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CONFERENCE PROCEEDING

The 32nd Annual Joint Scientific Conference National Institute for Medical Research 14th – 16th May 2024

Advancing Research and Development for Improving Health Services

Sub-themes

1. Communicable diseases, including (re-) emerging and Neglected Tropical Diseases
2. Non-communicable diseases
3. Health systems strengthening, innovation, and technological advancement
4. Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH)
5. Multi-sectoral and community engagement in disease prevention and control
6. Climate change and social determinants of health
7. Nutrition and Health

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CONFERENCE PROCEEDING:
The 32nd Annual Joint Scientific Conference of the National Institute for Medical Research,
14th – 16th May 2024

THEME: Advancing Research and Development for Improving Health Services

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Abstract

Background: The National Institute for Medical Research (NIMR) in Tanzania has been organizing Annual Joint Scientific Conferences (AJSCs) since 1982 to disseminate research evidence to stakeholders for policy and practice change. The 32nd AJSC took place from May 14-16, 2024, at the Julius Nyerere International Convention Center in Dar es Salaam.

Objectives: To facilitate the sharing of research results, showcase the latest health technologies, foster networking, and explore new research priority areas.

Approach: A call for abstract submission for the 32nd AJSC was issued, reflecting the main theme ***"Advancing Research and Development for Improving Health Services"*** and the seven sub-themes: (i) Communicable diseases, including emerging and re-emerging diseases; (ii) non-communicable diseases (NCDs); (iii) Health systems strengthening, innovation and technological advancement; (iv) Reproductive, maternal, newborn, child and adolescent health (RMNCAH); (v) multi-sectoral and community engagement in disease prevention and control; (vi) Climate change and social determinants of health and (vii) Nutrition and Health. Also, stakeholders were invited to exhibitions and voted for the prominent scientists in the scientific awards.

Results: A total of 276 abstracts on different thematic areas were received, and 270 were accepted for oral and poster presentations (241 for oral in parallel sessions and posters, and 29 were presented in different symposiums). The titles of the Symposia included (i)The Future of NCD Care: Unleashing Innovative Partnerships and Technologies; (ii)Towards Programmatic Diagnosis and Care for Post Tuberculosis Lung Disease; (iii) Malaria; (iv) HIV Epidemic Control by 2030: The role of Evidence-Based Practices in monitoring progress and (v) Prevention and Control of NCDs: current status and progress towards agenda 2030. The

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conference drew more than 300 participants from Tanzania and beyond, from disciplines such as healthcare professionals, researchers, decision-makers and policymakers, students, journalists, public health professionals, and environment specialists.

The keynote address focused on the contribution of research in informing policy and practice for improving the health of Tanzanians, which was accompanied by seven key plenary presentations: (i) Prevention and Control of Communicable Diseases; (ii) Epidemic Preparedness and Response: the 7-1-7 target for outbreak detection, notification, and response; (iii) Prevention and Control of Non-Communicable Diseases in Tanzania; (iv) Status of the delivery and Utilization of Health Services in Tanzania; (v) 'Advancing health through technology and innovation; (vi) Interventions to improve maternal and newborn health outcomes; (vii) Knowledge generation and use; Summary findings from the Tanzania HIV Indicator Survey.

Eight awards were presented to individuals who contributed outstandingly to improving health service delivery among Tanzanians. The opening, keynote, and plenary presentations were live streams, and 15 exhibitions were held by stakeholders from within and outside NIMR. Discussions and deliberations on key recommendations were also made and submitted to the Ministry of Health.

Keywords: NIMR, AJSC, conference, health, medical, research

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CHAPTER ONE: OVERVIEW OF THE CONFERENCE

1.0 About the Annual Joint Scientific Conference

The National Institute for Medical Research (NIMR) was established as a parastatal organization of the Government of the United Republic of Tanzania by the Parliament Act 1979 (CAP. 59 (R.E. 2002). NIMR is mandated to carry out, coordinate, promote, and regulate medical and health-related research to improve human health in Tanzania. It is also mandated to ensure the dissemination of findings from different studies in the country to varying stakeholders to inform policy and change of practice.

NIMR has been organizing Annual Joint Scientific Conferences (AJSCs) since 1982 when it first met at the Arusha International Conference (AICC) in Arusha. The conference was moderated in a single plenary session with about 30 NIMR participants in the first few years. As time passed, the attendance expanded to more than 300 participants worldwide. The current presentation mode has adopted a combination of parallel and plenary sessions, symposia, and roundtable discussions. The AJSC provides a platform to disseminate evidence generated through research implemented in and outside the country. The conference takes place every two years, intending to bring world experts in health research together in one location, disseminating and sharing the results of health research with key stakeholders and the public, exhibiting the latest health technologies and innovations in health, networking, and exploring new health research priority areas.

The conference has proven to be an avenue for NIMR visibility, establishing new connections and collaborations within and outside Tanzania, and the best forum for exchanging research information with policymakers, the media, and the public. AJSC resolutions and recommendations help the Ministry of Health plan and prioritize areas for improvement in health service delivery in the country. The recent 32nd NIMR AJSC was held from the 14th to the 16th of May 2024 at the Julius Nyerere International Convention Center in Dar es Salaam. The conference drew more than 300 participants from Tanzania and beyond, from different disciplines, such as healthcare professionals, researchers, decision-makers and policymakers, students, journalists, public health professionals, and environmental specialists. The central Conference theme of the 32nd was *"Advancing Research and Development for Improving Health Services."* During the conference, seven sub-themes were covered: (i) Communicable diseases, including emerging and re-emerging diseases; (ii) Non-communicable diseases; (iii) Health systems strengthening, innovation, and technological advancement; (iv) Reproductive, maternal, newborn, child and adolescent health (RMNCAH); (v) Multi-sectoral and community engagement in disease prevention and control; (vi) Climate change and social determinants of health; and (vii) Nutrition and Health.

The conference also covered five Symposia: (i)The Future of NCD Care: Unleashing innovative partnerships and technologies; (ii)Towards programmatic diagnosis and care for Post Tuberculosis Lung Disease; (iii) Malaria; (iv) HIV Epidemic Control by 2030: The role of Evidence-Based Practices in Monitoring Progress; and (v) Prevention and Control of NCDs status and progress towards agenda 2030.

The keynote address for the conference focused on the contribution of research in informing policy and practice for improving the health of Tanzanians. Key plenary presentations included (i) Prevention and Control of Communicable Diseases; (ii) Epidemic preparedness and response: the 7-1-7 target for outbreak detection, notification, and response; (iii) Prevention and Control of Non-Communicable Diseases in Tanzania (iv) Status of the delivery and Utilization of Health Services in Tanzania; (v) Advancing health through technology and innovation; (vi) Interventions to improve maternal and newborn health outcomes: (vii) Knowledge generation and use; Summary findings from the Tanzania HIV Indicator Survey.

1.1 AWARDS

NIMR has been awarding the best scientists of the year in different fields since 2016. NIMR's Health Research Scientific Awards are always presented to leaders and researchers who have improved health service delivery among Tanzanians. The awards are open to the public through online voting and are finally scrutinized by the independent committee. During the 32nd AJSC Conference, eight awards were given in the following categories:

1. **The National Distinguished Award** recognizes a national leader for distinguished contributions to supporting, promoting, and committing to all aspects of national research in Tanzania. This award was given to Her Excellency **Dr. Samia Suluhu Hassan, the President of the United Republic of Tanzania.**
2. **The National Award for Promotion of Research in Tanzania** was given to **the Minister for Health, Hon. Ummy Ally Mwalimu (MP)**, due to her strengths in resource mobilization to ensure the provision of better health services in the country, handling health emergencies, and managing risks.
3. **The National Best Health Scientist Award** recognises scientific excellence for researchers who have substantially contributed to health research. Nominated scientists were those with more backup and evidence on Google Scholar H-index and i10-index as of April 2024. This award was given to **Stephen E. Mshana,** a professor of Clinical Microbiology and Consultant Clinical Microbiologist at the Catholic University of Health and Allied Sciences and the Bugando Medical Centre
4. **The National Lifetime Achievement Award in Health Research** recognises the contribution of scientists who have retired but made substantial contributions to health research and continue to do so throughout their lifetime. This award was given to **Sylvia Kaaya**, a retired professor at Muhimbili University of Health and Allied Sciences
5. **The National Health Innovation Award** recognises a Tanzanian scientist who has made significant contributions through the development of a high-impact health innovation that has the potential to improve the health and well-being of our population and beyond. This award was given to **Mr. James *Kalema,*** the CEO and Co-Founder at Afya Lead Limited Company
6. **Maria Kamm, the Best Female Scientist award** recognizes an outstanding female scientist who has contributed significantly to research and capacity building nationwide. The awardee will have at least five peer-reviewed publications (as first author/last author) in the past five years, contributed to the capacity building of upcoming research scientists through training and mentorship, and contributed to the dissemination and translation of research evidence. This award was given to **Prof. Blandina Theophil Mmbaga**, the Director of Kilimanjaro Clinical Research Institute (KCRI) and a paediatrician at Kilimanjaro Christian Medical Center
7. **The NIMR Best Scientist Award** recognizes a research scientist of the National Institute for Medical Research who has at least four journal publications in the year of review, won grants/consultations under review 2022/23, and conducted research that has informed practice and policy changes. This award was given to **Dr Elizabeth H Shayo**, a Principal Research Scientist at the NIMR.
8. **The Mwelecele Malecela Memorial Award** recognizes Early Career Researchers in health. The awardee is 40 years or below at the time of award, has less than 10 years in health research, and has at least three papers published in peer-reviewed journals. The awardee will have presented their work at Scientific Conferences at least once and developed or participated in creating at least two fundable proposals. This award was given to Dr. Doreen Kamori, a Senior Lecturer cum researcher and Head of the section of Molecular Biology, Department of Microbiology, and Immunology, at MUHAS.

1.2 Conference Sub Themes

The 32nd Annual Joint Scientific Conference covered a diverse range of sub-themes, reflecting the broad scope of health research conducted in Tanzania and the surrounding region. These sub-themes encompassed various focus areas, from communicable and non-communicable diseases to strengthening health systems and the impact of social determinants on health outcomes, as described below.

1.2.1 Communicable diseases, including (re-) emerging and Neglected Tropical Diseases

This sub-theme emphasizes the pivotal role of communicable diseases in shaping various facets of health security, equity, and the resilience of health systems. It seeks to shed light on how these endemic, epidemic and pandemic diseases and their interactions significantly influence local and global health landscapes, impacting access to and provision of quality healthcare services. The scope encompasses a comprehensive examination of efforts to prevent and control infectious diseases, recognizing their substantial threats to daily life and societal well-being, including emerging and re-emerging infectious diseases. Discussions within this sub-theme aimed to explore a universal health coverage framework, focusing on collaborative initiatives that drive innovation, raise awareness, educate communities, and implement operational research in communicable diseases.

Furthermore, this sub-theme underscores the interconnectedness among researchers, policymakers, and healthcare professionals. It highlights their shared responsibility in advancing and implementing sustainable strategies, technologies, and practices that target gaps in managing, controlling and preventing communicable diseases. Collaboration among stakeholders from different sectors is crucial in developing and implementing advanced healthcare systems and enabling efficient responses to the challenges of infectious diseases. The synergy between stakeholders from various sectors aims to encourage the adoption of innovative approaches and evidence-based policies, fortifying healthcare infrastructure against communicable diseases irrespective of geographic location or socio-economic status.

Emerging infectious diseases (EIDs) may be explained by ecological, environmental, or demographic factors that place people in increased contact with a previously unfamiliar microbe or its natural host or promote transmission. Over the past 50 years, Tanzania has experienced several emerging and re-emerging infectious diseases. These include Plague, Rift Valley fever, Anthrax, Rubella, HIV/AIDS, Cholera, Measles, Meningitis, Dengue fever and Influenza A, H1N1. Thus, the conference allowed stakeholders to share experiences and lessons learned in responding to epidemics, pandemics, and emergencies. A total of 86 abstracts were accepted and presented.

1.2.2 Non-communicable Diseases

Non-communicable diseases (NCDs) are categorized into four groups: cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes. Other diseases/conditions include mental health and injuries. NCDs claim the lives of 41 million individuals (74% of all deaths) annually, making them the leading cause of global mortality. Mortality from these diseases exceeds all communicable disease mortalities combined. Low- and middle-income countries are disproportionately affected by NCDs, with over 80% of premature deaths (below 70 years) due to NCDs occurring in these countries. NCDs tend to result from a combination of an interplay of genetic, physiological, environmental and behavioural factors. People of all age groups, regions and countries are vulnerable to risk factors that lead to NCDs.

Modifiable risk factors such as tobacco use, harmful use of alcohol, physical inactivity, and unhealthy diets have been shown to increase one's risk of developing NCDs. On the other hand, metabolic risk factors such as raised blood pressure (the leading metabolic risk), overweight/obesity, hyperglycemia (high blood glucose levels) and hyperlipidemia (high levels of fat in the blood) contribute to key metabolic changes that increase the risk of NCDs. But again, air pollution is the highest contributing environmental risk factor, accounting for a substantial

proportion of deaths due to stroke, ischemic heart disease, chronic obstructive pulmonary disease, and lung cancers.

As much as most risk factors are modifiable at the individual level, the efforts required go beyond an individual or society alone. Investing in multi-sectoral approaches that include key players such as health, finance, transport, education, agriculture, planning, and other sectors is more likely to make a sustainable change in reducing the risks associated with NCDs. Although much progress has been made, much work is still required to curb the burden of NCDs in Tanzania as in other lower and middle-income countries. Several approaches, including a common risk factor approach, should be shaped to include interventions beyond health, such as the promotion of healthy lifestyles through mass education and communication channels, alternative transport and energy options to reduce outdoor and indoor air pollution and approaches in agriculture that will support healthy dietary practices such as fruit and vegetable consumption.

Primordial prevention, early detection, and appropriate treatment are key components of the response to NCDs. In resource-constrained settings and burdened healthcare systems, ensuring that the target population for each NCD has access to screening and affordable treatment is critical but also challenging. Given the already existing strain on a double-burdened healthcare system, incorporating NCDs into already established and successful programs for conditions like HIV/AIDS has proven advantageous in delivering comprehensive healthcare to populations in sub-Saharan Africa. In this thematic area, 24 abstracts were accepted and presented.

1.2.3. Health systems strengthening, innovation, and technological advancement

A strong health system ensures that people and institutions, whether public or private, effectively undertake core functions to improve health outcomes. The control and management of communicable and non-communicable diseases entails properly functioning the health systems. Health research, therefore, plays a vital role in strengthening health systems and improving the equitable distribution of quality health services for populations in need. Health systems research seeks to apply a systems approach involving people, institutions, and processes to advance knowledge and improve health and health equity.

According to the World Health Organization Framework for Action, the health system has identified six building blocks: service delivery, the health workforce, information and evidence, medical products and technologies, health financing, and leadership and governance. The advancement of technology and innovations has strengthened the performance of health systems much further. Thus, health systems research can address any or several of these six building blocks to generate evidence for improving the quality of health service delivery and inform decision- and policymaking. A total of 56 abstracts that cut across the health system's building blocks were accepted and presented.

1.2.4. Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH)

According to the Interagency Group for Maternal Mortality Estimation (UN-MMEIG), about 295,000 girls and women die every year because of pregnancy and childbirth. The burden of maternal mortality is higher in low- and middle-income countries (LMIC), with 66% of the deaths happening in Sub-Saharan Africa. Thus, in response to achieving SDG 3 targets 2 and 7, interventions such as family planning, Respectful Maternity Care, Antenatal Care, Emergency Obstetric and Newborn Care (EmONC), Essential Newborn Care, Care of Small and Sick Newborns are being developed and implemented.

This sub-theme provided a platform for stakeholders to share, discuss, and deliberate on what works and what needs to be done to address the challenges in realizing local, country, regional, and global commitments for women's, newborns, and adolescent health. Opportunities for developing innovative policies and scaling up best practices were explored. Under this sub-theme, the following five topics were discussed: i) Antenatal, childbirth and postnatal care for small and sick newborns; ii) Reproductive health (including sexually transmitted diseases and

cancers), family planning and comprehensive post-abortion care; iii) Prevention of mother-to-child transmission of HIV, iv) Adolescent-specific interventions such as adolescent-friendly services and v) Nutrition in RMNCAH. A total of 29 abstracts were accepted and presented under this theme.

1.2.5. Multi-sectoral and community engagement in disease prevention and control

Public health challenges are complex and cannot be addressed by one sector alone. Therefore, a holistic, multisectoral and multidisciplinary approach is needed to address gaps and advance coordination for health emergency preparedness and health security in our communities. Community engagement has been crucial in disease treatment and prevention worldwide because it builds common understanding, respect and trust between participating communities.

Engaging communities in planning and decision-making strengthens their capacity to act, which produces positive changes while giving them a sense of ownership with a high rate of return on investments. Community engagement in health services ensures that essential health promotion, protection and prevention activities are addressed in partnership with communities. Health services are owned and controlled through a local mechanism that allows communities to influence the operation or use of services and to enjoy the resulting benefits. A total of six abstracts were accepted and presented.

1.2.6. Climate change and social determinants of health

Climate change poses a threat to human health as it causes both short and long-term adverse health impacts. These impacts increase the risk of non-communicable diseases, the emergence and spread of infectious diseases, vector-borne diseases, water-borne diseases, respiratory diseases, mental health, injuries, zoonoses, food-borne diseases and malnutrition resulting from disruption of food systems. The World Health Organization estimates that 3.6 billion people live in countries highly vulnerable to climate change. Despite contributing minimally to global emissions, vulnerable countries bear the most incredible health impacts. The link between climate change and social determinants is evident, and its impacts worsen pre-existing social and health inequalities.

Following the adverse effects brought by climate change, progress has been made in creating awareness by international bodies. However, evidence on the health impacts of climate change and solutions for reversing its health impacts is required. The session on this sub-theme aimed to present evidence on the health impacts of climate change, associations, possible solutions, and resilient measures to mitigate climate change effects. The discussions and recommendations were meant to inform strategies for policy decisions. A total of 22 abstracts were accepted and presented.

1.2.7. Nutrition and Health

Nutrition is a critical part of health and development. Better nutrition is related to improved infant, child and maternal health, more muscular immune systems, safer pregnancy and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity. Healthy children learn better and have higher cognitive ability. People with adequate nutrition are more productive and can create opportunities to gradually break the cycles of poverty and hunger. There are multiple forms of malnutrition, including undernutrition (wasting or stunting), inadequate vitamins or minerals, overweight, obesity, and resulting diet-related noncommunicable diseases. Tanzania faces a double burden of malnutrition that includes both undernutrition and overweight, with 32 per cent of children under five years stunted (having low height-for-age) and 58 per cent suffering from anaemia, according to the Tanzania Nutrition Survey 2018 and the most recent Demographic and Health Survey (DHS).

The developmental, economic, social, and medical impacts of the global burden of malnutrition are profound and lasting for individuals and their families, communities, and countries. Malnutrition in childhood and pregnancy has many adverse consequences for child survival and long-term well-being. It also has far-reaching implications for human capital, economic productivity, and national

development. The consequences of malnutrition should be a significant concern for policymakers in Tanzania. In this thematic area, 14 abstracts were accepted and presented.

1.3. Remarks

1.3.1. NIMR Director General

The NIMR Director General, Prof. Said Aboud, welcomed the guest of honour and conference participants. He reminded participants of the mandates of NIMR. Among these are carrying out, coordinating, and promoting health research in the country. He added that NIMR has provided evidence from operational research that informed the Tanzania National Neglected Tropical Diseases Control Program to provide intended disease-specific interventions in endemic areas correctly. Moreover, NIMR has responded to the NCD burden by conducting national NCD risk factor STEP surveys and developing the National Strategic Plan for Prevention and Control of Non-Communicable Diseases 2021-2026. Through clinical trials and biomedical studies, NIMR has influenced policy and practice change, especially in malaria prevention, early cryptococcal screening in HIV diagnosis and treatment guidelines, and prevention of TB in diabetic patients, amongst others. He also informed the participants that NIMR is responsible for health research regulation in the country with a well-established health ethics and regulatory framework. The institute maintains a repository of health research conducted and its findings for dissemination in Tanzania.

1.3.2. Guest of Honour

The Deputy Prime Minister and Minister of Energy, Dr Dotto Mashaka Biteko, graced the opening of the Conference, whose goals were (i) the promotion of health research for sustainable socio-economic development in Tanzania, sub-Saharan Africa and the world at large; (ii) sharing and promoting the uptake of findings of health research with key stakeholders and the public; and (iii) discussing and exploring new health research and service priority areas.

He emphasized that research uptake relies on translating the findings into meaningful, user-friendly packages for development. He emphasized that research and development are inseparable. He noted that the conference provides an exciting opportunity to exchange multidisciplinary/sectoral information on current developments and potential approaches to scaling up innovative technologies in health research.

Much of his emphasis was on the reality that the government of the United Republic of Tanzania is keen to continue supporting the design, development, and deployment of innovative scientific technology to accelerate the translation of research into improved health of Tanzanians. Research institutions should persuade collaboration in creative thinking to pursue exciting, innovative, cost-effective, and sustainable ideas regarding biomedical, health systems, and social science research. He urged scientists to generate evidence supporting multisectoral collaboration in addressing public health challenges.

1.4. Keynote address

The Director of Research, Coordination and Promotion, Dr Nyanda Elias Ntinginya presented the keynote titled ***"Contribution of research in informing policy and practice for improving the health of Tanzanians"***. Key issues that NIMR has empirically advanced were generating evidence-based research outputs to inform the interventions for addressing the double burden of diseases, catalysing change in advancing international and local policy and practices, contributing towards malaria vaccines approved by WHO for protection against clinical and severe malaria, revision of the WHO bed-net policy for using effective Insecticide-Treated Durable Wall Liners, National Antimalarial Drug Policy in mainland Tanzania (changing chloroquine to sulfadoxine-pyrimethamine to Artemether lumefantrine), also for Zanzibar (chloroquine to Amodiaquine/Artesunate), increased bed net social marketing for Tanzanian girls and reduction to single HPV injection dose in Tanzanian girls.

NIMR efforts have been seen in developing the 2nd edition of National Guidelines for Management of Multi-Drug Resistant – TB in Tanzania, the 6th edition of Manual for the Management of Tuberculosis and Leprosy, 2015 Situation Analysis and Recommendations for antibiotic use in Tanzania, the National Action Plan on Anti-microbial Resistance 2017-2022 and 2023-2028 that have helped in national health monitoring and evaluation data and indicators.

NIMR has played a central role in developing the National Health Research Agenda, which all researchers from around the world interested in conducting research in Tanzania should adhere to. The agenda is informed by national surveys such as the Tanzania HIV Impact Surveys, Demographic Health Surveys, Malaria Indicator Surveys, STEPS NCD risk factor surveillance, and routine data from the health information system. He also reported how NIMR had facilitated research advocacy and awareness through policy briefs and dialogue meetings. NIMR also produces about 200 publications annually in peer-reviewed scientific journals, 40 policy briefs and 120+ active research projects per year.

1.5. Plenary Sessions

1.5.1. Prevention and control of communicable diseases (AMR) in the country (Prof. Wilber Sabiiti, Division of Infection and Global Health, School of Medicine, University of St Andrews, UK)

Prof Sabiiti pointed out that Communicable diseases in Tanzania cannot be overstated. Data for 2023 on NCDs accounted for 67% of Tanzania's disease burden. Tanzania was among the four countries with over 52% malaria deaths globally in 2021. Additionally, in 3 years, 2020-23, Tanzania experienced one pandemic (COVID-19) and three epidemics (cholera, dengue and Marburg virus disease). This means Tanzania and most of sub-Saharan Africa find themselves in a dilemma of controlling the historical priority diseases (HIV/AIDS, malaria, tuberculosis and neglected tropical diseases) and emerging diseases of epidemic and pandemic potential.

Non-communicable diseases (NCDs) and the changing dynamics of human-animal interactions, environment and climate further complicate the control mechanisms. It is essential to set disease control priorities and appreciate the role of research in providing pragmatic solutions to the communicable disease challenge in Tanzania and beyond. The value of problem-solving education and enabling an efficient regulatory environment should be enforced. In this session, implementation research on neglected typical diseases (NTDs) was emphasized as part of the broader agenda on communicable diseases for specific mitigations targeting the population at the most risk. A further recommendation was made on an improved understanding of the impact of climate change on infectious and non-communicable diseases for community-centric resilience measures.

1.5.2. Epidemic preparedness and response (7-1-7 focus)- Prof Gerald Misinzo, Sokoine University of Agriculture

Prof Misinzo recommended detecting the earliest signs of a potential outbreak and taking local actions to prevent global spread. Early detection and pathogen identification are the most achievable and cost-effective ways to prevent local threats from becoming global.

He stressed that the timely identification and genetic characterization of pathogens of animal and public health importance during outbreaks is now possible using next-generation sequencing technologies. Technology is now available for fit-for-purpose field deployable genomic-based technologies using battery-powered nucleotide amplification thermocyclers, electrophoresis machines and next-generation sequencers for outbreak confirmation and pathogen identification at the community level in humans and animals. This setup has enabled the detection and genetic characterization of pathogens in reservoirs, vectors, animals and humans, proving its application in One Health and contribution towards achieving the 7-1-7 target to make the world safer from pandemics. There is a need to adopt technology-driven approaches to enhance early detection and

containment of pathogens of epidemic potential. Such initiatives would include consideration of affordable genomics techniques. A need was highlighted to create a virtual genomic facility in Tanzania, modify our education system to enable students to learn how to use genomics in their early career stages and adopt one health approach for effective and efficient disease surveillance, prevention and control.

