without feedback. (4) Perceptions were positive toward weight gain as fetal growth, excessive GWG considered burdensome and attributed to the fetus.

**Conclusion:** Pregnant women lack adequate GWG knowledge and receive no meaningful weight feedback during ANC. Silent weighing creates false reassurance. Excessive GWG was misattributed to fetus growth. Women need structured education addressing diet, activity, and weight targets.

**Recommendation:** Implement structured weight counselling at every ANC visit. Train providers to give actionable feedback, not silent weighing. Develop affordable nutrition guides for pregnant women. Expand physical activity advice beyond walking. Address food taboos and fetal attribution beliefs through culturally sensitive education. Integrate GWG into routine health talks with visual aids.

## **21. Title: Maternal and Perinatal Outcomes in Preeclamptic Women Presenting with Ascites at Muhimbili National Hospital**

**Presenter:** Nuru Mwaluwinga |

**Authors:** Nuru Mwaluwinga, Fadhlun M. Albeity, Hellen Mrina

**Background:** Hypertensive disorders of pregnancy, including preeclampsia are the second leading cause of maternal mortality worldwide, accounting to about 16% of all deaths, with developing countries facing higher burden. Ascites presence represents an extreme form of microvascular damage secondary to increased vascular pressure associated with increased maternal morbidity, higher mortality rates and poor perinatal outcomes. Despite these

associated complications, the role of ascites as a marker for severe disease in preeclampsia remains underexplored.

**Objectives:** To assess the maternal and perinatal outcomes in preeclamptic women with ascites attending Muhimbili National Hospital (MNH).

**Methods:** This analytical cross-sectional study was conducted among preeclamptic women at MNH from November 2025 to April 2026 using consecutive sampling. Clinical-demographic data, laboratory findings, ascites status, delivery details, and maternal and neonatal outcomes were collected at discharge. Ascites was diagnosed by ultrasound or intraoperative findings. Data were analysed using descriptive statistics, chi-square/Fisher's exact tests, independent t-test, and logistic regression; significance was set at  $p < 0.05$ .

**Results:** A total of 514 preeclamptic women were recruited, and 22.6% had ascites. Women with ascites had higher rates of caesarean delivery (stats), visual disturbances (stats), ICU admission (stats), cardiopulmonary complications (stats), HELLP syndrome (stats), AKI (stats), low birth weight (stats), low Apgar score (stats), and stillbirth (stats). On multivariable analysis, ascites was independently associated with poor maternal outcomes (aOR 2.157; 95% CI 1.363-3.414;  $p=0.001$ ), but not poor perinatal outcomes. Elevated creatinine predicted poor maternal outcomes, while elevated AST predicted poor perinatal outcomes.

**Conclusion:** Presence of ascites is an independent predictor of poor maternal and perinatal outcomes. Identifying and monitoring ascites in women with preeclampsia may help guide early intervention and management.

**Recommendation:** Local preeclampsia management protocols should consider ascites as a marker of severe disease and a potential indicator for early intervention. Ultrasounds (to diagnose ascites) are more widely available, even in remote settings, than biochemical tests used to detect severity. Therefore, ascites detection may aid timely diagnosis, management in low resource areas.

## **22. Title: Health Care Providers' Perspectives on Implementation of the Adapted WHO Labour Care Guide at Mbagala Rangi Tatu Hospital**

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**Presenter:** Ritha K. Gelase

**Authors:** Ritha K. Gelase, Zainab Hassan, Matilda Ngarina

**Background:** The Adapted World Health Organisation Labor Care Guide (ALCG) was introduced to improve intrapartum monitoring, promote evidence-based labor management, and reduce unnecessary obstetric interventions. Despite its adoption in Tanzania, little is known about healthcare providers' perspectives regarding its implementation in high-volume public maternity settings such as Mbagala Rangi Tatu District Hospital.

**Objectives:** To explore healthcare providers' perspectives on implementing the WHO labour care guide at Mbagala Rangi tatu Hospital.

**Methods:** A descriptive qualitative study was conducted among 12 healthcare providers involved in intrapartum care at Mbagala Rangi Tatu District Hospital, Tanzania. Participants were purposively selected and interviewed using semi-structured in-depth interviews guided by CFIR domains. Audio-recorded interviews were transcribed verbatim and analysed using a reflexive thematic analysis approach. Both deductive and inductive coding methods were

applied, and NVivo 12 software organised codes, enhancing the identification of recurring patterns and themes.

**Results:** Three major themes emerged from the findings. The perceived Utility and Relevance of the ALCG included the Sub-themes improved clinical decision-making, reduction of unnecessary interventions, and woman-centred maternity care. The Barriers to ALCG Implementation included human resource and workload challenges, documentation and monitoring challenges, resource and infrastructure limitations, and training and knowledge gaps. The Facilitators Supporting ALCG Implementation encompassed supportive supervision and mentorship, institutional support systems, and collaborative practice and teamwork.

**Conclusion:** The adapted Labour Care Guide was positively perceived as an important tool for improving the quality of intrapartum care and supporting safer, more woman-centred childbirth practices. Despite existing implementation challenges, healthcare providers demonstrated commitment toward its utilisation through teamwork, mentorship, and continuous learning. Strengthening institutional capacity, continuous professional support, and the availability of essential resources may enhance effective integration and long-term sustainability.

**Recommendation:** Healthcare facilities and policymakers should strengthen continuous training, supportive supervision, and mentorship to improve competence in using the adapted Labour Care Guide. Improving staff-to-patient ratios and ensuring adequate monitoring equipment and supplies are necessary to address implementation challenges. Regular clinical audits, teamwork, and institutional commitment should also be enhanced to promote sustainable and effective utilisation of the ALCG.

### **23. Title: Factors Associated with Comprehensive Knowledge of HIV Prevention among Young Men in Tanzania**

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**Presenter:** Gladys Reuben Mahiti

**Authors:** Gladys Reuben Mahiti, Jovinary Adam, Easter Mbunju, Pankras Luoga

**Background:** Globally, men now account for the majority of new HIV infections. Despite the progress made in the past 10 years, with a 46% decline in new HIV infections among young people (15-24 years), the world is still behind in achieving the targets set for young people. Knowledge of HIV prevention is crucial for young people, who are often at greater risk because they may have shorter relationships with more partners.

**Objectives:** To determine factors associated with comprehensive knowledge of HIV prevention among young men aged 15-24 years in Tanzania

**Methods:** The study analysed secondary data from the 2022 Tanzanian Demographic and Health Survey and Malaria Indicator Survey, focusing on a weighted sample of 2,378 young men. The study used modified Poisson regression to identify significant factors related to comprehensive knowledge of HIV prevention, with a significance level set at 5%.

**Results:** The overall comprehensive knowledge of HIV prevention among young men was 38%. The results revealed that factors associated with comprehensive knowledge about HIV among young men included having a primary education (APR=1.43, 95% CI=1.03, 1.98), secondary education or higher (APR=2.14, 95% CI=1.53, 2.98), being employed (APR=1.22, 95% CI=1.01,

1.48), listening to the radio (APR=1.30, 95% CI=1.12, 2.11), watching television (APR=1.28, 95% CI=1.06, 1.53), and using the internet (APR=1.20, 95% CI=1.05, 1.76).

**Conclusion:** Comprehensive knowledge about HIV prevention was 38% among young men in Tanzania. To improve comprehensive knowledge about HIV prevention among AGYW in Tanzania, it is essential to implement targeted educational programmes that offer workshops and community-based education tailored for those with no formal education, utilise radio and social media campaigns to disseminate information, and create peer education networks.

**Recommendation:** Public health programmes in Tanzania should focus on providing information on HIV/AIDS using different approaches, as well as health promotion and education strategies in the formal and informal sectors, since media exposure is a common and cost-effective way of public health promotion and education in modern times.

#### **24. Title: Levels of Physical Activity and Associated Factors among Pregnant Women Attending Antenatal Clinic at Mbagala**

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**Presenter:** Gisila Barunguza

**Authors:** Gisila Barunguza

**Background:** Physical activity (PA) during pregnancy is vital for the well-being of maternal and fetal health. Despite these known benefits, many pregnant women globally in developing and developed nations do not meet recommended PA guidelines. It is not clear why this trend, especially in low-resource settings like Tanzania, persists. Understanding the current levels of physical activity is crucial for developing and promotion of specific interventions for physical activity in pregnant population.

**Objectives:** The aim of the study was to assess the level of physical activity and associated factors among pregnant women attending

**Methods:** The hospital-based analytical cross-sectional study was done at Mbagala Rangitatu Hospital. The targeted population were all pregnant women who attended ANC from 2nd of March to 31st of March 2026. Using consecutive sampling, a total of 556 participants were involved. Participants' data were collected by using a pretested structured questionnaire. Analysis was done by SPSS version 27, both descriptive and analytical.

**Results:** Median total energy expenditure (EE) was 140 MET-hr/wk with median EE on sports/exercise of 12.6 MET-hr/wk. Only 258 (46%) of the women met the international guideline for PA in pregnancy. Moderate intensity activity accounted for 29% of total EE. Predictors for meeting recommended levels of physical activity among pregnant women were marital status( single, married or cohabiting ) and income level

**Conclusion:** The findings highlight the need for strengthened antenatal education, targeted interventions, and supportive public health strategies to promote safe and appropriate physical activity during pregnancy. Improving awareness and addressing socioeconomic barriers may contribute to better maternal and fetal health outcomes.

**Recommendation:** More qualitative studies are needed to evaluate the barriers and facilitators to physical activity. Studies should also be done in more than one facility for generalisation.

## **25. Title: Maternal Occupation and Risk of Adverse Fetal Outcomes in Tanzania: A Hospital- Based Cross-Sectional Study**

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**Presenter:** Baldwina Tita Olirk

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**Background:** Women constitute a large proportion of the workforce in today's world. Hazardous working environment conditions for these women pose a threat to their reproductive health. Despite efforts to address maternal health in Tanzania, the impact of occupational risks during pregnancy remains unclear.

**Objectives:** To assess whether maternal occupation during pregnancy is associated with adverse fetal outcomes.

**Methods:** A cross-sectional study involving 400 post-delivery women was conducted at a referral hospital in Tanzania. Socio-demographic, occupational, and obstetric data were collected using pre-tested questionnaires, medical files, and clinic cards. Physical workload was assessed using the standardised Musculoskeletal Questionnaire, while chemical exposure was evaluated through a job-exposure matrix. Data were analysed using SPSS version 23, with  $p < 0.05$  considered statistically significant.

**Results:** The mean age of participants was  $28.0 \pm 6.3$  years. Among 400 post-delivery women, 174 (43.5%) were employed, with agriculture (22.4%) and tailoring (19.0%) being the most common occupations. Compared to other occupations, agricultural work was associated with higher odds of congenital malformations, preterm birth, low birth weight, and low Apgar scores. Food vending was also associated with increased odds of low birth weight and low Apgar scores.

**Conclusion:** Understanding occupational characteristics and their relation to adverse fetal outcomes is important to formulate appropriate strategies to promote and protect maternal and infant health at work.

**Recommendation:** Strengthen workplace policies to protect pregnant women from hazardous chemicals and physically demanding tasks, particularly in high-risk occupations such as agriculture and street food vending. Integrate occupational health risk assessments into routine antenatal care, provide protective equipment and safety training, and promote alternative duties during pregnancy. Future studies should use objective exposure measures, broader sampling, and postpartum follow-up assessments.

## **26. Title: Prevalence and Factors Associated with Thyroid Hormone Abnormalities among Neonates Admitted at BMC, Mwanza, Tanzania**

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**Presenter:** Atuganile Twalondaga

**Authors:** Atuganile Twalondaga, Delfina Msanga, Neema Chami, Tulla Masoza

**Background:** Thyroid hormone abnormalities can occur due to deficiency or excess of thyroid hormones, which can lead to significant deleterious effects on growth, neurological injury, and even mortality in the first year of life. Clinically, these abnormalities at birth are often

mild, and many cases go undetected, leading to irreversible outcomes, such as deafness and intellectual disability, when treatment is delayed.

**Objectives:** To determine the prevalence and factors associated with thyroid hormone abnormalities among neonates admitted at Bugando Medical Centre, Mwanza, Tanzania.

**Methods:** A hospital-based cross-sectional study was conducted at BMC for three months, involving 341 neonates admitted to the neonatal units. Structured questionnaires were used to collect sociodemographic, neonatal, and maternal data. Serum samples were collected for neonatal thyroid function tests. Preterm < 7days of life were screened twice. First, at the initial encounter and at > 14days of life to detect whether the abnormality was transient or permanent.

**Results:** The proportion of neonates who had thyroid hormone abnormalities was 30.2%, with ninety-nine neonates (29%) developing overt congenital hypothyroidism, while four (1.2%) had neonatal hyperthyroidism. Maternal history of third-trimester UTI and periorbital/lower limb oedema were found to be independently associated with congenital hypothyroidism (CH) (aPR=1.5, 95% CI: 1.1-2.2, p=0.016 and aPR=1.6, 95% CI: 1.1-2.3, p=0.015, respectively). Interestingly, maternal age  $\geq$  35 years (aPR=0.4, 95% CI: 0.2-0.9, p=0.031) was a protective factor.

**Conclusion:** This study has provided the first comprehensive insight into THA, which was predominated by congenital hypothyroidism(CH). The unexpectedly high prevalence of CH in this hospital-based cross-sectional study suggests a substantial burden of undiagnosed THA among neonates in the Mwanza region. Potentially contributing to preventable neurodevelopmental impairment. This advocates for the need for immediate action on routine newborn screening.

**Recommendation:** Given the overall snapshot of THA among neonates. We recommend the Implementation of a pilot newborn screening programme for thyroid hormone abnormalities in tertiary facilities. Advocating for the revision of the antenatal and neonatal care guidelines and hence improving resource allocation for thyroid hormone abnormalities screening in the country, and follow-up longitudinal studies of the neonates with abnormalities.

## **27. Title: Building Data Quality Infrastructure for Neonatal Implementation Research: Lessons from the BFB Study**

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**Presenter:** Shaban Busega

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**Background:** Implementation research requires real-time operational monitoring to track progress and identify gaps. The Breathing for Babies study implements VAYU CPAP across six facilities in Dar es Salaam using a hub-and-spoke model with 24/7 clinical observation. As part of the BfB package ecosystem, two integrated digital systems were developed: an operational data dashboard for clinical monitoring and a training and mentorship management system for tracking health worker capacity building.

**Objectives:** To demonstrate how integrated digital systems strengthened research data quality and mentorship monitoring within the BfB study.

**Methods:** Two web-based systems were developed and deployed across six BfB facilities. The operational dashboard comprises 12 modules covering facility metrics, screening, enrollment, observation completion, and neonatal outcomes, integrated with REDCap. The mentorship system tracks staff registry, mentor visits, competency assessments, scheduling, and evaluation across all cadres. Both systems were developed iteratively with user acceptance testing involving district supervisors, clinical mentors, and the study coordination team.

**Results:** The operational dashboard tracked 14,889 deliveries, 12,177 screenings, and 723 enrolled neonates, enabling real-time identification of gaps, including 6.5% transport CPAP coverage and 26.1% postnatal observation completion. The mentorship system registered 284 health workers across six facilities, tracked 46 mentorship visits covering 174 staff by 14 mentors, and assessed 94 staff across competency domains. Staff cadre breakdown revealed 120 nurses, 47 midwives, 36 doctors, 13 paediatricians, 3 neonatologists, and 9 clinical officers receiving structured mentorship.

**Conclusion:** Integrated digital systems for clinical monitoring and mentorship tracking are feasible and valuable in neonatal implementation research. Real-time dashboards enabled rapid identification of operational gaps, while the mentorship system provided structured competency tracking across 284 health workers. Both systems were developed within resource-limited timelines and demonstrate scalability for similar implementation studies across Tanzania.

**Recommendation:** Implementation research should invest in integrated digital monitoring from inception, combining clinical data dashboards with workforce capacity tracking. These systems should be linked to enable correlation between mentorship intensity and clinical outcomes. The open-source approach used in BfB demonstrates that low-cost digital health tools can strengthen health systems research in resource-limited settings.

## **28. Title:** Effects of the 4-Component Alert Intervention on Stillbirth and Early Neonatal Deaths: A Stepped-Wedge Cluster-Randomised

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**Presenter:** Fadhlun M. Alwy Al-beity

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**Background:** Prevention of stillbirth and perinatal mortality in sub-Saharan African settings demands multifaceted approaches. We developed, implemented and evaluated the facility-based, multi-faceted Action Leveraging Evidence to reduce perinatal Mortality and Morbidity (ALERT) intervention including i) co-design, ii) training, iii) quality improvement, and iv) leadership mentoring of maternity units' heads addressing high perinatal mortality and morbidity in Benin, Malawi, Tanzania and Uganda

**Objectives:** To develop, implement and evaluate a facility-based, multi-faceted intervention to reduce perinatal mortality in four sub-Saharan African countries

**Methods:** We used a stepped-wedged cluster-randomised trial design with five six-month periods across 16 districts and referral hospitals in the four countries. Primary outcomes were in-facility fresh stillbirths and the composite indicator of early perinatal mortality (fresh stillbirth and 24-hour neonatal mortality). Secondary outcomes were hypoxic-ischemic events, Cesarean section rate, responsiveness, and respectful care. We estimated separate hospital-

specific mixed-effects regression models for binary outcomes and continuous variables to account for heterogeneity.

**Results:** Among 134,630 women (139,300 neonates), the intervention was associated with 22% lower odds of the composite outcome early perinatal mortality (AOR 0.78, 95% CI 0.65-0.94) and a non-significant 12% lower odds of fresh stillbirth (adjusted odds ratio AOR 0.88, 95% CI 0.68-1.13). The odds of hypoxic-ischemic events were reduced by 19% (AOR 0.81, 95% CI 0.69-0.95). Cesarean section rates increased (AOR 1.14, 95% CI 1.01-1.27). We saw no statistically significant effects on our responsiveness or respectfulness measurements.

**Conclusion:** This is one of the first intervention studies from sub-Saharan Africa which was able to reduce perinatal mortality. The consistency of improvement across outcomes and in a variety of settings supports the importance of the observed reduction in early perinatal mortality and morbidity. Our study adds evidence that multi-faceted improvement interventions supporting context-specific strategies build maternity provider capacities.

**Recommendation:** Health systems to incorporate interventions that concentrate on the whole system.

## **29. Title:** Depression and Associated Factors among Women with Infertility Attending Gynaecology Clinic at Muhimbili National Hospital

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**Presenter:** Goodbright M. Said

**Authors:** Goodbright M. Said, David H. Mvunta, Ali Said

**Background:** Infertility is a major reproductive health problem affecting millions of couples worldwide and is associated with significant psychological, social, and emotional consequences. In Tanzania, childbearing is highly valued, and women are often disproportionately blamed for infertility regardless of the underlying cause. This study aimed to determine the prevalence of depression and associated factors among women with infertility attending the gynaecology clinic at Muhimbili National Hospital.

**Objectives:** To determine the proportion of depression and the factors associated with depression among women with infertility attending the gynaecology clinic

**Methods:** Hospital based analytical cross-sectional study was conducted from August 2023 to May 2024 among women with infertility attending gynecology clinics at the tertiary hospital. A structured questionnaire was employed to collect key information together with the PHQ-9 tool to assess the presence of depression. SPSS version 26 and STATA version 17.0 was used in data analysis.

**Results:** A total of 407 participants were enrolled. The prevalence of depression was 33.91%. Women who were advanced in age had a significantly higher risk of depression (APR = 2.4, 95% CI: 1.28-4.5,  $p = 0.006$ ). Multiparous women were less likely to be depressed than nulliparous women, similarly longer infertility duration was associated with higher odds of anxiety.

**Conclusion:** In this population of women with infertility, we found a significantly high prevalence of depression and anxiety. Factors associated with depression were the participant's age. The number of previous pregnancies were significantly protective factors

against depression while the duration of infertility treatment showed a significant association with depression.

**Recommendation:** Strengthen psychosocial counselling services, involve partners in infertility management, improve access to fertility and mental health services Longitudinal studies are recommended to assess the long-term psychological impact of infertility and evaluate the effectiveness of counselling and support interventions.

### **30. Title:** Knowledge, Perceptions and Factor Influencing Use of Assisted Reproductive Technology

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**Presenter:** Daud Vitalis

**Authors:** Daud Valimada, Zainabu Hassan, Fadhlun al Beity

**Background:** Assisted Reproductive Technology (ART) offers hope to couples facing infertility, yet its uptake remains low in many low-resource settings, including Tanzania. This is due to a low level of knowledge, misconceptions, the cost of procedures, and their availability

**Objectives:** To assess knowledge, perceptions and factors influencing the use of assisted reproductive technology among residents of Dar es Salaam

**Methods:** A cross-sectional analytical study was conducted among 630 participants selected using multistage sampling. Data were collected using a structured questionnaire and analysed using descriptive statistics, chi-square tests, and multivariable logistic regression at a significance level of  $p < 0.05$ .

**Results:** The majority of participants were female (58.6%), aged 26-35 years (33.9%), married (66.6%), and Muslim (53.6%). Overall, 65.8% had heard about ART, but only 0.95% had ever used it. Willingness to use ART was reported by 41.9% of respondents. Knowledge levels were mostly moderate, while perceptions toward ART were mixed, with notable misconceptions regarding artificial babies and fetal malformation. The most commonly reported barriers were high cost (75.1%), poor health services (70.2%), and poor knowledge (66.1%).

**Conclusion:** The uptake and acceptance of ART remain relatively low despite moderate levels of knowledge. Misconceptions, high cost, and fear of complications are major factors influencing the use of ART. Health education,

**Recommendation:** health education and addressing myths and subsidising ART services are recommended to improve acceptance and utilisation of ART in the study population, invest in health infrastructures, develop national ART guidelines and registry, improve referral systems and provide community-based education, engage religion and traditional leaders.

### **31. Title:** Prevalence and Factors Associated with Attention Deficit Hyperactivity Disorder among Children Attending Muhimbili National Hospital

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**Presenter:** Fatma Said Khamis

**Authors:** Fatma Said Khamis, Dorothy Mushi, Ester Steven, Leonida Ngongi

**Background:** ADHD is a prevalent neurodevelopmental disorder that often emerges in childhood. Consistent issues with focus, excessive activity, and impulsive behaviour, all of which can hinder a child's progress and persist into adulthood. While ADHD affects a significant proportion of school-aged children worldwide, its recognition and diagnosis in low- and middle-income countries remain limited.

**Objectives:** Aimed to determine the Prevalence of ADHD and its associated factors for the children attending Muhimbili National Hospital.

**Methods:** A cross-sectional study design with systematic random sampling was employed to select 170 children from psychiatry and neurology clinics at Muhimbili National Hospital(MNH) in Dar es Salaam. The primary data were collected using a semi-structured history-taking interview, Cage, and the diagnostic tool from the Kiddie Schedule for Affective Disorders and Schizophrenia Present-and-Lifetime Version (K-SADS-PL), and were processed using Microsoft Excel 2010. The statistical analysis was performed using SPSS V20.

**Results:** Overall, the study found the Prevalence of ADHD to be 18.9%. Several factors were explored; however, only children who reported having no family history of mental illness were found to be significant and independently associated with ADHD, with a 67% reduction in odds of having ADHD compared with those who reported a family history of mental illness, with an adjusted odds ratio (AOR) of 0.33 and 95% C. I of 0.118-0.919 at p-value = 0.034.

**Conclusion:** The results of this study showed that ADHD is prevalent among children attending Muhimbili National Hospital. Having no family history of mental illness was identified as a protective factor. The study informed the need to strengthen routine, ADHD clinical assessment using the existing KSADS tool, and provide comprehensive care to children in Specialised clinics.

**Recommendation:** The study highlighted that ADHD is common in specialised tertiary clinics. This reflects that tertiary centres should strengthen multidisciplinary collaboration to improve the assessment of children with ADHD using standard diagnostic procedures to enhance early detection and reduce the impact of ADHD. Future longitudinal and community-based studies should be done to determine the national burden of ADHD and its impacts.

### **32. Title: From Insight to Action: Using Rapid Qualitative Analysis to Inform Co-Design Processes with Adolescent Girls and Young Women for PMTCT-Service Improvement in Tanzania**

**Contact:** regine.unkels@ki.se

**Presenter:** Regine Unkels

**Background:** Pregnant and breastfeeding adolescent girls and young women (AGYW) living with HIV continue to experience barriers to engagement and retention in Prevention of Mother-to-Child Transmission (PMTCT) services. Co-designing solutions with end-users can increase the use of healthcare services, but planning and implementing them can be time-intensive, with trade-offs between project efficiency and outcomes. Rapid Qualitative Analysis can offer a pragmatic approach to generating actionable insights to support participatory intervention design while balancing efficiency and methodological rigour.

**Objectives:** To describe how Rapid Qualitative Analysis was used to support planning and implementation of a strategy for co-designing AGYW-responsive PMTCT services in mixed-methods implementation research in Tanzania.

**Methods:** Rapid qualitative analysis was applied to data from 49 semi-structured interviews and 10 focus group discussions with pregnant and breastfeeding AGYW living with HIV, their partners, parents, healthcare providers, and community members in two regions of Tanzania. Structured summary sheets aligned to interview guides captured key narratives, observations, and illustrative quotes. Daily debriefing meetings with trained enumerators supported data quality and iterative identification of emerging themes. Framework analysis using synthesis matrices and analytic memos combined deductive and inductive thematic analysis to generate implementation insights that informed the co-design process.

**Results:** The structured summary sheets took 2-5 hours to complete per data collection event. Rapid qualitative analysis was completed four weeks after data collection. The analysis generated eight personas representing distinct AGYW sub-groups based on service access barriers, psychosocial needs, and care engagement patterns. Findings informed participant selection, facilitator onboarding, problem definition, and ideation phases of the co-design workshops.

**Conclusion:** Rapid Qualitative Analysis is a feasible and practical approach for informing the co-design of youth-responsive PMTCT interventions in Tanzania.

**Recommendation:** Structured synthesis tools, iterative reflections, and early stakeholder engagement should be used for evidence-informed implementation planning while maintaining sufficient analytical rigour for programme decision-making.

### **33. Title: "You Must Act as Their Friend Not to Miss Their Challenges": A Qualitative Study on Social-Structural Drivers of PMTCT Care Engagement of Adolescent Girls and Young Women with HIV in Tanzania**

**Contact:** [regine.unkels@ki.se](mailto:regine.unkels@ki.se)

**Presenter:** Regine Unkels

**Background:** Despite significant progress towards eliminating paediatric HIV through prevention of mother-to-child transmission (PMTCT), attrition rates among pregnant and breastfeeding adolescent girls and young women (AGYW) aged 15-24 years remain high in Tanzania. Evidence indicates that this group faces distinct challenges with PMTCT-services; research has largely focused on health system bottlenecks without adequately accounting for compounding effects of socio-structural barriers to engagement and adherence.

**Objectives:** To understand socio-structural factors influencing engagement and retention in PMTCT services among AGYW in urban and rural Tanzania.

**Methods:** As part of the ENGAGE project, we conducted semi-structured interviews with 34 AGYW and 15 PMTCT-providers and 10 focus-group discussions with partners, parents, and community members in rural Kagera and urban Dar es Salaam regions. Participants were recruited through purposive sampling in health facilities and community sites. Rapid qualitative analysis, using a structured matrix, was applied.

**Results:** Five themes characterised AGYW experiences with PMTCT services: 1) Social support is essential to care engagement; 2) Continuous healthcare support and counselling for newly diagnosed clients is key; 3) Mobility, experienced and internalised stigma hinder access to services; 4) Community norms related to adolescent pregnancy shape care-seeking; and 5) Peer and family support play a critical role in sustaining retention. Across themes, parents emerged as an underutilised source of support, while partner engagement was often constrained by AGYW's reluctance to disclose their HIV status.

**Conclusion:** Retention strategies focused primarily on health system efficiency are unlikely to be sufficient to address AGYW PMTCT disengagement. Differentiated approaches that embed peer support, family involvement, and disclosure counselling into routine PMTCT services are needed.

**Recommendation:** PMTCT policy should recognise AGYW as a distinct sub-group with needs spanning health, social, and community domains.

### **34. Title: Co-Designing Adolescent-Responsive PMTCT Micro-Interventions for Pregnant and Postpartum AGYW Living with HIV in Tanzania: A Human-Centred Design Approach**

**Contact:** dmachang'u@mdh.or.tz

**Presenter:** Daima Machang'u

**Background:** Pregnant adolescent girls and young women (AGYW) living with HIV experience disproportionately poor outcomes in Prevention of Mother-to-Child Transmission (PMTCT) programmes, despite expanded anti-retroviral treatment coverage. Health system-focused improvements alone have proven insufficient for this group. We aimed to co-design contextually relevant micro-interventions to optimise PMTCT care for AGYW in Tanzania together with girls themselves and healthcare providers.

**Objectives:** To co-create and prototype a tailored package of micro-interventions to optimise healthcare for prevention of vertical HIV transmission services for AGYW.

**Methods:** This is an ongoing co-design study using a Human-Centred Design (HCD) approach in two Tanzanian regions as part of the ENGAGE project: urban Dar es Salaam and rural Kagera. A series of co-design workshops is conducted, informed by AGYW personas from a preceding rapid analysis of qualitative data. Four-day workshops were conducted with 22 pregnant/postpartum AGYW with HIV, 16 peer mothers and 18 healthcare providers to develop intervention prototypes in Month Year. Community stakeholders (n=35 male partners, parents, community leaders) provided iterative feedback on the prototypes' feasibility and possible constraints. A second workshop is planned for June 2026. Workshop materials, transcripts and notes were analysed using thematic analysis.

**Results:** Stigma and inadequate social support emerged as the principal barriers from the perspective of AGYW, while providers and peer mothers highlighted burnout and economic instability as critical service delivery gaps. The first round of co-design workshops generated eight intervention prototypes, including a peer-led psychosocial support model, a confidential HIV disclosure counselling tool, and economic empowerment strategies. Stakeholder feedback proposed refinements on implementation strategies and content merging for peer-led models. In subsequent workshops, co-designers will incorporate feedback to refine the prototypes into finalised micro-interventions ready for piloting via a randomised controlled design.

**Conclusion:** Co-designing with AGYW, providers, and community stakeholders produced contextually grounded prototypes with strong stakeholder ownership – difficult to achieve through conventional intervention development. HCD is feasible and productive in this context and reinforces the centrality of psychosocial and community-level support as intervention targets for adolescent PMTCT.

**Recommendation:** Strengthening adolescent engagement through co-design can improve the relevance of PMTCT interventions for pregnant and postpartum AGYW living with HIV.

### **35. Title: Denied, Judged, Misunderstood: Socio-Cultural Myths and Misconceptions on the Sexual and Reproductive Health of Persons with Disabilities**

**Presenter:** Stella Emmanuel Mushy

**Authors:** Stella E. Mushy, Dickson Mkoka, Agnes F. Massae, Dorkasi L. Mwakawanga, Jennifer Connor, Gift G. Lukumay, Lucy R. Mgopa, Victor Z. Chikwala, Emmanuel Sumari, Ally A. Lyimo, Marguerite Puchner-Hardman, Rashid Mfinanga, B. R. Simon Rosser, Maria Trent, Gunna Kilian, Michael W. Ross, Charlotta Löfgren, Kristen P. Mark

**Background:** Persons with disabilities (PWDs) face significant barriers to sexual and reproductive health rights (SRHR) in part due to socio-cultural myths and misconceptions. This study explores these beliefs and how they impede SRH access among PWDs in Dar es Salaam, Tanzania.

**Objectives:** This study explores socio-cultural myths and misconceptions that impede SRH access among PWDs in Dar es Salaam, Tanzania.

**Methods:** This exploratory qualitative study was conducted between March and June 2024. It involved in-depth interviews with persons with disabilities (PWDs), caregivers, and key informants (n = 47), as well as nine focus group discussions (FGDs) with healthcare professionals (n = 61). Participants were purposively recruited based on their experiences and involvement in disability-related healthcare services. All interviews and FGDs were audio-recorded, transcribed verbatim, translated into English, and analysed using thematic analysis.

**Results:** Three main themes were identified in the data: (1) myths and misconceptions about PWDs' sexuality and disease susceptibility, (2) spiritual and cultural stigmas, and (3) denial of access to SRHR services. Misconceptions included beliefs that PWDs are immune to STIs or that sex with them could cure illness. Cultural stigmas viewed disability as a curse, while systemic discrimination denied PWDs autonomy, intimate relationships, parenting, education, and inclusion in SRHR programmes.

**Conclusion:** Deeply rooted myths, misconceptions, and cultural beliefs undermine the SRHR of PWD in Tanzania. Systemic changes through inclusive policy, provider training, societal dialogue, and accessible services are urgently needed.

**Recommendation:** Develop and implement multi-level interventions to address barriers to SRHR access among people with disabilities (PWDs). Strengthen inclusive policies that support equitable access to SRHR services for PWDs. Provide healthcare providers with training on disability-inclusive SRHR care to improve service delivery and responsiveness to the needs of PWDs. Promote societal and community education initiatives aimed at reducing stigma and misconceptions.

### **36. Title: Factors Associated with Adverse Birth Outcomes among Women Delivering in Selected Health Facilities in Temeke, Tanzania**

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**Presenter:** Melkizedeki Abdulahi

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**Background:** Adverse birth outcomes remain a significant public health concern and major contributors to neonatal morbidity and mortality, particularly in low- and middle-income countries. Despite improvements in maternal and newborn healthcare services, adverse birth outcomes continue to affect many newborns in Tanzania.

**Objectives:** To determine the prevalence of adverse birth outcomes and associated factors among women delivering in Temeke Municipality, Tanzania, in 2026.

**Methods:** A facility-based cross-sectional study was conducted among 640 postpartum women selected through multistage sampling with probability proportional to size. Data were collected using structured questionnaires and maternal-neonatal record reviews. Descriptive statistics were used to summarise the characteristics of study participants. Factors associated with adverse birth outcomes were identified using modified Poisson regression with robust standard errors. Adjusted prevalence ratios (aPR) with 95% Confidence Intervals (CI) were reported, and significance was set at  $p < 0.05$ .

**Results:** The prevalence of adverse birth outcomes was 31.1% (199/640). Self-employed was associated with a lower prevalence of adverse birth outcomes compared with government-employed (aPR = 0.55; 95% CI: 0.36-0.83). Labour monitoring using a partograph was a protective factor (aPR = 0.68; 95% CI: 0.51-0.91). Higher prevalence was observed among women with parity of 2-4 (aPR = 1.42; 95% CI: 1.00-2.01) and labour duration  $\geq 24$  hours (aPR = 1.91; 95% CI: 1.44-2.54).

**Conclusion:** Nearly one in three deliveries resulted in an adverse birth outcome. Maternal occupation, parity, labour characteristics, pregnancy complications, hypertensive disorders, iron-folic acid supplementation, and multiple pregnancy were significant factors.

**Recommendation:** Strengthening antenatal and intrapartum care, enhancing risk identification, may help reduce adverse birth outcomes

## Oral, Eye, ENT Health and Care

### 1. Title: Community-Based Hearing Screening among School Children and Artisanal Miners in Geita, Tanzania: Implications for Inclusive Hearing Healthcare

**Contact:** frechotanzania@gmail.com

**Presenter:** Thomas Meshack Thomas

**Authors:** Thomas Meshack Thomas

**Background:** Hearing impairment remains an underrecognized public health challenge in many rural communities in Tanzania, particularly among school children and artisanal miners exposed to prolonged occupational noise. Limited access to Ear, Nose and Throat (ENT) services, delayed diagnosis, and low awareness contribute to preventable hearing complications and reduced quality of life. Community-based hearing screening provides an opportunity for early identification, referral, and improved access to inclusive hearing healthcare in underserved settings.

**Objectives:** To assess hearing health challenges and strengthen early detection and referral systems among school children and artisanal miners in Geita.

**Methods:** A community-based cross-sectional hearing screening outreach was conducted in selected Geita communities involving over 1,300 school children and 120 artisanal miners. Portable tympanometry, tablet-assisted digital hearing assessments, and calibrated headset devices were used to identify possible hearing abnormalities and occupational risks. The outreach integrated hearing health education and referral guidance. Data from structured screening sessions were descriptively analysed to identify hearing challenges, vulnerability patterns, and referral needs within underserved populations.

**Results:** A total of 1,420 participants were screened (1,300 school children and 120 artisanal miners). Findings showed 218 (15.4%) with hearing impairment, 287 (20.2%) with excess earwax, 76 (5.4%) with otitis media, and 21 (1.5%) with tympanic membrane perforation. Artisanal miners demonstrated higher noise-related hearing loss, while school children showed higher rates of treatable ear conditions. Many cases required referral for further ENT assessment, highlighting unmet rural hearing care needs.

**Conclusion:** Community-based hearing screening in Geita revealed a significant burden of preventable ear and hearing conditions among school children and artisanal miners, including hearing impairment, excess earwax, otitis media, and tympanic membrane perforation. Findings highlight occupational and paediatric risks and the need for strengthened primary ENT services, routine screening, and effective referral systems for early detection in rural Tanzania.

**Recommendation:** Scale up community-based hearing screening in schools and mining areas, integrate routine ENT services at primary care level, and strengthen referral pathways for early management. Promote occupational hearing protection among artisanal miners and routine school ear health checks. Increase community awareness on preventable hearing loss and improve access to affordable diagnostic and treatment services in rural Tanzania.

## **2. Title:** Oral Health Status and Related Behaviours among Children with Developmental Disabilities in Dar es Salaam

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**Presenter:** Suzana Mashiku Sabasaba

**Authors:** Suzana Mashiku Sabasaba, Hawa Shariff Mbawalla, Shadia Majid Abubakary, Febronia Kokulengya Kahabuka

**Background:** Children with developmental disabilities are at an increased risk of common oral diseases, attributed to their condition-specific challenges and access to oral healthcare.

**Objectives:** To determine oral health status and related behaviours among children with developmental disabilities attending inclusive primary schools in Dar es

**Methods:** A survey was conducted in schools using a structured questionnaire and oral clinical examination. Information on demographic, oral health-related behaviour, dental caries and gingivitis was collected. Data analysis was conducted using SPSS version 27, which summarised variables as frequency distributions and means (SD). Bivariate analysis was performed using cross-tabulation with the chi-square test, and binary logistic regression was conducted to determine the direction and strength of association between dependent and independent variables.

**Results:** A total of 472 children aged 6-18 years, 53.6% males and 38.3% females, had neuropsychological disabilities. The prevalence of dental caries in the permanent dentition was 44.5%, while that of gingivitis was 48.2%. Having dental caries was associated with not using fluoridated toothpaste (OR 2.8, 95% CI (1.6, 5.0)) and with having a dental visit (OR 3.3, 95% CI (1.5, 7.2)). Sex of the child (Male =OR 1.7, 95% CI (1.1,2.4) and fluoridated toothpaste use (non-fluoridated toothpaste = OR 2.1, 95% CI 95% (1.2,3.5) influenced having gingivitis.

**Conclusion:** The study confirms that children with developmental disabilities in Dar es Salaam experience a high burden of dental caries and gingivitis, with marked untreated decayed teeth driven primarily by inadequate fluoride exposure and having a dental visit.

**Recommendation:** There is a need for targeted oral health promotion programmes for these children by implementing school-based fluoride programmes and dental outreach services to address untreated decayed teeth, caregiver-focused oral hygiene instruction, and dietary information, which could substantially reduce the prevalence of common oral diseases and improve quality of life for this underserved population.

## **3. Title:** Exploration of Facilitators and Barriers to Diabetic Retinopathy Screening among Patients and Providers

**Presenter:** Felister G. Kiwelu

**Authors:** Felister G. Kiwelu, Heavenlight Masuki, Amani Anaeli, Flavian Shengeza, Yusta Mtogo

**Background:** Diabetic retinopathy is a leading cause of preventable visual impairment among working age group of people living with diabetes mellitus. Routine diabetic retinopathy screening uptake continues to be low with only 43.8% of adults living with diabetes mellitus screened in Tanzania within a period of twelve months. Reasons for this are yet to be understood and are essential for improving early diagnosis and timely management.

**Objectives:** To explore facilitators and barriers to diabetic retinopathy screening from the perspectives of patients with diabetes mellitus and healthcare providers.

**Methods:** A qualitative case study was conducted between November 2025 and February 2026 at Muhimbili National Hospital - Mloganzila. Purposive sampling recruited patients and providers involved in diabetes and eye care services. Twenty-six in-depth interviews were conducted, audio-recorded, transcribed verbatim and analysed using a deductive-inductive thematic analysis.

**Results:** Twenty-six participants (16 diabetes patients, 10 providers) were interviewed. Patients identified provider recommendation, insurance coverage, family support and visual changes as facilitators of diabetic retinopathy screening, while limited awareness, screening costs, and absence of symptoms were barriers. Providers cited knowledge, screening support, guidelines, and clinical symptoms as facilitators, but reported provider-dependent screening, competing priorities, and poor integration of screening services into routine care as barriers.

**Conclusion:** Diabetic retinopathy screening uptake is influenced by interconnected patient, provider, and health system factors, including awareness, perceived need, provider recommendation, service integration, and healthcare accessibility. Strengthening patient education and improving integration of screening within routine diabetes care may enhance timely screening uptake and support early detection and prevention of vision loss.

**Recommendation:** Health promotion on diabetic retinopathy and screening services supplemented by integration of screening to routine diabetes care will address screening uptake challenges across Tanzania's hospitals.

#### **4. Title: Profile and Factors Associated with Refractive Errors among Preterm Infants Attending Paediatric Eye Clinic at MNH**

**Presenter:** Salma Mussa |

**Authors:** Salma Mussa, Heavenlight Masuki, Celina Mhina, Mariam Denis, Suzan Mosenene, Milka Mafwiri

**Background:** Refractive errors are common ocular disorders among children born prematurely, and if left untreated, may lead to visual impairment and poor quality of life. In Tanzania, approximately 11% of the annual births are preterm. Despite improved neonatal care and survival of preterm children at Muhimbili National Hospital (MNH), the profile and associated factors of refractive errors among these children remain poorly documented.

**Objectives:** To assess the profile and factors associated with refractive errors among preterm infants attending the paediatric eye clinic at MNH.