1.5.3. Prevention and control of NCDs in the country (Dr Mary Mayige, National Institute for Medical Research)

Dr Mayige presented the burden of NCDs in the country and the associated risk factors. The recommendations made in this session included the need to strengthen leadership, governance, multisectoral collaborations, accountabilities and national capacity in NCD research and surveillance. Others included adopting sustainable financing mechanisms targeting local problems on NCDs and integrated multisectoral approaches to leverage capacity building to address the burden of NCDs in the country. It was recommended that non-state actors could support alternative ways to solve NCDs burden, including adopting remote care of the diseases to manage patients at their source of origin, establishing community health funds and insurance, and strengthening monitoring and evaluation. Further recommendations were made on the need for a paradigm shift from a single disease approach to an integrated disease management approach, priority in financial budgets, priority on prevention over treatment, strengthening of surveillance systems, and establishment of a national public health institute.

1.5.4. Status and utilization of health care services in Tanzania (Dr Ntuli Kapologwe, Ministry of Health)

Dr. Ntuli recognised the efforts made by the government of Tanzania in building and expanding the health infrastructure. The distribution of operating health facilities in Tanzania by type has increased: dispensaries are 65.5%, health centres 10.3%, hospitals 3.8%, health labs 12.2%, others 0.2%, and clinics 8.0%. Most facilities are public at 60.1% and private at 39.9%. The average vaccine coverage of DPT3, measles and polio has reached 94% in 2022.

Despite the progress noted, he emphasized that regions like Mtwara, Kilimanjaro, Manyara, Tanga, Njombe, Lindi, Arusha, Morogoro, Iringa and Kagera need more efforts as they lag the national coverage. The first ANC care before 12 weeks during pregnancy is low at 38% in 2022. However, under-five mortalities have declined to 43 deaths per 1000 live births, and infant mortality has dropped to 33 deaths per 100 live births. Nutritional indicators such as stunting have decreased to 30%, underweight to 12%, wasting to 3%, and overweight to 4%. He added that the proportion of NCD has increased from 4.7 in 2017 to 9.3% in 2022. The availability of health workers on average (including physicians, nurses and midwives) has reached 8.4%.

The mean score performance level in overall health system responsiveness varied from 55.1% in Mtwara to 80.1% in Shinyanga. More emphasis is placed on the Universal Health Insurance Act 2023 and integrated and coordinated community health programs in 2024. The per capita health expenditure by funding source has decreased over the years. He emphasized a need to improve the efficiency and effectiveness of domestic health spending and leverage the establishment of Universal Health Insurance.

1.5.5. Advancing health through technology and innovation (Dr Marlon, South African Medical Research Council (SAMRC), South Africa)

He noted that Africa is realizing a demographic transition towards improved health outcomes and that complex, dynamic and expansive health challenges afflict the most vulnerable populations. Infectious and non-communicable diseases, maternal and paediatric illnesses, violence and injury, and outbreaks are prevalent. Even with robust and responsive, health systems often cannot meet demand. Technology and innovation are levers to address Africa's health challenges and are transformative for better health outcomes. Artificial intelligence (AI), telemedicine, wearable devices and digital health platforms revolutionise health research and innovation. These tools can improve diagnosis, inform precision medicine, and empower patients to take ownership of their health and well-being.

Health innovation enhances accessibility, cost-efficiencies, and effectiveness in achieving better health outcomes. Africa's collective and diverse knowledge and skills are to be harnessed by leveraging technology and innovation for improved health in populations across the continent. In this session, it was recommended that the authorities prioritise digital health and technology by allocating a budget to promote innovation and utilization of technology in health. The Research, Development and Innovation pipeline should be strengthened by enhancing, retaining and attracting talents and harnessing partnerships and collaboration involving the young generation. It is crucial to incorporate AI in health information systems for early detection and response to signals of diseases of epidemic potential and other disasters of public health importance.

1.5.6. Interventions to improve maternal and newborn health outcomes: Knowledge generation and use in Tanzania (Prof. Andrea Pembe, Muhimbili University of Health and Allied Sciences)

Prof Pembe mentioned that scientific knowledge is generated for local communities and families in Tanzania through health facilities, international development partners, non-governmental organizations, research institutions, and higher learning institutions.

Over the past 5 years, there have been publications in Maternal child health of more than 100 per year, which is a significant increase in research. The research has highlighted some of the interventions, including early detection and use of treatment bundle of post-partum haemorrhage, lowering the risk of severe PPH and maternal death, low dose calcium effectiveness in preventing preeclampsia and preterm birth compared to high dose, emergency transport of expectant mothers and new-borns innovation system M-mama which was scaled up to 31 regions, low dose zinc as a prophylaxis and treatment of diarrhoea in children, although not cost-effective in Tanzanian settings.

However, there are challenges in knowledge generation and use, such as institutions working in isolation, fewer resources for research, weak accountability, a lack of expertise to translate research into policies and guidelines, and a lack of new knowledge.

1.5.7. Summary findings from Tanzania HIV Indicator Survey ICAP (Dr Werner Maokola, Ministry of Health)

He presented findings from the recent HIV country survey, where he highlighted a slight decrease in overall HIV prevalence compared to the 2016-17 survey. It was noted the coverage of ART and HIV viral load suppression at the population level has improved. In this session, it was recommended that to improve HIV/AIDS healthcare services, there is a need to strengthen programmes that address structural barriers and the availability of preventive strategies among youths. Also, there should be tools and infrastructures which support the dissemination and uptake of research findings among people living with disability to enable them to practice safe measures against HIV.

CHAPTER 2 ABSTRACTS

2.1. COMMUNICABLE DISEASES, INCLUDING (RE-) EMERGING AND NEGLECTED TROPICAL DISEASES

AMR01. Prevalence of UTI and antimicrobial resistance among outpatients in Ngamiani Health Centre, Tanga Tanzania.

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Introduction: Urinary Tract Infection (UTI) is the second most common infectious disease, affecting more than 150 million people globally annually. *Escherichia coli* is the most predominant cause of UTI and antimicrobial resistance [AMR]. There is a data gap on global AMR patterns among patients from low-income settings, including Tanzania. Data on antimicrobial susceptibility patterns in isolates will help to select antibiotics and fight against AMR properly.

Methods: A cross-sectional study was conducted among selected outpatients considering inclusion criteria from July 2023 to February 2024 at Ngamiani Health Centre Tanga, Tanzania. Urinalysis was done to detect the presence of leucocytes, and nitrate was used using a dipstick and microscopy to detect the presence of bacteria. Furthermore, urine was cultured in a BACTEC machine, and antimicrobial susceptibility testing was done using diffusion methods.

Results: A total of 463 patients were enrolled in the study. Leucoesterases positives were 384 (82.9%), and Nitrate positives were 22 (4.8%). The urine-positive culture was 50 (10.8%). The bacteria isolates were *E.Coll* 25, *K. pneumoniae* 3, *S. aureus* 8, *S. saprohyticus* 2, *E. fecalis*.

Conclusion: UTIs are over-diagnosed using urinalysis compared to the culture method, which leads to overtreatment with antibiotics. Therefore, AMR stewardship is highly recommended.

AMR02. Multidrug-resistant Enterobacter cloacae complex colonization among mothers, neonates, healthcare workers, and the environment in a tertiary hospital in Tanga, Tanzania

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Introduction: Enterobacter cloacae complex (ECC) are common nosocomial pathogens capable of producing various infections. Colonization with multidrug-resistant bacteria is a precursor to invasive infections. ECC has emerged as one of the most common nosocomial pathogens in neonatal intensive care units (NICUs).

Objective: This study aimed to assess the possible cross-contamination pathways of multidrug-resistant ECC among neonates born or hospitalized in a tertiary hospital in Tanga, Tanzania.

Methods: This cross-sectional hospital-based study was conducted in the obstetric and neonatal wards between April 2022 and March 2023. Rectal swabs were collected from mothers and their respective neonates; repetitive environmental samples and hand swabs from healthcare workers were also collected. Samples were processed to identify bacterial isolates using a series of biochemical tests; isolates were further confirmed using Vitek 2 compact. Antimicrobial susceptibility testing was conducted in all the ECC isolates.

Results: One hundred thirteen ECC strains were isolated from humans and hospital environments; the overall ESBL prevalence was 5.4% (103/1902). Most neonates, 68%, were colonized after a hospital stay of at least 48 hours, suggesting possible cross-contamination from the hospital

environment. ECC strains were mainly isolated from bedside rails (1.7%) and baby cots (1.4%). ECC were highly resistant to almost all antibiotics tested, including third-generation cephalosporins. A proportion of ECC isolates had a co-resistance of ESBL and carbapenem; these strains were highly resistant to all antibiotics, including carbapenem drugs. Generally, ECC isolates from the environment exhibited a higher level of resistance than humans, ranging from 79% to 100%; the overall MDR prevalence was 79%. Admission of neonates for at least 48 hours was associated with colonization.

Conclusions: The hospital environment plays a vital role in cross-contamination of resistant nosocomial pathogens to patients, HCWs, caregivers, and visitors. HAI surveillance should be emphasized in clinical settings.

AMR03. In-vitro Phenotypic Effect of Vitamin-C Towards Return of Antibiotic Sensitivity among Multidrug-Resistant Escherichia Coli and Staphylococcus Aureus Clinical Isolates.

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Background: WHO's 2017 global priority pathogens list included *Escherichia coli* and *Staphylococcus aureus* strains. AMR prevention studies have examined drug repurposing, drug combinations, sequential treatment, and antibiotic adjuvants. Bacterial and viral genomes can be affected by vitamins. Post vitamin C exposure, the resistance genes are deleted. This makes it a potential candidate for enhancing susceptibility, averting resistance emergencies, and reversing resistance to new antibiotics.

Objective: To determine the phenotypic effect of Vitamin C towards resistant Escherichia coli and Staphylococcus aureus clinical isolates through the return of antibiotic sensitivity (RAS).

Methodology: This experimental laboratory study used 35 known multidrug-resistant clinical isolates of *Escherichia coli* and *Staphylococcus aureus.* Descriptive analysis, chi-square and logistic regression with statistical significance at p-value <0.05 were performed.

Results: Most isolates were cephalosporin (39.7%) and aminoglycoside (15.5%) resistant. Post vitamin C exposure, 6.3% had intermediate sensitivity, and 14.1% had antibiotic sensitivity. Gram type, isolate-specific characteristics, isolate source, age, drug class, and vitamin C exposure time were strongly associated with RAS (P <0.0001). Gram-positive isolates had twice the odds of RAS (COR= 2.152, 95% CI: 1.643 2.820, P< 0.0001). Non-hemolytic isolates had 14 times the odds of RAS (COR = 14.672, 95% CI: 6.924–31.115, P < 0.0001). Isolates from those aged 0-17 years showed RAS almost twice as often (COR= 1.992, 95% CI: 1.448–2.741, P< 0.0001). Lincomycin- and aminoglycoside-resistant isolates had greater RAS odds (COR =73.333, 95% CI: 22.195 – 242.298, P<0.0001) and (COR= 27.204, 95% CI: 8.374 – 88.373, P < 0.0001) respectively.

Conclusion and Recommendations: Vitamin C is a potential therapeutic candidate against infectious diseases with resistant genes, reversing the effect genetically and phenotypically. Further studies are needed to assess its repositioning as an antimicrobial agent alone or as an adjuvant to existing antibiotics, especially against multi-drug-resistant clinical strains.

Keywords: Antimicrobial Resistance, Genomic influence, Return of Antibiotic Sensitivity, Vitamin C.

AMR04. Reservoirs and transmission of multidrug-resistant bacteria in labour and neonatal wards of Korogwe Town Council and Tanga Regional Referral Hospitals, Tanga, northeastern, Tanzania

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Introduction: The spread of multidrug resistant (MDR) strains in hospital settings through contaminated surfaces has been increasingly reported, causing most nosocomial infections. However, empiric treatment is a common practice, fostering the emergence of antimicrobial resistance.
Objective: This study aimed to identify reservoirs, transmission ways and distribution of MDR among patients attended at Tanga Regional Referral and Korogwe Town Council Hospitals, Northeastern Tanzania.
Methods: This was a prospective birth cohort enrolling mothers in labour and their corresponding neonates with suspected sepsis. Perineorectal and nasal swabs were collected from mothers (at recruitment) and neonates (after delivery and at discharge if stayed at the hospital for more than 48hrs). Swab samples were also obtained from hospital staff at paediatrics and obstetrics and gynaecology wards, as well as pre-selected hospital surfaces.
Results: A total of 3,904 samples were collected and analyzed, of which 2,027 were positive. Of the positive samples; Escherichia coli (n=503; 57.2%) was the most frequently isolated bacteria from the mothers. Among the neonatal samples at discharge, S. aureus (n=64; 33.6%) and Klebsiella spp (n= 31; (16.3%) were the most isolated. Staphylococcus aureus (n=153; 19.3%) was the most isolated bacteria from hospital staff while Acinetobacter (n=172; 14.7%) was frequently isolated from the hospital surfaces. Prevalence ratios with 95% confidence intervals of isolation between mothers and their corresponding neonates were obtained, showing significant association for S. aureus 3.77 (2.78, 5.11), E. coli 2.27 (1.43, 3.61) and Klebsiella spp. 2.38 (1.20, 4.74), respectively.
Conclusion: High rates of MDR bacteria were observed among mothers, neonates and hospital surfaces. These preliminary results suggest an association between colonized mothers leading to colonization of their corresponding neonates during the hospital stay. There is a need to strengthen infection prevention control measures to reduce the risk of transmission of resistant strains to patients and healthcare workers.

AMR05. Quality equivalence and in-vitro antibiotic activity test of different brands of amoxicillin/clavulanic acid tablets in Mwanza, Tanzania: A cross-sectional study

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Background: Each film-coated amoxicillin/clavulanic acid tablet contains 500 mg of amoxicillin as the active pharmaceutical ingredient and 125 mg of clavulanic acid. Different brands may have the same active ingredients but different excipients, which may cause differences in efficacy. With the emergence of generic antibiotics post-patent expiration, the antibiotic activity of generics is in question compared to the innovator. This study aims to determine the pharmaceutical quality and in-vitro antimicrobial activity of different brands of amoxicillin/clavulanate.
Methodology: The study was a cross-sectional laboratory-based experimental study conducted at the TMDA (Tanzania Medicines and Medical Devices Authority) Lake Zone laboratory and the CUHAS Microbiology Laboratory in May 2021. The study samples included four brands of amoxicillin/clavulanate and sixty archived isolates, thirty of which were E. coli and the remaining

thirty were K. pneumoniae. The determination of minimum inhibitory concentrations, assay, and dissolution test results were used to conclude the study.
Results: All tablet samples complied with the British Pharmacopeia (BP) specifications; however, sixty archived isolates tested in this study showed resistance towards the standard AMC disc (68 %). The innovator brand (AC1) showed a significant mean difference from 2 out of 3 generics (p-values <0.05), while the first generic brand (AC2) showed significant superiority among the generics.
Conclusion: Thus, the four used samples complied with the specifications according to BP on dissolution and assay tests, but there was an overall resistance towards amoxicillin/clavulanate. This was seen with generic brands compared to the innovator, which proved superior activity.

CD01. Comparative Evaluation of the Performance Characteristics of the Standard QTM IgM/IgG and the Wantai SARS-CoV-2 Ab Rapid Tests in Tanzania

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Background: Rapid diagnostic tests (RDT) have played a critical role in the detection and monitoring of SARS CoV-2 infections globally. Several RDTs are currently available, and their accuracy depends on several factors.
Objective: This study evaluated the performance characteristics of two RDTs, the StandardTM Q IgM/IgG and Wantai SARS CoV-2 Ab Rapid Test for detecting SARS CoV-2 antibodies in a Tanzanian population.
Methods: Plasma samples from 80 individuals were tested. Of these, 37 (46.3%) were confirmed to have been exposed to the SARS CoV-2 virus through either RT-PCR or Ag Rapid tests from ongoing COVID-19 studies. The remaining 43 (53.6%) serving as negative controls, were stored samples from SARS-CoV-2 unexposed individuals obtained from an HIV cohort enrolled between 2014 and 2017. All the samples were tested using the StandardTM Q IgM/IgG and Wantai SARS CoV-2 Ab Rapid Test. Each test's sensitivity, specificity, and other performance characteristics were determined.
Results: The StandardTM Q IgM/IgG test demonstrated a higher sensitivity of 100% (95% CI: 74-100%) for patients with acute COVID-19 (less than ten days since onset of symptoms. The Wantai SARS CoV-2 Ab Rapid test had a sensitivity of 75% (95% CI: 43,Äì95%). Both tests revealed a specificity of 100% (95% CI: 74-100%). In patients with more than 30 days since the onset of symptoms, the StandardTM Q IgM/IgG test showed a sensitivity of 96% (95% CI: 80-100%) while the Wantai total IgM/IgG assay had a sensitivity of 92% (95% CI: 74-99%) and again, both test kits revealed a specificity of 100% (95% CI: 74-100%).
Conclusion: Our results reveal a better performance of StandardTM Q IgM/IgG RDT over Wantai total Ab RDT in the Tanzanian population—a call for more validation studies of rapid tests in Tanzania.

CD02. Genomic epidemiology of SARS-CoV-2 Omicron lineages in Tanzania: Analysis of Samples from November 2022 to July 2023

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Introduction: Despite their critical impact on public health, the genetic diversity and epidemiological characteristics of SARS-CoV-2 lineages in Tanzania have not yet been fully explored.

Objective: The study aimed to investigate the genomic epidemiology of the SARS-CoV-2 Omicron variant in Tanzania

Methods: We conducted a comprehensive genomic analysis of 92 SARS-CoV-2 sequences derived from 105 oropharyngeal and nasopharyngeal samples collected between November 2022 and July 2023 from patients presenting with acute and severe acute respiratory infections from 13 regions of Tanzania. The samples were sequenced using the Illumina COVID Seq kit in the Illumina MiSeq platform. We used the Next flow bases core viral recon workflow for sequence analysis, and the nucleotide sequences were used for downstream analysis in identifying variants, phylogenetic analysis, and genomic epidemiology analysis. We used Pangolin, Iqtree, and Nexstrain, respectively.

Results: Our findings reveal a complex landscape of 16 Omicron lineages, with clades 22F (XBB*****) and 22A (BQ.1) emerging as predominant variants. Notably, there were regional disparities in the lineage distribution, with many sequences originating from Lindi. Age-specific trends highlighted a higher prevalence among children aged 0 - 5 years. Phylogenetic analysis revealed distinct clades with unique evolutionary trajectories, demonstrating localized transmission dynamics and potential lineage diversification within the country. We also found three sequences that could not be placed in the global phylogenetic tree, indicating the possibility of new variants. Multiple importations of variants into the country were also observed.

Conclusion and recommendation: This study offers valuable insights into the genetic diversity and epidemiological characteristics of SARS-CoV-2 Omicron lineages in Tanzania. This study provides a foundation for continued SARS-CoV-2 genomic surveillance to track the virus dynamics and inform decision-making in the ongoing battle against the COVID-19 pandemic. Continuous genomic surveillance is recommended to understand the dynamics of SARS-CoV-2 and their clinical outcomes.

CD03. Quality of Urinary Tract Infection Diagnosis and Management in Tanzania: a cross-sectional national level Survey.

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Introduction: Lately, there has been an increase in the diagnosis and treatment of urinary tract infections (UTIs) in Tanzania. Data is needed to determine the rate of over-treatment and the burden of UTIs in the country. The main aim of this study was to assess the burden of UTI as well as the quality and factors associated with the diagnosis and management of UTI in Tanzania.

Methods: A mixed-method national-wide cross-sectional study was conducted between February and June 2023. Data collection included: (i) 1267 presumptive UTI patients. (ii) A subset of these (310 patients) submitted urine samples for culture and sensitivity at higher-level facilities; (iii) record reviews from 7743 individuals diagnosed with UTI. We performed descriptive statistics to identify the burden and rates of overdiagnosis.
Results: The prevalence of UTI was 20.7% among UTI presumptive patients. Of the 7743 patients diagnosed with UTI between 1st October and 31st December 2022, 7142 (92.2%) had laboratory findings. Among those with a urine test, 29.8% of patients' results were not suggestive of UTI but were yet diagnosed to have UTI and treated using antibiotics, making an overdiagnosis rate of 35.2%. Of the 310 samples subjected to culture and sensitivity, the prevalence of UTI (positive culture) was 20.7% (n=64). Escherichia Coli was the main causative agent, and the rate of drug resistance was high. Poor diagnostic capacity, lack of guidelines and standard operating procedures on UTI and inadequate supportive supervision that emphasizes UTI were some of the causes of UTI overdiagnosis.
Conclusion and recommendations: Over one in three individuals are wrongly diagnosed and treated with antibiotics, increasing antibiotic resistance. To improve UTI diagnosis accuracy, optimize antibiotic use, and mitigate the risk of antimicrobial resistance emergence, diagnostic capacities must be enhanced, evidence-based treatment guidelines promoted, and supportive supervision mechanisms strengthened.

CD04. Trends and seasonal variation of gastrointestinal diseases in Tanzania: A five-year review of routine DHIS2 data from 2018-2022

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Background: Gastrointestinal diseases, including diarrhea, dysentery, typhoid and cholera, remain a primary public health concern worldwide, causing a significant proportion of morbidities and mortalities among people of all age groups. Despite government initiatives to reduce GIs, the burden level remains high.
Objective: To review and identify trends and seasonal variations of GIs in selected districts along the Great Lakes in Tanzania.
Methodology: Data from DHIS2 in 22 Tanzanian districts recorded between January 2018 and December 2022 were analyzed using Stata, GraphPad Prism software, and Microsoft Excel to identify trends and seasonal variation of GI diseases.
Results: 1,511,623 GI disease cases were recorded between January 2018 and December 2022, with diarrhoea being the most common (84.4%). The incidence rate declined from 2018 to 2021 but increased sharply from 2021 to 2022, with Tunduma district having the highest incidence (238 per thousand persons) in 2021. Seasonal variations showed cases peaking during the end of the third to fourth quarters of each year, during which most of the districts in Tanzania experience rain.
Conclusions and recommendations: GI diseases peak during the rainy season, with diarrhea being the predominant cause. Identifying these factors and implementing targeted prevention and control strategies is crucial for managing this differential burden.

HIV/AIDS

HIV01. Adherence, Effectiveness and Safety of Dolutegravir-Based Antiretroviral Regimens among HIV-Infected Children and Adolescents in Tanzania

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Background: More than 70 lower- and middle-income countries (LMICs), including Tanzania, adopted dolutegravir (DTG) antiretroviral drugs in the middle of a paucity of data on adherence, effectiveness, and safety among children and adolescents in the African population.
Objectives: This study aimed to assess adherence, effectiveness, and safety of DTG-based HAART regimens among HIV-infected children and adolescents in Tanzania.
Methods: An observational prospective cohort study was conducted at the pediatric HIV Clinic in Mbeya, Tanzania. HIV-infected children and adolescents initiated on DTG-based HAART regimens were recruited and followed up for 1 year. Data were collected using case report form (CRF). The primary endpoint was the proportion of patients who achieved undetectable viral load (VL<50 copies/mL) at week 24 after DTG regimen initiation. Secondary outcomes were changes in CD4+ cell count, safety parameters, and adherence levels. Descriptive statistics were used to summarize all clinical and laboratory results. A binary logistic regression model was used to determine predictors of undetectable viral load at week 24. The results were significant when the P-value was <0.05.
Results: A total of 200 patients were enrolled, with the majority (85.5%) being treatment experienced. The mean age of the study participants was 13 (+ 1.3) years. High adherence levels (71%) were observed using the pharmacy refill method. At week 24, the overall proportion of patients with undetectable viral load was 70.2%. The proportion of patients who achieved undetectable viral load was higher in ART (88.5%) than in treatment-experienced patients (67.3%) (p = 0.036). The predictors of undetectable viral load were age, World Health Organization (WHO) clinical stage, baseline viral load, and adherence to pharmacy refills. The most common ADEs reported among 33 patients were dizziness (30.3%), nausea (18.2%), and drowsiness (15.2%).
Conclusion: DTG-based regimens were generally effective and safe among the study population, and high adherence was observed.

HIV02. CD4/CD8 ratio normalization among people living with HIV in the era of Integrase Strand Transfer Inhibitors (INSTIs) in East Africa

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Introduction: Early initiation of combination antiretroviral therapy (ART) reduces mortality and the incidence of AIDS among people living with HIV (PLWH). PLWH with low CD4-T cell counts and a low CD4/CD8-T cell ratio have increased immune activation and are at higher risk for developing complications.
Objective: This analysis aims to determine the clinical predictors of CD4/CD8 ratio normalization in the era of integrase inhibitors.
Methods: The African Cohort Study (AFRICOS) follows PLWH in Uganda, Tanzania, Nigeria and Kenya, where CD4 and CD8 counts were measured biannually. We compared CD4/CD8 normalization, defined as a CD4/CD8 ratio >1, for TLD vs non-TLD regimens among PLWH on ART for > 6 months who at any point switched to TLD. Logistic regression, clustered by participant to

account for repeated measures, was used to estimate odds ratios between ART regimen and CD4/CD8 normalization, adjusting for site, sex, and age.
Results: As of 1 March 2023, 3,356 PLWH were enrolled, of whom 2,129 (63.4%) had ever switched to or been started on TLD. Of these, 1,448 PLWH had available CD4 and CD8 data and were included in further analyses. A total of 12,779 visits were included, and participants contributed a median of 5 (IQR : 3-8) visits each. PLWH on TLD had greater odds of a CD4/CD8 ratio >1 than PLWH without TLD (OR: 1.42, 95% CI: 1.28-1.58). After adjustment for program site, sex and age, this association remained significant (aOR: 1.91, 95% CI: 1.72-2.12).
Conclusion: This analysis demonstrates that the rollout of integrase inhibitors in sub-Saharan African settings has resulted in more individuals achieving CD4/CD8 ratio normalization relative to historical values. This observation is important for immune dysfunction. We, therefore, advocate PLWH initiate INSTI-based ART.