**Methods:** A hospital-based analytical cross-sectional study was conducted among preterm infants. Data on socio-demographic and clinical characteristics were collected using an interviewer-administered questionnaire. Data were analysed using IBM SPSS Statistics version 27. Associations were assessed using multinomial logistic regression with generalised estimating equations, while mediation analysis evaluated the indirect effect of neonatal risk factors through retinopathy of prematurity.

**Results:** Among 230 participants, 139 (60.4%) were female, with a median age of 7 months. Over half were born between 28-31 weeks of gestation, 120 (52.2%) and had birth weights of 1000-<1500 g, 131 (57%). Nearly all 228 (99.1%) had refractive errors, although only 10 (4.4%) were clinically significant. Hyperopia was the predominant type of refractive error, mainly of

low grade. History of Retinopathy of Prematurity (ROP) reduced the likelihood of myopia (aOR=0.27, p=0.004) and astigmatism (aOR=0.08, p<0.001). Blood transfusion had an indirect association via ROP (p=0.038).

**Conclusion:** Nearly all children had refractive errors, with hyperopia being the most common. Majority of refractive errors were of low grade. The history of ROP was associated with a lower likelihood of developing myopia or astigmatism compared to hyperopia. Blood transfusion showed an indirect effect on refractive error through ROP.

**Recommendation:** Enhanced ophthalmic follow-up is recommended to facilitate early detection and management of refractive errors.

## **5. Title: Acceptability of Earplug Use among Small Scale Metal Workers in Dar es Salaam, Tanzania**

**Contact:** evalinematashi@gmail.com

**Presenter:** Evaline Damas Asenga

**Authors:** Evaline D. Asenga

**Background:** Noise-induced hearing loss (NIHL) is increasingly common among small-scale metal workers in developing countries, yet earplug use remains largely unexamined in Tanzania. This study explored the acceptability of earplug use among small-scale metal workers in Dar es Salaam.

**Objectives:** This study aimed to understand the acceptability of earplug use among small-scale metal workers in Dar es Salaam, Tanzania.

**Methods:** A qualitative case study guided by the theoretical framework of acceptability was conducted with 12 purposively sampled small-scale metal workers. In-depth interviews were audio-recorded, transcribed verbatim, and analysed using NVivo 12 Plus.

**Results:** Guided by the Theoretical Framework of Acceptability, three major themes emerged: intervention coherence, self-efficacy, and perceived barriers. Acceptability of earplug use was influenced by perceived effectiveness and ease of use. However, barriers to consistent use included dirty working environments, greasy metal surfaces, and discomfort, such as itchy ears among workers.

**Conclusion:** Earplugs acceptability was primarily driven by perceived effectiveness. Despite challenges like discomfort, workers remained generally satisfied. Interventions addressing environmental barriers, proper fit, and ear hygiene could enhance uptake.

**Recommendation:** Small-scale metal workers should receive regular training and demonstrations on proper earplug use, hygiene, storage, and maintenance to improve compliance. Employers should promote workplace hearing safety through reminders and supportive communication. Workers should consistently use earplugs, share knowledge with colleagues, seek clarification when necessary, and report challenges affecting effective earplug use and compliance in workplaces.

## **6. Title: Assessment of Oral Health Status and Related Behaviours among Children in Orphanage Centres in Dar**

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**Presenter:** Martha Namwaza Chipanda

**Authors:** Martha Namwaza Chipanda, Hawa Shariff Mbawalla, Febronia Kahabuka, Shadia Majid Abubakary

**Background:** Many children in orphanages experience dental caries and gingivitis despite brushing daily, suggesting inadequate oral hygiene practices.

**Objectives:** To assess oral health status and related oral health behaviours in children residing in orphanages in Dar es Salaam, Tanzania.

**Methods:** A cross-sectional study involving 6- to 14-year-old institutionalised orphans. A total of 344 children were recruited. Dental caries was assessed using DMFT/deft, and gingivitis was evaluated using the modified Community Periodontal Index (CPI). Structured questionnaire used to collect socio-demographic data and oral health behaviours. Data analysis conducted using SPSS version 27. Bivariate analysis and binary logistic regression conducted determining strength of association. Odds ratio with 95% Confidence intervals and p-value <0.05

**Results:** A total of 344 orphans participated in this study. Females were 50.2% (176). Prevalence of caries in permanent dentition (DMFT>0) was 34.6%, mean DMFT score of 0.92±1.51. While deft was 26.7%, and deft 0.30 (SD 0.53). Dentist visit once a year had 3.0 times higher odds of having caries (DMFT≥1), (OR=3.0, 95%, CI: 1.5-6.1, p=0.002). 0% filled teeth. 50.2% had gingivitis, with males at significantly higher risk (OR 2.3) (1.4, 3.8), P- value of 0.001 between males and females.

**Conclusion:** The study highlights two major oral health problems: a moderate rate of tooth decay without restorative treatment (0% filled teeth) and high rates of gum inflammation (50.2%), especially in boys. Dental visits linked to higher tooth decay, showing that oral care is only sought in emergencies.

**Recommendation:** Move orphanage healthcare protocols away from reactive extraction care toward routine, bi-annual preventive dental screenings and launch a targeted partnership with dental schools and orphanages to deliver restorative treatment.

## **7. Title: Barriers and Facilitators of Corneal Transplantation Services in Tanzania, Stakeholders' Perspectives**

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**Presenter:** Gladness August Mwaria

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**Background:** Corneal blindness is a public health issue in Tanzania, yet transplantation services remain limited by inadequate infrastructure, lack of skilled personnel and high costs. Despite the clinical need, there is a lack of research on stakeholders' perspectives that have an effect on corneal transplantation services. This study addresses this knowledge gap and

will be used to inform policymakers on strategic resource allocation for sustainable corneal transplant services.

**Objectives:** The study explored the barriers and facilitators of corneal transplantation services in Tanzania from the perspectives of key stakeholders.

**Methods:** An exploratory qualitative case study design was employed. Purposive and snowball sampling were used to recruit 21 participants, including patients who underwent corneal transplant and those who are waiting for transplant, ophthalmologists and policymakers from the Ministry of Health, TMDA, and NHIF. Data were collected through in-depth interviews and analysed using content analysis and NVivo software.

**Results:** Primary barriers include high costs from tissue importation, limited health insurance coverage, absence of a national eye bank and regulatory framework. Moreover, shortages of trained surgeons and negative socio-cultural beliefs regarding eye donation are other barriers. Key facilitators include international collaborations, human resource development, and the availability of private-sector services. Additionally, family networks and institutional support provide vital assistance to patients.

**Conclusion:** In Tanzania corneal transplantation relies on external aid and imported tissue. Overcoming structural gaps, such as the lack of eye bank and legal frameworks, is essential to transition from expensive, centralized private care toward national self-sufficiency.

**Recommendation:** Stakeholders should prioritise establishing a national eye bank and a robust regulatory framework. Expanding health insurance coverage and increasing public awareness is critical to developing a sustainable local donor pool.

## **8. Title: Assessing Correlation between Dental Age, Skeletal Age, and Chronological Age among 8-16-Year-Old Orthodontic Patients Attending**

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**Presenter:** Denis Richard

**Authors:** Denis Richard, Matilda Mtaya, Ferdinand Machibya

**Background:** Human growth and development vary considerably based on chronological age, such that developmental differences exist among individuals of the same chronological age. Assessment of skeletal maturation is essential in orthodontic diagnosis and treatment planning. Chronological age, dental age, and skeletal age are commonly used indicators of growth status; however, their relationships vary across populations.

**Objectives:** This study aims to assess the correlation between dental age, skeletal age and chronological age among 8-16-year-old orthodontic patients

**Methods:** A cross-sectional study was conducted involving 173 participants aged 8.3 to 16.8 years. Chronological age was recorded, dental age was estimated using Demirjian's method, and skeletal age was assessed using cervical vertebral maturation (CVM) stages (CS1-CS6). Descriptive statistics, Pearson and Spearman correlation analyses, and linear regression were performed to determine associations among variables.

**Results:** The mean chronological age was 12.6 years, while the mean dental age was 13.5 years. Skeletal maturation was most commonly observed at CS4 (30.1%), A strong positive correlation was observed between chronological age and dental age ( $r = 0.764$ ,  $p < 0.001$ ).

Moderate positive correlations were found between chronological age and skeletal age ( $\rho = 0.629$ ,  $p < 0.001$ ), and between dental age and skeletal age ( $\rho = 0.603$ ,  $p < 0.001$ ).

**Conclusion:** Chronological age shows the strongest association with skeletal maturation, followed by dental age and gender. Both dental and chronological age are useful indicators of skeletal development, although they should be used in combination for improved assessment of growth status in orthodontic patients.

**Recommendation:** An orthodontist should integrate both chronological and dental age assessments in clinical routines to maximise accuracy when determining orthodontic growth status. Also, further research at large-scale, multi-centre radiographic studies should be conducted to determine unique dental maturation timelines for the Tanzanian population.

## **9. Title: Nasomucociliary Clearance Time and Associated Factors among Patients with Chronic Kidney Diseases Attended at MNH**

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**Presenter:** Ndulu Noni

**Authors:** Ndulu Noni, Enica Richard, Edwin Liyombo

**Background:** Chronic kidney disease (CKD) is defined by a glomerular filtration rate below 60 ml/min/1.73 m<sup>2</sup> or persistent evidence of kidney damage, such as albuminuria or structural abnormalities, for at least three months. CKD may cause cardiovascular, metabolic, and respiratory complications, including lower respiratory tract infections and chronic rhinosinusitis. Respiratory mucosal defence relies on mucociliary activity, which removes pathogens and foreign particles while maintaining moist mucosal surfaces.

**Objectives:** This study aimed on determination of nasomucociliary clearance time and associated factors in patients with CKD attended at MNH.

**Methods:** A 6-month cross-sectional study included 61 adult CKD patients attended at MNH. Data were collected using questionnaires and medical records, and the saccharin test was performed and measured NMC time in minutes. Data were coded, entered, cleaned, and analysed using SPSS version 25. Descriptive analysis assessed NMC across age, sex, CKD stages, and comorbidities. Fisher's exact test examined differences in NMC, and logistic regression was used to determine associated factors.

**Results:** A study of 61 participants found that older adults ( $\geq 60$  years) had higher proportions of both prolonged and severe NMC. Females had more prolonged NMC, while males had more severe cases. CKD stage 4 was associated with prolonged NMC and CKD 5 with severe NMC. HTN/HIV co-infection showed more prolonged NMC, while HIV alone showed severe NMC. CKD 3 had lower odds of NMC progression compared with CKD 5.

**Conclusion:** The impairment of nasomucociliary clearance is common among CKD patients with advanced age, comorbid conditions, HIV/HTN and worsening CKD stages. However, the advanced CKD stage remained the main independent predictor of prolonged NMC after multivariate analysis. Prolonged NMC among CKD patients may increase susceptibility to respiratory tract infections and chronic rhinosinusitis. Thus, assessment of respiratory health should be considered in CKD.

**Recommendation:** Early CKD detection and proper management are essential to prevent progression and impaired nasomucociliary clearance. Multidisciplinary care and routine

respiratory screening, especially in stages IV-V, should be strengthened. Public awareness and early screening are recommended to reduce late presentation. Larger multi-centre and prospective longitudinal studies are needed for the generalizability of findings and the establishment of causal relationships.

## **10. Title: Pott and Its Associated Factors among Adults WHO Underwent Trichiasis Surgery in the Coast Region**

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**Presenter:** Karolina Mkenda

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**Background:** Trachomatous trichiasis (TT) is a trachoma stage whereby the eyelid turns inward, causing eyelashes to rub against the cornea, leading to blindness. While surgery is the primary intervention, Postoperative Trachomatous Trichiasis (POTT) is among the complications. This remains a significant challenge for trachoma elimination in most countries, including Tanzania.

**Objectives:** To determine the prevalence of POTT and its associated factors among adults in the Coast region, Tanzania.

**Methods:** A cross-sectional study utilising secondary data from three districts in the Coast region: Bagamoyo, Kibaha district council, and Kisarawe. The study enrolled 350 patients. Data were extracted from patient files and analysis performed using SPSS version 27. Categorical variables examined using Chi-square or Fisher's exact tests, and Modified Robust Poisson Regression was used to identify independent predictors of POTT and P-values of less than 0.05 were considered statistically significant.

**Results:** 350 participants were analysed, where 69.1% were female, with M: F ratio of 1: 2.2, and 71.4% were aged 60 years and above with a median age of 72 years. The prevalence of POTT was 12% (42/350). In multivariable analysis the strongest independent predictor for POTT were major trichiasis ( $\geq 5$  lashes) (aPR 6.40,  $p < 0.001$ ), preoperative evidence of epilation (aPR 5.74,  $p < 0.001$ ) and age of 60 years and above (aPR 1.73,  $p = 0.018$ ).

**Conclusion:** At least 1 in every 10 patients who underwent TT surgery in the Coast region was at risk of developing POTT. Factors such as preoperative major trichiasis, preoperative epilation, and age 60 years and above were strong predictors for POTT.

**Recommendation:** Continuous efforts to eliminate trachoma and POTT in Coastal region should be emphasized. Health education to the community on early symptoms of the disease for early treatment and avoid complications.

## **11. Title: Self-Medication in Ophthalmic Care and Its Associated Factors in Tertiary Eye Unit**

**Contact:** ruaichicall94@gmail.com

**Presenter:** Colman Mauki

**Authors:** Colman Mauki, Celina Mhina, Heavenlight Masuki, Suzan Mosenene, Sayyada Sachedina, Milka Mafwiri

**Background:** Globally, the prevalence of self-medication for eye diseases ranges from 14.0-73.6%, influenced by demographic, individual, and healthcare factors. Due to the eye's delicate nature, all eye medications should ideally be used under professional guidance. Self-medication practice (SMP) risks delayed care, disease worsening, and vision-threatening complications. However, limited evidence exists on its profile and associated factors in Tanzania.

**Objectives:** To assess self-medication practices for eye diseases and associated factors among adults attending tertiary eye units in Dar es Salaam.

**Methods:** The hospital-based analytical cross-sectional study was conducted over five months among systematically sampled 562 new adult patients at MNH and CCBRT. Data was collected via interviewer-administered questionnaires and analysed using SPSS version 29. Modified Poisson regression was used to assess factors associated with self-medication practices. A p-value  $\leq 0.05$  was considered statistically significant.

**Results:** The prevalence of self-medication was 46.6%. The most common source of information was healthcare personnel, 33.2% of whom 37% were eye care workers. Notably, 8.6% reported worsening of symptoms after self-medication, among them 43% were diagnosed with corneal ulcer linked to steroid-containing eye drops. Overall, 4.5% used SM appropriately in terms of indication, dosage, and frequency. Factors independently associated with self-medication included rural residence, health insurance, perception of minor eye illness and positive attitudes towards SMP.

**Conclusion:** Nearly half of adult patients attending tertiary eye clinics in Dar-es-Salaam practice self-medication; among them, only four out of a hundred patients use self-medication appropriately. Risks are highest among rural, uninsured, and lower-income populations who view self-medication as a convenient alternative. These findings necessitate stricter pharmacy regulations, expanded insurance, and urgent public awareness campaigns to prevent avoidable vision loss.

**Recommendation:** To tackle self-medication, future efforts should combine research and regulation. Comprehensive mixed-methods studies involving pharmacists, healthcare personnel, and government ministries are needed to understand their drivers. Meanwhile, TMDA should strengthen oversight by enforcing stricter pharmacy monitoring and ensuring eye medications are dispensed only with valid prescriptions.

## **12. Title:** The Journey of Embracing Life: Parents' Perspectives of Living with Their Children with Retinoblastoma

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**Presenter:** Lightness Amani Gelakwila

**Authors:** Lightness Gelakwila, Celina Mhina, Yusta Mtogo, Pius Temba, Heavenlight Masuki, Suzan Mosenene, Milka Mafwiri

**Background:** Retinoblastoma (Rb) is a primary intraocular malignancy of childhood, accounting for 10-15% of all paediatric ocular malignancies. Meeting the complex needs of a child with Rb creates significant psychological, social, and financial strain for parents, often at the expense of their own well-being. To effectively support these families, it is essential

to understand their lived experiences and develop appropriate interventions to help them navigate this demanding caregiving journey.

**Objectives:** To explore parents' lived experiences in caring for a child with retinoblastoma at Muhimbili National Hospital in Dar es Salaam.

**Methods:** A qualitative phenomenological study was conducted at Muhimbili National Hospital from October 1st to October 30th, 2025. Parents of children with retinoblastoma were purposively recruited for in-depth interviews to explore their caregiving experiences. The interviews were audio-recorded, transcribed verbatim, and analysed using a hybrid deductive-inductive thematic framework.

**Results:** Twelve parents, primarily mothers, were interviewed regarding their experiences caring for a child with retinoblastoma. Three major themes emerged: The journey from symptom recognition to treatment initiation, caregiving challenges, and coping strategies. Most parents faced initial misdiagnoses at primary healthcare facilities, followed by denial and depression upon correct diagnosis. Caregiving significantly disrupted family dynamics and caused severe financial strain. To cope, parents primarily relied on spiritual faith, support from healthcare workers, and selling assets to fund treatment.

**Conclusion:** Caring for a child with retinoblastoma causes severe parental hardship, which is profoundly worsened by early misdiagnoses at primary health facilities

**Recommendation:** To prevent treatment delays, primary healthcare training must be strengthened for early retinoblastoma detection. Furthermore, management must expand beyond clinical treatment of the child to provide structured psychological and financial support for parents. This comprehensive approach will alleviate the severe emotional and financial burdens, ultimately improving both caregiver well-being and child health outcomes.

### **13. Title: Forty-Eight Hours In-Hospital Mortality and Associated Factors among Patients Admitted at Muhimbili National Hospital**

**Contact:** merinadtupa29@gmail.com

**Presenter:** Merina D. Tupa

**Authors:** Merina D. Tupa, Edwin Lugazia, Salehe Mrutu

**Background:** Mortality within the first forty-eight hours of hospitalisation is a critical indicator of the quality of acute care and the effectiveness of early interventions. Understanding the factors contributing to early mortality is essential for improving patient outcomes. The burden of forty-eight-hour in-hospital mortality is substantially higher in low- and middle-income countries than in high-income countries. However, there is limited published data in Tanzania.

**Objectives:** To evaluate the proportion of forty-eight hours in-hospital mortality and its associated factors among patients admitted at Muhimbili National Hospital.

**Methods:** A prospective hospital-based cohort study was conducted at Muhimbili National Hospital from August to October 2025. Adult patients ( $\geq 14$  years) admitted through the Emergency Medicine Department were consecutively enrolled and followed. Obstetric and trauma patients were excluded. The study aimed to determine 48-hour in-hospital mortality among admitted patients. A minimum sample size of 345 participants was calculated using the Kish and Leslie formula, based on a 34% estimated mortality proportion.

**Results:** The proportion of 48-hour in-hospital mortality was 9.8%. Mortality was significantly associated with abnormal admission vital signs, deranged laboratory parameters (creatinine, lactate, and glucose), higher clinical severity scores (NEWS and MCARS), and key interventions including intubation, oxygen therapy, and vasopressor use. Independent factors that were associated with mortality after multivariable adjustment were desaturation [p (0.006); aOR(10.98); 95%CI (1.96- 61.4)], oxygen therapy [p (<0.001); aOR(8.46); 95%CI (2.72- 26.3)], and vasopressor use [p (<0.001); aOR(58.83); 95%CI (8.8- 393.1)].

**Conclusion:** The 48-hour in-hospital mortality rate was 9.8%, indicating a significant burden of early deaths among acutely ill patients. Mortality was associated with physiological derangements, including abnormal lactate, glucose, and creatinine levels. Independent predictors were oxygen desaturation, oxygen therapy, and vasopressor use. Respiratory failure was the leading cause of death, highlighting the need for early recognition and prompt escalation of care.

**Recommendation:** To strengthen early recognition of physiological compromise among acutely ill patients. To promote early escalation of care in patients in physiologically deteriorating patients. To optimise critical care support in acutely deteriorating patients. Further studies to be done on the implementation of clinical severity score (NEWS, MCARS) in our critical care settings.

#### **14. Title: Predictive Value of the Ocular Trauma Score (Ots) for Visual Outcomes in Open Globe Injuries**

**Presenter:** Shengeza Flavian Adriano

**Authors:** Shengeza Flavian, Masuki Heanlight Estomihi, Mtogo Yusta Abeid, Mhina Celina Frank, Mafwiri Milka

**Background:** Open globe injuries (OGI) are a major cause of unilateral blindness, particularly among working-age individuals. The Ocular Trauma Score (OTS), developed and validated by the WHO, is used to predict visual outcomes and guide patient counselling and resource allocation. However, its applicability in resource-limited settings such as Tanzania remains insufficiently evaluated.

**Objectives:** To assess prognostic factors for visual outcomes and determine the accuracy of the OTS in predicting visual outcomes among patients.

**Methods:** A prospective longitudinal observational study was conducted at MNH from January 2023 to March 2024. Patients with OGI were evaluated at presentation and followed up for six months post-repair. OTS was calculated at baseline, and patients were categorised accordingly. Predicted and observed visual outcomes were compared using a Z-test for proportions, and predictive accuracy was determined.