HIV03. HIV Stigma and Social Support Among Breastfeeding Women Living with HIV in Northern Zone, Tanzania

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Background: Stigmatization and poor social support are challenges faced by individuals living with HIV, which can have a profound negative impact on their health.
Objective: This study aimed to investigate factors associated with HIV stigma and social support among breastfeeding women living with HIV in the Northern zone of Tanzania.
Methods: A cross-sectional study was conducted among participants enrolled in the REMIND-KID trial to test the effectiveness of a customized Digital adherence Tool on retention in care. At baseline, participants were interviewed using the Berger, HIV stigma scale and Multidimensional Scale of Perceived Social Support (MSPSS). Both stigma and social support items could be answered on a Likert scale. Stigma responses ranged from 1(strongly disagree) to 4(strongly agree) and MSPSS from 1(Strongly disagree) to 7(Very strongly agree). Scores were summed for each stigma subscale and MSPSS. Multivariate linear regression models examined factors associated with HIV stigma and social support. A p-value of<0.05 was considered statistically significant.
Results: The preliminary analysis included one hundred and fifteen breastfeeding women. The results of Multivariate analysis results showed that HIV status disclosure (Œ≤=8.22; 95%CI 3.12, 13.32 p=0.002) was associated with a higher level of negative self-image stigma. Lower education level (Œ≤=-3.92; 95%CI -7.71, -0.14 p=0.04) was associated with a lower level of public altitude stigma. Moreover, HIV status disclosure was associated with a higher level of significant other, social support (Œ≤= 3.15; 95%CI 1.50, 4.79 p<0.001) and family social support (Œ≤= 3.28; 95%CI 1.36, 5.19 p=0.001) respectively. Age, Marital status, Years on ART and known HIV status of partner were not associated with HIV stigma and social support.
Conclusion: This study showed that HIV status disclosure and education level were significantly associated with HIV stigma and social support. More interventions are needed to decrease HIV stigma.

HIV04. Trends and Correlates in HIV Viral Load Monitoring and Viral Suppression among Adolescents and Youth in Dar es Salaam: Implications for Improving Practice

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Background: Adolescents and young adults (AYA) living with HIV have been shown to have lower rates of viral load monitoring and viral suppression (VS) as compared to adults. We examined trends over time and predictors of HIV viral load (HVL) monitoring and VS among AYA in a large HIV treatment program in Dar es Salaam, Tanzania.
Methods: We analyzed longitudinal data of AYA aged 10-24 years initiated on antiretroviral therapy (ART) between January 2017 and October 2022. Trend models assessed HVL testing and VS change by calendar year. Generalized estimating equations were used to examine the relationship of sociodemographic and clinical factors with HVL testing and VS.
Results: Out of 15,759 AYA, the percentage of those who received a 6-month HVL testing increased from 40.6% in 2017 to 64.7% in 2022, a notable annual increase of 5.6% (p-value <0.001). A higher HVL testing uptake was observed among 20-24-year-olds (87.7%) compared to 10-19-year-olds (80.2%) (p-value <0.001). The likelihood of non-HVL testing uptake within 12 months of ART initiation was higher among 10-19 years (adjusted odds ratio (aOR): 1.7; 95%CI 1.4-2.0), advanced HIV stage (aOR 1.3; 95%CI 1.12-1.53) and normal nutritional status at enrollment (aOR 2.6 (95%CI 1.59-4.26). The proportion of AYA with VS increased from 83.0% in 2017 to 94.6% in 2022; the overall trend in VS increased significantly at 2.4% annually. The risk of not achieving VS was greater among 10-14-year-olds (aOR=2, 95% CI1.75-2.43) and 15-19-year-olds (aOR=1.4, 95% CI 1.24- 1.58) than 20-24-year-olds.
Conclusion: We found an increasing HVL testing uptake at six months of ART initiation; however, strengthening its implementation is required. The increasing VS trend was approaching the third 95 UNAIDS target. Demographic and clinical characteristics can be used to identify AYA at greater risk for not having an HVL test and not achieving VS.

HIV05. Factors associated with HIV testing among men in Tanzania: analysis of the 2022 demographic and health survey data

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Background: HIV testing is crucial in achieving the 95-95-95 UNAIDS targets. However, uptake of testing services is sub-optimal among men in Tanzania.
Objective: To determine the factors associated with HIV testing among men aged 15-49 years in Tanzania.
Methods: This was a cross-sectional analysis of data from the 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey. Data were weighted and adjusted for clustering and stratification to account for the complex survey design. A modified Poisson regression model was used to examine the factors associated with HIV testing.
Results: A total of 5,763 men with a mean age of 28.6 ¬± 10 years were included in the analysis. The prevalence of HIV testing was 64.7%. Compared with men aged 15-19 years, men aged 25-49 years had a 29% increased prevalence of HIV testing (aPR 1.29, 95% CI 1.20-1.39). Men with primary (aPR 1.10, 95% CI 1.02-1.18), and secondary or higher education (aPR 1.13, 95% CI 1.04-1.22) were more likely to report HIV testing than those with no formal education. Other factors associated with higher prevalence of HIV testing include being in a marital union, having multiple sexual partners, owning a mobile telephone, being knowledgeable of HIV test kits, and being covered by health insurance.

There was also geographical variation in the prevalence of HIV testing, with men from the Southern Highlands, Eastern, and Zanzibar zones exhibiting higher prevalence, while those from the Western zone had a lower prevalence of HIV testing.
Conclusions and recommendations: This study revealed a sub-optimal prevalence of HIV testing among men in Tanzania, which was associated with various factors at the individual, interpersonal, and community levels. There is a clear need to develop tailored strategies aimed at promoting HIV testing among men, ensuring early detection, and contributing to the achievement of the 95-95-95 targets.

HIV06. Trends in advanced HIV disease, mortality and loss to follow-up among adults living with HIV: results from the Kilombero and Ulanga Antiretroviral Cohort

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Background: Most people living with HIV (PLHIV) reside in sub-Saharan Africa, yet data on mortality and associated factors concerning improved antiretroviral treatment strategies remain scarce.
Objective: We determined trends and associated factors of advanced HIV disease (AHD), mortality, and loss to follow-up (LTFU) among PLHIV in rural Tanzania.
Methods: We included PLHIV aged, 15 years enrolled in the Kilombero and Ulanga Antiretroviral Cohort (KIULARCO) between 2005-2022 with at least CD4 cell count or WHO clinical stage recorded at baseline. Follow-up was assessed until September 2023/. Time to death/LTFU or death alone was estimated using Kaplan-Meier and cumulative incidence methods, respectively, and associated factors were assessed using Cox regression.
Results: Out of 9,535 PLHIV, 6,180 (65%) were female, median age of 39 years (IQR 31-46), 4,849 (59%) had normal body mass index (BMI; 18.5-<25 kg/m2), and 2,915 (41%) had WHO stage III/IV. Baseline characteristics were similar by calendar period, except those enrolled later were more likely to disclose their HIV status, live closer to the clinic, be overweight, have a lower WHO stage, initiate ART, and not have severe AHD. At enrollment, 4,931 (52%) PLHIV had AHD with a range of 41%-66% by calendar year, with no trends over time. 1,846 (25%) participants had severe AHD. After a median follow-up of 2.9 years (IQR 0.8-7.6), 1,109 died (12%), and 3,728 (39%) were LTFU. AHD at enrolment was associated with a higher risk of death/LTFU (adjusted hazard ratio (AHR) 1.29, 95% CI 1.17-1.41)).
Conclusions: The prevalence of AHD and severe AHD remained among PLHIV in this rural area with consistently high over time and was associated with mortality. These findings re-emphasize the need for early diagnosis and treatment to reduce HIV-associated mortality and LTFU.
Keywords: Advanced HIV disease, Severe HIV disease, Mortality, Lost to follow-up, ART, Tanzania, sub-Saharan Africa.

HIV07. Differences in risk factors between high and low vertical HIV transmission settings: Implications for elimination of pediatric HIV

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Background: Roughly 1.3 million infants are exposed, and 150,000 are newly diagnosed with HIV annually. Estimates of Vertical HIV transmission (VHT) vary by setting.
Objective: We assessed risk factors for VHT among infants born to women living with HIV (WLWH) in Tanzania and Mozambique.
Methods: Between October 2019 and August 2021, we collected data from pregnant WLWH who participated in the LIFE study at 28 primary health facilities in Tanzania and Mozambique. VHT was assessed up to month 3 for all infants and month 18 for a subset of infants. We used mixed effects models adjusted for health facility clustering to calculate odds ratios (OR) for VHT.
Results: In total, 6505 WLWH and 6602 infants were included in the study. VHT up to month 18 was 2.92% (95% CI: 2.42-3.49) in Mozambique, significantly higher than the 0.82% (95% CI: 0.51-1.24) observed in Tanzania (OR: 3.66, 95% CI: 2.31-6.12). On average, Mozambican mothers were significantly younger, attended antenatal care less frequently, and had been on antiretroviral treatment for a shorter period. Maternity staff per 100 HIV-positive deliveries was 9.9 (SD 5.0) in Tanzania and 2.3 (SD 1.0) in Mozambique (p1000 copies/ml) at delivery was the principal risk factor for transmission (adjusted OR: 28.3, 95% CI: 15.7-50.9). In Mozambique, 31.0% of mothers were not suppressed at delivery compared to 8.1% in Tanzania; only 10.4% of infants who acquired HIV had mothers who were virally suppressed at delivery.
Conclusions: We observed a striking difference in VHT between countries. Lack of viral suppression in the early postpartum period was the main risk factor for VHT, and we observed differences in programmatic factors between countries. These results highlight the need to better understand individual, community, and health system factors associated with the lack of viral suppression in pregnant and lactating WLWH.

HIV08. Impact of HIV infection on the manifestations and outcomes of COVID-19 in selected tertiary hospitals in Tanzania.

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Background: Outcomes of SARS CoV 2 coinfection with HIV have been reported with conflicting results.
Objective: We investigated the impact of HIV infection on COVID-19 disease severity and its outcomes in a Tanzanian population.

Methodology: A retrospective study was designed to include adult patients with SARS CoV 2 infection from March 2021 to September 2022 admitted in five tertiary-level hospitals in Tanzania. Sociodemographic, clinical characteristics and treatment outcome information were collected. The mean (SD) or median (IQR) was used to summarize continuous variables. Categorical data were presented using proportions and compared using the chi-square or Fisher's exact test. P values < 0.05 were considered significant.
Results: Out of 1387 COVID-19 patients, 52% were male, and 87 (6%) were HIV-infected. The mean (SD) age of HIV-infected patients was 50 (¬±12.3) vs 61 (¬±16.2) years. Headache (27% vs. 18%, p= 0.04), productive cough (14% vs 8%, p = 0.03), wheezing (7% vs 3%, p = 0.02), abdominal pain (15% vs. 7%, p = 0.006), history of TB (18% vs 1.3%, p<0.001), and previous history of stroke (4.6% vs. 1.3%, p<0.001) were significantly more prevalent among HIV-infected patients. D-dimer [10.9 (5.0, 95.2) vs. 3.3 (2.4, 4.1) Œ°/mL, p=<0.001] and haemoglobin [11 (10.2, 11.8) vs. 12.6 (12.4, 12.7) g/dl, p=<0.001] were significantly more deranged among HIV-infected patients. A respiratory rate of more than 30 bpm was more frequent in the HIV-infected patients (23% vs. 12%, p = 0.004). Mortality was significantly higher in HIV-infected patients (54% vs. 34%), p <0.001.
Conclusion and recommendations: HIV-infected patients with COVID-19 were a decade younger than HIV-uninfected patients. Headache, cough, wheezing, abdominal pain, D-dimer and haemoglobin were more significant in HIV-infected patients. HIV-infected patients, particularly those with previous stroke or past TB, should be prioritized for COVID-19 prevention measures such as vaccination and early comprehensive treatment.

HIV09. Socio-demographic determinants of COVID-19 vaccination status among people living with HIV: A cross-sectional study in selected regions in Tanzania.
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Background: Vaccination is an important component of infectious disease prevention and control and has been used to protect humans against infections such as COVID-19. People living with HIV (PLHIV) are known to be more vulnerable to severe COVID-19 than the general population.
Objectives: The study aimed to establish socio-demographic factors that determine COVID-19 vaccination status among PLHIV and provide insight into ways to enhance COVID-19 vaccine coverage in Tanzania.
Methods: A facility-based cross-sectional study was conducted in March-April 2022 among PLHIV in Kagera, Tabora, Geita, and Dar es Salaam. A total of 25 Care and Treatment Centers (CTCs) were randomly selected. In each CTC, 11 PLHIV eligible for vaccination were enrolled in the study. Interviews were conducted to obtain data on vaccination status and associated factors.
Results: Of 1,100 PLHIV interviewed, 696 (63.3%) were vaccinated against COVID-19. Level of education, age, occupation, employment status, location, and level of health facilities were found to be associated with COVID-19 vaccination status among PLHIV. PLHIV with college and university education, elderly, farmers, employed and living in a rural setting were more likely to be vaccinated than other comparison groups.
Conclusion and recommendations: PLHIV COVID-19 vaccination status for hospital attendees was higher than in the general population, likely due to the efforts by the public and private. Elderly PLHIV, those attending dispensaries and socioeconomic status were more likely to have received at least one dose of vaccine. To increase Covid-19 vaccination coverage, there is a need to increase the number of vaccination centers, and support PLHIV willing to vaccinate but unable to access vaccination services; emphasis should be on not only elderly people but also middle-aged and

younger to take COVID-19 vaccine, and more engagement of higher levels of health service provision including health centers and hospitals.

MAL01. Prevalence and risk factors associated with malaria infections at a micro-geographic level in three villages of Muheza district, north-eastern Tanzania

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Background: Malaria remains a major cause of morbidity and mortality in Tanzania. However, the burden of malaria has recently become heterogeneous, with a higher burden in some regions than others, suggesting that stratification of malaria burden and predictors of infection is critical to guide the proper use of current and future interventions.
Objective: This study assessed the prevalence and factors associated with malaria infections at micro-geographic levels in three villages of Muheza district, Tanga region, north-eastern Tanzania.
Methodology: In June 2021, a cross-sectional community survey was conducted in three villages. Finger prick blood samples were taken for parasite detection using microscopy and rapid diagnostic tests (RDT). A generalized estimating equation (GEE) was used to determine the association between risk factors and malaria infections.
Results: 1,134 individuals were recruited and tested by both microscopy and RDT, and the prevalence of malaria infections was 19.2% and 24.3%, respectively. The prevalence was significantly higher among school children (aged 5 ,Äì 14 years, with 27.3% by microscopy and 37.6% by RDTs) p<0.001. Participants with high socioeconomic status (SES) and living in houses with closed eaves were less likely to be infected by malaria parasites by microscopy (AOR =0.97; 95% CI, 0.92 - 1.02; p=0.205) and RDT (AOR = 0.91; 95% CI, 0.85 - 0.97; p<0.001). Among the three villages, malaria prevalence by microscopy ranged from 14.7% to 24.6% while RDT was 24.05% to 34.91% and varied across villages indicating high heterogeneity and random distribution of malaria at micro-geographic levels.
Conclusion and recommendations: The high prevalence and predictors of malaria infections were among age, school children (aged 5 - 14 years), SES, and housing conditions. The prevalence varied over short distances at micro-geographic levels of the village. More malaria stratification studies at village levels are needed to reveal malaria infection differences.

MAL02. Child health and infection with low density (CHILD) malaria, a randomized controlled trial to assess the long-term health and socioeconomic impacts of testing and treating low-density malaria infection (LMI) among children in Tanzania.

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Introduction: As malaria declines, low-density malaria infections (LMI) represent an increasing proportion of infections. LMI has received little attention due to the prevailing perception that they are asymptomatic, induce protective immunity against future infection, and are difficult to detect due to the limited sensitivity of standard diagnostic tools including malaria rapid diagnostic tests (mRDTs). Evidence is emerging that these low-density infections can have negative impacts on all-cause health and cognitive development in children. In low transmission settings, molecular technologies have been reported to detect LMI in afebrile and febrile individuals below the detection limit of current rapid tests.
Objective: The study aims to determine the long-term health and socioeconomic effects of detecting and treating low-density malaria infection in children residing in low-transmission settings. The overall objective of the trial is to determine the long-term health and socioeconomic effects of detecting and treating LMI, which we defined as standard RDT-negative/quantitative PCR (qPCR) positive infection, in children residing in low transmission settings.
Methods: This is a 3-arm open label randomized controlled trial in children. The study is conducted in Bagamoyo, Tanzania, a low transmission setting where malaria cases are detected through passive case detection (PCD) using standard rapid diagnostic testing (RDT) in those presenting with fever and prior evidence shows a high proportion of LMI in children detected through passive and active case detection (ACD). Standard of care based on PCD using RDT (control arm) will be compared to two different approaches to detect and treat P. falciparum LMI: active case detection using molecular testing (ACDm) and PCD using molecular testing (PCDm). To capture subacute or chronic effects, follow-up will be over 2 years.
Results: We will present the study's preliminary data on all-cause of sick visits and anaemia prevalence during enrollment and consecutive follow-up visits for the 600 enrolled participants.

MAL03. Baseline prevalence of Plasmodium falciparum drug resistance markers in endemic areas targeted for school-based malaria chemoprevention interventions.

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Background: The World Health Organization (WHO) has recently recommended expansion of malaria preventive chemotherapies to include intermittent preventive treatment of school children (IPTsc). However, there are increasing concerns due to the emergence and spread of partial artemisinin resistance based on PfKelch13 mutations in Africa. This study was conducted to determine the baseline prevalence of molecular markers of artemisinin-based combination therapies (ACTs) and Sulfadoxine-Pyrimethamine (SP) resistance prior to implementation of IPTsc intervention in a high malaria endemic area.
Methods: Pre-intervention assessment of the prevalence of molecular markers of artemisinin, partner drugs, SP resistance and Histidine Rich Protein2/3 (HRP2/3) genes deletion was conducted in Handeni and Kilindi districts, Tanga Region from July 2020 to December 2021. The districts were selected based on the highest malaria incidence rate and implemented programmatic IPTsc using Dihydroartemisinin-Piperaquine. Dried Blood Spot (DBS) samples were collected from children (5-15 years old). DNA was extracted from malaria-positive samples using commercial kits. NGS Illumina sequencing was used for the mutation analysis of molecular markers.

Results: Out of the SNPs detected at low frequency in the Pfkelch13 gene (A578S, K568T, N489Y) none have been validated as molecular markers of artemisinin partial resistance, majority 95.5% (340/356) was the wildtype. The majority of Pfcrt haplotypes (n=356) was CVMNKTHFIMCGI (75.5%), while others occurred at low frequency, CVIETTHFIMCGI (11.8%), CVIETTHFIMCGT (7%), SVMNTTHFIMCGI (0.8%), SVMNTTHFIMCGT(2.2%). Pfmdr1 haplotypes (n=355) NYSND (71.5%) and NFSND (20.6%) were predominant; other haplotypes were detected at low frequency. Quintuple Pfdhfr-Pfdhps haplotypes (n=134) were detected at high frequency (70.1%). Parasites with HRP2/3 gene deletion were detected in 4.5% (15/335) and 20.9% (70/335) samples, respectively.
Conclusion: The lack of validated artemisinin resistance markers is reassuring and confirms that targeted areas are suitable for malaria chemoprevention implementation. A baseline assessment is essential for implementing drug resistance monitoring during the scaling up of the IPTsc interventions.

MAL04. From policy prescriptions to practical success: Why Sulphadoxine-Pyrimethamine (SPs) are widely used for treatment of malaria in Tanzania?

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Background: Since the WHO recommended Artemisinin-based Combination Therapy (ACT) as the first-line treatment for uncomplicated malaria, countries have embarked on phasing out the previous generation(s) of antimalarial treatments, with mixed results. While some countries have phased out Sulphadoxine-Pyrimethamine (SPs) as the first-line malaria treatment, substantial SP usage persists in others. Continued use of SPs has far-reaching implications for malaria control efforts, including resistance and widespread treatment failure.
Objectives: This study investigated the stocking of SPs by private retailers and suppliers and determined why the general population continued SP use in rural and urban Tanzania.
Methodology: The study used a mixed-methods design consisting of a cross-sectional survey and in-depth interviews in four regions of Tanzania: Tabora, Dodoma, Mbeya, and Dar-es-Salaam.
Results: Private sector retailers and suppliers in rural and urban areas widely stocked SPs. Survey data showed that customer demand, reports of good efficacy, low prices and supplier recommendations were the main reasons for stocking SPs. In-depth interviews revealed that the continued use was due to the shorter dosage required for treatment compared with ACTs, perceptions that SPs have fewer or no side effects, familiarity with the different brands of SP, and recommendations by health experts such as drug dispensing and laboratory staff. Some participants personalized the use of SPs as medicine, implying that they felt a personal connection with SPs and perceived them to be efficacious.
Conclusions/Recommendations: Successful implementation of policy shifts in medicine usage in contexts like Tanzania requires effective identification and engagement of local framings of efficacy, side effects, convenience of use and the recommendations of key actors on the ground, such as suppliers and health staff who are in direct contact with the end users.

MAL05. Investigating the survival and age-structure of malaria vectors using infrared reflectance spectroscopy and machine learning in an area with high insecticide bednet coverage in Tanzania.

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Introduction: The ability of Anopheles mosquitoes to transmit human malaria is age dependent as only females that survive at least 9-11 days become infective. However, most malaria vector species do not live this long in the field. Thus, determining the age-structure of mosquito populations, particularly the proportion of females that are old enough to transmit, could be used to estimate infection risk and the efficacy of interventions. Recent studies demonstrated the principle of using infrared reflectance spectroscopy (IRS) and machine learning (ML) to predict the age and species of both laboratory and wild malaria vectors. However, a limitation of this approach is its dependence on local calibration (i.e., the need to assess the age of a sub-sample of the target population).
Methods: Here, we present the plan to overcome this limitation and improve the generalization of current infrared methods for assessing the age of Anopheles malaria vectors in the wild. This work will present the steps we are taking to overcome these challenges. We will review three strategies being undertaken to enhance the generalizability of MIRS-ML predictions of African malaria vector age to reduce the need for local calibration: i) expanding the variability of ageing rates under laboratory conditions; ii) optimizing ML algorithms using mosquitoes reared under semi-field facilities; iii) validating the predictions across different wild populations where vector control interventions have been introduced to detect and quantify changes in mosquito age-structure using different trapping methods. The infrared and AI approach of mosquito cuticle is easy-to use-cost effective, robust and presents several advantages.
Conclusion: We anticipate that our algorithms can be applied to assess and validate the ages and species of wild-caught mosquitoes in the future.

MAL06. Adherence to Antimalarials Among Patients Diagnosed with Malaria in East Africa: A Systematic Review and Meta-Analysis

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Background: East Africa (EA) has a significant share of the global malaria burden. Countries in EA have committed to the malaria elimination goal of 2030. However, reported variations in adherence to antimalarials hamper the regional effort in malaria elimination. Moreover, the region has no comprehensive and comparable adherence estimates. The adherence estimate is crucial for policymakers to set priorities, target control strategies, and evaluate the effectiveness of interventions.
Objective: This systematic review synthesized the regional adherence estimates for the East Africa region.
Method: Authors searched articles from PubMed, Science Direct, CINHAL, Scopus, and Google Scholar. Two authors independently assessed the retrieved studies for eligibility and risk of bias, and then the adherence rate was pooled using the random effect model implemented in STATA. Publication bias was assessed using funnel plot symmetry and the Egger test. Subgroup analysis was performed to explore the effect of nationality and type of regimen on the overall estimate.
Results: A total of 23 studies with 13 655 participants were included. The overall adherence rate was 72% (95% CI:0.63-0.81; 23 studies; I2 = 96.05%), with the highest level reported in Rwanda (100%, 95% CI: 0.73-1.27) and the lowest in Tanzania (7%, 95% CI 0.09,.23). Furthermore, adherence was high for chloroquine plus sulfadoxine-pyrimethamine (96%, 0.84,Äì1.09; 1 study). Recalling correct instructions and taking the first dose at the health facility positively influenced patient adherence.
Conclusion: On average, about three-quarters of malaria patients in East Africa adhere to their medications. Considering these findings, further interventional studies are needed to address low

adherence to antimalarials in the region. Moreover, adherence studies with the appropriate measurement method are still required to obtain a robust generalizable estimate in East Africa. This review was registered at PROSPERO with the registration ID CRD42023410048.

MAL07. A multi-country clinical evaluation of a novel 1-step versus conventional 2-step injectable artesunate for the treatment of severe falciparum malaria in African children

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Background: Injectable artesunate is the first-line treatment for severe malaria. Since its introduction, it has saved several young African lives. A two-step reconstitution process is required to prepare injectable artesunate, which is time-consuming and prone to error. A new formulation has been developed, requiring a simplified one-step reconstitution process.
Objectives: This randomized trial aimed to assess the convenience and cost aspects of a new 1-step reconstitution injectable artesunate compared to conventional 2-step injectable artesunate for treating severe falciparum malaria in African children.
Methods: This was a multi-centre, individually randomized, controlled, non-inferiority trial conducted in 2023 at Korogwe District Hospital, Tanga, Tanzania and Kinshasa Medical Oxford Research Unit, D.R. Congo. Enrolled children were randomized in a 1:1 ratio into a new 1-step reconstitution injectable artesunate (intervention group) or a conventional 2-step injectable artesunate (standard treatment) until they could tolerate oral therapy. The convenience and cost of the intervention were compared between the two groups. Thereafter, these children were followed weekly until day 28. At each visit, blood samples were collected for malaria testing using microscopy and polymerase chain reaction, and the results were compared between the two study arms.
Results: Overall, 200 children with severe falciparum malaria were randomized. 100 of them received the intervention, while the remaining were given the standard treatment until they could tolerate oral medication. Detailed data analysis was still ongoing when this abstract was submitted.
Conclusions and recommendations: Optimizing the treatment of severe falciparum malaria remains very important. The proposed presentation will highlight the results of the antimalarial treatment of severe falciparum malaria in African children using the new formulation, which involves a one-step reconstitution.