**Results:** A total of 103 patients were enrolled. At presentation, 80.5% had visual acuity of hand movement or worse. Primary evisceration was performed in 31.1% of cases, while 68.9% underwent globe repair; 55 patients completed follow-up. After six months, 50.9% had the best corrected visual acuity worse than 6/60. Poor presenting visual acuity (AOR 10.5, 95% CI 1.54-71.25) and hyphema (AOR 21.7, 95% CI 2.37-197.97) were significant predictors of poor outcome. OTS accurately predicted visual outcomes in 56% of cases.

**Conclusion:** Visual outcomes following Open OGI were generally poor. Poor initial visual acuity and the presence of hyphema were significant prognostic factors. The OTS demonstrated moderate predictive accuracy in this setting.

**Recommendation:** The Ocular Trauma Score (OTS) may be useful for predicting visual outcomes in patients with Open-Globe Injuries in our setting; however, larger multicentre studies with longer follow-up are recommended.

## Social Determinants for Health (One Health)

### 1. Title: Ectoparasite Infestation in Domestic Dogs and Birds: A One Health Perspective on Zoonotic Risk

**Contact:** kedrickndyagati123@gmail.com

**Presenter:** Kedrick Ndyagati Oscar

**Authors:** Kedrick Ndyagati Oscar

**Background:** Ectoparasites are external parasites that affect animal health, productivity, and public health by causing irritation, blood loss, and the transmission of zoonotic diseases. Although many ectoparasites are host-specific, some may colonise new hosts through host switching. This study examined ectoparasite sharing between domestic mammals and birds in peri-urban areas of Dar es Salaam, Tanzania.

**Objectives:** To determine the occurrence and intensity of ectoparasite sharing and host switching between domestic mammals and avian hosts.

**Methods:** A cross-sectional study was conducted in Mbezi and Kibamba involving 20 dogs and 20 birds (chickens, pigeons, and turkeys). Ectoparasites were collected through physical examination, preserved in 70% ethanol, and identified morphologically using stereomicroscopy and standard taxonomic keys. Data were analysed using descriptive statistics, the Shapiro-Wilk test for normality, Mann-Whitney U tests, and Jaccard similarity index.

**Results:** Eighteen dogs (90%) and all birds (100%) were infested with ectoparasites. Twelve ectoparasite species were identified, with five species found on dogs and seven on birds. Fleas, ticks, and lice were the most common parasites. Ticks transmitted ehrlichiosis and babesiosis, while fleas transmitted *Dipylidium caninum* and caused dermatitis. Statistical analyses showed no significant ectoparasite sharing between birds and mammals, supported by a Jaccard similarity index of zero.

**Conclusion:** The study demonstrated strong host specificity among ectoparasites despite close interaction between birds and mammals. High infestation rates indicate poor hygiene and inadequate parasite control. The findings highlighted the veterinary and zoonotic importance of ectoparasites and emphasised the role of integrated One Health approaches in parasite management and disease prevention.

**Recommendation:** Regular ectoparasite surveillance, improved animal hygiene, proper veterinary care, and public awareness programmes should be strengthened to reduce infestation and zoonotic disease risks. Further studies using larger sample sizes and molecular techniques are recommended to better understand parasite transmission dynamics and potential host switching in multi-host environments.

### 2. Title: Assessment of Disaster Preparedness, Barriers and Associated Factors among Community Healthcare Workers, Tanzania

**Presenter:** Ridhiwani Hamidu Manyuti

**Authors:** Ridhiwani Hamidu Manyuti, Alphonse Nsabi Simbila, Emmanuel Mmbando, Saidi Kilindimo

**Background:** Community Health Workers (CHWs) are essential frontline providers who support communities during disasters and public health emergencies such as floods, disease outbreaks, and pandemics in Tanzania. Despite their important role, limited evidence exists regarding their level of disaster preparedness, especially in rapidly urbanising settings such as Dar es Salaam. This study assessed disaster preparedness levels, barriers, and associated socio-demographic factors among CHWs in Dar es Salaam, Tanzania.

**Objectives:** To assess disaster preparedness levels, barriers, and associated socio-demographic factors among CHWs in Dar es Salaam, Tanzania.

**Methods:** A community-based mixed-methods cross-sectional study was conducted among 199 government-employed Community Health Workers (CHWs) in Dar es Salaam, including 177 participants in the quantitative component and 22 in the qualitative component. Quantitative data were collected through structured questionnaires using random sampling, while qualitative data were obtained through in-depth interviews and focus group discussions using purposive sampling, then analysed using SPSS version 20 and Braun and Clarke's thematic analysis framework, respectively.

**Results:** Among 177 CHWs assessed, most demonstrated moderate disaster preparedness, while inadequate disaster-specific training, lack of equipment, poor coordination systems, and shortages of emergency resources were identified as major barriers. Bivariate analysis showed significant associations between preparedness and education level, work experience, professional cadre, and working area; however, after multivariable adjustment, only working area remained independently associated with preparedness, with urban CHWs having higher odds of better preparedness than peri-urban CHWs (AOR=2.08, 95% CI: 1.11-3.90,  $p=0.022$ ). Qualitative findings also revealed inadequate skills.

**Conclusion:** More than half of CHWs in Dar es Salaam demonstrated moderate disaster preparedness; however, major gaps remained in practical disaster training, emergency resources, coordination systems, and institutional support, particularly in peri-urban settings. Limited logistical support, inadequate equipment, and insufficient preparedness plans reduced the practical readiness of CHWs to effectively respond to disasters and emergencies.

**Recommendation:** Strengthening disaster-specific capacity building through regular drills, simulations, and continuous training is necessary to improve CHW preparedness. Improving emergency resources, transport services, coordination systems, and institutional support, especially in peri-urban areas, is essential to strengthen community-level disaster response capacity in Dar es Salaam, Tanzania.

### **3. Title: Aesthetics over Health: Stakeholder Perceptions of Residential Window Design, Indoor Disease Risk, and Energy Efficiency**

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**Presenter:** Zakia Khalfan Mgaya

**Authors:** Zakia Khalfan Mgaya, Jesca Mawala, Felista S. Tarimo, Ibrahim sua, Yeromin P. Mlacha, Emmanuel A. Mpolya, Dickson Lwetoijera

**Background:** Rapid urbanisation in warm-humid cities has increased concerns about indoor ventilation, disease transmission, and energy use. Window design plays a critical role in

natural airflow; however, sliding aluminium windows are increasingly adopted in urban African housing with limited evidence on their health and energy implications. Empirical data linking window design, ventilation practices, and indoor health risks remain scarce.

**Objectives:** To assess associations between window design, indoor disease risks, and energy-related practices in urban households.

**Methods:** A mixed-methods study was conducted in Dar es Salaam (July-October 2025). A structured survey was administered to 611 participants (496 households, 115 vendors). Logistic regression and chi-square tests examined associations between window design, diseases, and cooling practices. Two focus group discussions (n=17) explored stakeholder perceptions. Thematic analysis and a desktop review assessed ventilation guidance in Tanzania.

**Results:** Sliding windows dominated sales (57%) and installations (47%), largely due to their aesthetics. Awareness of ventilation guidelines was low (18%). Limited airflow increased reliance on fans (p=0.017). Sliding windows were not significantly associated with respiratory outcomes but showed a borderline association with malaria risk. A large household size was associated with increased malaria (OR=2.65, p<0.001) and respiratory infections (OR=3.74, p=0.026). Gas cooking reduced respiratory risk (OR=0.35, p=0.021). No enforceable ventilation standards were identified.

**Conclusion:** Window design choices are driven more by market and aesthetic factors than health considerations. Sliding windows alone do not determine disease risk but may influence ventilation conditions. Household characteristics and behaviours play a significant role, highlighting the need for integrated housing and public health approaches.

**Recommendation:** Housing policies should incorporate ventilation performance standards linked to health outcomes. Public awareness of ventilation and healthier design choices should be strengthened. Promoting cleaner cooking and reducing overcrowding is essential. Further research on indoor air quality measurement should be conducted.

#### **4. Title:** Listening to Community Voices on Rabies: Insights from Geita District, Tanzania

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**Presenter:** Mourice Nyangabo Mbunde

**Authors:** Mourice Mbunde, Janeth George, Loveness Kimaro, Given Sam Mkunde Chachage, Hussein Mohamed, Deodatus Kakoko, Japhet Killewo

**Background:** Rabies remains a major public health problem in Tanzania, causing an estimated 1,400 deaths annually despite ongoing control efforts. The country aims to eliminate dog-mediated human rabies by 2030 through mass dog vaccination and improved access to post-exposure prophylaxis. However, low vaccination coverage and persistent transmission continue to challenge progress. Understanding community perceptions, beliefs, and practices is essential for designing effective and culturally acceptable rabies prevention and control interventions.

**Objectives:** This study aimed to explore community knowledge, perceptions, and practices related to rabies and identify sociocultural factors influencing rabies prevention

**Methods:** A qualitative exploratory study was conducted in six villages of Geita District, Tanzania. In-depth interviews (IDIs) were conducted with purposively selected dog owners and non-dog owners to explore community perceptions and experiences related to rabies. All

interviews were audio-recorded, transcribed verbatim, and analysed using thematic content analysis. Emerging codes were grouped into categories and synthesised into overarching themes.

**Results:** Participants described rabies as a disease that may arise from “acute malaria”, causing affected dogs to develop abnormal behaviour. Although most participants expressed willingness to vaccinate their dogs, concerns about vaccine effectiveness and affordability were common. Some reported cases of vaccinated dogs allegedly contracting rabies, leading to mistrust. Traditional practices for managing dog bites included applying herbal remedies, kerosene, or battery fluid to wounds. These beliefs and practices may influence community uptake of rabies prevention and control actions.

**Conclusion:** This study revealed diverse community beliefs and practices regarding rabies in Geita District, including misconceptions about disease causation, concerns about vaccine effectiveness, and reliance on traditional remedies for the management of dog bites. These findings highlight important sociocultural factors that may hinder rabies prevention and control efforts and underscore the need to better understand and address community perspectives.

**Recommendation:** Rabies control programmes should incorporate community perspectives into intervention design and implementation. Targeted health education is needed to address misconceptions about rabies, improve confidence in dog vaccination, and promote appropriate post-exposure care. A participatory One Health approach involving communities, health professionals, veterinary services, and local leaders is recommended to strengthen rabies prevention and elimination efforts.

## **5. Title: Acceptability and Feasibility of Sustained Mobile-Based Coordination among Healthcare Professionals for Rabies Prevention in Dar es Salaam, Tanzania**

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**Presenter:** Ridhiwani Hamidu Manyuti

**Authors:** Author: Ridhiwani H. Manyuti, Zuhura Idd Kimera, Gloria Ivy Mensah, Esther G. Kimaro, Bassirou Bonfoh, Kennedy Kwasi Addo

**Background:** Rabies prevention requires timely coordination among healthcare professionals across human and animal health sectors, and mobile-based coordination (MBC) could streamline multidisciplinary collaboration in Ilala Municipality, Dar es Salaam, Tanzania, while there is limited evidence on the acceptability and feasibility of MBC for cross-sector rabies prevention among healthcare professionals in this setting.

**Objectives:** To assess the acceptability and feasibility of using mobile-based coordination and associated factors at the community level among healthcare professionals.

**Methods:** A mixed-method cross-sectional study was conducted from September to November 2024. Quantitative data were collected using the Kobo toolbox, then transferred to Microsoft Excel, cleaned, and analysed using SPSS version 20. Sequentially, qualitative data from in-depth interviews and focus group discussions were collected to have complementary information on MBC, and then they were thematically analysed and presented in quotations. The qualitative analysis was conducted to identify recurring themes and insights.

**Results:** Among the 72 healthcare professionals who participated, 48(68%) had a positive perception of MBC. While all respondents 72(100%) acknowledged its potential to improve

information sharing, only 31(43%) were positive about using mobile technology in their work. Key barriers cited included digital illiteracy 47(65%), poor infrastructure 52(72%), and work overload 65(90%). Qualitative findings highlighted additional challenges such as a lack of financial support for mobile communication, policy constraints, and inadequate training.

**Conclusion:** MBC could help information sharing across sectors, but many professionals remain cautious about daily use. Major barriers include digital illiteracy, weak infrastructure, and high workloads, with added challenges like limited funding, policy hurdles, and inadequate training.

**Recommendation:** To improve rabies prevention collaboration as an interdisciplinary perspective in one health approach, focus must be on building digital skills, reliable network access, and supportive policies for mobile communication.

## Traditional and Alternative Medicine, Drug Discovery and Vaccine Development

### 1. Title: Traditional and Alternative Medicine in Drug Discovery and Vaccine Development in Tanzania

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**Presenter:** Deogratius Jacob

**Authors:** Deogratius Mwansembo Jacob

**Background:** Traditional and alternative medicine (TAM) plays a critical role in healthcare systems across Tanzania, where a significant proportion of the population depends on herbal and indigenous remedies for disease prevention and treatment. Studies indicate that traditional medicine supports the health of over 60% of rural population and contributes valuable bioactive compounds with potential for drug discovery and vaccine development.

**Objectives:** To examine the contribution of traditional medicine and medicinal plants in supporting drug discovery and vaccine development in the Singida region.

**Methods:** A mixed methods approach was employed, including interviews with traditional healers, surveys among community members and review of documented medicinal plants and their uses. Data were collected using semi structured questionnaires and analysed qualitatively and quantitatively to identify commonly used remedies and their potential biomedical applications, consistent with methodologies used in Tanzania research

**Results:** Findings reveal that a wide range of medicinal plants in Singida possess antimicrobial, antiviral and anti-inflammatory properties, indicating strong potential for drug and vaccine development. Community development and traditional healers reported positive outcomes in managing common illnesses such as malaria, respiratory infections, and stomach disorders. However, challenges such as a lack of standardisation, limited laboratory research, poor documentation of indigenous knowledge, and weak policy implementation continue to hinder the integration of traditional medicine into modern healthcare and biomedical research systems.

**Conclusion:** The study concludes that strengthening collaboration between traditional healers and government institutions is essential to unlock the full potential of traditional and alternative medicine (TAM). Integrating traditional medicine into scientific research could accelerate drug discovery and enhance pandemic preparedness in Tanzania.

**Recommendation:** Strengthening scientific research on medicinal plants, Promoting collaboration between traditional healers and researchers, Improving documentation and preservation of indigenous knowledge, Developing supportive policies and regulations, Increasing fund for traditional and alternative medicine, Communities should be educated on safe use of traditional medicine, Establishment of research and innovation for only traditional medicine.

## **2. Title: Screening for Antibacterial Agents from Soil-Dwelling Bacteria from Selected Regions in Tanzania**

**Presenter:** Sabina D. Hidat

**Authors:** Sabina D. Hidat, Nelson E. Masota, Rogers Mwakalukwa, Doreen Mloka

**Background:** Antimicrobial Resistance poses a serious global threat to public health. Multi drug-Resistant pathogenic bacteria evolution has aggravated the challenge and calls for adequate measures in the search for novel antimicrobial agents towards securing the future of new treatment options. Soil-dwelling bacteria in Tanzania remain among the most promising yet under-explored sources of antibiotic natural products. Nevertheless, limited cultivability of environmental microorganisms has hindered the discovery of potentially valuable antibacterial-producing bacteria.

**Objectives:** To harness the Tanzania soil-dwelling bacteria as potential source of effective antibacterial agents against selected common human pathogenic bacteria.

**Methods:** This experimental study involved the purposeful collection of 19 soil samples from six districts in Tanzania based on organic matter content and pH. Bacteria were isolated using iChip technology, replicated by velvet transfer, and screened for antibacterial activity using agar overlay assay. Prioritised isolates were identified by MALDI TOF MS. Antibacterial potential of crude extracts obtained through fermentation and ethyl acetate extraction was evaluated using disc diffusion and broth microdilution assays.

**Results:** The iChip cultivation approach recovered an average of 74 bacterial colonies, with 2-5 morphotypes per sample. MALDI-TOF MS identified 28 isolates belonging to eight genera, predominantly *Pseudomonas*, *Bacillus*, *Enterobacter*, and *Citrobacter*. Antibiotic resistance was high among Gram-negative isolates to  $\beta$ -lactam antibiotics, while lower resistance was observed against meropenem and gentamicin. *Bacillus thuringiensis* unexpectedly exhibited meropenem resistance, and multidrug resistance occurred in 6.9% of isolates. Several *Pseudomonas* and *Enterobacter* isolates demonstrated antibacterial activity, while their crude extracts confirmed antibiotic production potential.

**Conclusion:** Findings demonstrates that Tanzanian soils harbour cultivable and taxonomically diverse bacteria with significant antibacterial potential. The predominance of bioactive *Pseudomonas* and *Enterobacter* species, coupled with detectable multi-drug resistance among environmental isolates, highlights soils as both reservoirs of antimicrobials and resistance determinants. The observed antibacterial activities of crude extracts underscore the potential of soil microbiomes as promising sources of antibiotic potential.

**Recommendation:** Further studies should prioritise isolation, structural characterisation, and broader biological profiling of the active antibacterial compounds obtained from promising isolates. Genomic and metabolomic analyses are recommended to identify biosynthetic pathways associated with antibiotic production.

## **3. Title: Antibacterial Potential of Soil-Dwelling Bacteria from Semi-Arid Soils in Tanzania**

**Presenter:** Charles Michael

**Authors:** Charles Michael, Joseph Sempombe, Nzagi Nyakirangani, Nelson Masota

**Background:** Antimicrobial resistance (AMR) threatens global health and may cause approximately 10 million deaths annually by 2050 if inadequately addressed. Soil-dwelling

bacteria remain important sources of antibiotics; however, semi-arid Tanzanian soils remain underexplored despite their harsh and nutrient-limited environmental conditions, which may promote intense microbial competition and stimulate production of bioactive secondary metabolites.

**Objectives:** To explore untapped soil-dwelling bacteria from semi-arid areas of the Singida region in Tanzania as a potential source of antibacterial natural products.

**Methods:** Nine soil samples were collected from semi-arid areas of Singida, Tanzania. Bacteria were isolated using isolation chips (iChip) and subsequently domesticated in soil extracts enriched agar plates. Replica plates for primary screening were prepared using the velvet transfer technique and screened by the agar overlay method against *Staphylococcus aureus* (ATCC 29213), *Escherichia coli* (ATCC 25922) and *Klebsiella pneumoniae* (ATCC 700603). Active isolates were identified using MALDI-TOF MS (VITEK MS).

**Results:** The iChip recovered diverse bacterial populations, with colony counts from 42-90 and 4-7 morphotypes per iChip. Forty isolates demonstrated antibacterial activity against at least one test organism. Activity was predominantly observed against *S. aureus*. Bacteria from the genera *Bacillus*, *Delftia*, *Pseudomonas*, *Stenotrophomonas* and *Enterobacter* were identified at the species level at 50-99% confidence. Further studies to determine the antibiotic susceptibility profiles as well as the magnitude and spectra of antibacterial activities of the crude extract's fractions are currently ongoing.

**Conclusion:** Semi-arid Singida soils harbour diverse cultivable bacteria with promising antibacterial activity. The predominance of the *Bacillus* genus and the recovery of underexplored taxa, such as *Delftia acidovorans*, highlight the potential of these environments as reservoirs of bioactive microorganisms for future antimicrobial discovery.

**Recommendation:** Further studies involving sequencing for the determination of biosynthetic gene clusters (BGCs), molecular characterisation of isolates not identified by MALDI-TOF MS, metabolite profiling, and purification of active compounds are recommended to facilitate the discovery of novel antibacterial metabolites and evaluate their therapeutic potential against multidrug-resistant.

#### **4. Title:** The Wound-Healing Activity of *Basella Alba*-Based Leaf Extract Ointment in Albino Wistar Mice

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**Presenter:** Joseph Matei Kayombo

**Authors:** Joseph Matei Kayombo, Judith Kalikwendwa Costantine

**Background:** Conventional wound medications face limitations, such as high costs, limited accessibility, damaging keratinocytes, and antibiotic resistance. These challenges drive interest in plant-based alternatives such as *Basella alba* (Basellaceae), which offer affordable, accessible, and potentially safer wound-healing solutions in traditional African medicine. Therefore, this study aimed to evaluate the *in vivo* wound-healing activity of *Basella alba* leaf extract (BALE)-based ointment.

**Objectives:** To evaluate the wound-healing activity of *Basella alba*-based Leaf Extract Ointment in Albino Wistar Mice.

**Methods:** Two ointments were prepared: one containing *B. alba* extract and another containing *B. alba* extract with coconut oil. Each contained *B. alba* extract in two concentrations (10% and 20%). Mupirocin ointment 2% was used as the standard treatment, and ointment base was used as a placebo. Wound-healing activity was evaluated using a mouse excision wound-healing model. The histopathological studies of the healed tissues were further evaluated under a light microscope.

**Results:** Both ointments maintained stable physicochemical integrity throughout the study period and significantly enhanced wound contraction compared to controls ( $p < 0.05$ ). The 10% ointment showed superior efficacy, achieving  $83.81\% \pm 5.68\%$  wound contraction by day 10, significantly higher than both negative ( $65.71\% \pm 2.67\%$ ) and positive ( $68.57\% \pm 3.64\%$ ) controls. The histopathology of healed tissues revealed significant variations in remodelling, re-epithelialization, keratinisation, and granulation tissue thickness among the treatment groups associated with an increased propensity for excessive scar formation.

**Conclusion:** *Basella alba* leaf extract-based ointment formulations are stable with acceptable pH ranges (4.2-4.9) suitable for skin. They exhibit superior wound contraction rates and accelerated wound healing, with successful re-epithelialization, keratinisation, and remodelling compared to controls ( $p < 0.05$ ). These findings highlight the therapeutic potential of *B. alba* leaf extract-based ointment in topical wound care.

**Recommendation:** Further studies are needed to standardise BALE ointments and explore their antimicrobial effects. Also, detailed characterisation of collagen fiber organisation, density, and orientation to fully assess the quality of the newly formed scar tissue. Finally, they should be tested on different wound types, including chronic wounds such as diabetic foot ulcers.

## **5. Title: Exploring Volcanic Soil from Oldonyo Lengai Mountain as a Potential Source of Untapped Antibiotic-Producing Bacteria**

**Contact:** mashokonj@gmail.com

**Presenter:** Nemes Mashoko

**Authors:** Nemes J. Mashoko, Joseph Sempombe, Nzagi Nyakirangani, Nelson E. Masota

**Background:** Antimicrobial resistance has become a major global health crisis and is projected to cause approximately 10 million deaths annually by 2050. As standard antibiotics become increasingly ineffective, the need to find a novel antibiotic source is imminent. Consequently, the exploration of underexplored environmental niches, such as the volcanic areas of Oldonyo Lengai mountain, remains the most promising means for the discovery of novel antibiotic natural products.

**Objectives:** To explore volcanic soil from Oldonyo Lengai Mountain as a potential source of untapped antibiotic-producing bacteria

**Methods:** Soil-dwelling bacteria from the collected volcanic soil sample were isolated using the isolation chip (iChip) technique and domesticated on agar plates enriched with soil-derived extracts. Replication of master plates was followed by screening isolates for antibiotic-producing activity against *Escherichia coli* (ATCC 25922), *Staphylococcus aureus* (ATCC 29213), and *Klebsiella pneumoniae* (ATCC 700603) using agar overlay assays and perpendicular streaking method. Isolates that exhibited antibiotic-producing activity were selected for identification by MALDI-TOF-MS.

**Results:** iChip recovered from 54 to 103 bacterial colonies, with 2 to 5 distinct morphotypes per sample. Among the isolates, 37 showed antibacterial activity against at least one test bacterial strain. The zones of inhibition to colony diameter ratio (ZOI/CD) of the isolates ranged from 1.02 mm to 2.13 mm. Most isolates (26; 70%) showed activity against *S. aureus*, while 4 (11%) were active against *K. pneumoniae*. MALDI-TOF MS identified active isolates as members of the general *Achromobacter*, *Bacillus*, *Delftia*, *Enterobacter*, and *Pseudomonas*

**Conclusion:** Volcanic soil from Oldonyo Lengai Mountain harboured diverse bacteria with antibacterial activity against clinically relevant pathogens, highlighting volcanic environments as promising reservoirs of antibiotic-producing microorganisms. Identification of bioactive isolates from less-explored genera, such as *Delftia* and *Achromobacter*, further underscores the potential of this soil type for antimicrobial discovery efforts against rising antimicrobial resistance.

**Recommendation:** Further studies are warranted to determine the biosynthetic cluster genes, optimise metabolite production, isolate and characterise the compounds responsible for the observed antibacterial activity, and elucidate their structures.

## **6. Title: Exploring Regulatory Compliance Challenges and Common Herbal Medicine Registration Dossier Deficiencies Encountered in Tanzania Mainland**

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**Presenter:** Flavian B. Sanga

**Authors:** Flavian B. Sanga, Vicky Manyanga, Raphael Shedafa, Felchism Apolinary, Eliangiringa Kaale

**Background:** Herbal medicines remain widely utilized globally and in Tanzania, yet their regulation faces persistent challenges associated with inadequate evidence-based documentation and poor regulatory compliance. Despite the availability of guidelines, many submitted dossiers contain recurrent deficiencies affecting quality, safety, and efficacy assessment affecting registration timelines, regulatory workload, and access to quality-assured herbal medicines. However, limited evidence exists regarding the nature, causes, and implications of these deficiencies within the Tanzanian regulatory system.

**Objectives:** To identify common herbal dossier deficiencies, explore their associated factors, and stakeholders' perceptions on their implications in the regulatory process.

**Methods:** A descriptive mixed-methods design was employed, involving retrospective review of 74 herbal medicine dossier assessment reports submitted to TMDA between 2021 and 2025. Quantitative data described frequencies of dossier deficiencies across CTD subsections, dosage forms, and registration status. Qualitative data were obtained through Key Informant interviews with TMDA assessors, local manufacturers, and local technical representatives to explore factors contributing to deficiencies and their implications on the deficiencies to regulatory processes.

**Results:** Among seventy-two reviewed herbal-product dossiers, less than two-thirds remained in the progress of registration review (57%), while slightly over two-fifths were fully registered (43%). Most submissions were imported products (91.6). Deficiencies were mainly identified in the product quality (P5) and stability (P8) sections. Solid dosages were the most common dosage form, with lozenges showing the highest frequency of deficiencies. Qualitative findings highlighted challenges related to limited capacity, inadequate regulatory guidelines, and insufficient infrastructure, which act as barriers in the registration

**Conclusion:** Preliminary findings demonstrate that frequent dossier deficiencies are observed in quality-control and stability subsections of CTD documentation. These deficiencies contribute to prolonged registration processes and increased regulatory workload. The predominance of imported products and recurring documentation gaps demonstrates the need for improved technical capacity among herbal medicine applicants and stakeholders, as well as investment in the local herbal medicine industry.

**Recommendation:** TMDA should strengthen applicant training, technical guidance, and pre-submission support to improve dossier quality and regulatory compliance. Investment in the research and development infrastructures to facilitate standardization and quality control is highly needed. Capacity building initiatives for manufacturers and local technical representatives should be prioritized to enhance evidence-based dossier preparation, accelerate registration timelines, and improve access to quality-assured herbal.

## **7. Title:** Exploring Antibiotic-Producing Bacteria in Soils from Selected Plantations in Rural Sumbawanga, Tanzania

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**Presenter:** Elivado Kilembe

**Authors:** Elivado Kilembe, Yusuph Maswaswa, Nelson Masota

**Background:** Antimicrobial resistance (AMR) poses a critical global health threat that complicates infection management worldwide. This highlights the need for innovative strategies for novel antibiotic discovery. One promising solution relies on natural sources, particularly soil bacteria inhabiting the rhizosphere environments of various plants. These bacteria remain an underexplored reservoir of bioactive compounds with potential for discovering new antibacterial agents to combat antimicrobial resistance.

**Objectives:** To explore antibiotic-producing bacteria in soils from selected plantations in rural Sumbawanga, Rukwa, Tanzania.

**Methods:** Soil-dwelling bacteria were isolated via an isolation chip (iChip) from three soil samples collected from bean and sugarcane plantations. Domesticated isolates were replicated by the velvet transfer and primarily screened for their antibacterial activity against *Staphylococcus aureus* (ATCC 29213), *Escherichia coli* (ATCC 25922), and *Klebsiella pneumoniae* (ATCC 700603) using agar overlay method. The active isolates were identified by MALDI-TOF MS and subjected to fermentation and extraction, disc diffusion and broth microdilution assays.

**Results:** A total of 313 bacterial isolates were recovered, exhibiting diverse colony morphologies. Eight isolates showed antibacterial activity against *S. aureus* (87.5%) or *K. pneumoniae* (12.5%). Further screening revealed two promising isolates from a sugarcane plantation, identified as *Aeromonas hydrophila* and *Enterobacter cloacae/asburiae*. Crude extracts of isolate 1 exhibited antibacterial activity against *S. aureus* and *K. pneumoniae*, with a zone of inhibition of 8.82 mm and 9.23 mm, respectively and 7.37 mm against *S. aureus* for that of isolate 2.

**Conclusion:** The integration of iChip technology with velvet transfer provides an effective high-throughput approach for isolating and rapidly screening soil bacteria with antibiotic-producing potential, increasing the likelihood of discovering novel antibacterial compounds. Findings suggest that sugarcane rhizosphere soils may serve as promising reservoirs of

antibiotic-producing bacteria and may contribute to developing new antimicrobial agents against the rising threat of AMR.

**Recommendation:** Further studies should be done with expanded sampling across diverse plantation soils in Tanzania, and testing against multidrug-resistant pathogens may enhance the discovery of novel antibiotic-producing bacteria. Moreover, active compounds should be isolated and characterized to determine their expanded biological and chemical profiles.

## **8. Title:** Evaluation of Chemical Contaminants and Antimicrobial Activity of Tahpc-Registered Herbal Medicines Used for Management of Utiin Tanzania

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**Presenter:** Abdalla juma

**Authors:** Abdalla Juma, Michael Qwarse, Francis Machumi, Ramadhani S.O.Nondo

**Background:** Urinary tract infections (UTIs) are a major public health problem, affecting an estimated 150 million people annually worldwide and ranking among the second most common bacterial infections in Tanzania in 2023. Herbal medicines for managing UTI registered by Traditional and Alternative Medicine Practititoners Council (TAHPC) are widely used in many communities due to their accessibility, acceptability, and affordability. Yet, there is limited systematic monitoring of their quality, safety, and efficacy, particularly regarding contamination with heavy metals, pesticide residues, and aflatoxins.

**Objectives:** This study aimed to evaluate the chemical contaminants and antimicrobial activity of the (TAHPC)-registered herbal medicines used to treat UTI.

**Methods:** (no of samples) samples were collected from Dar es Salaam, Arusha, Dodoma, Njombe, and Tabora, in accordance with the TAHPC official registry. Heavy metals such as Pb, Cd, Hg, Mn, Zn, Cu, Ni, Fe, and Co have been analysed using MP-AES at (name of laboratory). Aflatoxins, including B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub>, and G<sub>2</sub>, have been analysed by HPLC-FLD.

**Results:** Heavy metals were found in all samples to varying degrees, ranging from two to five metals, some of which were above the allowable limit. Aflatoxin levels were found in 35.3% of samples, some of which exceeded the limit. Pesticide and antimicrobial analysis in progress.

**Conclusion:** The analysis of chemical contaminants indicated that numerous herbal medicines contained detectable amounts of heavy metals and aflatoxins. In several cases, concentrations exceeded regulatory limits. This raises concern about the safety and quality of these products, as long-term exposure to such toxins may pose serious health consequences

**Recommendation:** Regulatory bodies should monitor registered herbal medicines more closely after they are launched to ensure continued adherence to safety and quality standards. Manufacturers should strictly follow Good Agricultural and Collection Practices (GACP) and Good Manufacturing Practices (GMP). Consumers should be encouraged to use only registered and correctly labelled products and public should be more informed of the safe-use of herbs.

## **9. Title:** In-Vitro and In-Silico Evaluation of Safety and Antibacterial Activity of Plant-Extracts Against Drug-Resistant Bacterial Strains

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**Authors:** Yusuph Erenest Maswaswa, Lucas Paul Luchemba, Michael Qwarse, Ramadhani S. O. Nondo

**Background:** Antimicrobial resistance (AMR) is a major global health crisis. In 2019 Bacterial AMR caused 4.71 million associated and 1.14 attributable deaths globally. Combating crisis, researchers devoted substantial efforts to search for alternative therapeutic agents from different sources including natural sources (medicinal plants). Although numerous studies reported preliminary MP-extracts antibacterial activity against susceptible bacterial pathogens, investigations of their effectiveness, safety and mechanisms of action against drug-resistant bacterial strains remain insufficient explored.

**Objectives:** Evaluating antibacterial-activity, mechanism-of-action and phytochemicals-safety from *Gymnosporia senegalensis*-GS and *Syzygium cordatum*-SC against drug-resistant bacterial strains using in-vitro and in-silico approaches.

**Methods:** The study design was experimental (in-vitro and in-silico approaches). The obtained extract was subjected to in-vitro assay whereby the active fractions were selected for phytochemical analysis using GC-MS. The compounds analysed from the obtained GC/LC-MS spectrum subsequently evaluated through ADMET analysis for safety, network pharmacology applied to predict key therapeutic targets, molecular docking conducted to predict binding affinity and molecular dynamics simulations in progress to assess interaction stability.

**Results:** Ethyl acetate fractions of SC and GS demonstrated significant antibacterial activity against drug-resistant *E. coli* and *S. aureus* (MICs: 0.512 and 0.853 mg/mL). LC/GC-MS identified 57 compounds in SC and 56 in GS. Twelve ADMET favourable compounds selected for network pharmacology and molecular docking revealed strong affinities against bacterial/host targets. (-7.31 to -5.28 Kcal/mol). Estra-1,3,5(10)-trien-17 $\alpha$ -ol (-8.3 to PTGS2, -7.8 to parC) and (-)-4-Methylepigallocatechin (-7.6 to PTGS2, -7.2 to parC) identified as the best. MD simulation in progress to assess interaction stability.

**Conclusion:** The findings revealed that SC and GS possess promising antibacterial compounds potential against drug resistant bacterial strains. Integration of GC/LC-MS, ADMET prediction, network pharmacology, MD simulation highlighting the importance of combining experimental and computational approaches in natural products based drug discovery. Identified best compounds may serve as potential lead compounds in development of novel antibacterial agents against resistant bacterial strains.

**Recommendation:** Further study recommended to focus on isolation, purification and structural characterisation of the predicted active compound. Validation of predicted pure compound activity and stability through in-vitro and in-vivo experiments, toxicological and pharmacokinetic evaluation should be conducted validating predicted safety and therapeutic potential. Exploring synergistic effects between identified compounds and existing antibiotics may provide alternative approach for combating antimicrobial resistance.

**10. Title:** Effects of Biochar on Trace Metal Bioaccumulation in Common Comfrey and Human Health Risks Assessment

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**Presenter:** Baraka Ernest

**Authors:** Author: Baraka Ernest

**Background:** Cultivation of medicinal vegetables on heavy metal-contaminated soils poses serious food safety and public health concerns. Common comfrey (*Symphytum officinale* L.), widely used as a medicinal vegetable, can accumulate toxic trace metals from soil. Biochar has emerged as a promising soil amendment for reducing metal bioavailability and plant uptake. This study evaluated the effectiveness of different biochar treatments in reducing trace metal accumulation and associated human health risks.

**Objectives:** To evaluate biochar effectiveness in reducing trace metal accumulation in common comfrey and associated human health risks.

**Methods:** A field experiment was conducted using three treatments: CaSa biochar, CaSt biochar, and a control treatment (CoA). Soil, root, and leaf samples of common comfrey (*Symphytum officinale* L.) were collected and analysed for Cu, Zn, Fe, Pb, and Cd concentrations using atomic absorption spectrometry. A total of 96 soil samples, 96 root samples, and 96 leaf samples were examined. Human health risks were assessed using non-carcinogenic and carcinogenic risk indices.

**Results:** CaSa biochar significantly reduced trace metal accumulation in roots (34.7-51.9%) and leaves (64.8-81.5%) compared to CaSt and CoA. The hazard quotient (HQ=0.7) for common comfrey grown in CaSa-treated soil was below 1, indicating the absence of non-carcinogenic risk, whereas CaSt and CoA exceeded safe limits. Although Pb cancer risk (CR) under CaSa treatment was within WHO/FAO acceptable levels, total cancer risk (TCR) in all treatments exceeded the recommended thresholds, indicating potential long-term cancer risks from consuming contaminated common comfrey.

**Conclusion:** CaSa biochar effectively reduced trace metal bioaccumulation and minimized non-carcinogenic health risks in common comfrey. CR for Pb under CaSa biochar was within WHO/FAO acceptable levels. However, elevated TCR suggest continued concern regarding long-term consumption of medicinal vegetables grown on contaminated soils. Therefore, biochar application represents a promising strategy for improving soil safety and reducing human exposure to toxic metals.

**Recommendation:** Regular application of CaSa biochar is recommended to reduce trace metal uptake in medicinal vegetables and minimize human health risks. Long-term studies should evaluate its effectiveness under different environmental conditions. Policymakers and agricultural stakeholders should promote sustainable soil management practices and routine monitoring of trace metals in medicinal crops to improve food safety and public health protection.

## **11. Title: Explainable AI Platform for Discovery of Menin Inhibitors in Acute Myeloid Leukemia**

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**Presenter:** Anthony Peter

**Authors:** Anthony Peter, Sarah

**Background:** Acute myeloid Leukemia is an aggressive malignancy driven by dysregulated menin-mixed lineage Leukemia protein interactions sustaining oncogenic transcription. However, current menin inhibitors are limited by resistance, narrow therapeutic windows, and constrained chemical diversity. In addition, this interaction is difficult to drug, further complicating effective therapeutic development. Conventional drug discovery approaches

also remain costly and inefficient, whereas artificial intelligence offers a promising alternative for accelerating early-stage drug discovery.

**Objectives:** To develop an explainable AI Platform for predicting and interpreting Menin inhibitor activity in acute myeloid leukemia.

**Methods:** An AI-assisted quantitative structure-activity relationship (QSAR) model was developed for menin inhibitor discovery using molecular fingerprints derived from curated datasets. Several machine learning algorithms were benchmarked, with Gradient Boosting identified as the best-performing model. Model interpretability was evaluated using SHAP, while reliability was assessed via a consensus applicability domain. Experimental validation was performed using structurally diverse compounds in fluorescence polarization assays prior to deployment as an interactive web application.

**Results:** The model demonstrated strong predictive performance and met Organisation for Economic Co-operation and Development (OECD) QSAR validation criteria. SHAP analysis identified fluorine substitution, aromatic scaffolds, hydrophobic carbon frameworks ( $\geq 32$  carbons), hydrogen-bonding motifs, heteroatom-rich fragments, and nitrogen-containing linkers as key contributors to activity, while nitrile groups showed context-dependent effects. Experimental validation showed strong agreement between predicted and observed activities ( $R^2 = 0.783$ , MAE = 0.4), confirming robust generalization, predictive reliability, and applicability across diverse chemical space while preserving QSAR interpretability principles.

**Conclusion:** The HematoAI web application (<https://hematoai.streamlit.app>) provides a robust, interpretable platform for menin inhibitor discovery. This freemium tool enables real-time bioactive screening, supports rational drug design and repurposing, and streamlines natural product analysis. It enhances accessibility to AI-driven drug discovery and offers a promising approach for leveraging Tanzania's medicinal plant biodiversity in early-stage precision oncology research.

**Recommendation:** Continued expansion of chemically diverse datasets is recommended to broaden applicability and strengthen predictive robustness across diverse chemical space. Incorporation of resistance-related profiling and ongoing experimental evaluation may enhance translational relevance. Promotion and adoption of accessible AI platforms such as HematoAI are recommended to accelerate drug discovery and strengthen research capacity in resource-limited settings.

## **12. Title: Application of Thin-Layer-Chromatography(tlc) for the Detection of Conventional Drug Adulterants in Herbal Aphrodisiacs in Dar es Salaam**

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**Presenter:** Suleiman Songopa

**Authors:** Suleiman J. Songopa, Kihenga Leonard, Rogers Mwakalukwa

**Background:** The widespread use of herbal aphrodisiacs has rapidly increased globally due to their perceived safety and accessibility. However, many herbal products are adulterated with conventional phosphodiesterase-5 inhibitors such as sildenafil and tadalafil, in order to enhance their perceived therapeutic effectiveness posing serious health risks to consumers. Rapid and affordable laboratory analytical techniques are needed to detect adulterants in these herbal products sold in Dar Es Salaam.

**Objectives:** The study aimed to detect conventional drug adulterants in herbal aphrodisiacs using TLC and Flash Chromatography techniques.

**Methods:** 14 Commercial herbal aphrodisiacs were collected from different herbal shops and registered herbal outlets in Dar Es Salaam. Samples were extracted using methanol and Hexane: Ethyl Acetate: Methanol mobile phase was used upon TLC analysis alongside sildenafil and tadalafil reference standards. Samples Rf values and spot patterns under UV light were compared with those of standards.

**Results:** TLC analysis revealed several samples with spots corresponding to sildenafil and tadalafil standards. Sildenafil showed an Rf value of 0.24, while tadalafil showed 0.50. 10 samples out of 14 demonstrated similar Rf values with sildenafil indicating possible adulteration. 5 samples out of 14 showed spots and Rf values corresponding to sildenafil and tadalafil, while only 2 out of 14 samples showed no detectable adulterants.

**Conclusion:** The presence of sample spots with similar Rf values to the reference standards suggest possible adulteration particularly with sildenafil and tadalafil. Therefore, TLC proved to be simple, rapid and cost-effective screening method for detecting suspected adulterants in these herbal products

**Recommendation:** Further studies should be conducted using Flash Chromatography and other advanced analytical techniques so as to confirm, isolate and characterize the suspected adulterants detected by TLC.

### **13. Title:** In Vivo Evaluation of Anti-Inflammatory Activity of Clematis Lasiantha Leaf Used Traditionally for Asthma

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**Presenter:** Vicent L. Nsolele

**Authors:** Vicent L. Nsolele, Rogers Mwakalukwa, Patrick Kimariyo, Kihenga Leonard Sende

**Background:** Inflammation plays a central role in asthma and other chronic diseases which remains as a major public health problem globally. In Tanzania, some communities rely on traditional medicinal plants. Clematis lasiantha is traditionally used by communities in Mlele District, Katavi Region for management of asthma. Despite its widespread traditional use, scientific evidence supporting its anti-inflammatory activity remains limited.