MAL08. Assessment of insecticide resistance and malaria prevalence in association with *Anopheles gambiae* s.l. distribution in endemic districts in Tanzania.

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Introduction: *The Anopheles gambiae complex is considered the most important vector for the transmission of Plasmodium falciparum to humans, which leads to a high malaria burden in the Tanzanian population. Meanwhile, vectors' resistance* to insecticides is mentioned as the main reason for the increasing prevalence of malaria in Sub-Saharan countries.

Objective: This study aims to assess the impact of species distribution and composition on malaria prevalence and species distribution.
Methodology: The mosquito larvae were collected from their natural breeding habitats in 10 districts with high prevalence rates in Tanzania mainland, then reared in hygienic conditions to the adult stage. Female *An. gambiae* sibling species were randomly selected and recognized morphologically using morphological keys, followed by PCR for molecular resistance analysis and species identification.
Results: Laboratory analysis has shown *An. Arabiensis* from Anopheles gambiae complex is dominated by 86.7% while *An. gambiae* s.s is composed of only 13% of the total population. And also results showed resistance alleles existed in both *An. gambiae* and *An. arabiensis*, however, resistance alleles were found in higher allelic frequencies in *An. gambiae* more than *An. arabiensis*. However, observing high malaria prevalence and insecticide resistance in species composition does not mean that vector control tools have failed. These tools have dramatically reduced the densities of Anopheles gambiae complex vectors that are strictly anthrophagous and indoor feeders.
Conclusion: This observation notifies that in the current context of malaria elimination to eradicate this disease signifies the need to introduce mosquito control methods that will target the less anthropophagic *An. arabiensis* or the immature aquatic stages. The study further suggests a combination of vector control tools such as IRS, LLINs, larviciding, and other vector vector control tools that target ecology and mosquito behaviour must be adopted to target the broadest range of Anopheles populations involved in malaria transmission.

MAL09. Current and future opportunities for autodissemination of pyriproxyfen approach for malaria vector control in urban and rural Africa
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Introduction: Despite progress in reducing the malaria burden, new ways to address the emerging threats of insecticide resistance and the spread of *Anopheles stephensi* in Africa are urgently needed. While adopting larviciding as a supplementary intervention in Africa, identifying and treating prolific habitats seems to be an advantage of the autodissemination approach (ATD) over conventional larviciding in rural settings. ATD works by exploiting the resting behavior of gravid mosquitoes to transfer lethal concentrations of chemical insecticides, such as pyriproxyfen (PPF), to their oviposition sites, resulting in adult emergence inhibition. The growing and promising evidence for its use in malaria vector control in Africa highlights the influential research that needs to be sustained. This article reviews the evidence for the efficacy of this approach using PPF and discusses its potential as an efficient and affordable complementary malaria vector control intervention in Africa.
Methods: Database searching employs key terms in PubMed, Google Scholar, and the Cochrane Database of Systematic Reviews, as well as the reference lists of all identified studies. This is followed by removing duplicates, abstract screening, and eligibility assessment.
Results: 6 studies under controlled semi-field settings and applied mathematical models with malaria vectors Anopheles gambiae and *Anopheles arabiensis* were found to discuss the potential use of ATD with PPF for malaria control.
Conclusion: Empirical evidence and biologically informed mathematical models are underway to demonstrate the utility of this approach to control wild populations of malaria vectors under a field environment alone or in combination with other tools. Key factors notable for the future introduction of this approach at scale are scalable ATD devices, optimized PPF formulations,

community perception and acceptance assessment, and integration into existing conventional larviciding.

NEGLECTED TROPICAL DISEASES

NTD01. Effects of *Wuchereria bancrofti* infection on CD4 T cell responses to specific and non-specific antigens.

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Introduction: Lymphatic filariasis, primarily caused by *Wuchereria bancrofti*, is a mosquito-transmitted disease that affects people living in tropical regions. The adult worm of W. bancrofti lives for many years in the human host and even without disfiguring consequences leads to modulation of the adaptive immune response.

Objective: The aim of our study was to determine whether *chronic W. bancrofti* infection affects CD4 T cell responses to specific and non-specific antigens.

Methods: Blood samples were collected from 140 participants living in two *W. bancrofti* endemic regions in Tanzania: Mbeya (Kyela district) and Lindi region. Samples were stimulated with the whole lysate of Mycobacterium tuberculosis (Mtb), Staphylococcus Enterotoxin B (SEB) or PBS (control) for 16 hours. Flow cytometry was done to measure the relative number of cytokines produced; interferon gamma (IFN-Œ≥) or interleukin 2 (IL-2) after stimulation.

Results: W. bancrofti infected compared to uninfected individuals had significantly lower Mtb specific IL-2 producing CD4 T cells (p =0.0091). In addition, *W. bancrofti* infection reduced the IL-2 response in individuals aged 25-<45 years. Interestingly, W. bancrofti infection showed significantly reduced frequencies of both IFN-Œ≥ (p<0.0001) and IL-2 (p<0.0001) CD4 T cell responses upon stimulation with SEB compared to uninfected individuals. This reduced immune response upon SEB stimulation was noted in the 14-<25 and 25-<45 age groups.

Conclusion: Our findings show diminished CD4 T cell responses to SEB in W. bancrofti-infected individuals. In addition, only Mtb-specific, IL-2 (and not IFNŒ≥) releasing CD4 T cells were reduced in FTS+ individuals. These results indicate that chronic infection with *W. bancrofti* suppresses CD4 T cell responses, most likely as part of the parasite's immune evasion strategy. These reduced immune responses, which are age-dependent, might have a deleterious impact on the host's ability to fight other infections.

NTD03. Evaluation of serological threshold sero-prevalence for stopping mass drug administration in Tukuyu focus, Tanzania. Are we stopping sooner?

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Introduction: Mass drug administration (MDA) is the strategy for elimination of onchocerciasis. MDA may be stopped if programs demonstrate meeting the criteria set The World Health Organization (WHO) requires sero-prevalence of <0.1% in children 5-9 years for stopping MDA. Modelling suggests that this sero-prevalence is low and that 2% may be tested. This study evaluated a new sero-prevalence threshold.
Methods: The study is implemented for five years; year one (2021) baseline data were collected to determine if they meet the proposed seroprevalence and entomological criteria of positivity of <1/2000 (0.05%) in all black flies by O-150 PCR, OvND5 and O150 qPCR. MDA was stopped after meeting the criteria and followed by monitoring for recrudescence for 3 (2022-2024) years. In the 5th year (2025), a final evaluation will be done to confirm that transmission is less than 2%. For years 1 and 2 finger prick blood was collected from children for dried blood spots (DBS) and analyzed for IGG4 antibodies of *Onchocerca volvulus* using OV-16 rapid diagnostic test (RDT) and OV-16 ELISA. Adult female blackflies were collected using human bait collection methods for vector infectivity.
Results: A total of 2,561 and 809 DBS were sampled at baseline and year 2 and the seroprevalence was found to be 0.045% and 0.12% by OV-16 RDT respectively. The Seroprevalence by OV-16 ELISA was1.16% for baseline while for year 2 the results were not conclusive. A total of 13,204 and 4,305 blackflies were captured at baseline and year 2 respectively. The results of O-150 PCR for baseline data were inconclusive while for year 1 by OvND5 and O150 qPCR met the criteria.
Conclusion: The data presented are consistent with the hypothesis that it is safe to stop MDA for Onchocerciasis at 2% with continued monitoring for confirmation of serological and entomological criteria.

NTD04. Exploring Snail Intermediate Host Dormancy Ecology and its Implications for Disrupting the Transmission Cycle of Schistosoma haematobium

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Introduction: The survival of snails, *Bulinus nasutus*, during the dry season has the potential to drive snail population dynamics. Considering the longevity of the dry period, which can extend up to seven months, and its potential impacts on disease outcomes, we conducted a study on snail aestivation to better characterize dormancy, survival, and schistosome infection of *B. nasutus* from laboratory and field settings.
Methods: A small-scale laboratory experiment was established to simulate the dry season for snail intermediate hosts at the NIMR Mwanza laboratory. The survival of snails was assessed throughout one to two months, with and without schistosome infections. In addition, dormant snails were opportunistically surveyed in natural settings and microhabitats conducive to snail dormancy were identified within each pond. Diversity in dormancy microhabitats was assessed to understand variations in snail survival. Schistosome shedding from infected snails, both in the laboratory and natural settings, was quantified using standardized techniques, such as cercarial shedding assays.

Results: In the laboratory experiment, a total of 40 snails were identified and no infected snail survived the dormancy period. No significant effect on dormancy survival between surface aestivators and burrowing aestivators. In the field survey, a total of 349 B. nasutus dry shells were collected, of which 108 (31%) snails were alive while 241 (69%) were dead. None of these snails shed schistosomes during the two weeks of laboratory observation; one snail shed non-schistosome parasites. Snails can aestivate in a diversity of microhabitat types.
Conclusion: Our findings suggest that snails can aestivate anywhere in a field provided that the particular waterbody is a usual living site for particular snails, and they can resume life soon after the return of water. Also, infected snails can survive the dormancy period, thus, the process of aestivation may indeed serve to cull schistosome-infected snails, resulting in the disruption of transmission cycles for schistosomes.

NTD06. Current blackfly species composition, distribution and biting rates in Tukuyu Focus, Southwest Tanzania: A cross-sectional study

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Introduction: The availability of information on the species composition, distribution and biting rates of the Onchocerciasis vectors is critical to understanding the epidemiology of the disease and evaluation of elimination interventions. Information on these parameters initially reported in the 1980s and 1990s may have changed over time.
Objective: This study aimed to update the profile of vector species composition, distribution and their biting rates to help in implementing evaluative studies to guide the implementation of interventions to accelerate onchocerciasis elimination in the Tukuyu focus.
Methods: A cross-sectional entomological study was conducted in 2022 at eight adult blackfly-catching sites in the Tukuyu focus. Adult female blackflies were captured by trained village vector collectors using the standard human landing collection method. Blackfly species were morphologically identified using established identification keys of East African species. Identified blackflies were sorted and analyzed using Microsoft Excel.
Results: A total of 4,305 Simulium species were identified, of which 3,726 (86.6%) were *Simulium damnosum*, 578 (13.4%) were *Simulium vorax* and 1 (0.0%) were *Simulium bovis*. The primary vector remained S. damnosum at all sentinel sites except for Lwanga Masoko where *S. vorax* was the predominant (73.8%) among none-*S. damnosum* species.
Conclusion: The results of this study showed that the productivity and relative abundance of blackflies varied between sites regardless of seasonality. It appears that the predominance of *S. damnosum* species has decreased while the proportion of other species has increased compared to previous records."

NTD07. Precision mapping of schistosomiasis and soil-transmitted helminth infections in 53 implementation districts in Mainland Tanzania

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Introduction: Schistosomiasis and soil-transmitted helminth infections remain major public health problems in Tanzania. Control efforts using mass drug administration of Praziquantel and Albandazole targeting school age children have shown significant success. However, the method used to determine endemicity levels by screening 50 school-aged children per school from up to five schools per district has shown major weaknesses and can lead to the misclassification of districts and, hence, overtreatment or undertreatment. WHO has therefore recommended Precision mapping, defined as sampling at finer geographical resolution by examining a higher number of villages within a district.
Objective: We aimed to determine the geographical prevalence and infection intensity of schistosomiasis and STH at sub-district (ward) level to generate precision maps of prevalence at each of the selected sites/wards in districts of mainland Tanzania.
Methods: The survey used a cross-sectional design and enrolled 63,220 schoolchildren aged 10-14 randomly selected from 1058 schools/wards. Selected schoolchildren were examined for schistosomiasis and STH, representing 99.7% (63,220/63,420) of the enrolment target.
Results: The combined prevalence of schistosomiasis (*S. mansoni* and/or *S. haematobium* infection) was 1.5% (953/63,220) (range 0% to 68.3%). Majority of sites (799) had a 0% prevalence. The combined prevalence of STH was 3.3% (2068/63,220). STH prevalence ranged from 0% to 93.3% with the highest prevalence occurring in Bukoba Municipal Council, Kagera region. Majority of sites (671 had 0% STH prevalence. STH transmission hot spots (>50%) were observed in Bukoba Municipal Council, Kyerwa district and Arusha district.
Conclusion: Overall, schistosomiasis prevalence has reduced significantly compared to pre-MDA levels. The observed distribution of STH correlates with the findings of previous mapping studies. We recommend that additional resources be made available to complete the precision mapping of the remaining districts and conduct follow-up studies on appropriate intervention strategies in schistosomiasis/STH transmission hot spots.

NTD08. Update on Trachoma Prevalence as per 2023 confirmatory mapping in 11 district councils of Tanzania

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Introduction: The World Health Organization (WHO) advocates for trachoma baseline surveys to determine if implementation of the surgery, antibiotics, facial cleanliness and environmental improvement (SAFE) strategy is warranted. The baseline surveys, these included 11 districts bordering previously endemic districts with high TF prevalence, aimed at estimating prevalence of trachomatous inflammation-follicular (TF) in children aged 1-9 years and prevalence of trachomatous trichiasis (TT) in adults aged 15 years and above, at the evaluation unit (EU) level.
Methods: Survey was done in 11 evaluation units (EUs) using the Tropical Data System. The survey involved a 2-stage sampling plan in each EU. In the first stage, 30 clusters (defined as hamlets) were systematically sampled with probability to population size and in the second stage, 35 households were selected in each cluster using systematic sampling method. All individuals aged 1 year and above living in the sampled households were examined for trachoma signs based on the WHO simplified grading system. Data was collected and stored using the Tropical Data.
Results: A total of 43,467 participants were enrolled for TF in children aged 1-9 years and TT in people aged 15 years and above. Children 1-9 years accounted for 40.7 % of the people enrolled in the study.

Conclusion: All surveyed district councils had the TF 0.2%. Therefore, implementation of TT surgery services should be considered or implemented in these three district councils.

NTD09. Efficacy of doxycycline in the management of filarial lymphedema alongside intensified hygiene measures: a randomized, double-blind, placebo-controlled clinical trial conducted in two regions in Tanzania.

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Introduction: Lymphedema, hydrocele and acute adenolymphangitis (ADL) are chronic disabling consequences observed in patients with lymphatic filariasis (LF). The provision of morbidity management and disability prevention concurrently with mass drug administration of anthelmintics are two pillars for the elimination of LF.
Objective: This study assessed the impact of doxycycline, coupled with intensified hygiene, on the progression of filarial lymphedema.
Methods: A randomized, placebo-controlled, double-blind phase II trial was conducted in two regions in Tanzania. We enrolled 362 participants with lymphedema stages 1 to 3 assigned into treatment groups of doxycycline 200mg, doxycycline 100mg, or matching placebo for 42 days in addition to hygiene measures. The participants were followed every two months for two years.
Results: We found no significant differences between the doxycycline and placebo groups regarding improvement or progression of lymphedema. However, noteworthy findings showed that 17.7% of participants displayed improved limb conditions 24 months after treatment onset, including 15/104 (14.4%) in the doxycycline 200mg, 16/105 (15.2%) in the doxycycline 100mg, and 25/107 (23.4%) in the placebo groups. During the first six months after treatment, the number of participants experiencing an ADL attack was significantly lower in the doxycycline group groups than in the placebo group. The study also found that implementing intensified hygiene prevented acute attacks.
Conclusion: These findings underscore the potential benefits of doxycycline in managing acute attacks of filarial lymphedema and emphasize the importance of practising hygiene in reducing the occurrence of ADL attacks.

NTD10. Gut microbiome composition and distribution among helminth-infected individuals with or without HIV in Southern-Highland of Tanzania

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Introduction: The human gastrointestinal tract is home to a wide range of microbes, collectively known as the gut microbiome. In helminth endemic regions such as Tanzania, helminths may affect the composition and function of the gut microbiome and influence their role especially in individuals with inflammatory illnesses eg: HIV. However, the gut microbiome of Tanzanians has never been examined in the context of helminths and HIV. Understanding the interaction between helminths and gut microbiota in the context of HIV is therefore critical and likely to specifically identify markers of better HIV prognosis in populations with a high prevalence of helminth co-infection.
Methods: A total of 96 DNA extracted from stool were collected from HIV- and HIV+ individuals, with or without helminth infections living in Mbeya, Tanzania as part of the Worms HIV Interaction Study. DNA was sequenced using the Illumina NovaSeq platform, and metagenomics were then analyzed for microbial community composition.
Results: Among 96 participants, 28 (29.2%) were HIV-Helminth-, 39 (40.6%) were HIV-Helminth+, 16 (16.7%) were HIV+Helminth- and 13 (13.5%) were HIV+Helminth+. Beta diversity at the genus level was significantly affected by HIV status, helminth status and HIV-Helminth statuses combined (p-adjusted=0.049, 0.056 and 0.042, respectively). HIV+ individuals had more significant heterogeneity in their microbiome compared to HIV- individuals. On the other hand, helminth+ individuals had greater heterogeneity in their microbiome compared to helminth-- individuals. Overall, the microbiota of all individuals was pre-dominated by only a few taxa.
Conclusion: We observed significant differences in the gut microbiome composition between helminth+ and helminth-negative individuals with and without HIV. Differences in inter-individual variation in helminth, HIV, and HIV-helminth status characterized these differences. This study highlights the need to further understand helminth and/or HIV-induced microbial composition and gene pathways and their role in health and disease conditions.

TUBERCULOSIS

TB02. Analysis of Screening failures and its associated factors among adult PTB patients participating in stage IIb TB drug evaluation clinical trials at NIMR-Mbeya. A retrospective descriptive study.

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Introduction: The conduct of TB drug evaluation clinical trials is essential to providing essential evidence for the development of effective new TB drugs and regimens. Efficient screening can ensure the smooth progression of clinical trials. Given the importance of screening procedures during clinical trial execution, knowing the main reasons for screening failure will help seek coping strategies. With this study, we aimed to analyze the causes of screen failure among adult TB patients participating in stage IIb TB drugs evaluation clinical trials at NIMR-Mbeya.
Methods: We retrospectively collected data from 115 adult subjects with newly diagnosed, uncomplicated, smear-positive, drug-sensitive pulmonary tuberculosis patients who were recruited in TB drug evaluation clinical trials at NIMR-Mbeya study site conducted between July

2021 and August 2023. The frequency and percentage (%) were calculated for the causes of screen failure for the screen-failed participants.
Results: Among the 115 PTB patients recruited in clinical trials, 65 (58.04%) failed screening. Abnormal laboratory results (41.5%), abnormal vital signs and physical examination findings (16.9%), negative sputum results (16.9%), concomitant medications (6.2%), and poor social conditions (3.1%) accounted for 84.6% of the screen failures. The CD4 level below 220mm/l (48%), serum albumin less than 28g/dl (30%), and serum alkaline phosphatase or y-glutamyl transferase >2.5 x the upper limit of normal (18%) were the leading causes of laboratory abnormalities for screening failure.
Conclusions: A well-defined and organized pre-screening procedure is needed to increase the efficiency of TB drug evaluation clinical trials recruitment and enrollment. In addition, data collected during pre-screening procedures can guide future recruitment efforts. Furthermore, participant eligibility criteria should be scientifically reasonable to optimize participation in clinical trials.

TB03. Trends in Case Detection Rate for Leprosy and Factors Associated with Disability among Registered Patients in Zanzibar, 2018 to 2021

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Introduction: Leprosy is still a disease of public health concern. Globally, 2 to 3 million people are thought to be affected by leprosy-related disabilities. Regarding leprosy status in Zanzibar, limited information is available. Determining changes in detection rates and factors associated with disability is crucial for treatment and preventative strategies for this debilitating disease.
Objective: This study aimed to determine trends in case detection rate for leprosy and risk factors for disability among registered patients in Zanzibar, 2018 to 2021.
Methods: The study included all leprosy patients who received treatment in Zanzibar's 11 districts between 2018 and 2021. An analytical cross-sectional study design was used. Prevalence and new case detection rate (NCDR) were calculated. Multivariable Poisson regression analyzes were used to identify factors associated with leprosy disability. Crude and adjusted prevalence ratios (APR) and their respective 95% confidence intervals (CI) were reported. The P-value of 0.05 was considered significant.
Results: Of the 490 leprosy cases reported between 2018 and 2021, 95.7% were new patients, and 71.2% were multibacillary. The disease was found to be more common in males (60.4%). The average prevalence was 7.43/100,000 population, while the average NCDR was 7.13/100,000 from 2018 to 2021. There was a significant decrease in disability grades from diagnosis to the end of treatment (P<0.001). Leprosy patients who developed disability were more likely to be male (APR=1.55; 95% CI: 1.18-2.04), older (APR=5.01; 95% CI: 1.91-13.17), infected with multibacillary (APR=6.99; 95% CI: 3.16-15.44) and HIV negative (APR=1.51; 95% CI: 1.11-2.06).
Conclusion: This study found that leprosy disability grades declined. There were no significant changes in point prevalence and NCDR. Being male, older, HIV negative and infected with multi-bacillary increased the risk of developing disability. To prevent leprosy-related disability and transmission, health education, early case detection and adequate multidrug therapy should be prioritized.

TB04. Assessing the activation profile of Mycobacterium tuberculosis-specific T cells as a surrogate marker for in vivo disease activity in tuberculosis household contacts

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Introduction: Phenotypic profiling of Mycobacterium tuberculosis (Mtb)- specific T cells has shown promise in diagnosing, prognosing, and monitoring treatment for Tuberculosis (TB). We therefore studied T-cell activation profiles of household contacts (HHC) of adults with microbiologically confirmed Mtb in three African countries (Tanzania, Mozambique, Zimbabwe) within the ERASE-TB study using the flow cytometry-based TAM-TB (T-cell activation marker-Tuberculosis) assay.

Methods: TAM-TB assays were performed for 265 HHC at TB diagnosis. Whole blood was stimulated in vitro with Mtb antigens (ESAT6/CFP10 and Mtb125 peptide pools), followed by intracellular staining for interferon-gamma and T-cell markers.

Results: Preliminary analyzes of baseline TAM-TB results across participating countries show ESAT6/CFP10-specific T-cell responses in 138/265 (52%) HHC, which is in line with the TB endemic setting of ERASE-TB. Response rates against Mtb125, a peptide pool optimized for extensive HLA class II molecules coverage, increased to 172/263 (65%). Yet only 54/231(23%) HHC exhibited a CD38 high Mtb-specific CD4+ T-cell profile, a surrogate biomarker for active TB disease. Expression of CD27 (p-value <0.0001) and CD38 (p-value = 0.0078) was significantly elevated after stimulation with the HLA class II optimized Mtb125 peptide pool compared to ESAT6/CFP10. Three out of five HHCs were diagnosed with incident TB during follow-up visits, and one of the two HHCs diagnosed with symptomatic TB at the baseline visit showed an activated T-cell profile.

Conclusions: Our preliminary results show an increased T-cell response rate against the HLA class II optimized Mtb125 compared to the ESAT6/CFP10 peptide pool. We further demonstrate the applicability of monitoring Mtb-specific T-cell activation by TAM-TB as a surrogate biomarker of active TB disease among persons at risk of developing TB. Further follow-up of HHC with clinical and TAM-TB data during ERASE-TB will reveal T-cell activation and disease progression trajectories.

TB05. Expediting detection of drug-resistant tuberculosis in routine settings

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Introduction: Drug-resistant tuberculosis (DR-TB) is difficult to diagnose and treat. Despite the low prevalence of DR-TB in Tanzania, the majority are diagnosed by Xpert Ultra or Line Probe Assay (LPA) which is operationally and technically difficult to perform.

Objective: To scale up use of Xpert XDR Assay for rapid diagnosis of DR-TB

Methods: We purchased Xpert XDR machines and installed them at Kibongo Infectious disease Hospital (KIDH), Dodoma Regional Referral Hospital (DRRH) and NIMR-Mbeya. Laboratory technicians were trained and connected the machine to the Electronic TB register (ETL) for timely

feedback of results. Baseline DR-TB diagnostic results (Pre-TIFA) and after (post-TIFA) were collected and analyzed for turnaround time (TAT), performance and resistance patterns. Data was imported into STATA software for analysis. Descriptive statistics were performed to determine the proportion of resistance patterns and errors. TAT was calculated using the median and compared between groups using the Whitney U test. Kaplan-Meier curve was used to show TAT and log-rank statistical test to compare the proportion of results between the groups with an alpha set at <0.05.
Results: LPA was the primary DR-TB diagnostic test before introducing the Xpert XDR Assay. A total of 979 samples were tested between Sep 2021 and Aug 2023, whereby 80.1% (784/979) were tested using LPA and 19.9% (195/979) with Xpert XDR Assay. Samples tested by Xpert XDR Assay increased from 20 during pre-TIFA to 175 during the post-TIFA project. Median TAT (IQR) was 1 (1-9) days for Xpert XDR results compared to 20(20-21) days for LPA, p<0.0001. The overall TAT for DR-TB results were 31(27-38) during pre-TIFA compared to 17(15-17) of the post-TIFA, p<0.0001. The error rate on Xpert XDR assay was high at KIDH (17%) compared to 14.6% at DRRH and 0% at NIMR-Mbeya.
Conclusion: Xpert XDR Assay reduced TAT for molecular DST and may shorten the time for DR-TB diagnosis

TB06. Evaluation of QIAreach QuantiFERON-TB lateral-flow nanoparticle fluorescence assay for TB infection testing among TB household contacts in three high-burden settings

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Background: Tuberculosis infection (TBI) testing and treatment are fundamental to achieving TB elimination ambitions. Among household contacts (HHCs) of TB patients, uptake of TBI testing has been limited, partly due to a lack of a gold standard test and challenges associated with implementation, which vary by available tests. Our study evaluated the prevalence of TBI among HHCs. It determined the concordance of QuantiFERON-TB-Gold-Plus (QFT-Plus) with QIAreach QuantiFERON-TB (QIAreach), a new field-friendly lateral-flow-nanoparticle-fluorescence assay.
Methods: In a cross-sectional study in Lesotho, South Africa and Tanzania, blood samples were collected from HHCs at an initial household visit using a single lithium heparin tube for paired QFT-Plus and QIAreach processing, testing and interpretation following manufacturer, guidelines. TBI prevalence was determined using the QFT-Plus results. We assessed the percentage agreement between QFT-Plus and QIAreach using Cohen, Kappa.
Results: We enrolled 964 HHCs [321 in Lesotho, 300 in South Africa, and 343 in Tanzania]. Of these, 465 HHCs had paired results, of whom 65% (302/465) were females with a median age of 27 years (interquartile range: 13, 45). TBI prevalence was 51% (236/465). Among HHCs with paired results, 42% (197/465) were positive and 34% (156/465) negative on both assays, while 24% (112/465) had discordant results (Table 1). Total agreement was 78% [353/451, 95% Confidence Interval (CI): 74 ,Äì 82, kappa = 0.5627, p<0.001] with a positive agreement of 77% (197/255, 95% CI: 71 ,Äì 82) and a negative agreement of 80% (157/195, 95% CI: 74 – 85).
Conclusion: We identified a high prevalence of TBI among HHCs in three high-burden countries. QIAreach demonstrated a moderate concordance against QFT-Plus. However, in the absence of a gold-standard test, it is difficult to interpret the implications of this finding. Further research is needed to understand its usability in this population, specifically if it addresses the associated field implementation challenges.

TB09. Delayed diagnosis in household contacts of tuberculosis patients in Mwanza, Tanzania: A follow-up community case finding study

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Background: Tuberculosis (TB) is a curable infectious disease but remains a global threat, accounting for nearly 1.3 million deaths in 2022. The burden of TB in Tanzania is based on estimates because most cases remain undiagnosed and where diagnosis is done, cases are not documented and reported accordingly. Active case finding is not prioritized in the Tanzanian population, apart from being effective in reducing missed cases and detecting contacts at risk of TB infection and those with potential to progress to TB disease.
Objective: We conducted TB case finding, determined delayed diagnosis, and assessed measures related to household contacts' exposure to TB index cases in Mwanza City, Tanzania.
Methods: Household contacts of tuberculosis index cases diagnosed in Mwanza between November 2019 and March 2022 were traced and screened for active TB. Sputum samples were tested at Bugando TB laboratory using sputum smear microscopy, GeneXpert/MTB RIF and culture.
Results: A total of 867 household contacts from 204 index cases were screened for active TB. Overall, 8.4% of the contacts were diagnosed with active TB. Among the TB cases, 79.6% reported visiting health facilities more than two times before the disease could be diagnosed. Among the 54 cases interviewed, 89% took other antibiotics before they were diagnosed and put on TB drugs.
Conclusion: Our data suggests that eight out of a hundred contacts living in the same house with TB patients develop TB. There is a need for more intensified active case finding by changing the currently used approaches.

TB10. Shorter TB preventive treatment using 3HP improves uptake and completion among PLHIV

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Introduction: In 2021, 10.6 million people globally fell ill with TB disease. Of these, 8% were people living with HIV (PLHIV). PLHIV are about 20 times more likely to develop TB disease compared to the rest of the population. For years, 6 months Isoniazid (6H) has been the main regimen for TB Preventive Treatment (TPT) among PLHIV. Pill burden, long duration of treatment and adverse events are some of the common reasons for suboptimal completion of 6H. Recently, rifampin-based regimens that offer shorter duration, less pill burden and are better tolerated have been adopted for TPT. In 2021, only 72% of PLHIV in Tanzania were initiated on TPT, with only 78% completed.
Methodology: We conducted a mixed-methods implementation cohort study in 6 regions of Tanzania. We introduced 3-month isoniazid and rifapentine (3HP) in 12 clinics where the study was conducted. We compared the uptake and completion of TPT among PLHIV initiated on 3HP to those initiated on 6H.
Results: A total of 1866 PLHIV were followed up for this analysis. Of these, 1117 (59.8%) were enrolled in CTC between Jan-Jun 2022, where 6H was the regimen of choice, while 749 (40.2%) were enrolled between Apr-Oct 2023, where 3HP was introduced. The median age was 33 years and the majority were female (65.1%). Treatment uptake was higher with 3HP 87.4% (CI 85.0-89.8) than 6H 80.7% (CI 78.4-83.0) p<0.0001. The proportion of those who completed at least 80% of doses was 76.5% (CI 73.9-78.9) versus 86.5% (CI 83.9-88.9) in 6H and 3HP respectively.

Conclusion: The use of a shorter TPT regimen, such as 3HP, showed a significant improvement in both uptake and completion of TPT among PLHIV. We recommend adequate preparation in terms of training, data capturing tools, strengthening of the supply chain and monitoring and reporting of safety events before and during large.

COMMUNICABLE DISEASES POSTERS

PO-AMR-01. Genomics Insights into Antibiotic Resistance and Virulence: The Landscape of Quinolone-Resistant and ESBL-Producing Klebsiella pneumoniae in Tanzanian Referral Hospitals.

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Introduction: Insecticide resistance severely threatens the effectiveness of insecticide-based malaria vector control measures, such as LLINs and IRS. We describe trends and dynamics of insecticide resistance in *Anopheles gambiae* s.l. across Tanzania from 2004 to 2020.
Methods: The WHO standard protocols were used to assess the susceptibility of the wild female *An. gambiae* s.l. to insecticides. Mosquitoes were exposed to permethrin, deltamethrin, lambda-cyhalothrin, bendiocarb, and pirimiphos-methyl diagnostic concentrations. The diagnostic concentrations of WHO test papers at 5√ó and 10√ó were used to assess the intensity of resistance to pyrethroids. To estimate insecticide resistance trends from 2004 to 2020, percentage mortalities from each site and time point were aggregated, and regression analysis of mortality versus the Julian dates of bioassays was performed.
Results: The percentage of sites with pyrethroid resistance increased from 0% in 2004 to > 80% in 2020, suggesting resistance has spread geographically. Results indicate a strong negative association between pyrethroid susceptibility status and survey year. The regression model shows that by 2020,>40% of *An. gambiae* mosquitoes survived exposure to pyrethroids at their respective diagnostic doses. A decreasing trend of An. gambiae susceptibility to bendiocarb was observed over time
Conclusion: Anopheles gambiae is now resistant to pyrethroids across the country, and resistance is increasing in prevalence and intensity and spreading geographically. This calls for new tools to sustain the gains obtained in malaria vector control. Strengthening insecticide resistance monitoring is important for its management through evidence generation for effective malaria vector control decisions.

PO-AMR-02. New biflavonoids from the stem extract of Brackenridgea zanguebarica, a medicinal plant from East Africa.

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Introduction: The study focused on the spectroscopic investigation of Brackenridgea zanguebarica, a medicinal plant native to East and South Africa. This led to the isolation of three novel compounds: Zanguelophinone A, B, and C.
Objective: The objective was to explore the antimicrobial potential of these compounds against various pathogens.

Methods: The research involved isolating and characterising new bioflavonoids from the stem extract of B. zanguebarica. Extensive column chromatography was conducted on the extracts to identify the compounds and evaluate their toxicity and antimicrobial activities.
Results: The study successfully isolated three new chalcon-flavanone dimers (1-3) and other known compounds from B. zanguebarica. Zanguelophinone A exhibited significant antimicrobial activity against gram-positive Staphylococcus aureus, Mycobacterium intracellulare, and Cryptococcus neoformans, indicating its potential as a therapeutic agent.
Conclusion: This study's findings provide valuable insights into the chemical composition and biological potential of B. zanguebarica. The newly identified compounds, especially Zanguelophinone A, show promise as antimicrobial agents, highlighting the medicinal significance of this plant species.
Keywords: bioflavonoids, Brackenridgea zanguebarica, antimicrobial activity, chalcon-flavanone dimers, novel compounds

PO-CD-01. Spatial-temporal patterns of gastrointestinal diseases in Tanzania: A five-year review of routine DHIS2 data from 2018-2022

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Background: Gastrointestinal diseases (GIDs), including diarrhea, dysentery, typhoid, and cholera, cause a significant proportion of morbidities and mortalities among people of all age groups. Despite Tanzanian government initiatives to reduce GIDs, the burden level remains high. This work was done to review and identify trends and seasonal variation of GIDs in selected districts along the Great Lake ecosystem of Tanzania.
Materials and methods: Data from the National District Health Information and Management System (DHIS2) records from twenty-two districts between January 2018 and December 2022 were extracted and analyzed using Stata version 16 software. Data visualization was done using GraphPad Prism version 9.0 software and Microsoft Excel.
Results: 1,511,623 GID cases recorded between January 2018 and December 2022 were available for analysis. Among the four GIDs, diarrhea had the highest cases (84.4%). Trends in GIDs incidence rates rate were observed to decline from 2018 to 2021 and sharply increase from 2021 to 2022, with the highest incidence rate of 84.0 per 1000 persons recorded in 2022 and the lowest incidence of 78.7 per 1000 persons recorded in 2021. Tunduma district had the highest incidence for almost all five years, with the leading one being 238 per thousand persons in the year 2021. Seasonal variations showed the highest number of cases recorded at the onset of the rainy season. Majority of cases were recorded between October and November.
Conclusion and recommendations
The largest number of GIDs were recorded in Tunduma district at the onset of the rainy season, which starts at the end of the third to the fourth quarter of each year. Improved understanding of the drivers of GIDs is essential for effective prevention measures.

PO-CD-02. Non-typhoidal Salmonella in human and animal reservoirs in Korogwe, North-Eastern Tanzania.

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Background: Non-typhoidal Salmonella serovars in human and animal reservoirs in Korogwe, North-Eastern Tanzania. Non-typhoidal Salmonella is responsible for most childhood bacteremia and diarrheal illnesses in Sub-Saharan Africa (SSA), including Tanzania. Transmission of invasive strains of NTS including *Salmonella typhimurium* and *Salmonella enteritidis* are common in SSA and are serotypes associated with high case fatality (20-25%) in infants and immunocompromised individuals.
Objective: To determine the frequency and antibiotic resistance patterns of NTS serotypes as well as compare these serovars from children with those occurring in chickens. Methods: A hospital-based cross-sectional study was conducted in Korogwe District Hospital (KDH) in Korogwe Northeastern Tanzania from March 2019 to April 2020.Children <5 years of age with diarrhoea or a history of diarrhoea within the past 24 hours were enrolled. The study also involved chickens from farms and communities. Blood and stool from children and chickens' droppings were collected and cultured. The API 20E test confirmed Salmonella species. Antimicrobial susceptibility testing was performed by disc diffusion, and the White-Kauffmann did Serotyping- Le Minor Scheme.
Results: Of 286 cultured stools from children, 18(6.3%) tested positive for NTS, while 227 blood cultures from children 9 (3.3%) yielded NTS. Of 304 chicken droppings tested, 8 (2.6 %) revealed NTS. Salmonella Typhimurium was the most predominant, n=7 (30%), and it is the only serotype found to be isolated from human and chickens droppings. Multiple drug-resistant NTS were 2(6.1%),drug-resistant NTS were 2(6.1%), which resisted three or more first-line antibiotics, including Trimethoprim, Chrolamphenicol and Ampicillin. The study showed no significant variation in terms of resistance and sensitivity patterns among human and chicken NTS except for ciprofloxacin p-value 0.004.
Conclusion: Our results suggest that chickens are among the potential reservoirs of NTS and, in turn, may contribute to their transmission. Multidrug resistance was observed in chicken NTS, addressing the use of one health.

PO-CD-03. Preliminary investigation and intervention of the suspected plague outbreak in Madunga, Babati District-Tanzania

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Background: Rodents are known to be reservoirs of plague bacteria, Yesinia pestis in the sylvatic cycle. A preliminary investigation of the suspected plague outbreak was conducted in Madunga Ward, Babati District Council in Manyara Region from December 2019 to January 2020. The aim was to make a follow-up of two reported cases clinically suspected as showing plague disease symptoms.
Method: The commensal and field rodents were live-trapped using Sherman traps in Madunga Ward, where plague suspect cases were reported in the forest reserve areas at Madunga Ward, Babati District Council, to assess plague risk in the area. Fleas were collected inside the houses using light traps and, on the rodents, bodies after anaesthetizing the captured rodent to determine

flea indices used to estimate the risk of plague transmission. Lung impression smears were made from sacrificed rodents to examine for possible bipolar-stained Yersinia spp bacilli.
Results: 86 rodents of ten rodent species were captured and identified from the study sites. Nine forest rodent species were collected. Field/fallow rodent species were dominated by Mastomys natalensis, whereas domestic rodent species captured were Rattus rattus. Overall, the lung impression smear showed bipolar staining of 14 (16.28%), while the House Flea Index (HFI) was 3.1 and the Rodent Flea Index (RFI) was 1.8.
Conclusion: This study's findings have shown that the presence of bipolar stained bacilli in lung impression smears of captured rodent species indicates (not confirmed) the possible circulation of Yersinia pestis in rodents. The area's high flea indices, including the most common flea species known to be plague vectors in Tanzania, could have played a transmission role in this suspected outbreak. The study recommends surveillance follow-up in the area and subject collected samples to the standard plague confirmatory diagnosis.

PO-HIV-01. Life Simple 7 in people living with HIV in Tanzania
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Background: People living with HIV (PLWH) are at increased risk of cardiovascular disease due to traditional, HIV-specific lifestyle factors resulting in a double health burden and therefore require thorough characterization of cardiovascular health profiles to guide primary prevention efforts. However, studies are limited to PLWH on ART and data on ART-naѵØve patients is scarce. We applied American Heart Association's Life's Simple 7 (LS7) scale to compare cardiovascular health (CVH) between ART-Naive PLWH and HIV-uninfected adults in Tanzania.
Methods: A cross-sectional analysis was conducted using the HTN& HIV and CICADA Datasets with PLWH and HIV-Uninfected adults recruited from HIV clinics in Mwanza, Tanzania, East Africa. Distributions of participants with ideal vs intermediate vs poor LS7 metrics were compared between study groups. Ordinal regressions were employed to investigate associations between HIV status and each LS7 metric, adjusting for age, sex, education, income Poisson regressions to evaluate the relationship between HIV status and Total LS7 Score
Results: Our study included 2219 participants, 492 PLWH and 503 controls in HTN& HIV and 860 PLWH, 364 HIV-uninfected in CICADA cohort. PLWH had higher total LS7 scores (4.3 vs 3.9, p<0.001) and (4.16 vs 3.85, p=0.015) in HIV & HIV and CICADA cohorts, higher prevalence of ideal overall CVH (47% vs 33%, p<0.001) and (40% vs 35%, p<0.001) respectively. In both cohorts, PLWH had a higher prevalence of Ideal BMI, Ideal Blood Pressure, and Ideal Total Cholesterol than HIV-uninfected counterparts and a lower prevalence of Ideal Smoking. By contrast, PLWH had lower prevalence of Ideal Physical Activity in HTN& HIV while Ideal Blood Glucose in CICADA cohort.
Conclusion: Preventing cardiovascular disease in ART-Native PLWH in Africa should prioritize strategies such as quitting smoking, enhancing physical activity, and screening for diabetes. Research on implementation is necessary to adapt the recommendations for statin therapy to sub-Saharan Africa.

PO-HIV-02. HIV prevalence in Key and Vulnerable populations in Mbeya and Songwe regions
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Introduction: National HIV prevalence of 4.4% remains a serious health concern for Tanzania—efforts geared toward massive screening and linkage to care to reach the UN 90-90-90 goal. Despite numerous efforts, there is still a high rate of HIV incidence, especially in priority populations (PP), and key and vulnerable populations (KVPs) since these populations are hard to reach and have no access to health services. A worthy approach is to trace and screen different KVPs, report the HIV rates and therefore advise where effort can be directed to combat HIV.
Methods: A mobile diagnostic laboratory team was deployed in districts of the Mbeya and Songwe regions, particularly in potentially hotspots for HIV transmission. Members of the public and KVPs consented before HIV testing using National HIV testing algorithms. All data were captured and entered an NIMR-MMRC database, while analyses were done using STATA software.
Results: From 2019 to 2021, we screened over 12000 individuals in HIV spot areas. The following groups were reached: 557 Adolescent Girls and Young Women (AGYM), 675 clients of Female Sex Workers (CFSW), 107 fishermen, 705 miners, 183 People Who Use Drugs (PWUD), 32 truck drivers, 685 bar workers and 1205 Female sex workers (FSW). Overall, the HIV prevalence of PP was 13%, while that of KVPs was 17%. HIV prevalence is listed from the highest to the lowest in the groups tested: 25% in Bar workers, 24% for PWUD, 22% among truck drivers, 21% among miners,17% for FSW, 15% for clients of FSW, 13% for AGYW and the lowest 12% was among fishermen.
Conclusion and recommendation: The study found a higher prevalence of HIV in the Key and Vulnerable populations as compared to the general population. Therefore, interventions like mobile laboratories targeting this population are essential to meet the UN 90-90-90 goal.

PO-HIV-03. Experience and challenges of implementation of point-of-care HIV EID in Tanzania health care settings: A qualitative Study
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Background: Early infant diagnostic (EID) is usually performed from collected fresh/dry blood samples (DBS) sent to centralized laboratories for qualitative HIV-DNA detection, with a targeted turnaround time of 2-4 weeks. The EID involves multiple procedures and linkage steps that require mothers and infants to return to the facility several times for testing, receiving test results, re-testing, and infant ART initiation in case of positive test results.
Methods: This cross-sectional qualitative study was conducted in 15 health facilities from eight regions. We purposely sampled Nurses, lab personnel, and pharmacists where we performed 44 IDS / 4 FGD. Data was analysed by ATLAS ti software (version 7.5.12) for data management conducted) from 17 May 2020 to 22 Nov 2020
Results: Most nurses had an experience of between 2-10 years and reported receiving training for tasks related to POC- EID. None of the nurses knew how to operate the GeneXpert machine as it was part of their responsibilities and was placed in the laboratory. Only lab personnel are currently recommended to run Xpert, not PMTCT nurses. Identified challenges were lack of power backups and supply/availability of cartridges. POC-EID is well accepted among care providers due to its short turnaround time (2-3 days).
Conclusion: POC-EID was feasible and accepted among healthcare providers, although a few challenges were acknowledged. We recommend decentralising the POC-EID services by increasing the number and distribution of Gnexpert to testing hubs at primary facilities and ensuring a sustainable supply of cartridges.

PO-HIV-04. Progress towards achieving the 95-95-95 goal among people living with HIV within the Tanga Region.

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Introduction: The UNAIDS set a goal of ending the AIDS epidemic by achieving targets for the proportion of people living with HIV who are aware of their status, receive antiretroviral therapy (ART), and are immune to the virus. Those targets were revised to 95% for each measure (known as 95-95-95), to be achieved by 2025 among people living with HIV. We used data from the Tanga Region HIV Viral Load Testing Laboratory to measure the achievement of the third target among people living with HIV in the Tanga region of Tanzania.
Methods: Laboratory data from all 11 districts in the Tanga region—Lushoto, Kilindi, Muheza, Handeni TC & DC, Korogwe TC & DC, Mkinga, Pangani, and Tanga City—were reviewed from 2020 to 2023. The data included demographic characteristics, viral load, ART line, ART regimen, TB infection and treatment, pregnancy, and breastfeeding.
Results: A total of 31361 HIV-positive samples of individuals were analyzed, of which 22,436 (71.5%) were male, and more than half of them, 17,396 (55.5%), were aged between 15-49 years. The majority, 18,061 (64.3%), had good ART adherence, 27,128 (97.0%) were on first-line ART, and only 1612 (5.1%), had virological non-suppression, of which the majority, 232 (10.4%) were in the age group of 1-14 years.
Conclusion and recommendations: HIV viral non-suppression among children was observed in this review. To improve viral load suppression fates of HIV-infected children, intensified monitoring is required to attain the third goal of the UNAIDS 95-95-95.

PO-HIV-05. Fluconazole plus flucytosine vs. fluconazole alone for cryptococcal antigen-positive patients identified through screening: A phase III randomized controlled trial EFFECT TRIAL (Efficacy of Flucytosine and Fluconazole as Early Cryptococcal Treatment)

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Background: The EFFECT trial is a pivotal study addressing the high mortality rates among HIV-infected individuals with advanced HIV disease (AHD) in sub-Saharan Africa (SSA). Despite advancements in antiretroviral treatment (ART) programs, a significant portion of patients present with AHD and are at high risk for opportunistic infections like cryptococcal meningitis (CM), the leading cause of meningitis in SSA. This study investigates the efficacy of combining fluconazole and flucytosine versus using fluconazole alone in asymptomatic-positive patients, aiming to reduce the mortality rate associated with this condition.
Methodology: This phase III randomized controlled trial, conducted across Tanzania, Vietnam, and South Africa, integrates into routine screening programs to compare two-week treatments of fluconazole plus flucytosine versus fluconazole alone in asymptomatic CrAg-positive individuals with advanced HIV. Participants are then continued on fluconazole for up to 12 months, with ART initiation on day 14. The primary outcome is the all-cause mortality rate at six months, with secondary outcomes focusing on time to mortality, CM-free survival, incidence of symptomatic

CM, treatment tolerability and safety, efficacy by baseline CrAg titre, and health service costs per life year saved.
Progress: As of the last update, 28 participants were enrolled, equally divided between the intervention and control arms. Recruitment efforts were spread across several health facilities in Tanzania. Challenges faced included documentation issues, diagnostic equipment shortages, and late hospital presentations. Strategies to increase recruitment have been implemented, focusing on improving CrAg screening and referral systems.
Conclusion: The EFFECT trial aims to refine the treatment protocol for PLHIV by combining fluconazole and flucytosine, potentially improving survival rates among CrAg-positive individuals through enhanced recruitment strategies and addressing CD4 testing challenges. The study seeks to establish a more effective treatment regimen and screening process for those at risk of CM, ultimately contributing to the global effort to reduce HIV-related mortality.

PO-HIV-06. Four years of successful collaboration in the provision of HIV-1 early infant diagnosis in the Tanga region.
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Background: In December 2019, the Ministry of Health equipped the NIMR Tanga laboratory with a PCR machine for HIV-1 early infant diagnosis. Before, samples from the Tanga region were sent to the KCMC Molecular Laboratory for analysis. Sending samples to KCMC was time-consuming and costly, resulting in a long turnaround time (TAT) of about one month. Long TAT can lead to delays in treatment initiation, poor patient management, and even death.
Objective: To reduce TAT of DNA PCR test for HIV-1 early infant diagnosis among infants born by mothers who are living with HIV-1 from 8 districts of Tanga region.
Methodology: Dried blood spot samples from 8 districts of the Tanga region were sent to the NIMR Tanga laboratory for Polymerase chain reaction (DNA PCR test) using the Cobas Ampliprep/TaqMan platform. After analysis, results were sent to the respective health facilities through the electronic sample referral system (eSRS), and later, hard copies were returned to the facilities.
Results: Between 2020 and 2023, 3,588 DBS specimens were tested for HIV-1 early infant diagnosis. The TAT was less than five days in the Laboratory and less than 14 days at the facility level.
Conclusion: Collaboration between HIV-1 implementing partners (IP) in the Tanga region, NIMR Tanga and Tanga Regional Referral Hospital has resulted in a reduction of turnaround time for HIV-1 early infant diagnosis. The TAT for the DNA PCR test was achieved in less than five days in the laboratory and less than 14 days at the facility level.

PO-NTD-01. The randomness and uncertainty in dynamics of lymphatic filariasis: CTMC stochastic approach
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Introduction: Lymphatic filariasis represents the primary cause of long-term, permanent disability and dysfunction in the human immune system.
Methods: In this study, we have developed and assessed deterministic and continuous-time Markov chain (CTMC) stochastic models to gain insights into lymphatic filariasis dynamics and approximate the probability of disease extinction or outbreak. The CTMC stochastic model is an

adapted version of the deterministic model that accounts for uncertainties and variations in disease transmission dynamics.
Results: The findings from the deterministic model indicate that disease extinction is possible when the secondary infection threshold number is less than one. At the same time, an outbreak is likely when it is more significant than one. Further examination of the deterministic model emphasizes the considerable role of asymptomatic individuals in transmitting lymphatic filariasis. We employed multitype branching processes and numerical simulations to estimate the probability of disease extinction or outbreak. The results demonstrate that lymphatic filariasis outbreaks are more probable when microfilariae parasites are introduced by exposed humans, asymptomatic humans, acutely infected humans, exposed mosquitoes, or infectious mosquitoes. Conversely, the disease is more likely to be eradicated if it originates from chronically infected humans.
Conclusion: Utilizing stochastic methods provides a more authentic portrayal of how lymphatic filariasis spreads, granting a better understanding of the spectrum of potential results and their related probabilities. Therefore, stochastic CTMC models become indispensable for generating reliable forecasts and well-informed choices when deterministic models might oversimplify or inaccurately depict the inherent unpredictability.