**Objectives:** To evaluate the anti-inflammatory activity and phytochemical profile of active fractions obtained from leaves of Clematis lasiantha.

**Methods:** Leaves of C. lasiantha were extracted by cold maceration using methanol, then fractionated into n-hexane, dichloromethane, ethyl acetate and water fractions. Active fractions identified by carrageenan-induced paw edema in mice and evaluated at 100, 200 and 400 mg/kg. Anti-inflammatory activity was assessed using changes in paw volume and percentage inhibition. Data were analysed by ANOVA and Tukey's post hoc test ( $p < 0.05$ ). Active fractions underwent qualitative phytochemical screening.

**Results:** Phytochemical screening revealed flavonoids, steroids and terpenoids in both fractions, while ethyl acetate fraction additionally contained tannins, phenols and saponins. The ANOVA showed significant effects of treatment, time, and treatment-time interaction ( $p < 0.05$ ). The ethyl acetate fraction was significant at all three doses whereas the dichloromethane fraction was significant at 200 and 400 mg/kg. Ethyl acetate achieved up to

100% inhibition of paw edema during the late phase of inflammation and its activity was comparable to indomethacin.

**Conclusion:** The findings of this study demonstrated that *C. lasiantha* possess significant anti-inflammatory activity. The observed activity supports the traditional use of *C. lasiantha* in the management of inflammatory conditions including asthma and highlights its potential as a source of anti-inflammatory agents.

**Recommendation:** Further studies should be done for isolation and characterisation of the bioactive compounds which are responsible for the observed anti-inflammatory activity of *C. lasiantha* also, toxicological studies to establish the safety profile of the active fractions.

#### **14. Title: Formulation and Evaluation of a Polyherbal Cream and Ointment for the Management of Ringworm**

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**Authors:** Philipo F. Mfikwa, Olipa Ngassapa, Hamisi Masanja Malebo, Eulambius Mathias

**Background:** Ringworm (dermatophytosis) is a common fungal skin infection caused by dermatophytes like *Trichophyton*, *Microsporum*, and *Epidermophyton*, especially where hygiene is poor. Globally 20-25% are affected, with 25-40% recurrence, despite use of antifungals. In Tanzania childhood prevalence is 12-55%. A limited antifungal pipeline has prompted investigation of medicinal plants as alternatives, for example garlic, ginger, and neem.

**Objectives:** This study aimed at formulating and evaluating a polyherbal cream and ointment for the management of ringworm.

**Methods:** Garlic (*Allium sativum*), ginger (*Zingiber officinale*), and neem (*Azadirachta indica*) were collected and authenticated by a botanist at MUHAS. Ethanolic extracts were prepared using cold maceration followed by rotary evaporation. Polyherbal cream and ointment formulations, containing 5-15% extracts, were evaluated for physicochemical properties, stability, and in vitro antifungal activity against selected dermatophytes.

**Results:** All formulations showed acceptable physicochemical properties, with pH of 5.10 - 5.97, spreadability of 4.47 - 7.43 cm, and no phase separation or skin irritation. Creams scored higher in sensory evaluation (4.90/5) than ointments (4.10 - 4.14/5). Both exhibited concentration-dependent antifungal activity against *T. interdigitale*, *M. gypseum*, and *T. rubrum* (inhibition zones: 7-23 mm creams; 18-29 mm ointments), with the 15% ointment showing the strongest activity.

**Conclusion:** The polyherbal cream and ointment formulations containing garlic, ginger, and neem were successfully developed, demonstrating stable physicochemical properties and significant concentration-dependent antifungal activity. These findings confirm the therapeutic potential of these plant extracts as promising alternative topical agents in the management of dermatophyte infections.

**Recommendation:** Further studies are recommended to assess long-term stability, toxicity, and clinical efficacy in human subjects, and advanced phytochemical analyses to identify active antifungal compounds. Scale-up production and commercialization studies are also recommended to support pharmaceutical development and therapeutic application.

## **15. Title:** Exploring Potential Antifungal Agents from *Artemisia Annua* L., Using In-Vitro and In-Silico Approaches

**Presenter:** Madalitso Muhakeya |

**Authors:** Madalitso Muhakeya, Wilson Msaku, Willard Mbewe, Andrew Mtewa

**Background:** Fungal infections cause severe disease, death and impose a substantial economic burden on healthcare systems. These infections are responsible for more than 1.5 million deaths globally per year, primarily in those with compromised immune function. They are also associated with increased illness rates and substantial healthcare costs, resulting in \$6.7 billion in hospitalization costs in the United States in 2018.

**Objectives:** The study employed invitro and insilico experiments to examine antifungal potential of *A. annua* L., growing in Malawi.

**Methods:** Antifungal efficacy of the plant extracts was evaluated through in-vitro susceptibility testing using the disk diffusion method. Qualitative phytochemical analysis was employed to identify the presence of key bioactive groups. In parallel, molecular docking studies were carried out in PyRx to examine interactions between literature-sourced compounds and selected fungal targets (CYP51 and AFSQS). Additionally, the pharmacokinetic properties, toxicity, and drug-likeness of five top-performing compounds were predicted using ADMET lab 2.0.

**Results:** Aqueous extracts of *A. annua* L. demonstrated stronger antifungal activity than ethanolic extracts against *Candida* spp. and *Cryptococcus neoformans* in disk diffusion assays. Phytochemical tests confirmed the presence of key bioactive classes. Literature-sourced flavonoids showed strong binding affinities to fungal targets CYP51 and AFSQS, indicating promising molecular interactions relevant to antifungal therapy. ADMET profiling further supported the suitability of these compounds, highlighting good drug-likeness, minimal predicted toxicity, and acceptable pharmacokinetic features, despite limited absorption potential.

**Conclusion:** This study evaluated the antifungal potential of *Artemisia annua* L. cultivated in Malawi and explored the pharmacological relevance of literature-reported compounds through in-silico techniques.

**Recommendation:** To advance these findings, it is recommended that future studies focus on isolating and characterizing specific bioactive compounds from *A. annua* L. grown in Malawi, followed by targeted antifungal testing. Experimental validation of molecular docking predictions using enzyme inhibition assays against CYP51 and AFSQS is also essential to confirm the functional activity of literature identified compounds.

## Cross-Cutting Issues: Ethics and Professionalism, Artificial Intelligence, Technology and Occupational Health

### 1. Title: e-Ceph: Development and Evaluation of an Affordable Software for Cephalometric Evaluation

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**Presenter:** Ali Khamis Hamad

**Authors:** Ali Hamad, Ferdinand Machibya, Matilda Mlangwa, David Ngassapa

**Background:** Cephalometric analysis can be performed manually or digitally. Manual tracing is time-consuming and prone to errors related to image quality and observer variability, leading to inconsistent results. Digital software enhances efficiency, accuracy, and analytical flexibility. However, most systems are based on Caucasian norms and are costly, limiting accessibility in low- and middle-income settings such as Tanzania. This underscores the need for affordable, population-specific cephalometric analysis tools.

**Objectives:** To develop an affordable cephalometric analysis software programme for use in low- and middle-income countries.

**Methods:** The e-Ceph software was developed in MATLAB R2025a with modules for filtering, landmark identification, measurement, and reporting. Three approved cephalograms were analysed using Quick Ceph, WebCeph, and e-Ceph. Each image was traced 30 times, identifying 20 landmarks and generating angular and linear measurements. Data were analysed using Kolmogorov-Smirnov tests, t-tests, ICC, and Bland-Altman plots, with statistical analysis conducted in RStudio.

**Results:** Mean differences between e-Ceph, Quick Ceph, and WebCeph were minimal, with few statistically significant discrepancies. ICC values showed moderate-to-excellent reliability, especially for linear measurements. Bland-Altman analyses demonstrated narrow limits of agreement, indicating strong clinical concordance across systems despite minor variability in selected angular and linear parameters.

**Conclusion:** Although some measurements showed statistically significant differences, all systems exhibited minimal bias, narrow agreement limits, and clinically insignificant variation, confirming that e-Ceph, Quick Ceph, and WebCeph are reliable and interchangeable.

**Recommendation:** Further studies with larger and more diverse samples are recommended to validate its accuracy across different populations and improve generalizability.

### 2. Title: The Quest for Simplicity: Building an AI-Powered Cough Analysis for Respiratory Diseases Diagnosis in Tanzania

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**Presenter:** Kahabi Isangula

**Authors:** Kahabi Isangula, Frances Griffiths, Deogratias Mzurikwao, Phillip Anyanwu, Fayyaz Minhas, Eunice Siaity, Eunice Ndirangu-Mugo

**Background:** Respiratory diseases, including tuberculosis (TB), asthma, and chronic obstructive pulmonary disease (COPD), remain major health challenges in Tanzania, where diagnostic capacity is limited. Patients often face barriers accessing specialized facilities, contributing to delayed diagnosis and treatment. Advances in artificial intelligence (AI) offer new opportunities for scalable, non-invasive diagnostics.

**Objectives:** To build the Kikohozi Classifier, an AI-powered diagnostic tool capable of identifying TB, asthma, and COPD from cough sounds in PHC

**Methods:** This study will establish Kikohozi-DB, Africa's first large-scale cough sound database, by recruiting 30,000 participants and linking cough recordings to verified clinical diagnoses. Data will be collected in collaboration with the Ministry of Health, the National TB and Leprosy Programme, and Aga Khan Health Services. Using advanced AI/ML methods, cough audio will be pre-processed, relevant features extracted, and diagnostic models (Kikohozi-AI) trained and validated for real-world application across diverse devices

**Results:** A total of 2,373 participants from the five implementation regions have provided 11,863 cough samples during six weeks of data collection. Of the 2,373 participants, 1,091 (45.98%) had known diagnoses, including 599 with tuberculosis (TB), 411 with asthma, 61 with COPD, and 20 with multiple diagnoses. The remaining 1,282 (54.02%) participants were healthy individuals. Overall, this data set represents approximately 7.91% of the project's target of 30,000 participants, and ongoing work focuses on model development.

**Conclusion:** The Kikohozi Classifier will provide a low-cost, scalable diagnostic model for TB, asthma, and COPD in resource-limited settings. The project contributes directly to Sustainable Development Goal (SDG) 3.3 on TB elimination and SDG 3.4 on reducing premature mortality from non-communicable diseases by improving early detection and treatment monitoring.

**Recommendation:** Preliminary analyses suggest that cough acoustic features show potential to distinguish major respiratory conditions. Ongoing work focuses on model development, and we anticipate presenting more robust findings, including preliminary performance metrics and practical recommendations, at the conference.

### **3. Title: Participants' Perceptions Show Compensation Enables Survival but Raises Ethical Tensions in Tanzanian Prevention Trials**

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**Presenter:** Raymond Athanas

**Authors:** Raymond Athanas, Rebecca J. DeBoer, Eligius Lyamuya, Connie M. Ulrich, Gasto Frumence

**Background:** Clinical trials rely on the voluntary participation of healthy individuals. In low- and middle-income countries such as Tanzania, financial compensation raises ethical concerns. Although quantitative evidence from Tanzania shows that compensation influences willingness to participate, less is known about how healthy volunteers ethically interpret it in practice.

**Objectives:** To explore the healthy volunteers' perceptions of financial compensation for their participation in prevention trials in Tanzania.

**Methods:** A sequential explanatory mixed-methods design was used, integrating prior quantitative findings from a parent cross-sectional survey of volunteers in prevention trials in

Tanzania (N=537) with a purposively sampled qualitative subsample of 44 female participants drawn from the parent population. The subsample comprised 30 female sex workers and 14 pregnant women. Interviews were audio-recorded, transcribed verbatim, and analysed using inductive thematic analysis. Findings were integrated through narrative weaving supported by a joint display matrix.

**Results:** Integrated findings showed that financial compensation influenced participation in prevention trials through cognitive, behavioral, social, and structural pathways. Economic need often drove rapid enrollment despite low stated financial motives, while perceived benefits in information and medical follow-up were high. Compensation was linked to reduced attention to risks, low awareness of injury protections, and possible false reporting, which may explain highly endorsed altruistic motives. Reported information quality contrasted with qualitative evidence of mistrust and misconceptions.

**Conclusion:** Financial compensation shapes participation decisions in complex ways beyond simple motivation. Economic need, perceived benefits, trust, and understanding interact during enrollment. Stated motives may differ from underlying reasons, limiting reliance on self-reports alone. Reported satisfaction with information does not always reflect genuine comprehension, highlighting the need for deeper assessment of participant experiences and decision-making.

**Recommendation:** Financial compensation played a significant role in prevention trial participation, influencing decisions through economic, cognitive, and social factors. While it reduced barriers to enrollment, it also raised concerns about informed decision-making, risk awareness, and data reliability. These findings highlight the importance of balancing fair compensation with ethical participant protection in prevention trials.

#### **4. Title: Morphological Patterns and Role of Vascular Smooth Muscle Cells in the Progression of Coronary Atherosclerosis**

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**Presenter:** George Joseph Lufukuja

**Authors:** George Joseph Lufukuja, Denis Russa, David Ngassapa, Amos Mwakigonja

**Background:** Atherosclerosis is a progressive arterial disease driven by endothelial dysfunction, lipid deposition, inflammation, vascular smooth muscle cell (VSMC) phenotypic switching, and extracellular matrix remodeling, leading to intimal thickening, necrotic core formation, and fibrous cap development. VSMCs transition from contractile spindle-shaped to synthetic ovoid morphology after injury, contributing to lesion progression, yet this process is poorly characterized in African populations.

**Objectives:** To characterize VSMC morphology and spatial arrangement across lesion stages and assess the effects of ageing, hypertension, and smoking on vascular

**Methods:** This cross-sectional study included medico-legal autopsy cases meeting predefined inclusion criteria. Coronary artery specimens were processed using standard histological techniques. Lesions were classified according to the American Heart Association histopathological criteria. Vascular smooth muscle cell morphology, spatial arrangement, and phenotypic patterns were evaluated using a camera-equipped light microscope. Data were analysed using SPSS version 20, with appropriate descriptive and inferential statistical methods.

**Results:** Stage-specific vascular smooth muscle cell (VSMC) organizational patterns were identified, with intimal VSMCs arranged in either clustered or dispersed patterns. Non-clustered VSMC distribution was significantly associated with advanced lesions, particularly in the left main coronary artery ( $p < 0.05$ ). Multivariable analysis showed internal elastic lamina degradation was significantly associated with age and hypertension, while VSMC dispersion was predominantly age-dependent, underscoring vascular ageing as a key driver of coronary atherosclerosis progression.

**Conclusion:** The spatial arrangement of vascular smooth muscle cells, rather than their density, reflects coronary atherosclerosis progression. Internal elastic lamina integrity is strongly associated with age and hypertension. This study provides the first autopsy evidence from a Tanzanian population, identifying VSMC morphological change and spatial orientation as key markers of atherosclerotic lesion progression.

**Recommendation:** Further studies are warranted to validate vascular smooth muscle cell (VSMC) spatial organisation as a marker of atherosclerotic progression across diverse populations. Integrative clinical and autopsy-based research incorporating VSMC morphology with established risk factors may improve risk stratification. Targeting VSMC phenotypic modulation offers potential strategies to mitigate plaque progression and instability.

## **5. Title: Levels of Self-Monitoring and Management of Blood Pressure Practices among Adult Patients Diagnosed with Hypertension**

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**Presenter:** Benson Kinyua

**Authors:** Benson Kinyua Kingáú, Elijah Mwangi, Sherry Oluchina<sup>1</sup>

**Background:** Hypertension remains the leading global risk factor for premature mortality, accounting for approximately 10.8 million avoidable deaths annually. In sub-Saharan Africa, prevalence rates escalate significantly with age, ranging from 16% at age 30 to 44% by age 60, with projections suggesting a 68% increase in regional prevalence by 2025. While self-monitoring of blood pressure coupled with clinical support is known to enhance medication adherence and quality of care, the extent of its effectiveness in Tanzania remains unknown.

**Objectives:** This study aimed to assess the self-monitoring and management practices among adult patients diagnosed with hypertension in selected healthcare facilities.

**Methods:** A descriptive cross-sectional baseline survey was conducted as part of a pre-test-post-test non-equivalent quasi-experimental study. Data were collected from 69 newly diagnosed hypertensive patients using structured, closed-ended questionnaires. Statistical analysis was performed using SPSS version 26, utilising a mean score of 8.8551 as the threshold for categorizing adherence levels.

**Results:** The study achieved a 100% response rate ( $n=69$ ), with a female predominance (79.7%). The majority of participants presented with mild hypertension (92.7%), while 7.3% exhibited moderate hypertension. Notably, 66.7% of participants demonstrated self-poor monitoring and management practices, falling below the established adherence cutoff.

**Conclusion:** Self-monitoring and management practices among hypertensive adults are suboptimal. These findings underscore an urgent need for clinical interventions aimed at identifying and mitigating barriers to self-care.

**Recommendation:** Healthcare providers should implement continuous, structured health education programmes focusing on the importance of regular blood pressure monitoring, medication adherence, lifestyle modification, and early recognition of complications.

## **6. Title:** Towards Longitudinal Mental Health Diagnosis in Rwanda: A Narrative Review of Global Models and Local Relevance

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**Presenter:** Samuel Ishimwe

**Authors:** Yves Gashugi, Samuel Ishimwe, Egide Ishimwe, Queen Gihozo, Kanyana Ernestine, Louange Bienvenu Byiringiro, Janvier Rukundo

**Background:** In Rwanda and many low-resource settings, mental health diagnosis often relies on one-time clinical assessments guided by global standards like the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) and the International Classification of Diseases (ICD). These tools, while useful, risk overlooking the complexity of lived experiences shaped by historical trauma, socioeconomic challenges, and cultural interpretations of distress. This may result in misdiagnosis, inappropriate treatment, or unnecessary medicalization.

**Objectives:** To explore the limitations of One-time diagnosis in mental healthcare and assess the relevance and applicability of longitudinal diagnostic models

**Methods:** A narrative literature review was conducted using six databases (PubMed, PsycINFO, Web of Science, Embase, IEEE Xplore, and Google Scholar). Thirty-six references were analysed, including 24 empirical studies, five meta-analyses, three policy or guidance papers, and four methodological texts. Inclusion criteria focused on human studies comparing longitudinal and cross-sectional diagnostic approaches, published between 2000 and 2025. Contextual synthesis was applied to evaluate implications for Rwanda's trauma-informed, community-based care system.

**Results:** Seventy-five percent of reviewed studies supported the superiority of longitudinal or repeated-measure frameworks for capturing symptom fluctuation and improving diagnostic reliability. Four dominant themes emerged: (1) diagnostic instability across psychiatric disorders, (2) strengths of longitudinal and repeated-measure methods, (3) potential of digital phenotyping and passive sensing, and (4) policy cautions regarding data privacy and local validation. Findings suggest strong alignment between longitudinal approaches and Rwanda's community-integrated, trauma-sensitive care goals.

**Conclusion:** Rwanda's mental health system would benefit from integrating longitudinal diagnostic practices that align with local realities. This requires investment in digital tools, community-based data collection, and clinician training. Longitudinal diagnosis offers a pathway to more ethical, accurate, and effective mental healthcare in culturally complex and historically burdened contexts.

**Recommendation:** 1. Diagnostic Stability & Clinical Course: Initial psychiatric labels often change over time, highlighting the need for follow-up assessments. 2. Clinical Benefits: can prevent overdiagnosis, reduce overmedicalization, and provide satisfaction by monitoring progress over time, longitudinal designs. 3. Enhance diagnostic stability, prognostication, and care pathways. 4. Offer an accurate and contextually relevant approach for mental healthcare in Rwanda

## **7. Title: Overcoming ELISA Hurdles: 3 Years of Experience in Serology at NIMR Mbeya**

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**Presenter:** Saul Kalivubha

**Authors:** Saul Kalivubha, Lilian NJovu, Miri Mcharo, Florida Mbwilo

**Background:** ELISA (enzyme-linked immunosorbent assay) is a plate-based assay technique designed for detecting and quantifying peptides, proteins, antibodies and hormones. ELISA is a crucial laboratory technique for diagnosing infectious diseases, but faces challenges arising from Pre-analytical, Analytical and Post-analytical phases which can interfere with the readings and hence lead to wrong diagnosis

**Objectives:** To identify challenges with possible solutions in three years of performing the ELISA Test in Serology at NIMR Mbeya

**Methods:** Descriptive based on observational study was conducted for 670 ELISA runs extracted from worksheets performed in Serology at NIMR Mbeya from 2023 to 2025. The extracted data used to evaluate encountered challenges with possible solutions in the ELISA test for Hepatitis B, Hepatitis C and HIV.

**Results:** The findings revealed commonly encountered challenges like variability between replicates, weak signal and high background.

**Conclusion:** Based on the analysed challenges, proper incubation, consistency pipetting and sufficient washing were detected as probable reasons for the improper ELISA test

**Recommendation:** Based on the analysed challenges, we recommend proper incubation, consistency pipetting and sufficient washing to improve ELISA test.

## **8. Title: (AI) Based (CDSS) for Acute Emergency Care (AEC) of STEMI Patients Based on Standardised Management**

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**Presenter:** Ben Anania Tweve

**Authors:** Ben Anania Tweve, Hemantkumar Patadia, Shreyas Patel

**Background:** Acute emergency care (AEC) for ST-segment elevation myocardial infarction (STEMI) is vital because rapid treatment greatly improves patient outcomes. STEMI results from complete coronary artery blockage, causing severe myocardial damage if untreated. Standard guidelines from the ACC and AHA focus on quick diagnosis, timely reperfusion, and continuous monitoring. However, the urgency and complexity of STEMI management create challenges that can be enhanced through AI-based Clinical Decision Support Systems (CDSS), improving

**Objectives:** To develop an AI-based Clinical Decision Support System for improving emergency management and treatment decisions in STEMI patients.

**Methods:** This study used a prospective observational design in the Emergency Department of a tertiary care hospital involving STEMI patients. Clinical, laboratory, ECG, and treatment data were collected and analysed using machine learning algorithms to develop an AI-based

Clinical Decision Support System (CDSS). The model was trained and validated for diagnostic accuracy, risk prediction, and treatment recommendations. Statistical analysis compared AI-assisted decision-making with standard clinical practice while ensuring ethical approval and

**Results:** The AI-based Clinical Decision Support System (CDSS) demonstrated high accuracy in identifying STEMI patients and supporting emergency treatment decisions. The model improved risk stratification, reduced diagnostic delays, and enhanced timely reperfusion therapy recommendations. Compared with standard clinical practice, AI-assisted decision-making showed better sensitivity, specificity, and prediction of adverse cardiac outcomes. The system also contributed to reduced door-to-balloon time and improved workflow efficiency in the Emergency Department. Overall, the AI model proved effective, reliable, and feasible for supporting acute STEMI management

**Conclusion:** The AI-based Clinical Decision Support System (CDSS) effectively supported emergency management of STEMI patients by improving diagnostic accuracy, risk assessment, and treatment decisions. The system enhanced workflow efficiency and reduced delays in critical interventions. Its integration into emergency care demonstrated feasibility and potential to improve patient outcomes. AI-assisted decision-making may serve as a valuable tool in tertiary care hospitals

**Recommendation:** Hospitals should consider integrating AI-based Clinical Decision Support Systems into emergency cardiac care to improve STEMI management and patient outcomes. Further multicentre studies with larger sample sizes are recommended to validate model performance and generalizability. Continuous clinician training, system updates, and integration with hospital electronic health records are essential for effective implementation and sustainable clinical use.

## **9. Title: Ethical Perceptions and Uptake of Sexual and Reproductive Health Services among Unmarried Adolescents in Morogoro, Tanzania**

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**Presenter:** Baraka M. Morris

**Authors:** Baraka M. Morris, Suleiman Chombo, Connie M. Ulrich, Deodatus Cv. Kakoko

**Background:** Despite national and global efforts to promote adolescent-friendly sexual and reproductive health services (SRHS) in Tanzania, utilisation among sexually active adolescents aged 15-19 remains low. This gap may reflect a disconnect between adolescents' ethical expectations and prevailing community moral norms. Evidence on how factors such as informed consent, privacy, and confidentiality influence adolescents' use of SRHS is limited.

**Objectives:** This study examined associations between informed consent, moral perceptions, privacy/confidentiality, and SRHS uptake among unmarried adolescents in Morogoro, Tanzania.

**Methods:** The study surveyed 312 unmarried adolescents from Morogoro Municipality and Mvomero District using multistage sampling. Data were collected using a modified World Health Organisation-Cleland questionnaire, including 38 additional items assessing ethical perceptions related to SRHS utilisation. Exploratory factor analysis (EFA) identified latent constructs underlying perceived ethical dimensions of SRHS utilisation. Modified Poisson regression estimated associations between these domains and SRHS use.

**Results:** EFA identified three ethical domains: informed consent, moral perceptions of premarital sex, and privacy and confidentiality. Moral perceptions (aRR = 1.34, 95% CI 1.04-1.74; p = 0.025) and privacy and confidentiality (aRR = 1.48, 95% CI 1.09-2.02; p = 0.013) were significantly associated with SRHS uptake.

**Conclusion:** Adolescents often perceive that they need community moral approval to seek SRHS, yet their need for privacy and confidentiality remains critical. Navigating the tension between social expectations and access to confidential youth-friendly SRHS requires integrating ethical considerations into service design to improve utilisation.

**Recommendation:** SRHS programmes should be designed to ensure privacy and confidentiality aligned with adolescents' lived realities to improve service utilisation. Community engagement should address moral taboos surrounding premarital sex by strengthening access to accurate SRHS information, enabling adolescents to make informed and responsible health decisions. Service delivery should emphasize confidentiality, nonjudgmental care, and community sensitization to reduce stigma and improve uptake.

## **10. Title: SmartScan: An AI-Powered Intelligent Diagnostic Solution for Early Detection, Musculoskeletal Injury Prevention, and Performance Enhancement**

**Presenter:** Justus Emmanuel Makaranga

**Authors:** Justus Makaranga, Twalib Hassan

**Background:** Musculoskeletal injuries remain a major challenge in sports medicine and rehabilitation, contributing substantially to disability, impaired athletic performance, prolonged recovery periods, and increased healthcare costs globally. Athletes and physically active individuals are particularly vulnerable to conditions such as stress fractures, ligament tears, tendon injuries, and muscle damage due to repetitive mechanical stress and intensive training demands. In many low- and middle-income countries, delayed diagnosis and limited access to advanced imaging.

**Objectives:** To develop SmartScan, an AI-powered DEXA and ultrasound system for early detection, prevention, and risk assessment of musculoskeletal injuries.

**Methods:** This prototype-based innovation study is being conducted within physiotherapy and sports rehabilitation settings affiliated with Muhimbili National Hospital and Muhimbili University of Health and Allied Sciences. The project integrates low-dose DEXA scanning, ultrasound imaging, and Artificial Intelligence algorithms for musculoskeletal assessment and risk analysis. The development process involves literature review, stakeholder consultations, prototype design, AI model development, pilot testing, and preliminary clinical validation to assess feasibility and diagnostic potential.

**Results:** Preliminary project progress indicates significant potential for SmartScan to improve early musculoskeletal injury detection, rehabilitation planning, and preventive healthcare among athletes and physically active individuals. Stakeholder consultations identified delayed diagnosis, limited imaging accessibility, and high healthcare costs as major challenges in sports rehabilitation. The ongoing prototype development integrates Artificial Intelligence, low-dose DEXA, and ultrasound imaging technologies to support clinical decision-making, injury risk assessment, and affordable diagnostic innovation in resource-limited healthcare settings.

**Conclusion:** SmartScan demonstrates promising potential as an innovative AI-powered diagnostic solution for early musculoskeletal injury detection, prevention, and rehabilitation

support. The project highlights the importance of integrating affordable imaging technologies with Artificial Intelligence to improve clinical decision-making, enhance athletic performance, and strengthen preventive healthcare services, particularly in resource-limited settings.

**Recommendation:** Further research, prototype validation, and clinical testing are recommended to assess the accuracy, feasibility, and effectiveness of SmartScan in real-world healthcare and sports rehabilitation settings. Strategic collaboration among healthcare institutions, researchers, biomedical engineers, and technology partners is also recommended to support system optimisation, scalability, and implementation in resource-limited environments.

## **11. Title: AfyaMama InsightAI: Multilingual AI Decision-Support for Maternal Health in Resource-Limited Settings**

**Contact:** christophermzogo95@gmail.com

**Presenter:** Christopher Jumanne Mzogo

**Authors:** Christopher Jumanne Mzogo

**Background:** Maternal and newborn health outcomes remain poor in resource-limited settings due to delayed risk detection, fragmented health information systems, and limited clinical decision support. Most digital health systems focus on reporting rather than prediction and early intervention. There is a need for multilingual, accessible, and intelligent tools that support early risk identification and timely clinical decision-making. AfyaMama InsightAI addresses this gap using AI-driven predictive analytics.

**Objectives:** To develop, implement, and evaluate a multilingual artificial intelligence decision-support system for improving maternal and newborn health outcomes.

**Methods:** A four-month mixed-methods implementation study was conducted in three rural communities in Tanzania involving 1,121 participants. Machine learning models (supervised classification) were trained for maternal risk prediction, evaluated using real-time clinical data streams and performance metrics. A multilingual, voice-enabled, offline-capable interface with local synchronisation was deployed. Ethical safeguards included informed consent, encryption, role-based access control, and audit logging. The system used a modular, interoperable architecture enabling integration with existing health

**Results:** The system demonstrated strong improvements in maternal and child health service delivery. High-risk pregnancy detection accuracy reached 82%, while immunization coverage increased from 68% to 91%. Nutrition monitoring efficiency improved by 65%. Machine learning-driven alerts reduced clinical decision-making time by 70%, improving responsiveness. Predictive risk stratification enhanced early identification of complications and follow-up adherence. Overall, the system significantly improved data-driven decision-making, care coordination, and service efficiency in resource-limited rural settings.

**Conclusion:** AfyaMama InsightAI provides evidence that integrating machine learning-based predictive analytics with multilingual, offline-capable decision-support systems can strengthen maternal and newborn health services in resource-limited settings. The approach improves early risk detection, clinical responsiveness, and continuity of care, demonstrating a scalable and interoperable model for sustainable AI-driven health system strengthening and improved population health outcomes.

**Recommendation:** Scale AfyaMama InsightAI across primary healthcare facilities and integrate it with national digital health systems to enhance continuity of care. Strengthen AI governance, data quality frameworks, and interoperability standards. Invest in health worker training for AI adoption and ensure sustainable infrastructure for offline-capable deployment to support equitable, data-driven maternal and newborn health services in resource-limited setting.

## **12. Title:** Exploring the Role of Information and Communication Technologies (IcTs) in Transforming Learning at MUHAS

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**Presenter:** Restituta Mushi

**Authors:** Restituta Mushi, Edson Protas, Elines Philomen Mwasanga, Neema Mawi

**Background:** MUHAS is transforming higher education in response to evolving teaching and learning needs and the growing availability of digital tools. This study explores how Information and Communication Technologies (ICTs) can support learning through improved access to information, enhanced communication, and more flexible learning approaches. It also considers how ICT use may influence students' engagement, academic performance, and the effectiveness of instructional delivery at MUHAS.

**Objectives:** To examine how ICT use influences learning processes among MUHAS students

**Methods:** This study employed a quantitative survey design using structured questionnaires. The target population comprised all students in the Seven Schools at MUHAS, including both undergraduate and postgraduate students. A stratified random sampling technique was used, and the required sample size was determined using Krejcie and Morgan's formula. A total of 375 students responded. Data were collected via REDCap, piloted using Midwifery and Biomedical students, and analysed using SPSS. Cronbach's alpha

**Results:** MUHAS has a specific ICT policy for teaching and learning majority of respondents declare Yes: 167, 44.9%; while 15, (4.0%) said No, and 190 (51.1%) didn't know. Study reported advantages included access to wider learning resources 279, (82.8%), flexibility in pace and location 235, (69.7%), improved engagement and motivation 194, (57.6%), and enhanced collaboration 184, (54.6%). Challenges included unreliable internet connectivity strongly agree 210, (56.6%) and agree 128, (34.5%) and insufficient infrastructure strongly agree: 185, (49.7%); agree: 140, (37.6%).

**Conclusion:** ICTs are perceived as beneficial, but their impact is limited by poor connectivity and inadequate infrastructure.

**Recommendation:** MUHAS should strengthen ICT implementation by improving internet reliability and expanding supporting infrastructure, and by increasing awareness of the ICT policy among students.

## **13. Title:** Development and Validation of Machine-Learning Enhanced Multispectral-Imaging Model for Rapid Screening of Improperly Stored Medicines

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**Presenter:** Modester Cosmas Kitula

**Authors:** Modester Cosmas, Zainabu Jumanne, Emmanuel Deogratias, Nelson E. Masota

**Background:** Improper storage conditions such as heat and humidity exposure contribute significantly to medicine degradation, compromising safety, efficacy and therapeutic outcomes. Conventional analytical methods including High Performance Liquid Chromatography (HPLC), High Performance Thin Layer Chromatography (HPTLC) are reliable but remain expensive, time-consuming, destructive and impractical for routine rapid screening in low-resource settings. Multispectral Imaging (MSI), combined with machine-learning (ML) approaches, presents a promising non-destructive and portable alternative for rapid medicine quality assessment.

**Objectives:** To develop and validate a machine-learning enhanced multispectral imaging model for rapid screening of selected improperly stored medicines.

**Methods:** Spectral data was collected using one selected brand of Omeprazole and Amoxiclav exposed to controlled heat and humidity conditions. Multispectral images were captured using the Spectricity S1 EVK2 and processed using Python tools. Machine-learning models including Support Vector Machine(SVM) and Convolutional Neural Network(CNN) were trained and validated using accuracy, sensitivity, specificity and AUROC metrics to identify degraded medicines. Pilot testing used samples collected from pharmaceuticals outlets in Dar es Salaam.

**Results:** Preliminary findings indicate successful extraction of spectral features from Regions of Interests (ROIs), including mean reflectance values across all 16 spectral bands, band-wise standard deviations and selected band-ratio features. Generated using Python-based image analysis techniques, these extracted features support ML model training, optimisation and validation, enabling discrimination of authentic medicines from the improperly stored medicines.

**Conclusion:** The proposed MSI-ML model offers a promising innovative approach for rapid medicine quality screening in resource-limited settings. Integration of multispectral imaging and Machine learning may strengthen regulatory surveillance systems and improve early detection of storage-induced medicine degradation.

**Recommendation:** Regulatory authorities and pharmaceutical quality control stakeholders may consider adoption of MSI-AI based screening tools to complement conventional laboratory methods in routine medicine quality surveillance and risk-based inspections.

#### **14. Title: Development and Validation of Machine Learning-Enhanced Multispectral-Imaging Model for Rapid Screening of Falsified Emergency-Contraceptives Products**

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**Presenter:** Zainabu Jumanne

**Authors:** Zainabu Jumanne, Modester Cosmas Kitula, Emmanuel Deogratias, Nelson E. Masota

**Background:** Substandard and falsified emergency contraceptive products pose a growing public health concern, particularly in low-middle income countries with limited medicine quality surveillance systems, which may result in therapeutic failure, unintended pregnancies, and adverse reproductive outcomes. Conventional methods such as High-Performance Liquid Chromatography (HPLC) are accurate but limited by high costs, destructive analysis, and poor portability. Multispectral imaging integrated with machine learning (ML) potentially offers alternative approach for addressing such challenges.

**Objectives:** To develop and validate a machine learning-enhanced multispectral imaging method for rapid screening of falsified selected emergency contraceptive products.

**Methods:** Spectral data was collected from two selected brands, P2 and Emerginor, were captured using Spectricity S1 EVK2 and processed using Python. Spectral and textural features were extracted to train and optimize ML models including Support Vector Machine (SVM) and Convolutional Neural Network (CNN). Method validation followed ICH Q14(R2) principles assessing robustness, accuracy, precision, and diagnostic performance. Pilot field validation was conducted using samples from pharmaceutical outlets in Dar es Salaam.

**Results:** Preliminary findings indicate that for each Region of Interest (ROI), spectral features including mean reflectance values across all 16 spectral bands, band-wise standard deviations, and selected band-ratio features were successfully extracted. These features, generated using Python-based image processing and analysis techniques, served as inputs for subsequent ML model training, optimisation, and validation. The extracted spectral-spatial information is expected to enable effective discrimination between genuine and falsified emergency contraceptive products, contributing to improved classification accuracy and model performance.

**Conclusion:** The method will provide a rapid, portable, non-destructive, and cost-effective screening approach for detecting falsified emergency contraceptive products. Its implementation may improve medicine quality surveillance systems and support efficient regulatory screening activities in particularly resource-limited settings.

**Recommendation:** Regulatory authorities and post-marketing surveillance programmes may adopt the developed method approach to strengthen detection and monitoring of falsified emergency contraceptive products. Integration of this technology into routine surveillance systems may improve medicine quality control across pharmaceutical supply chains.

## **15. Title: Tanz-Heart: Community-Led, AI-Enabled Detection and Linkage for Hypertension, Atrial Fibrillation, and Heart Failure in Tanzania**

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**Presenter:** Protas Edson

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**Background:** Cardiovascular diseases cause 19.8 million deaths annually, over three-quarters in low- and middle-income countries. In Tanzania, hypertension, atrial fibrillation, and heart failure remain largely undiagnosed because of weak community screening and linkage to care. AI-enabled digital tools and task-sharing offer promise, yet implementation evidence is limited. TANZ-HEART will test an AI-powered, community-led screening and referral platform to bridge these gaps.

**Objectives:** To evaluate a community-led, AI-enabled screening and linkage model for hypertension, atrial fibrillation, and heart failure in Tanzania.

**Methods:** Hybrid Type II effectiveness-implementation design using a stepped-wedge cluster randomised trial in 28 clusters across Dar es Salaam and Kilimanjaro. Community health workers will use the TANZ-HEART app for BP and AF screening, AI risk stratification, and referral. Secondary data from JKCI and KCMC will train AI models. Primary outcome: linkage to care at 30 days. Mixed-methods evaluation guided by RE-AIM and CFIR frameworks.

**Results:** Expected results include a validated AI risk-stratification model for hypertension, AF, and heart failure; implementation evidence on task-sharing and digital linkage; higher community detection rates; improved 30-day linkage to care; and a scalable, integrated care model for national NCD programmes. The digital dashboard will provide real-time, population-level CVD risk surveillance to guide targeted interventions.

**Conclusion:** The TANZ-HEART project will generate context-specific evidence on integrating AI and task-sharing into community CVD care, bridging the detection-treatment gap. It will demonstrate a scalable, cost-effective model for early CVD risk management, strengthening primary care and informing policy for Tanzania's NCD strategic plan.

**Recommendation:** Integrate AI-supported community screening into routine primary care; train community health workers in digital CVD detection; strengthen referral pathways; embed sustainable funding for digital tools within national health budgets; scale up the TANZ-HEART model nationwide and adapt it for other NCDs in similar settings.

## **16. Title: Development and Validation of Glucose-Based Method for Quantification of Vancomycin -Hydrochloride Content in Powders-for-Injection**

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**Presenter:** Julieth Mmasi

**Authors:** Julieth Mmasi, Nzagi Nyakirangira, Nelson E. Masota

**Background:** Vancomycin-hydrochloride is a glycopeptide antibiotic commonly used in treating severe infections caused by resistant bacteria such as Methicillin-resistant Staphylococcus aureus (MRSA). Conventional analytical methods including high performance liquid chromatography (HPLC) and immunoassays are reliable but are limited by high costs, time-consuming procedures, labour-intensive preparation, and environmental concerns. Portable Glucose Meters (PGMs) have demonstrated diverse applications beyond glucose-monitoring, highlighting their assay potential of vancomycin-hydrochloride by quantification of glucose-hydrolyzed from the drug

**Objectives:** This study aimed to develop and validate a glucometer-based method for the analysis of vancomycin- hydrochloride content in powders-for-injection.

**Methods:** Using a portable glucometer as detector, hydrolysis conditions such as use of 1M dilute hydrochloride acid (HCL), heating conditions using water-bath at 90 -100°C for 0-60minutes, 1M sodium hydroxide (NaOH) for neutralization, working concentrations, pH levels and application volume were explored and optimised through a combination of literature review and trial and error. The method was validated for robustness, precision, accuracy, and linearity according to the ICH Q2 (R1) guidelines.

**Results:** The hydrolysis conditions of 5: 1 sample to dilute HCl, heating at 90° C for 30 minutes, neutralization using 200 µL NaOH for 1 mL of hydrolysed sample, the working pH range was 6.8-7.8, glucose concentration range 0.35-6 mg/mL, and application volume 10 µL were optimal. Upon validation the method was found to conform with ICH guidelines, with %RSD for repeatability (1.44) and intermediate precision (1.66), linearity R<sup>2</sup> (0.9999) within-acceptable limits and accuracy ranging from 92.5%-102.3% at 80%, 100%, and 120% levels.

**Conclusion:** Portable glucose meters can be successfully utilized for quantification of vancomycin hydrochloride within acceptable validity. The method offers a reliable, rapid,

simple, portable, and less labour-intensive approach for the analysis of vancomycin hydrochloride in powder for injection formulations.

**Recommendation:** Regulatory authority and quality control laboratories may adapt this method to perform routine quality control and market surveillance of product especially in resource limited settings and beyond.

## **17. Title: Healthcare Workforce Readiness for Artificial Intelligence: A Mixed-Methods Study in Northern Tanzania**

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**Presenter:** Yunus A. Jongo

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**Background:** Artificial intelligence (AI) is transforming healthcare by improving diagnostics and decision-making. It offers a potential solution to the healthcare workforce crisis, particularly in Africa. Despite AI's proven benefits in countries like Nigeria and Zambia, its integration into Tanzania's healthcare system remains limited.