PO-NTD-02. Prevalence of soil transmitted helminthes among patients attending the District hospital in Kigoma municipal

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Introduction: Soil-transmitted helminthes (STHs) are a group of parasitic intestinal worms that can infect humans through ingesting parasitic eggs or skin contact with motile larvae. Five STH species are of particular significance: a roundworm (Ascaris lumbricoides), a whipworm (Trichuris trichiura), two species of hookworm (Necator americanus and Ancylostoma duodenale) and Strongyloides stercoralis. Kigoma is among regions in Tanzania in which several families are poor. This suggests poor socio-economic status, which can support the prevalence of soil-transmitted helminths. According to current research conducted for STH, there was no research done for adults; many have been based on children only; due to that trend, this general title was chosen. The main objective of this research is to determine the prevalence of soil-transmitted helminth infections among people who attend the district hospital in Kigoma.
Methods: The study's sample size was 203 stool samples from patients who were requested to submit them for examinations. This study included patients of any age and both sexes. The diagnostic method used was the formal ether concentration technique.
Results: The samples collected were from 203 patients; 10 were examined for worms, corresponding to a prevalence of 4.9 %.
Discussion and conclusion: The overall prevalence of soil-transmitted helminths in Kigoma town municipal indicated that the community where the study occurred had a good chance of obtaining knowledge about STH transmission. The prevalence of research reminds the community to continue to take preventive measures against STH transmission.

PO-NTD-03. Situation of Human African Trypanosomiasis (HAT) up to 2022 in Tanzania

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Human African trypanosomiasis (HAT)/ sleeping sickness is a vector-borne disease caused by two sub-species of the parasitic protozoa Trypanosoma brucei (T. b. gambiense and T. b. rhodesiense) which occurs in two forms (Gambian and Rhodesian form). To date, only the Rhodesian form is confirmed to occur in Tanzania, although there is a possibility of having the Gambian form from neighbouring countries due to day-to-day interaction between people living in the countries having the Gambian form. Trypanosomes are transmitted to humans by the infected bite of various species of tsetse fly (genus Glossina). Transmission of the disease occurs in sub-Saharan Africa in discrete endemic areas or foci within the geographic distribution of the tsetse fly, and more than 36 countries in SSA are at risk. In Tanzania, the current reports of sleeping sickness come from the northern part of the country (Ngorongoro, Serengeti, and Tarangire) and the western part (Tabora, Kigoma, and Katavi region). These foci are linked with national parks, game reserves, and livestock-wildlife interfaces. Between 2011 and 2020, 21 cases were recorded; we are presenting the current HAT situation in Tanzania up to 2022.

PO-TB-02. Latent Tuberculosis Infection among People with Diabetes Mellitus in Uganda and Tanzania.

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Introduction: People with Diabetes Mellitus (DM) are at increased risk for TB, and those who have latent TB infection (LTBI) might be indicated for TB preventive therapy. We examined the prevalence and determinants of LTBI among people with DM as part of the PROTID project in Uganda and Tanzania.
Methods: A total of 2005 participants with DM were screened for LTBI at four sites in Uganda and Tanzania. LTBI was diagnosed using the tuberculin skin test (TST) with a cutoff of 10mm and or a positive QuantiFERON-TB plus (QFT-plus) after excluding ATB.
Results: The overall prevalence of LTBI was high at 56.3% (lowest at 35.1% in Moshi, Tanzania and highest at 77% in Kampala, Uganda). 780/2005 (38.9%) had a positive TST, 862 (43.0%) had a positive QFT-plus and 515 (25.7%) had both a positive TST and QFT-plus. The two tests showed a good agreement of 72% (k=0.42; 95% CI: 0.38-0.46). On multivariable analysis, those aged between 36-45 [AOR=2.38 (CI: 1.44-3.92)]; 46-55 [AOR=1.98 (CI: 1.26-3.13)]; and 55 years and above [AOR=1.48 (CI: 0.95-2.29)]; previous TB [AOR=1.85(CI:1.15-2.99, p=0.01)], contacts with TB disease [AOR=1.51(CI:1.16-1.96)] were associated with increased odds of LTBI positivity while Female gender [AOR=0.59(CI: 0.48-0.73), p<0.001] and HIV positivity [AOR=0.66(CI:0.47-0.93), p=0.02] were statistically not associated with LTBI positivity. Overweight and obese DM patients had an increased odds of LTBI [AOR=1.85 (1.02-3.35) p=0.04 and AOR=2.18 (1.19-3.97) p=0.01] respectively. Known factors such as current BCG scar, smoking or alcohol use were not associated with LTBI in this population.
Conclusion: People with DM in East Africa are at a high risk of LTBI. Early detection and treatment of LTBI in this population could help prevent the progression to active TB and reduce morbidity and mortality associated with TB in people with DM.

PO-TB-05. TB infection treatment eligibility among household contacts of microbiologically confirmed pulmonary TB patients in high TB settings

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Introduction: TB preventive therapy (TPT) is recommended for household contacts (HHCs) exposed to active tuberculosis (TB) cases. Among contacts of multidrug-resistant tuberculosis (MDR-TB), 80% were deemed eligible for TPT using World Health Organisation (WHO) criteria: HIV-infected, aged <5 years or TB-infection (TBI). These findings question the need for TBI testing before TPT initiation. We determined TPT eligibility among drug-sensitive TB (DS-TB) index households in Lesotho, South Africa, and Tanzania.

Methods: We enrolled DS-TB index cases and their HHCs. Index cases were enrolled if aged 18 years and microbiologically confirmed with TB within ,6 weeks of diagnosis. Blood specimens were taken from HHCs aged 5 years, HIV-uninfected or unknown status and tested with QuantiFERON-TB-Gold-Plus (QFT-Plus) for TBI. HIV testing was offered to HIV-uninfected HHCs and those who did not have recent HIV tests. Those HIV-infected, aged <5 years and those with TBI were considered eligible for TPT.

Results: We enrolled 340 TB index cases and 964 HHCs [321 in Lesotho, 300 in South Africa, and 343 in Tanzania] from July 2021 to September 2022. HHCs aged <5 years were 14% overall (138/964): [16% (50/321) Lesotho, 3% (9/300) South Africa, and 23% (79/343) Tanzania]. In total, 10% (96/964) of HHCs were HIV-infected, of whom 94% (90/96) were self-reported and 6% (6/96) diagnosed at baseline: [12% (40/321) Lesotho, 13% (39/300) South Africa and 5% (17/343) Tanzania]. Of 624/733 (85%) who tested for TBI, 49% (304/624) were QFT-Plus positive overall: [53% (100/187) Lesotho, 56% (119/212) South Africa, and 38% (85/225) Tanzania]. Overall, the proportion of HHCs eligible for TPT using WHO criteria was 63% [535/855, 95% Confidence Interval 59 ,Äì 66%]: 69% (190/277) Lesotho, 64% (166/259) South Africa, and 56% (179/319) Tanzania.

Conclusion: Approximately two-thirds of TB-exposed HHCs were eligible for TPT. Further work on the cost-effectiveness of TBI testing should be considered to explore the utility of testing.

PO-TB-06. Evaluation of next generation long lasting insecticidal net against wild resistance malaria vectors in Tanzania; an experimental hut trial

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Introduction: The battle against malaria vectors faces a significant challenge due to the widespread emergence of insecticide resistance, particularly against pyrethroid insecticides. The World Health Organization (WHO) has recommended various dual-active ingredient nets for vector control in areas where mosquitoes show high resistance. This study aimed to compare the efficacy

of different types of dual-A.I. LLINs (Long-Lasting Insecticidal Nets) in experimental huts in Tanzania.
Methods: The research was conducted within the RAFT consortium, focusing on objectively addressing urgent challenges in mosquito-borne disease control. Five types of LLINs were evaluated: Olyset Plus, VEERALIN, PermaNet 3.0, Interceptor G2, and MAGNet. These LLINs incorporate different combinations of insecticides and synergists. The evaluation took place in two sites in northwest Tanzania, using a 6x6 Latin square design to rotate the nets between huts weekly and among sleepers daily. Mosquitoes were collected the following morning and identified, and mortality was monitored for up to 72 hours.
Results: The findings revealed a higher percentage of Anopheles gambiae s.l. mosquitoes in one site compared to the other, with differences in efficacy observed among the LLINs. Interceptor G2 and VEERALIN demonstrated superior efficacy over MAGNet in one site, while only VEERALIN outperformed MAGNet in the other. No significant differences were observed in comparison to MAGNet. Additionally, all evaluated nets showed blood-feeding rates close to or exceeding 50%.
Conclusion: In conclusion, variations in efficacy among LLINs were observed, potentially influenced by species variations in mosquito populations between sites. While Interceptor G2 and VEERALIN showed promising results in one site, only VEERALIN outperformed MAGNet in the other. This study underscores the importance of considering local mosquito species dynamics when evaluating LLIN efficacy for effective malaria vector control strategies.

PO-TB-07. Universal testing for TB investigation among household TB contacts in three sub-Saharan African countries

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Background: Reliance on symptom-based screening, followed by complicated testing and referral algorithms, has limited the impact of tuberculosis (TB) contact investigation in high-burden settings. Consequently, alternative approaches such as universal TB testing, where household contacts (HHCs) are tested regardless of symptoms, have gained interest. We piloted a universal Test-and-Treat strategy among HHCs, complemented by linkage to appropriate TB treatment or TB preventive therapy (TPT).
Methods: We conducted a cross-sectional pilot study in South Africa, Lesotho and Tanzania. Index patients aged 18 years with microbiologically confirmed TB diagnosed within 6 weeks were enrolled. Among all consented HHCs, we aimed to collect sputum samples regardless of whether symptoms were reported. In HHCs <10 years, we also followed an algorithm based on WHO pediatric guidelines, where all symptomatic contacts were referred for further evaluation. Sputa was tested using Xpert MTB/Rif (Xpert). As indicated, persons were referred for TB treatment initiation, further investigation or TPT, depending on country guidelines.
Results: We enrolled 342 index patients and 964 HHCs. The median age of HHCs was 18 years (8-39 years), and HIV status was known among 57%; 16%self-reported being HIV infected. Among the 964 HHCs, 147(15.2%) had any symptoms. The proportion with successful sputum collection was similar in symptomatic and asymptomatic patients. In total, 25(2.5%) HHCs had a positive Xpert; 11(7.4%) among symptomatic and 14(1.7%) among asymptomatic.Of those eligible for TPT according to country guidelines (n=277), 208(75%) were started on TPT.
Conclusions: Universal testing for TB among household contacts was feasible and yielded PWTB among asymptomatic contacts. Variations in study findings by country suggest the effect of the intervention may vary by setting; a planned cluster randomized trial is underway, which will further

evaluate the yield of TB and TPT uptake on, which will further assess the yield of TB and TPT uptake in a larger-scale implementation.

PO-TB-08. Five-year tuberculosis trends analysis in eight districts of Mwanza region, Tanzania; (2017-2021)

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Introduction: In Tanzania, like other developing countries, TB detection is hindered by totally missed, delayed notification and untimely diagnosis of active cases. Apart from having TB control strategies and interventions to detect patients and put them on treatment to cut down the chain of transmission. We are unaware of tuberculosis's existing burden and trends for the previous five years in the Mwanza region. This study aims to determine trends of tuberculosis in the Mwanza region for the period of five years from 2017 to 2021.
Methods: We extracted routine TB diagnostic data from the electronic TB database from 2017 to 2021 involving eight districts of the Mwanza region. Data was cleaned using Microsoft Office Excel 2007 in collaboration with district TB and leprosy coordinators and then imported into STATA 13 (Stata Corp LLC, College Station, TX, USA) for analysis. We estimated the TB case detection rate per 100,000 population.
Results: 6,414 laboratory-confirmed tuberculosis cases were detected in eight districts of the Mwanza region in Tanzania from 2017 to 2021. The average tuberculosis detection rate in five years was 34.7 per 100,000 population. Overall TB detection rate was two times higher in people without HIV (30.5) compared to those infected with HIV 13.4 per 100,000 population. We found 66.6% (10/15) of rifampicin-resistant TB detected in patients uninfected with HIV, and 50% (7/15) of cases were detected in 2018.
Conclusion: The TB case detection rate decreased in the Mwanza region from 2017 to 2021. Other parameters were missing in the database, highlighting remarkable gaps in established databases to monitor tuberculosis management case information, is, which highlights remarkable gaps in established databases to monitor tuberculosis management in the region. Therefore, we recommend improving the documentation to ensure all necessary case information is captured accordingly.

PO-TB-09. Reduction in mortality from HIV-related CNS infections in routine African care: before-after implementation study

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Introduction: Meningoencephalitis represents about a third of HIV-associated mortality. Up to 25% of HIV-related mortality in sub-Saharan Africa (SSA) is contributed to by HIV-associated central nervous system (CNS) infections. Cryptococcal and tuberculous meningitis are key contributors to HIV-associated meningitis in SSA. The high death rate of 49% following HIV-related CNS infections, even after rolling out antiretrovirals, is alarming. DREAMM aimed to reduce mortality using the

DREAMM package, including point-of-care tests nested within clinical management algorithms, and improved training and support from regular hospital staff.
Objective: To develop, implement, and evaluate DREAMM intervention to decrease death from HIV-related CNS infections.
Methods: This multicentered study was conducted in five public hospitals in Cameroon, Malawi, and Tanzania. The study design was before and after the DREAMM intervention and was organized in three phases: audit, staff training, and implementation. Participants were adults aged 18 years living with HIV who presented with a first episode of suspected CNS infections. Of these, 139 were enrolled in the observation (audit) phase, while 362 were in the implementation phase. The primary endpoint was to compare two-week all-cause mortality rates.
Findings: Comparing the two phases of the study, the all-cause mortality rate within 2 weeks was 49% in the observation phase and 24% in the implementation phase. After adjusting for confounding factors, including location, gender, age, and ART exposure, the all-cause mortality was notably lower in the implementation phase, showing a decrease of 23% (95% CI -33 to -13; p<0.001). By the 10th week, 55% of participants in the observation phase died, while in the implementation phase, the mortality rate was reduced to 39%. This indicates a continued decline in all-cause mortality, with a reduction of 13% (95% CI -24 to -3; p=0.01).
Conclusion: DREAMM significantly reduced mortality from HIV-associated CNS infection in resource-limited settings in Africa.

PO-MAL-01. Malaria trend and identification risky groups in an elimination setting– 2020 -2022
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Zanzibar has significantly reduced malaria transmission over the past fifteen years. However, elimination has not yet been achieved. In elimination settings, malaria infections tend to occur in older age groups and cluster in certain households and subpopulations. The latter clustering is often related to certain risk factors, such as occupation or mobility, which place individuals at higher risk of malaria infection than others. We extracted malaria surveillance data from 2019-2022 available in the Coconut System (Zanzibar malaria surveillance system) to assess malaria case trends over time over time and identify risk factors across sub-populations to inform the development of a Reactive Drug Administration (RDA) strategy in Zanzibar. Malaria cases recorded in the Coconut system were identified passively through microscopy or mRDT testing at the health facility or were actively detected through the subsequent testing at the household level as part of the routine Reactive Case Detection (RACD). There was a notable decrease in malaria cases from 11,613 cases in 2020 to 4,389 cases in 2022. Over 60% of cases were classified as imported. Districts with a high local: imported case ratio were Micheweni (45%), Mjini (33%), Wete (30%) and Magharibi B (30%). High risk of malaria cases, imported and local, were seen in males compared to females [OR=1.6; 95% CI 1.5-1.7] and in individuals aged 15-45 years old compared to those below 15 years old [OR=2.1; 95% CI 1.9-2.1]. Since the 15-45-year-old age group is the working class in most communities, then the findings suggest there may be behavioural or occupational exposure to malaria transmission outside of the household. A further investigation to unveil the high-risk population and explore occupational risks and social behaviour is highly recommended to

maximumly deploy appropriate interventions such as RDA and improve entomological foci investigation in this elimination setting.

PO-MAL-02. Malaria prevalence and associated factors in selected regions of Tanzania with varying transmission intensities: A community-based cross-sectional survey study.

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Background: Despite significant efforts to combat malaria in Tanzania, the disease remains a major health problem. Continuous surveillance to track and provide updates on malaria transmission and associated factors in areas of different endemicity is crucial to guide malaria control and elimination strategies.
Objective: The study aimed to determine the prevalence of malaria and associated factors among individuals living in selected communities in Tanzania's Kigoma, Ruvuma, and Tanga regions.
Methodology: A community-based cross-sectional survey was conducted in May and June 2022 in seven villages of the study area. Blood samples were taken from finger pricks to detect malaria parasites and tested using rapid diagnostic tests (RDT). Logistic regression analysis was used to determine factors associated with malaria infections.
Results: 4,379 individuals were assessed, and 974 (22.24%) had positive results by RDT, ranging from 4.09% ,30.36% in the study villages. Individuals who did not sleep under a bed net the night before the survey (AOR= 1.22; 95% CI 1.04 ,1.43; p = 0.017) and those with poor socioeconomic status (SES) (AOR = 1.72; 95% CI 1.35 ,2.18; p< 0.001) were more likely to have malaria infection. A higher risk of malaria infections was also observed in individuals living in houses with pit toilets (AOR = 1.29: 95%; CI 1.03 , 1.60; p=0.024), surrounded by stagnant water (AOR = 2.63; 95% CI 1.04 ,Äì 6.70; p = 0.042) and/or tall vegetations (AOR = 1.35; 95% CI 109 ,1.68; p=0.006).
Conclusion and recommendations: The study revealed the high prevalence and factors associated with malaria infection in study villages, which included those not using bed nets, poor SES, and poor households (with pit latrines, surrounded by stagnant water and tall vegetation). More studies are needed to reveal the reasons behind the persistence.

PO-MAL-03. Anopheles mosquito bionomics and infection rate in Ukerewe Island, Tanzania

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Background: Malaria deaths globally declined from 864,000 in 2000 to 576,000 in 2019. However, there was a notable 10% increase in malaria deaths in 2020. Malaria deaths in children under five years old decreased from 87% in 2000 to 76% in 2015, and this percentage has remained stagnant since then. There is a need for innovative malaria vector control tools to accelerate the progress of malaria control and elimination worldwide. Baseline data on Anopheles mosquito bionomics and infection rates are needed if innovative malaria vector control tools will be used.
Methodology: Monthly longitudinal collections were conducted in Bukongo village, situated at 2.0885¬∞ S, 33.0926¬∞ E on Ukerewe Island. Indoor mosquito sampling utilized CDC-light traps

(CDC-LTs), with morphological identification of the species level followed by further identification to the species level and further identification of sibling species using PCR. Malaria vector sporozoite and Human blood meal indexes were determined using enzyme-linked immunosorbent assay (ELISA).
Findings: 828 female Anopheles mosquitoes were collected from May 2022 to December 2023. Anopheles gambiae s.l. being predominant species (n=650, 78.5%), followed by An. funestus s.l. (n=148, 17.9%), An. rufipes (n=15, 1.8%), An. coustani (n=9, 1.1%), and An. pharoensis (n=6, 0.7%). Molecular analysis of 495 mosquitoes, reveal An. gambiae s.s. (81.8%), An. funestus s.s. (10.5%), and An. arabiensis (7.7%). Among those tested for Plasmodium falciparum sporozoite, only one An. funestus s.s. was positive (0.2%). Regarding blood meal sources, 4.9% of An. gambiae s.s. had a human blood meal, with a few showing mixed blood meals from various sources, while 5.8% of An. funestus s.s. had a human blood.
Conclusion: These findings on Anopheles mosquito bionomics indicate that An. gambiae s.s is still the main malaria vector on Ukerewe Island. Hence, novel tools are required for vector control and elimination.

PO-MAL-04. Laboratory and semi-field evaluation of the efficacy of Bacillus thuringiensis var. israelensis (Bactivec¬Æ) and Bacillus sphaericus (Griselesf¬Æ) for control of mosquito vectors in northeastern Tanzania.
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Introduction: Bacillus thuringiensis var. israelensis (Bti) and Bacillus sphaericus (Bs) have been used extensively for mosquito control. However, their efficacy varies due to factors related to target mosquitoes, larval habitat conditions and larvicide properties.
Methods: We evaluated the efficacy of Bti (Bactivec¬Æ) and Bs (Griselesf¬Æ) for control of mosquito larvae under laboratory and semi-field conditions. Laboratory bioassays were conducted with five to six different concentrations of Bti and Bs, replicated four times and the experiment repeated on three different days. Larvae mortality was recorded at 24 or 48 hours after larvicide application and subjected to Probit analysis. Laboratory bioassays were followed by semi-field trials to establish Bti and Bs' initial and residual activity. Semi-field trials were conducted in artificial larval habitats on open ground and in mosquito spheres. These larval habitats were colonized with mosquito larvae and treated with Bti and Bs, and the impact of treatments on mosquito larvae was monitored.
Results: Lethal concentration that caused 50% and 95% mortalities of test larvae (LC50 and LC95) showed that *Anopheles gambiae* complex and Culex quinquefasciatus tested were highly susceptible to Bti and Bs under laboratory conditions. Likewise, larvae of *Aedes aegypti* were highly susceptible to Bti. However,*Aedes aegypt*i larvae were not susceptible to Bs. In semi-field trials, all treatment dosages for Bti provided 91.0,Äì100% larval mortality within 24 hours, whereas Bs resulted in 96.8,Äì100% larval mortality within the same timeframe. Bs had a more prolonged residual activity, with pupal reductions ranging from 55.7 to 100% for 9 days at all application rates, while the corresponding pupal reduction with Bti was 15.4,Äì100% for 5 days. Due to the low residual activity of Bti and Bs, weekly application will be required. Based on laboratory findings, the Bs product tested would not be recommended for use in the control of *Aedes aegypti*

PO-MAL-05: The spatiotemporal analysis of Malaria-related school absenteeism in Tanzania
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Background and rationale: School-age children (6-15) remain the major reservoirs of the malaria parasite among malaria-endemic countries. Little is known about the impact of higher rates of parasitemia and asymptomatic infections in this age group on school outcomes such as absenteeism in Tanzania.
Objective: To determine the role of malaria in school absenteeism in Tanzania using national school malaria parasitaemia surveys (SMPS) data.
Methods: This is a retrospective secondary data analysis. The study utilized School Malaria Parasitemia Surveys (SMPSs) data collected between 2015 and 2021. STATA software version 17.0 (StataCorp LP, College Station, USA) was used to analyze data. Initially, descriptive analysis was performed to summarize data, and then logistic regression was applied to model the relationship between school absenteeism and predictor variables. Furthermore, the QGIS software displayed the spatiotemporal variation of malaria-related absenteeism in schoolchildren.
Results: About 230 713 pupils were included, whereby 42 548 (18.44%) were absent from school the last two weeks before the survey, 42 548 (18.44%) were absent from school the last two weeks before the survey, of whom 9,534 (22.58%) students were absent due to malaria. The prevalence of malaria absenteeism has decreased from 28% in 2015 to 18% in 2021. However, Geita consistently had the highest proportion of malaria-related school absenteeism over four years (2015-2021). Furthermore, malaria absenteeism was higher in rural areas (26.76%) than in urban areas (8.95%).
Conclusions: Malaria-related school absenteeism is 22.58%, implying that almost a quarter of school absenteeism is due to malaria and has shown a marked variation in zones and regional levels over the years.
Recommendations: The findings could guide targeted malaria intervention and set priorities on resource allocation to address malaria's negative effect on school attendance.
Keywords: Malaria, secondary data analysis, absenteeism

PO-MAL-06. Factors associated with malaria in regions implementing Case Based Surveillance (mCBS) in Tanzania from August 2021 to May 2022

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Introduction: Malaria burden is low (<1%) in Kilimanjaro, Arusha, and Manyara regions. A case-based surveillance system was introduced to aid elimination by 2030 in the areas. Our study aimed to determine factors associated with malaria among contacts of index cases using data collected from August 2021 to May 2022
Methods: A cross-sectional study. We utilised mCBS data from August 2021 to May 2022. It included locally reported cases from pro-ACD and re-ACD. The analysis employed Stata version 15, using logistic regression to determine factors associated with malaria among contact cases. Significance was set at 95% CI and a p-value of 0.05.
Results: About 949 malaria cases were identified through pro-ACD, the majority aged 16 years (63.8%) and males 54.8% (520/949). During re-ACD, 642 contacts were tested, mostly aged 16 years (57.6%), females being the majority 51% (327/642), with only 24 contacts (3.7%) tested positive for malaria. Most index cases were local-introduced (96.5%), while positive cases among contacts were primarily local-indigenous (58.3%). Families with six members had 89% lower odds of testing positive compared to those with ,â§3 members (aOR = 0.11, 95% CI = 0.02, .62). Household members without a history of fever in the past 3 days had 97% lower odds of testing positive (aOR = 0.03, 95% CI = 0.01 - 0.14), and those without contact with individuals on malaria treatment or with fever in the past 28 days had 99% lower odds of testing positive (aOR = 0.01, 95% CI = 0.004-ì0.04)

Conclusion and Recommendations: From August 2021 to May 2022, re-ACD detected about 3.7% (24/642) of malaria cases in regions under surveillance in Tanzania. Without re-ACD, these cases might have faced severe disease complications. Collaborative efforts involving the community and health stakeholders could help eliminate local indigenous cases and achieve disease elimination goals by 2030.

PO-MAL-07. Evaluation of the cube assay for laboratory testing of chlorfenapyr indoor residual spraying

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Background: To prevent further spread and manage the existing threat of resistance, there has been a need to develop and evaluate alternative insecticides and formulations for use in IRS and LLINs. WHOPES guidelines and assays for identifying and evaluating novel insecticides are based on standards established for existing neurotoxic insecticides. Such guidelines and assays may not be suitable for evaluating candidates for public health insecticides with different modes of action other than neurotoxic. This study assessed the cube assay compared to the WHO cone assay for laboratory chlorfenapyr indoor residual spraying laboratory testing.
Methods: Insectary-reared Anopheles arabiensis F1 and susceptible Anopheles gambiae s.s. Kisumu was tested against chlorfenapyr and alpha cypermethrin-sprayed plywood substrates in cones and assays. During assays, the two mosquito species' landing and resting in cones and cubes were monitored and recorded as contact numbers and resting time. Mortality was recorded by holding mosquitoes for 72 hrs after 3 mins, 30 mins, 2 hrs, 4 hrs, and 12 hrs exposure in cone and cube assays.
Results: The mean number of contacts was higher in cone (1.4-2.4) than cube assays (1-1.2) for control and Chlorfenapyr in both Anopheles arabiensis F1 and susceptible Anopheles gambiae Kisumu ($P>0.05$). Susceptible Anopheles gambiae Kisumu spent a shorter time resting in both cubes and cones (108 and 62 seconds, respectively) with alphacypermethrin than chlorfenapyr-treated plywood cubes and cones (180 and 133 seconds, respectively) ($P<0.05$). With 4 hours of exposure to chlorfenapyr treatments, higher mortality was registered in cube than cone assays ($P=0.001$). After 12 hours of exposure of mosquitoes in cube and cone assays, 100% mortality was recorded.
Conclusion and Recommendation: The cube assay has the potential for practical evaluation of chlorfenapyr like alphacypermethrin. For longer exposures, mosquitoes in the cube have time to regain contact with the treated surfaces. Modern assays are needed.

PO-MAL-08. Implementation performance of Insecticide Treated Net (ITN) distribution through the Health Facilities in Tanzania: Five years of experience (2018-2022)

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Introduction: Routine distribution of insecticide-treated nets (ITNs) to pregnant women at antenatal care (ANC) and to infants through the Expanded Programme for Immunization (EPI) has been a primary mechanism of maintaining access to ITNs. As the implementation performance of these channels has not been assessed, we conducted a historical analysis of bed net issuing rates through ANC and EPI channels over five years (2018-2022)—monthly data from DHIS-2 on ITN distribution across 6,790 health facilities in 26 regions of mainland Tanzania.
Methods: Descriptive analyses were conducted to assess ITN issuing rates' performance through ANC and EPI across time, region, health facility level, ownership (public/private), settings (urban/rural), and malaria transmission strata. Performance was categorised as if all women or infants attending ANC or EPI received nets in a month. Across all years and facilities, ANC outperformed EPI with issuing rates of 83% and 70%, respectively ($p<0.001$). Issuing rates started low at 44% and 34% in 2018 and increased to 93% and 80% in 2022 for ANC and EPI, respectively. Public facilities performed better for both ANC (89%) and EPI (76%) compared to private facilities (53% and 42%, respectively) ($p<0.001$). Dispensaries and health centres performed better than hospitals and clinics for ANC and EPI issuance ($p<0.001$). Ruvuma region had the best performance. Rural areas had higher performance (72%) during ANC visits compared to urban areas (51%) ($p<0.001$). Across epidemiological strata, ITN issuing rates during EPI activities were notably higher in high (79%) and moderate (76%) transmission epidemic strata compared to low (54%) and meagre (65%) ($p<0.001$) strata. By 2022, Tanzania substantially improved ITN issuance via ANC and EPI compared to 2018 levels. Future studies to explore the reasons for differences among analysed variables in issuing rates are recommended to help understand additional characteristics of high-performing facilities.

PO-MAL-09. Assessment of efficacy, safety and tolerability of triple Artemisinin-based combination therapies versus first-line ACTs plus placebo for treatment of uncomplicated Plasmodium falciparum malaria in, North-Eastern Tanzania: A partially blinded randomised controlled non-inferiority trial

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Background: Artemisinin-based combination therapies (ACTs) have significantly reduced global malaria morbidity and mortality over the last decade. Still, the recent emergence of artemisinin and partner drug resistance in Southeast Asia threatens further gains. In many malaria-endemic settings, ACTs have been deployed as the first-line antimalarial drugs. Still, their waned efficacy due to resistance development poses a significant threat to current malaria control and elimination efforts. All control efforts may be at stake without mitigatory measures, including the search for alternative therapies. The primary concern is that artemisinin and partner drug resistance may spread across more expansive geographic areas, especially in Africa, which bears most of the global malaria burden. Since new and more productive antimalarial drugs are not expected in the market within the next few years, there is an urgent need to evaluate alternative treatments using combinations of existing drugs to stall the pace of resistance development and spread and can be deployed immediately. More importantly, in regions where ACTs are still influential, including Sub-Saharan Africa, it is essential to have alternative treatments if multidrug-resistant falciparum malaria is imported from elsewhere or emerges de novo. Deployment of Triple Artemisinin Combination Treatments (TACT) could be one of the possible strategies for preventing or delaying the emergence and spread of resistant strains.

Conclusion: The drug combination is a powerful method for curtailing or preventing resistance development. An international, multi-centre, partially blinded randomised, controlled, non-inferiority trial of the Triple ACTs artemether-lumefantrine + amodiaquine (AL+AQ) and artesunate-mefloquine + piperaquine (ASMQ+PPQ) with the ACTs artemether-lumefantrine + placebo (AL+PBO) and artesunate-mefloquine + placebo (AS-MQ+PBO) for the treatment of uncomplicated Plasmodium falciparum malaria to assess and compare their efficacy, safety, tolerability. Subjects were hospitalised for supervised therapy for 72 hours.

PO-MAL-10. Effect of Antimalarial treatment, serum replacement, circadian rhythm on mosquito infectiousness using gametocytes from naturally infected individuals

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Background: Transmission-blocking interventions using antimalarial drugs have reducing effectively reduced malaria transmission. An enhanced understanding of mosquito biology and behaviors has facilitated the development of novel methodologies for assessing the efficacy of such interventions more cost-effectively. Laboratory environments provide an ideal setting for these evaluations, where mosquitoes are initially fed on blood-containing gametocytes. Yet, most of these evaluations have been undertaken to *An. Arabiensis* and *An.gambiae* during daytime hours, failing to address how the circadian rhythm influences mosquito infectivity. We hypothesized that Antimalarial treatment (ALU), serum replacement and circadian rhythm may provide additional transmission-reducing effects on mosquito infectiousness to *An.funestus* from naturally infected individuals.

Objectives: This study aims to investigate the impact of antimalarial treatment, serum replacement, and circadian rhythm on the infectivity of *Anopheles funestus* mosquitoes.

Methods: This is an ongoing laboratory-controlled experimental study in the established malaria transmission laboratory (MTL) at Ifakara Health Institute (IHI), Bagamoyo. Laboratory-reared *An. funestus* mosquitoes aged 3-5 days will be fed infected blood from participants aged 6-45 using a direct membrane feeding assay (DMFA) for 15 minutes. Potentially infected mosquitoes will be stored inside the cage and placed in the incubator at 27 ± 2 C° with a relative humidity of 70-80%. Mosquitoes will be left for 8 days, and on day 9, they will be dissected to see if they have developed infection.

Intended use of results: The study findings will contribute to re-design assays for evaluating transmission-blocking interventions.

Keywords: ALU, *An. funestus*, DMFA, gametocytes, oocysts

PO-MAL-11. Establishment of the Blood-stage CHMI Model with Plasmodium falciparum in Tanzania

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Introduction: Controlled human malaria infection (CHMI) studies are essential for down-selecting potential candidate malaria interventions and assessing immune correlates of protection to inform the development of malaria vaccines. Blood-stage CHMI bypasses the pre-erythrocytic stages of malaria infection and provides a more precise means for proof-of-concept testing of blood-stage vaccines. Unlike sporozoite CHMI, blood-stage CHMI has not been used in malaria-endemic countries.
Method: We conducted a clinical trial to establish, for the first time in an endemic country, a blood-stage CHMI model in healthy adults 18-45 years old residing in Bagamoyo, Tanzania. Twelve participants who met inclusion criteria were enrolled into prior malaria exposure groups based on P. falciparum anti-schizont IgG. Participants with anti-schizont IgG below the 25th percentile and above the 75th percentile of the population were assigned to the low (N=6) and high (N=6) prior malaria exposure groups, respectively. The participants were challenged with ~1000 chloroquine-sensitive P. falciparum 3D7 clone-infected erythrocytes and clinically observed daily for up to 28 days in the IHI clinical trial facility. Scheduled sample collection for safety and immunology laboratory assessments were done. Venous blood samples were collected for P. falciparum qPCR once on day C+1, and twice daily from days C+2 to C+28. Participants received malaria rescue medication once predetermined thresholds were met. A blood sample for direct membrane feeding assay (DMFA) was collected before antimalarial treatment to assess for P. falciparum transmission.
Results: We will present the number of participants that developed a detectable parasitemia by qPCR and share the safety results.
Conclusion: We will conclude by discussing the model's safety and feasibility in malaria-endemic settings and describing its utility as a blood-stage Controlled human malaria infection (CHMI) to accelerate the development of second-generation malaria vaccines.

PO-MAL-12. Semi field evaluation of efficacy and residual activity of microencapsulated pyriproxyfen formulation on anopheles arabiensis emergence inhibition
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Introduction: The development of pyrethroids resistance to malaria vectors has prompted WHO to call for larviciding as a supplementary tool for malaria vector control. Integrating larviciding with Insecticide Treated Nets (ITNs) and Indoor Residual Spray (IRS) in malaria-endemic areas has reduced malaria cases and mortality. Although larviciding has been shown to reduce indoor and outdoor malaria transmission by reducing vector densities, it is rarely implemented due to the associated high cost. High cost is attributed to regular treatment of breeding habitats due to the short persistence of available larvicides and the high cost of labour in performing treatments. Therefore, having long-lasting insecticides/formulations can extend residual efficacy at the habitats and reduce overall implementation costs. Thus, this study aims to evaluate the efficacy and residual activity of two optimised microencapsulated pyriproxyfen (PPF) formulations, 33% and 50% active ingredients, on the emergence inhibition of Anopheles arabiensis under the semi-field system.
Methodology and key issues: Twenty-five-third instar larvae will be exposed to different concentrations of PPF (1, 0.01, 0.005, and 0.0001 parts per million (ppm)) in plastic cups. A pinch of Tetramin fish food will maintain larvae. The experiment will be conducted under 12 hours of light and 12 hours of dark (12 L:12 D). Emergence will be monitored after every 24 hours; all emerged adults will be recorded. To test for residual activity in the basins placed in holes in the semi-field 150 third instar- larvae will be placed in basins with the diagnostic concentration, follow-up will made after all larvae have emerged or died a new batch will be added, the experiment will be repeated until the emergence inhibition is identical to the control arm.

PO-MAL-13. Combining house-screening and odour baited mosquito traps for sustainable control of malaria transmission in low-income communities dominated by Anopheles funestus

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Introduction: There is a greater need for new tools to monitor the persistent transmission, especially in areas where there are still significant indoor biting proportions and in places where certain vector species' behaviours and responsiveness can be matched with their specific intervention. Two simple interventions are house-screening and odour-baited mosquito traps, but they have not previously been tested jointly. House screening fits this desired profile; simple improvements like windows, doors, eaves, and gap screening have been shown to reduce malaria and prevent mosquito entry into houses.
Objectives and methodology: This current study, therefore, investigated the impact of combining house-screening and odor-baited traps in reducing malaria vector density by a)identifying an effective trap for Anopheles arabiensis, b)measuring the impact of house-screening with and without an odour-baited trap, c)testing the personal/household and community level of protection of users (either or both interventions) and non-users(control), and d)conducting a small-scale field experiment on testing the combination of house-screening (eaves and windows) and outdoor baited traps in a rural setting in Tanzania. This study aimed to assess the impact of house-screening and odour-baited traps on reducing mosquito vector density and biting risks. Semi-field and field experiments were conducted in rural Tanzania, focusing on Anopheles arabiensis mosquitoes, a dominant malaria vector.
Results: In semi-field experiments, the Suna trap exhibited higher mosquito recapture rates than the BGM trap in both non-competitive and competitive evaluations of odour-baited traps, revealing it as an effective outdoor trap for mosquito collection. House screening, whether alone or combined with traps, demonstrated substantial reductions in indoor biting risk, offering 80% and 93% protection efficacies, respectively. Also, in the field experiments, 38,281 mosquitoes were collected by CDC light trap and Suna trap—house screening, whether alone or combined with traps, provided more than 80% protection indoors.

2.2. NON-COMMUNICABLE DISEASES

CA01. Quantification of cervical cancer causing HPV16 E6 and E7 oncogene-transcripts in women living with and without HIV in Mbeya, Tanzania.

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Introductions: Women living with HIV are 6 times more likely to develop cervical cancer when compared to HIV- women. Roughly, half of cervical cancer cases are caused by HPV16. We hypothesized that HIV infection is associated with increased expression of the viral oncogenic proteins E6 and E7, contributing to malignant cell transformation. We therefore studied mRNA expression of HPV16 gene E1 and oncogenes E6 and E7 in HPV16+ HIV+ women. The aim of this study was to assess HPV16 E6 and E7 oncogenes viral transcripts and HPV16 viral load in HIV+ vs HIV- women stratified by cervical cytohistologic status.
Methods: Our 2H study has screened over 2000 women with and without HIV in Mbeya Tanzania. Specimens collected included: Biopsies and pap smears for cytohistologic diagnosis, cervical cytobrushes for HPV genotyping and HPV viral quantification. 134 HPV16+ women were selected to study mRNA expression of E1 and oncogenes E6 and E7 using Luminex-based QuantigGene-molecular-profiling-histology (QG-MPH) assay. HPV viral load was determined by quantitative PCR.
Results: Among women with no cervical lesions: The quantities of HPV16 gene E1, and oncogenes E6 and E7 reported as normalized MFI were all higher in HIV+ women vs HIV- women. Specifically, mean MFI in HIV- vs HIV+ were for E1 (0.001 vs 0.02, $p = 0.021$); E6 (<0.001 vs 0.14, $p = 0.008$) and E7 (<0.001 vs 0.42, $p = 0.088$). In HIV+ the median HPV16 viral load was 677 times higher compared to HIV- women ($p = 0.041$). Once lesions had progressed to cancer, mRNA and viral loads were still elevated but there was no difference between across HIV strata.
Conclusion: HIV infection is associated increased HPV16 viral activity and therefore accelerated oncogenesis in HIV+ women. Molecular tests to detect HPV genotypes and HPV viral activity will identify women with increased risk of cancer to focus clinical follow-up.

CA02. Assessment of cervical cancer screen and treat approach among HIV positive women in the Southern Highland Zone of Tanzania.

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Introduction: In 2020, about 342,000 women died from cervical cancer worldwide: HIV-positive women being at a six times higher risk. There is limited evidence of the screen-and-treat approach in reducing cervical cancer incidence and mortality among HIV-positive women in Tanzania. This analysis aimed at assessing the screen-and-treat approach among HIV-positive women in the Southern Highland Zone of Tanzania (SHL).
Methods: This retrospective study was conducted within PEPFAR-supported facilities in four regions of the SHL where cervical cancer screening is done by visual inspection of the cervix after application of 4% acetic acid and treatment by Cryotherapy and loop electrosurgical excision procedure from 2018 to 2022. Secondary data collected from cervical cancer screening program registers were analyzed using descriptive statistics methods.
Results: The number of HIV-positive women found to have cervical lesion(s) and treated increased rapidly each year from 55 (80%) in 2018 to 547 (94%) in 2022 with respect to the increase in number of women screened, 3174 in 2018 to 45976 in 2022 mainly due to abundance of resources in cervical cancer screen and treat approach from PEPFAR from 2018. Five years cumulatively, 2284 (1.6%) HIV-positive women were found to have cervical lesion(s) using VIA, among those with lesion(s), 2038 (89.2%) received treatment on site.
Conclusion: This study reveals that the increased access to cervical cancer screening and treatment from 2018 to 2022 resulting from the expansion and increase of screening and treatment resources from PEPFAR to the SHL has resulted into the increase in number of cervical cancer-positive women seeking treatment.

CA03. Parent`s knowledge about Human Papilloma Virus vaccination against cervical cancer: A cross sectional survey in Pwani region, Tanzania

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Background: About 15 million women aged 15-44 years are at risk of cervical cancer in Tanzania. Without specific action, Tanzania will have 12,416 new cases and 9,923 deaths annually in 2025. Improving reproductive, maternal, newborn, child, and adolescent health outcomes is the top priority agenda in Tanzania; this includes the introduction of the Human Papillomavirus (HPV) vaccine among girls aged 9-14 years for protection against HPV infections that can cause cancer later in life. However, few studies have assessed the uptake of this intervention.
Objectives: To assess the coverage and parent`s level of knowledge about HPV vaccination in Pwani region, Tanzania.
Methods: This cross-sectional study was conducted between 26 October and 9 November 2023 in 44 randomly selected villages in the Pwani region among parents of girls aged 9-14. Data collected through structured questionnaires were analyzed using STATA-16.
Results: A total of 574 parents of girls aged between 9 and 14 years were interviewed. Almost 3 in 10 parents reported at least one of their girls aged 9-14 years had received the first shot of HPV vaccine compared to 16% who had received the second shot. About 57% of the parents were aware that girls aged 9-14 years old are offered HPV vaccine, 40% were aware that the HPV vaccine protects against cervical cancer and 93% claimed that the infection is acquired through sexual intercourse. Over one-third of parents (35.4%) had good scores on knowledge about the HPV vaccine while the main source of information about the vaccine was through health officials (24%).
Conclusions and Recommendations: The low uptake of the HPV vaccine in Pwani region highlights the need to raise community awareness and advice to families and relatives of girls aged 9-14 years.

CA04. Knowledge on cervical cancer risk factors, attitude, and practice towards cervical cancer screening among women attending the OPD department at Muhimbili National Hospital 2020

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Introduction: Cervical cancer is the third most common cancer among women worldwide; about 500,000 new cases are identified, and 250,000 deaths occur every year. It is the leading cause of cancer-related morbidity and mortality among women in Tanzania. Despite being a preventable and avoidable disease, the increase in its incidence is due to low knowledge about the risk factors and low participation of the targeted group in effective preventive techniques. Early detection and prevention of cervical cancer can significantly reduce its morbidity and mortality. The study aimed to determine the knowledge of cervical cancer risk factors, attitudes, and practices toward cervical cancer screening among women attending the OPD department at MNH.
Methods: A cross-sectional study design was used, and data was collected among 105 women aged 15-49 years who attended OPD at MNH, except those attending the Gynaecology clinic. A structured questionnaire was used to collect the data. Analysis achieved using SPSS.
Results: 105 participants were recruited for this study, with a mean age of 25-34 years (30.7%); out of them, 57.1% were married, 90.5% of respondents had heard about cervical cancer, which among

those who heard about cervical cancer, only 21.9% knew the risks of cervical cancer which indicates inadequate knowledge. about 24.8% of the study participants had been screened for cervical cancer; this also indicated inadequate cervical cancer screening. Despite low levels of screening, they were found to have a good attitude towards cervical cancer screening, and the majority (43.8%) responded that they were not at risk of contracting cervical cancer. The study revealed that 29.5% of respondents did not know where to go for cervical cancer screening.
Conclusion: The present study revealed both inadequate knowledge and inadequate practice among women attending OPD clinics, indicating the urgent need to increase and promote awareness of risk factors for cervical cancer.

CA06. Epidemiological Distribution of High-Risk Human Papillomavirus Genotypes and Associated Factors among Patients with Esophageal Carcinoma at Bugando Medical Center in Mwanza, Tanzania

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Introduction: HPV, particularly high-risk genotypes, is increasingly recognized as a risk factor for esophageal carcinoma. We set out to investigate the prevalence and associated factors of high-risk HPV in formalin-fixed paraffin-embedded (FFPE) tissue blocks with esophageal carcinoma at BMC, Mwanza-Tanzania.
Methods: A total of 118 esophageal carcinoma FFPE tissue blocks, collected from January 2021 to December 2022, were analyzed. Genomic DNA was extracted from these tissues, and multiplex polymerase chain reaction (PCR) was performed to detect HPV using degenerate primers for the L1 region and type-specific primers for detecting HPV16, HPV18, and other high-risk HPV genotypes. Data were collected using questionnaires, and factors associated with high-risk HPV genotypes were analyzed using logistic regression using STATA software.
Results: Of the 118 samples investigated, the mean age was 58.3¬±13.4 years, with a range of 29 , 88 years. Most of the tissue blocks were from male patients 81/118(68.7%), and most were from patients residing in Mwanza region 44/118(37.3%). Esophageal Squamous Cell Carcinoma (ESCC) was the predominant histological type 107/118(91.0%). Almost half of the tissue blocks 63/118(53.3%) tested positive for high-risk HPV. Among these, HPV genotype 16 (HPV16) was the most common 41/63(65.1%), followed by HPV genotype 18 (HPV18) 15/63(23.8%), and the rest were other high-risk HPV genotypes detected by the degenerate primers 7/63(11.1%). The independent factors associated with high-risk HPV genotypes were cigarette smoking (OR 25.9; 95% CI 8.8 , 76.2; p-value<0.001), alcohol consumption (OR 6.1; 95% CI 2.5 , 14.9; p-value<0.001), and HIV infection (OR 5.9; 95% CI 1.02 , 33.9; p-value = 0.05).
Conclusion: A substantial number of esophageal carcinomas from BMC in Tanzania tested positive for HPV, with HPV genotype 16 being the most prevalent. This study also revealed a significant association between HPV status and cigarette smoking, alcohol consumption, and HIV.

CA08. Prevalence and Determinants of Breast Cancer Screening among Adolescents and Young Women: An Analysis of 2022 Tanzania Demographic and Health Survey Data.

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Introduction: Breast cancer is a public health issue and the most common malignancy among women worldwide. Screening is one of the most effective strategies to reduce breast cancer mortalities. We investigated the prevalence and factors influencing breast cancer screening among adolescents and young women in Tanzania.
Methods: This study utilized the 2022 Tanzania Demographic and Health Survey data from 10,733 adolescents and young women aged 15-35. Logistic regression analyses were employed to identify factors associated with breast cancer screening. Both crude and adjusted odds ratios with corresponding 95% confidence intervals (CI) were presented. A p-value of 0.05 was considered statistically significant.
Results: The prevalence of breast cancer screening was 3.39% (95% CI: 3.07-3.75). The odds of breast cancer screening were higher among those who were aged 25-35 years (aOR 1.93, 95% CI 1.46-2.54), married/cohabiting (aOR 1.42, 95% CI 1.06-1.92), having professional occupations (aOR 1.60, 95% CI 1.03-2.48), having an HIV-positive status (aOR 2.60, 95% CI 1.46-4.62), having health insurance coverage (aOR 2.07, 95% CI 1.47-2.91), and those who had ever used traditional (aOR 1.51, 95% CI 1.04-2.20) or modern (aOR 1.31, 95% CI 1.02-1.68) contraceptives. Compared to women residing in other geographical zones, those in the Western zone (aOR 0.40, 95% CI 0.20-0.80) were less likely to be screened for breast cancer.
Conclusion: Our study revealed a low prevalence of breast cancer screening among adolescents and young women in Tanzania. Factors such as being aged 25-35, being married/cohabiting, having a professional occupation, having a known HIV-positive status, residing in the Western zone, having health insurance coverage, and using contraceptives were determinants of breast cancer screening. To improve screening rates, we suggest increasing breast cancer awareness, enhancing healthcare systems, intensifying screening programs, and leveraging the universal health insurance scheme to improve access and reduce financial barriers for this population.

CA09. Is HIV-1 infection a risk factor for Lung Cancer initiation and progression in Uganda and Tanzania?

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Introduction: Due to immunosuppression, the risk of developing malignancies in individuals with Human Immunodeficiency Virus (HIV) increases compared to HIV-infected individuals. In 2022, HIV prevalence was 5.8% in Uganda and (4.8%) in Tanzania. As the number living with HIV infection increases, non-communicable diseases, including cancer, are expected to rise accordingly. We aimed to assess the epidemiology of lung cancer in Uganda and Tanzania and clarify the role of HIV-1 infection as a risk factor for lung cancer initiation and progression.
Methods: Individuals 18 years old with biopsy-proven lung cancer were enrolled in the study. Disease-free and AIDS-defining malignancies controls matched for age, gender, smoking status, and residence were identified for each lung Cancer patient enrolled. Chi-square test was used to assess differences in mortality by HIV status.
Results: Within two years, we have screened 268 potential lung cancer cases; 114 (42.5%) have been biopsy-confirmed. The median age (Inter quartile range) was 60 (51 to 67). The majority were females, 69 (60.5%), 21 (28.6%) smokers, and only 8 (7%) were HIV positive. The majority were adenocarcinoma 64 (67.4%) and presented with stage III and stage IV disease in 78 (86.7%). For

disease progression, 53 patients were assessed; for those who were HIV-negative, 15 (41.7%) were responding to treatment, 3 (8.4%) were not responding to treatment, and 18 (50%) died. Of those who were HIV positive, 1 (14.3%) responded to treatment, and 6 (85.7%) died. The difference in mortality stratified by HIV status was statistically significant (P <0.001).
Conclusion: We observed a significant difference in mortality stratified by HIV status. There is a need for more research on lung cancer mortality by HIV status to better understand the relationship by assessing potential risk factors like increased level of immunosuppression, anti-retroviral therapy effect and genetic factors.

CA10. Modeling the effect of cancer patients, mental health on treatment using multiple regression.