**Objectives:** This study assessed knowledge, attitudes, and barriers to AI adoption among healthcare workers (HCWs) at Kilimanjaro Christian Medical Centre (KCMC)

**Methods:** A mixed-methods cross-sectional study was conducted among healthcare workers. Quantitative data were collected from 272 participants through an online survey, while 19 in-depth interviews provided qualitative insights. Data were analysed using SPSS version 25.0 and QualCoder version 3.6. Mann-Whitney U and Kruskal-Wallis tests assessed differences between categorical variables, with statistical significance set at  $p < 0.05$ . Qualitative data underwent thematic analysis, and integration occurred during interpretation to contextualize findings

**Results:** Quantitatively, most participants (79.4%) had heard about AI; however, 78.3% demonstrated inadequate knowledge. Knowledge significantly differed by gender, profession, education level, and training exposure ( $p < 0.001$ ). Although 90.4% expressed positive attitudes toward AI, concerns regarding diagnostic errors and reduced human creativity remained. The most reported barriers were technological (58.5%), ethical (56.6%), and workforce-related challenges (51.5%). Qualitatively, knowledge, attitudes, and barriers emerged as key themes, complementing survey findings by explaining varied understandings of AI, positive attitudes, and manifestations of barriers.

**Conclusion:** This study found that most participants had inadequate knowledge, while positive attitudes toward AI were observed in most respondents. The most commonly identified barriers to AI adoption were technological issues, ethical concerns, and workforce-related challenges, followed by financial constraints. Qualitative findings reinforced and expanded upon the survey results, revealing both enthusiasm and apprehension toward AI integration in healthcare

**Recommendation:** Addressing these challenges requires a multifaceted and systemic approach, including the development of strong data governance policies, integration of AI into healthcare education and training, infrastructure investment, context-specific awareness initiatives, and establishment of strategic partnerships. These strategies are essential to

enhance understanding, build trust, and support the effective implementation of AI in healthcare settings.

### **18. Title:** AI-Based Democratization of Data to Primary Health Care Providers

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**Presenter:** Masoud Mahundi

**Authors:** Masoud Mahundi, Mahadia Tunga Sub-themes: Health system research

**Background:** Since the 1990s, governments and development partners have invested heavily in the digitalization of health information systems to strengthen planning, budgeting, monitoring, and evaluation in healthcare delivery. Although these systems have supported higher-level healthcare management, they provide limited assistance to primary healthcare providers due to barriers such as a lack of lightweight electronic tools, limited digital literacy, and dependence on non-real-time data processing methods.

**Objectives:** This study investigates mechanisms to improve the availability and accessibility of data for decision-making in primary healthcare settings

**Methods:** The study employs a critical action research methodology to challenge the structures influencing bias against accessibility of data to primary healthcare. Each dimension of the study is then achieved through relevant approaches. Establishing the existing data access and use practices uses mixed-methods approaches, while examining suitable data analytics and artificial intelligence solutions uses design science research. The efficiency and effectiveness of the implementation are then investigated through developmental evaluation research

**Results:** The study is multidisciplinary, involving research perspectives from different disciplines. Four researchers have been recruited, one from a public health background, two from health informatics, and one from an artificial intelligence background. Stakeholder mobilization is ongoing, with communications with local authorities having been initiated.

**Conclusion:** By enhancing real-time access to usable and relevant data, the research aims to strengthen primary healthcare service delivery, improve operational efficiency, and support evidence-based decision-making at the point of care.

**Recommendation:** Enhancing the use of data by primary healthcare providers needs special emphasis. This shall enhance their ability to monitor their progress, understand the areas of improvement, and effectively manage the logistics related to the services they are mandated to provide.

### **19. Title:** Diagnostic Performance of Artificial Intelligence Versus Emergency Clinicians in Chest X-Ray Interpretation in Tanzania

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**Presenter:** Jeremiah Kihunrwa

**Authors:** Jeremiah Kihunrwa, Said Kilindimo, Alphonse Simbila

**Background:** Timely chest X-ray interpretation is critical in emergency care, yet radiologist availability may be limited in resource constrained settings. Artificial intelligence could strengthen frontline decision making by rapidly identifying clinically important thoracic abnormalities. This study evaluated artificial intelligence against emergency clinicians in adult chest X-ray interpretation using radiologist reports as the reference standard.

**Objectives:** To compare artificial intelligence and emergency clinicians in detecting abnormal adult chest X-rays and major thoracic pathologies.

**Methods:** A diagnostic accuracy study was conducted using 223 adult chest X-ray interpretations from an emergency care setting. Radiologist reports were used as the reference standard. Emergency clinician and artificial intelligence interpretations were evaluated for overall abnormality, pneumothorax, pneumonia/consolidation, pleural effusion, pulmonary edema, cardiomegaly, and urgent findings. Sensitivity, specificity, predictive values, accuracy, exploratory AUROC, and Cohen's kappa were calculated.

**Results:** Radiologists classified 186/223 chest X-rays as abnormal. For overall abnormality detection, artificial intelligence achieved higher specificity, accuracy, and agreement than emergency clinicians: specificity 73.0% versus 59.5%, accuracy 95.5% versus 92.4%, and kappa 0.818 versus 0.679. Sensitivity was high for both groups: 100.0% for artificial intelligence and 98.9% for clinicians. For pneumothorax, artificial intelligence showed superior sensitivity, specificity, and agreement.

**Conclusion:** Artificial intelligence demonstrated strong diagnostic performance and agreement with radiologist reports, especially for overall abnormality and pneumothorax detection. Emergency clinicians remained highly sensitive but less specific, suggesting possible overcalling. Artificial intelligence may be a valuable adjunct for emergency chest X-ray interpretation in resource constrained settings.

**Recommendation:** Artificial intelligence should be integrated into emergency chest X-ray interpretation as a clinician support tool, particularly for rapid detection of abnormal and high risk thoracic findings. Implementation should include clinician training, radiologist oversight, local validation protocols, and continuous performance monitoring to ensure safe, accurate, and context-appropriate use.

## **20. Title: Women in Academia's Initiative and Early Impact 2025: Leveraging Existing MUHAS Strategies and Infrastructure**

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**Presenter:** Khadija Yahya Malima

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**Background:** The Women in Academia Initiative at Muhimbili University of Health and Allied Sciences (WIA MUHAS) launched in 2025 to strengthen advocacy, professional development, well-being, and research capacity for women academics. The initiative is member-driven and structured around mentorship, healthy living, research support, and resource mobilization.

**Objectives:** Operationalize national and institutional gender strategies to promote women in academia's scientific advancement through research, mentorship, social and mental wellness

**Methods:** WIA MUHAS operationalized national gender strategies and institutional gender-mainstreaming policies to strengthen scientific skills, promote social and mental well-being, and secure funding and institutional recognition for gender-sensitive academic advancement. The approach combined programme delivery with process evaluation to document fidelity, reach, and early outcomes. Through leadership teams and four goal-aligned working groups (Mentorship and Capacity Building; Healthy Living and Social Wellness; Research; Fundraising/Grants/Registration/Communication). Women in Academia Initiative (WAI) at Muhimbili

**Results:** From March-December 2025, WIA conducted a needs assessment (Google Form), inaugurated an initiative, registered members (WhatsApp ~100), and delivered capacity-building seminars, wellness sessions, mentorship talks, and grant-writing support. The inauguration drew 81 participants; an April seminar had 21 attendees; a mentorship webinar (10 July) had 36 attendees; an online wellness talk had 34 attendees; yoga ran 6 sessions with 7-8 regular participants. By December, WIA submitted a hybrid research grant on gender-sensitive CVD.

**Conclusion:** In its first year, WIA MUHAS successfully launched a coordinated, multi-component platform that attracted substantial membership and delivered targeted activities across mentorship, wellness, capacity building, and research. Early outcomes demonstrate feasibility, strong institutional interest, and readiness to pursue external funding and a formal three-year action plan (2026-2029).

**Recommendation:** WIA needs to prioritize regular high-value sessions (grant writing, promotion guidance) and use hybrid delivery (online + in-person) to maximize reach and flexibility; Leverage reminders, micro-learning, and mentor matching; Scale wellness offerings modestly (regular short sessions) to sustain engagement; Track outcomes (submissions, acceptances, promotions) to demonstrate impact and secure seed funding and formalize mentorship to support sustainability and institutional uptake.

## **21. Title:** Exploring Erythroid Cell Transcriptomics to Understand Regulation of Fetal Haemoglobin Expression in SCD

**Presenter:** Collin Nzunda

**Authors:** Siana Nkya, Collin Nzunda, Frida Kaywanga, Salmaan Karim, David Solomon, Emmanuel Saukiwa, Heavenlight Christopher, Doreen Ngowi, Julieth Johansen, Florence Urio, Josephine Mgaya, Clara Chamba, Fadya Hashim, Emmanuela E. Ambrose, Solomon Ofori Acquah, Emile R. Chimusa, Julie Makani

**Background:** Fetal haemoglobin (HbF) modulates the clinical severity of sickle cell disease (SCD) by inhibiting the polymerization of sickle haemoglobin. Elevated HbF levels are associated with milder disease phenotypes, fewer Vaso-occlusive crises, and reduced organ damage. Understanding the molecular regulation of HbF expression is critical for the development of new therapeutic strategies, including pharmacologic agents and gene-based interventions aimed at ameliorating the course of SCD.

**Objectives:** We investigated transcriptomic expression in erythroid cells during the transition from the neonatal period to early childhood.

**Methods:** Reticulocyte transcriptomes were compared between samples obtained at birth (cord blood), when HbF levels ranged from 72.6% to 90%, and at 18 months of age (whole blood), when HbF levels declined to 5.9%-10.3%. Reticulocytes were enriched, RNA extracted,

and high-throughput RNA sequencing was performed, followed by differential gene expression and network analyses.

**Results:** Analysis of 20 346 genes revealed 1245 differentially expressed genes, of which 631 genes were upregulated in cord blood reticulocytes. The differentially expressed genes were significantly enriched in pathways related to cell signaling, proliferation, differentiation, metabolism, immune functionality, and erythropoiesis.

**Conclusion:** This study delineates the evolving reticulocyte transcriptome from the high HbF neonatal period to 18 months of age, identifying critical regulators of maturation and haemoglobin synthesis. Cord-blood reticulocytes showed coordinated upregulation of cell-cycle, metabolic, redox, immune, and erythropoietic pathways, nominating testable regulators of HbF.

**Recommendation:** Developmental shifts in the erythroid transcriptome uncover key biological processes that may regulate HbF expression. These findings offer a valuable panel of candidate genes for future functional studies and highlight new potential molecular targets for therapeutic modulation of HbF in sickle cell disease.

## **22. Title: Combined Emergency Department Screening for Hepatitis B Virus and Hepatocellular Carcinoma: A Case of Muhimbili**

**Presenter:** Biita Muhanuzi | **Authors:** Muhanuzi Biita, James S. Ford, Juma Mfinanga, Seraphine January Mrosso, Jenny Wagner, Johnstone Kayandabila, Akash Desai, Jose Debes, Julian Hertz, Hendry Sawe

**Background:** Hepatitis B virus (HBV) is responsible for the development of more cases of hepatocellular carcinoma (HCC) than any other etiology of liver disease. HCC is the second leading cause of cancer-related death in the world. Globally, only 10% of all patients with chronic HBV know their infection status. Emergency Department (ED) based screening has the potential to provide early diagnosis and linkage to care for patients with HBV and HCC.

**Objectives:** To improve access to care and public health services for HBV and HCC in resource-limited settings, by providing screening services.

**Methods:** Was prospective, system-level implementation study between July 2023 and March 2025 at a tertiary referral hospital in Tanzania. Prior to deployment, we engaged key stakeholders to adapt screening workflows, define referral pathways, and ensure operational feasibility. Patients/visitors presenting EMD-MNH underwent informed consent. Patients who tested positive for HBV underwent additional testing and then referred to hepatology clinic. Data were analysed with statistics and comparisons between groups were made using proportions.

**Results:** We enrolled 2945 patients among which 1602(54.4%) were female and median age was 36 years. All patient who were enrolled into the study were screened for hepatitis B infection, out of which 232(7.9%) were Hepatitis B positive. Co-infection with HIV and Hepatitis C were 12(5.2%) and 3(1.3%) respectively. Those linked to hepatitis clinic were 206(88.8%). At clinic 13(6.3%) was found to have HCC. Antiretroviral therapy was initiated in 49(21.1%) patients among those who were found to have Hepatitis B infection.

**Conclusion:** More than three quarter of patients who were diagnosed with hepatitis B infection in ED were linked hepatology clinic for appropriate treatment. All patients who were found eligible for hepatitis B treatment received antiretroviral therapy. Future studies should

focus on barriers to linkage to appropriate care after screening for Hepatitis B in emergency department.

**Recommendation:** Integration of HBV and HCC in routine ED care. Future studies should focus on barriers to linkage to appropriate care after screening for Hepatitis B in emergency department and mechanisms of financing HBV and HCC screening in a limited resource emergency medicine department.

### **23. Title: Impact of Brand Equity on Consumer Buying Behaviour of Mobile Phones Case Study of Karachi**

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**Presenter:** Naila Kanwak

**Authors:** Naila Kanwal

**Background:** The research was conducted to find out the impact of brand equity on consumer buying behaviour of mobile phones, A case study from Karachi, Pakistan. 4 hypotheses were developed to conduct this study, further data of 150 individuals of different age groups have been collected through questionnaire containing 21 questions & shared through google forms.

**Objectives:** To help the marketing team of mobile phones to construct best techniques of branding for brand knowledge.

**Methods:** 4 hypotheses were developed to conduct this study, further data of 150 individuals of different age groups have been collected through questionnaire containing 21 questions & shared through google forms. Study is carried out as per Aaker model of brand equity and it consist of Brand Knowledge, Brand Trustworthiness, Brand Association and Perceived quality and their impact on consumer buying behaviour. they can construct best techniques of branding for brand knowledge and can attract more public towards their brand. They may include these variables in their strategies and increase their target audience by strong promotion.

**Results:** Result showed that Perceived quality, Brand Trustworthiness, brand association have impact on consumer buying behaviour. Results of the studies help to the marketing team of mobile phones;

**Conclusion:** After that KMO and Bartlett's test was run for statistical analysis which showed that Perceived quality, Brand Trustworthiness, Brand knowledge and Brand association significantly impact on consumer buying behaviour. This shows that brand knowledge is not significant for the mobile phone users of Karachi and they are less motivated on this factor.

**Recommendation:** This is very important study keeping in view the current / competitive marketing conditions of mobile phones in Karachi, Pakistan. This study can be further enhanced by taking other variables which were not under study. This research is carried out in Karachi while it can be performed in other cities like Karachi, Lahore and Islamabad.

## **24. Title: Expanding Haematology Specialist Access in Tanzania Through Telemedicine: The Afyaca-muhas Collaboration**

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**Presenter:** Thomas Finkbeiner

**Authors:** Thomas Finkbeiner, Julie Makani, Daima Bukini ( ), Kennedy Sawe, Kassim Kassim, Ngusa Kalambo

**Background:** Tanzania faces a shortage of specialist healthcare professionals, with haematology services largely concentrated in urban referral hospitals, limiting access to specialist care for populations in rural and underserved areas. As global health financing shifts, innovative and sustainable approaches are needed to strengthen healthcare delivery and advance universal health coverage. AFYACA, a telemedicine platform, in collaboration with MUHAS, offers a transformative digital pathway to specialist access gap across the URT.

**Objectives:** To expand equitable access to haematology specialist consultations through a secure telemedicine platform, regardless of geographic location within Tanzania.

**Methods:** The collaboration integrates haematology specialists from MUHAS into the AFYACA telemedicine platform offerings through institutionally managed consultation links, enabling remote specialist consultations nationwide. Patients are digitally registered and referred through healthcare providers. Consultations are conducted remotely using secure platform, with integrated electronic health records to support continuity of care. A digital payment gateway facilitates consultation fees and generates documentation for insurance reimbursement where applicable.

**Results:** The collaboration successfully established a functional digital pathway for specialist consultations accessible to patients across Tanzania. The platform enables remote access to specialist expertise beyond traditional referral centres while maintaining continuity of care through secure electronic health records. Preliminary analysis indicates uptake among patients from diverse geographic locations and positive user experiences regarding accessibility, convenience, and specialist availability. Ongoing monitoring demonstrates the feasibility of delivering haematology services through telemedicine and provides valuable insights for future scale up service improvements.

**Conclusion:** The telemedicine collaboration demonstrates that digital health platforms can effectively decentralize specialist care in resource-limited settings. Key success factors include the strong institutional partnerships, secured digital infrastructure, and user-centred design in driving adoption. The AFYACA-MUHAS collaboration demonstrates the potential of digital health solutions to reduce geographic barriers and contribute to universal health coverage in Tanzania.

**Recommendation:** The AFYACA-MUHAS telemedicine model be scaled to additional specialties and health facilities nationwide to expand access to specialist care. Policymakers should integrate digital health platforms into Tanzania's UHC strategy and ensure supportive frameworks. Health insurers should formalize reimbursement pathways for telemedicine consultations, continued investment in digital health literacy among patients and providers remains essential to ensure sustainability, adoption and long-term impact.

## **25. Title: Predicting Third Generation Cephalosporins Resistance among Patients Attending Tertiary Facilities in Tanzania Using Machine Learning**

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**Presenter:** Antidius P. Rwehumbiza

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**Background:** Antimicrobial resistance (AMR) poses a critical threat to global public health, with third-generation cephalosporins (3GC) remaining the cornerstone of empirical treatment for gram-negative bacterial infections in Tanzanian facilities. Rising 3GC resistance, reaching 57.9% in some settings, is compounded by near-absent antimicrobial susceptibility testing (AST) utilisation, limited laboratory infrastructure, and widespread empirical prescribing, driving poor patient outcomes in resource-constrained environments.

**Objectives:** Predicting third-generation cephalosporin resistance among patients attending tertiary facilities in Tanzania using Machine Learning algorithms

**Methods:** This study analysed five years (2021-2025) of deidentified AMR surveillance data from two tertiary referral hospitals, Kilimanjaro Christian Medical Centre (KCMC) and Mbeya Zonal Referral Hospital (MZRH). A total of 3,888 patients with culture-confirmed gram-negative bacterial infections were included. Eight machine learning algorithms, Gradient Boosted Decision Trees (GBDT), XGBoost, Random Forest, Support Vector Machine, LASSO logistic regression, Multilayer Perceptron, Naïve Bayes, and k-Nearest Neighbours, were trained using 10-fold stratified cross-validation.

**Results:** Overall 3GC resistance was 69.4%. GBDT was the best-performing model (AUC-ROC: 0.840; AUPRC: 0.918; sensitivity: 0.898; Brier score: 0.146), followed by XGBoost (AUC-ROC: 0.796; AUPRC: 0.888) and Random Forest (AUC-ROC: 0.794; AUPRC: 0.875; specificity: 0.628). Among all models, LASSO logistic regression achieved the best probability calibration (Brier score: 0.166), making it a clinically attractive option where transparent, well-calibrated risk estimates are prioritized. SHAP analysis identified ciprofloxacin, meropenem, and amikacin resistance as the three most important predictors, followed by organism type

**Conclusion:** Machine learning models, particularly GBDT, XGBoost, and Random Forest, demonstrate strong discriminatory performance in predicting 3GC resistance using routinely collected AMR surveillance data, while LASSO offers the best-calibrated probability estimates. These findings supported the development of ML-driven clinical decision tools to guide empirical prescribing, strengthen antimicrobial stewardship, and reduce AMR burden in resource-limited Tanzanian settings.

**Recommendation:** Deploying the third-generation cephalosporins prediction web-based dashboard to guide empirical prescription of Ceftriaxone, Ceftazidime, and Cefotaxime at Mbeya zonal regional referral hospital and Kilimanjaro Medical Christian Centre.

## **26. Title: Digital Public Infrastructure for Health in Attaining Universal Health Insurance in Tanzania**

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**Presenter:** Felix Sukums

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**Background:** Universal Health Insurance (UHI) is key to equitable, high-quality healthcare. Tanzania's UHI Act has demonstrated strong political will, yet issues such as fragmented information systems, low insurance rates, and digital gaps persist. Globally, digital health is vital for UHI, especially in developing countries, yet Tanzania's potential remains largely untapped.

**Objectives:** This paper examines how Digital Public Infrastructure for Health (DPI-H) can be the backbone for achieving UHI in Tanzania.

**Methods:** We conducted a narrative review of digital health policies, strategies, and ongoing initiatives in Tanzania and globally, supplemented by direct expert knowledge from co-authors involved in Tanzania's national digital health strategy development and implementation.

**Results:** Tanzania has invested in key DPI-H components like health registries, information platforms, and surveillance systems, but gaps remain. Missing elements include a universal client ID system, a health product registry, terminology services, and a unified health insurance platform. Infrastructure issues—connectivity, computing, cybersecurity—and a shortage of ICT-trained health workers also hinder progress. The upcoming Jamii Number and Tanzania Digital Health Strategy 2025-2030 present vital opportunities to address these gaps in line with the UHI Act.

**Conclusion:** Key minimum DPI-H components exist, and ongoing efforts are addressing the identified gaps. Finalising Tanzania's DPI-H, rooted in robust leadership, governance, interoperability standards, and ongoing investment.

**Recommendation:** A strategic framework with five pillars is proposed, covering digital identity integration, digital payments, interoperable health information systems, workforce and governance capacity, and aligned financing. Coordinated efforts among government, development partners, and the private sector are critical to turning legislative goals into fair health system improvements.