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Introduction: Often, cancer patients suffer mental health challenges due to the burden of disease. From the study of Nakash et al. (2013), thirty-three per cent (33%) of people treated with cancer have a common mental health disorder. A recent study by Smith (2015) suggests that mental health might have a significant effect on the success rate of cancer treatment. Data on cancer patients from the National Cancer Institute indicates that Nairobi has the highest proportion of cancer patients at eight per cent (8%). In this study, we develop a predictive multiple regression model that can determine the effect of mental health on the success rate of cancer treatment using data from Nairobi County due to the high proportions of cancer cases. We also investigate the impact of other factors such as age of the patient, stage of cancer upon diagnosis, family history and disease progression on the success rate of treatment.
Methods: The Likert scale shall be used as a significant rating in data collection. The sampling techniques employed will be cluster and snowball while forward selection will be used to admit variables in the model. The correlation and degree of association of the data used will be ascertained. Consequently, the validity and significance of the model shall be tested using p-values from R-statistics.
Implication: This study is vital because a well-developed regression model can predict the effect of mental health on the success rate of cancer treatment with precision, high accuracy, and consistency. The findings of this work will be used by oncologists, psychologists, palliative care health workers, cancer insurance policymakers, and researchers to better manage cancer cases and, hence, reduce deaths due to cancer.

DMHTN01. Integrated community-based management of HIV, diabetes, and hypertension in Tanzania and Uganda.

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Introduction: Africa houses over 100 million individuals living with hypertension, diabetes, or both, alongside 21 million people living with HIV. Integrating care of these conditions at health facilities has shown promise in improving patient outcomes and reducing healthcare costs. However, there is limited evidence for integration in community settings. This study aims to evaluate the effectiveness of community-based integrated care for HIV, diabetes, and hypertension.
Methods: Since January 2023, we enrolled clinically stable patients with HIV, diabetes, or hypertension into a parallel arm, pragmatic cluster-randomized trial comparing community integrated care (intervention) with facility-based integrated care (control) in Tanzania and Uganda.

Recruited participants were organized into groups of 8-17 persons and randomized to either the intervention or control arm. The intervention comprises nurse-led, trained lay workers-supported drug delivery, adherence support and clinical monitoring at community venues. The target sample size is 124 groups formed by 1,736 participants in both countries, followed up for 12 months. The study composite endpoints are glycaemia blood pressure control and viral load suppression.
Results: The study is being conducted at six health facilities in Tanzania and eight in Uganda, with 1864 enrolled; 906 (48.6%) from Tanzania and 958 (51.4%) from Uganda, forming 124 patient groups. Over 76.5% of participants are female, with a median age (interquartile range) of 55 (46-63) years. Over a third of participants [34.2% (638/1864)] are known to have HIV, 62.0% (1156/1864) have hypertension, 27.6% (515/1864) have diabetes, and 22.6% (422/1864) have multiple conditions.
Conclusion: This study will inform our understanding of whether integrated community care is as effective as standard facility-based care in controlling blood pressure and glycaemia among individuals with hypertension and diabetes without compromising HIV outcomes.

DMHTN02. Piper Nigrum Suppresses Medial Arterial Calcification in Rats Induced by Vitamin D3 plus Nicotine via Interleukin 17B Production by Modulating SPP1/MAPK4/SMAD6 Signaling Pathway.

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Introduction: Vascular calcification (VC) is associated with adverse cardiovascular events and inflammation. Piper nigrum (PN) is reported to suppress inflammation in many diseases. IL-17 B is a poorly studied cytokine, and it remains to be elucidated whether IL-17B production induces VC and whether (PN) can suppress it. We aimed to examine the effect of PN on medial arterial calcification in rats induced by vitamin D3 plus nicotine (VDN), via IL-17B production and the underlying mechanism.
Methods: In Vivo VC, was induced in rats by vitamin D3 and nicotine. In Vitro, RVSMCs were incubated with calcifying media containing Ca^2 to induce VC.
Results: We found that the VC model had higher calcium concentrations ($p<0.0001$) compared to other groups, whereas ALP activity was not significant among the groups ($p=0.2979$). Alizarin Red Staining showed red-stained calcium deposits and was suppressed by PN ($p=0.0076$). The VDN group had higher neutrophils ($p=0.0188$) and monocytes ($p=0.0149$) percentages than other groups. The VDN+PN group had lower body weight than the other groups ($p=0.0096$). Also, the VDN group had a higher water consumption ($p<0.0001$) than the other groups. There was no significant difference in food intake ($p=0.4444$) and heart weight/body weight ratio (p=0697) among the treated groups. The RNA seq. data showed 344 genes were significantly differentially expressed in the VDN group,105 upstream and 239 downstream. SPP1, MAPK4, SMAD6 and IL-17B were overexpressed in the VC and downregulated in the treatment group.
Conclusion: PN may be a promising therapeutic agent for inhibiting pro-inflammatory cytokines.

DMHTN03. Prevalence of Hypertension in adults aged 18 to 69 years in Tanzania.

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Introduction: The prevalence of non-communicable disease (NCD) is increasing in developing countries and Tanzania. Data regarding the current burden of NCDs in Tanzania is lacking. We conducted a national study to estimate the prevalence of hypertension and its risk factors among Tanzanian adults. The national prevalence of hypertension was needed to plan and evaluate

interventions. To establish the burden of Hypertension in Tanzanian adults aged 18 to 69 years and associated risk factors in Tanzania.
Methods: This household-based survey uses a three-stage cluster sampling design (PSU, SSU, and TSU). The target population: women and men aged 18 to 69 years who are usual residents of the selected households and have stayed in the households for at least six months before the survey. The sampling frame used for STEPS 2022/2023 is the Tanzania Population and Housing Census (TPHC 2022) conducted in Tanzania in 2022. Sample size 4320(Mainland =3,780 and Zanzibar=540) Data on the levels of major NCD risk factors (core and expanded) were collected through all 3 levels of STEPS: Step1: Behavioural risk factors; Step2: Physical measurement-related risks and Step3: Biochemical measurements. Hypertension was defined as a Blood Pressure Measurement of BP 140/90 mmHg.
Results: The study reports on the prevalence of hypertension in Tanzania, by age and sex and the associated risk factors.
Conclusions: Preventive efforts and health care services need to be strengthened. A repeat survey is recommended after 5 years.

DMHTN04. Human genetics variations across populations in Tanzania.
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Introduction: Africa boasts unparalleled diversity in ethnolinguistics, environment, culture, and genetics. However, studies on people of African descent, constituting only 3% of global genomic databases, are limited. This disparity impedes advancements in healthcare, including molecular diagnosis, disease prevention, drug discovery, and pharmacogenomics. Tanzania, with over 150 ethnic and linguistic groups, provides a unique opportunity to explore genetic variations and their health implications. Nevertheless, limited funding and capacity in genomics and bioinformatics have hindered comprehensive studies of the Tanzanian genome. Tanzania's genomic diversity remains understudied and underrepresented due to insufficient funding and capacity in genomics and bioinformatics. Recent advances in genotyping, high-throughput sequencing systems, and associated bioinformatics platforms offer a chance to address this gap. Characterizing the genetic diversity of Tanzanian ethnic populations may reveal hidden genetic polymorphisms and provide insights into disease susceptibility, resistance, and environmental adaptations. The main objective is to map human genetic variations in Tanzania and their association with non-communicable diseases.
Specific objectives include leveraging anthropological and ethnolinguistic information to characterize populations, sequencing/genotyping a representative sample, establishing a genetic variant database, mapping genetic architecture, conducting genome-wide association scans, developing a biorepository, and identifying diagnostic variants.
Methods: The study will cover Mainland Tanzania and Zanzibar, conducted in the pilot and main study phases. Ethnolinguistic groups will be categorized with expert input, and a cross-sectional design will recruit participants. Data collection will involve biodata, demographic and clinical history, biophysical measurements, and sample collection. The analysis will utilize AWS and various pipelines for genotype alignment, genotyping, and association analysis, employing tools such as PLINK, GCTA, and Eigensoft.

This study aims to address gaps in genomic research in Tanzania, enhancing healthcare outcomes and global understanding of human genetic diversity.

DMHTN05: Prevalence and determinants of road traffic and non-road traffic accidents: Tanzania National STEPs Survey, 2023

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Introduction: The World Health Organization has acknowledged both road traffic and non-road traffic accidents as public health problems. In Tanzania, information on the magnitude and determinants of road and non-road traffic accidents is scarce.
Objective: The current analysis presented the prevalence and determinants of road traffic and non-road traffic accidents among Tanzanians aged 18 to 69.
Methods: Tanzania's STEPS survey of noncommunicable disease (NCD) risk factors was conducted from September 2023 to November 2023. Tanzania carried out Steps 1, 2, and 3. Socio-demographic and behavioural information was collected in Step 1. The survey was a population-based survey of adults aged 18-69 years. A multistage cluster sample design was used to produce representative data for that age range in Tanzania. A total of 3565 adults participated in the survey. We will employ Multinomial logistic regression to determine the factors associated with the prevalence of road traffic accidents only, non-road accidents only and both accidents. These factors will include zone, location (rural/urban), age, sex, marital status, education, occupation, alcohol consumption and depression.
Results: In this study, we will communicate information on the national prevalence of road traffic crashes and non-road traffic accidents such as falls, burns, poisoning, cuts, near-drownings or animal bites which required medical attention during the past 12 months. This will be followed by a presentation of the prevalence of road traffic accidents only, non-road accidents only, and both accidents. The analysis will also be done to communicate results for the severity of both road traffic and non-road traffic accidents among Tanzanians aged 18-69 years in Tanzania. Lastly, we will analyse and communicate results on the determinants of road traffic accidents only, non-road accidents only and both accidents.
Conclusion: Due to social and economic development, we are at an increased risk for both road traffic and non-road traffic accidents. Knowing the magnitude and determinants of the problem will contribute to developing intervention strategies and programs to address the burden.

DMHTN06: Prevalence and determinants of depression among adults aged 18-69 years: Tanzania National STEPs Survey, 2023

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Introduction: Depression is prevalent in Tanzania, as it is in many other countries. However, there is limited information on the national representative magnitude of the problem and associated determinants.
Objective: The current analysis aimed to present the prevalence and determinants of depression among Tanzanians aged 18 to 69.
Methods: The STEPS survey of noncommunicable disease (NCD) risk factors in Tanzania was conducted from September 2023 to November 2023. Tanzania carried out Steps 1, 2, and 3. Socio-demographic and behavioural information was collected in Step 1. The survey was a population-based survey of adults aged 18-69 years. A multistage cluster sample design was used to produce

representative data for that age range in Tanzania. A total of 3565 adults participated in the survey. We will employ Modified Poison logistic regression to determine the depression-related factors.
Results: In this analysis, we will present information on the prevalence of depression, access to medication, access to psychological therapy, and access to minimum adequate treatment. Later, we will determine the factors associated with depression. These factors will include zone, location (rural/urban), age, sex, marital status, education, occupation, alcohol consumption, and depression.
Conclusion: Results for this analysis will fill the gaps of the current circulating ramous about the burden and determinants of mental health in Tanzania. Knowing the magnitude and determinants of the problem will contribute to developing intervention strategies and programs to address the burden.

DMHTN07: Prevalence and determinants of 10-year CVD risk ≥ 20%, or with existing CVD among aged 40-69years: Tanzania National STEPs Survey, 2023

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Introduction: Efforts to address cardiovascular risk factors in Tanzania include public health interventions focused on promoting healthy lifestyles, improving access to healthcare services, implementing tobacco control policies, and strengthening healthcare systems to provide early detection and management of hypertension, diabetes, and other risk factors. However, the current information on the national representative prevalence and determinants of high-risk or CVD among individuals aged 40-69 years is limited.
Objective: To estimate the prevalence of a 10-year CVD risk ≥ 20%, or with existing CVD among those aged 40-69 years in Tanzania.
Methods: Tanzania's STEPS survey of noncommunicable disease (NCD) risk factors was conducted from September 2023 to November 2023. Tanzania carried out Step 1, Step 2 and Step 3. Socio-demographic and behavioural information was collected in Step 1. The survey was a population-based survey of adults aged 18-69 years. A multistage cluster sample design was used to produce representative data for that age range in Tanzania. A total of 3565 adults participated in the survey. The respondents' CVD risk was assessed using the WHO prediction chart. The parameters that will be applied in the WHO chart/system for the current analysis will include the 3-letter country code identifier (ISO 3166-1 alpha-3), Gender, Age, Smoking status, History of Diabetes, Systolic blood pressure (mm Hg), Total cholesterol (mmol/L) and Body mass index (Kg/m^2). Data will be analysed using Stata Version 17; bivariate analysis will be done using Chi-square, and Modified Poison logistic regression will be used to identify the predictors of 10-year risk for CVDs at a 5% level of significance.
Results: In this analysis, we will present information on the prevalence of 10-year CVD risk ≥ 20% or with existing CVD and determinants of the risks among people aged 40-69. These determinants will include zone, location (rural/urban), age, sex, marital status, education, occupation, alcohol consumption, and depression.
Conclusion: Results of this analysis will fill the gaps of the national representative prevalence and determinants of high risk or CVD among individuals aged 40-69 years. Knowing the magnitude and determinants of the problem will contribute to developing intervention strategies and programs to address the burden.

DMHTN08: Prevalence and determinants of hypertension in Tanzania among adults aged 18-69 years: Tanzania National STEPs Survey, 2023

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Introduction: Hypertension is a public health problem, yet there is limited information on the current national representative prevalence and determinants in Tanzania. Such information is of paramount importance in Tanzania, where NCDs, including hypertension, are responsible for 33% of deaths annually, and all environmental, biological and ethnic risk factors are increasing exponentially.
Objective: This study intends to determine the prevalence and risk factors associated with hypertension among Tanzanian adults aged 18-69.
Methods: Tanzania's STEPS survey of noncommunicable disease (NCD) risk factors was conducted from September 2023 to November 2023. Tanzania carried out Step 1, Step 2 and Step 3. Socio-demographic and behavioural information was collected in Step 1. A multistage cluster sample design was used to produce representative data for that age range in Tanzania. A total of 3565 adults participated in the survey. In Step 2, we collected physical measurements, including systolic and diastolic blood pressure (BP); the BP measurements were taken three times each at every 3minutues. Data will be analysed using Stata Version 17; bivariate analysis will be done using Chi-square, and Modified Poison logistic regression will be used to identify the predictor's prevalence of raised blood pressure (Blood pressure ≥140/90mm/Hg) or currently on medication for raised blood pressure.
Results: In this analysis, we will present information on the prevalence of raised blood pressure (Blood pressure ≥140/90mm/Hg) or currently on medication for raised blood pressure and associated socioeconomic and demographic determinants of the burden. The determinants to be evaluated will include zone, location (rural/urban), age, sex, marital status, education, occupation, alcohol consumption and depression. Also, we will communicate information on the cascade of BP such as % with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP), % with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP) previously diagnosed, % with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP) on medication and % with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP) controlled.
Conclusion: Results from this analysis will provide an update on the prevalence of hypertension and determinants and unmet needs. It will also help identify areas for intervention programs.

DMHTN09: Geospatial distribution and predictors of overweight and obesity found in Tanzanian 2023 STEP SURVEY

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Background: Overweight and obesity have emerged as significant public health concerns globally, including in Tanzania. Rapid urbanization, dietary shifts, and sedentary lifestyles contribute to their increasing prevalence. However, comprehensive studies focused on lifestyle changes according to the geographical distribution of Tanzania's mainland and island populations are limited. Understanding these factors is crucial for informing targeted interventions and policies to mitigate the growing burden of overweight and obesity that has variations within the country.
Objectives: This study aims to analyze the geospatial distribution of overweight and obesity prevalence in Tanzania and explore the sociodemographic, behavioural, dietary, environmental, and lifestyle factors contributing to these conditions.
Methodology: A household cross-sectional survey involving a nationally representative multistage sampling of adults aged 18-69 years in Tanzania 2023 STEP SURVEY. Data was collected through Step 1 using questionnaires, Step 2 through physical examinations and Step 3 through biochemical measurements. Geospatial analysis using coordinates collected in the survey will be used to map out the distribution of overweight and obesity for the different zones in Tanzania using the Geographic Information System (GIS). Multivariable spatial analysis regression modelling will be done to assess the factors associated with overweight and obesity burden.

Conclusion: This study will highlight the substantial distribution of overweight and obesity burdens in Tanzania while identifying key factors contributing to their changes in different zones. Efforts to combat these conditions will prioritize interventions targeting urban populations, promoting healthier dietary habits, increasing physical activity levels, and addressing socio-economic disparities about geographical locations and their boundaries in Tanzania.

PO-NCD-01. Perception of health care providers on the utility of Patient Health Questionnaire-9 tool for depression screening in People with HIV at a Tertiary Hospital in Southern Highlands; Tanzania

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Introduction: It is estimated that about 31% of people with HIV (PHIV) are suffering from depression worldwide. Depression is among the most common mental health disorders among PHIV that is unfortunately underdiagnosed in most of Sub-Saharan Africa. Depression in PHIV is associated with poor health status, such as low weight gain, low CD4 progression, suicide, increased progression to AIDS and mortality, and poor adherence to Highly Active Antiretroviral Therapy. The recently locally validated (PHQ-9) in an outpatient primary care population provides an opportunity to test the practicability of depression screening at HIV-Care and Treatment Centers (CTCs). The current work examined the perceptions of the HCPs in a study exploring the experiences of implementing depression screening via the PHQ-9 tool for PHIV attending CTC at a tertiary hospital in the Southern highlands of Tanzania.
Methods: This study was conducted at Referral Hospital CTC in the Southern highlands of Tanzania. Qualitative interviews were conducted to explore the perceptions of HCPs on the utilization of the PHQ-9 depression screening tool among PHIV by HCPs with non-specialized mental health education in the CTC setting. The interviews involved Focus Group Discussions and Key Informant Interviews.
Results: Three key themes were identified: (1) perception of the PHQ-9 tool; (2) on-job training; (3) required resources
Conclusion: The findings from our study suggest that to contribute to the utilization of the PHQ-9 depression screening tool at CTC, prior engagement of the HCPs will be necessary to obtain their perceptions on depression, the PHQ-9 tool, resources, on-job training, competence, and willingness to screen unless HCPs are convinced of the potential value of the tool.

PO-NCD-02. Magnitude and distribution of allergic disorders among children aged 6 to 59 months attending outpatient clinics at Amana Regional Referral and Kairuki hospital, Dar es Salaam.

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Introduction: In recent years, allergic disorders have surged in prevalence globally, particularly among children. The precise reasons behind the increasing prevalence remain complex; however, intertwining genetic predispositions with environmental influences, including dietary changes, hygiene practices, and climate change, have been in the spotlight. Therefore, because of the impact of these changes, the current magnitude of allergic disorders in children is poorly understood.

Objectives: To determine the prevalence and pattern of allergic disorders among children aged 6 to 59 months attending outpatient clinics at Amana Regional Referral and Kairuki Hospital.
Methods: The study was a cross-sectional descriptive hospital-based study using International Study of Asthma and Allergies in Childhood (ISAAC) questionnaires. The study sample included children aged 6 to 59 months whose mothers consented. Statistical Package for Social Sciences (SPSS) version 28 was used for data entry and analysis. The pattern of allergic disorders is presented as frequency and percentages.
Results: The study recruited 153 participants. 78 (51.0%) had a positive history of allergic disorders. Among those with allergic disorders, 23 (15%) had a positive history of asthma, 49 (32%) had a positive history of allergic rhinitis, and 3(21.6%) had a positive history of skin allergies.
Conclusion and recommendation: Allergic disorders are common in children between 6 months and 5 years old. This can potentially affect their quality of life and frequent hospital visits. A further study should be conducted to determine the most risk factors and causes of allergies in children for appropriate intervention.

PO-NCD-03. Complications and Outcomes in Hospitalized Pediatric Patients with Sickle Cell Disease at Mbeya Zonal Referral Hospital.

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Background: Sickle cell disease (SCD) is a prevalent congenital hemolytic anaemia globally, with Tanzania ranking fifth in annual sickle cell-related births. Despite advancements in management, many African patients, including those in Tanzania, experience complications leading to frequent hospitalizations. However, data on pediatric inpatients' symptom burden and complications are limited in Tanzania.
Methods: This retrospective cohort study aimed to describe SCD-related complications and outcomes among hospitalized pediatric patients. Medical records of pediatric inpatients at Mbeya Zonal Referral Hospital from June 2019 to June 2023 were reviewed. Participants under 18 diagnosed with SCD were included. Complications, demographics, and laboratory data were recorded.
Results: Of 3424 admissions, 264 were due to SCD (prevalence: 7.7%). Most patients (53%) were male, with a median haemoglobin level of 6.5g/dl. Vaso-occlusive pain events (68%), infections (55.3%), and acute chest syndrome (25.4%) were prevalent, along with severe anaemia (23.9%), stroke (2.7%), and splenic sequestration (3%). The mortality rate was 3.8%, with a median length of hospital stay of 4 days.
Conclusion: Vaso-occlusive pain events, infections, and acute chest syndrome were the most common complications observed. Continued efforts are needed to manage SCD complications effectively.

PO-NCD-04. Awareness of sickle cell disease among care givers and magnitude of sickle cell disease among pediatric patients admitted at Kitete Regional Referal hospital, Tabora.

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Introduction: More than 300,000 babies are born with sickle cell disease (SCD) each year, with Sub-Saharan Africa harbouring 75% of the global burden. Tanzania ranks fifth globally, with

approximately 11,000 babies born with SCD annually. The World Health Organization (WHO) recommends interventions to reduce morbidity and mortality in areas with high disease burdens. In Tanzania, studies to delineate the magnitude of the disease and interventions are carried out successfully at national and zonal referral hospitals, but regional and district hospitals are lagging behind. As such, implementation of evidence-based interventions is not possible.

Aim: The study determines the level of awareness of SCD among caregivers and the prevalence of SCD among pediatric patients admitted at Kitete Regional Referral Hospital (KRRF) in Tabora between July 2022 and June 2023.

Methods: A cross-sectional study was conducted in the pediatric ward at KRRH. One thousand eight hundred and one children were admitted to the pediatric ward, but only 229 were eligible to participate in this study. Caregivers completed a questionnaire that captured demographic information, children's presenting symptoms, and their awareness of SCD and its complications. SPSS version 20 was used for data analysis.

Results: On assessing the level of awareness, more than half of the caregivers did not know how SCD is acquired, did not know the chances of a child acquiring SCD, and did not know how to prevent a child from acquiring SCD. The Hb electrophoresis results showed that 66.8% had SCD; there were more SCD-positive male children than to them; there were more SCD-positive male children than female children. This study showed no association between clinical presentation and SCD type.

Conclusion: The level of awareness about SCD is very low among caregivers who are living with children, and the prevalence of SCD among the admitted in the pediatric ward is high

PO-NCD-05. Risk factors associated with bloodstream infections among chronic kidney disease patients undergoing hemodialysis in Shree Hindu Mandal Hospital–Dar-Es-salaam, TZ.

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Background: Globally, bloodstream infections (BSIs) pose a significant threat to the well-being of hemodialysis patients. In Tanzania, although treatable, BSIs remain a concern due to factors such as patient characteristics, vascular access type, and potential care deficiencies. This study aims to identify the risk factors associated with BSIs in this population.

Methods: A retrospective study was conducted in SHM Hospital involving 160 patients with hemodialysis (80 cases with catheters-CVC, and 80 controls with fistulas-(AVF) was conducted in SHM Hospital. Data were systematically collected from patient files, permission to access medical records was sought from the Shree Hindu Mandal, and analysis was performed using SPSS version 25. The data has been encrypted anonymously and has obtained ethical approval from the Ethics Review Committee of the University of Aga Khan.

Results: Among the 160 participants (mean age: 59.17±12.284 years, 54.4% male, 45.6% female), the risk of BSIs was significantly higher in catheter (CVC) users compared to fistula (AVF) users. Regular Use Of Antibiotics also showed a notable difference (CVC=4.164, Exposed=60, Nonexposed=20, AVF=0.133, Exposed=7, Nonexposed=73, X^2=72.130, *df*=1, *p*=0.001, OR 0.032, 95% CI 0.013 – 0.081), as did relative risk (CVC=2.319,Exposed=51, Nonexposed=29,AVF=0.383, Exposed=18,Nonexposed=62, *p*.001) for Serum Albumin Levels, (CVC=1.686,Exposed=59, Nonexposed=21, AVF=0.631, Exposed=41, Nonexposed=39, *p*.03) for Diabetes.

Conclusion: Addressing long-term catheter use, low albumin levels, diabetes, and improving nephrological care are crucial for preventing BSIs in hemodialysis patients. Future research should delve into the impact of BSIs on dialysis quality and adequacy in Tanzania and globally.

Key words: Bloodstream infections, hemodialysis, catheters, arteriovenous fistulas.

PO-NCD-06. Clinical and anthropometric characterization of two East African populations with HIV and diabetes mellitus comorbidity

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Introduction: The co-occurrence of Human Immunodeficiency Virus (HIV) and Diabetes Mellitus (DM) presents a multifaceted health challenge in East Africa. Understanding East African populations' clinical and anthropometric profiles grappling with this dual burden is crucial for tailored healthcare interventions. Anthropometric measures provide insights into disease progression and management. These populations face unique challenges, including socio-economic disparities, cultural influences on health behaviours, and limited healthcare access. Characterization studies aim to elucidate the prevalence, risk factors, and health outcomes associated with HIV and DM comorbidity, offering a foundation for integrated care models tailored to the specific needs of these communities.

Objective: This study aimed to investigate the clinical and anthropometric characteristics of HIV-infected and uninfected adult Ugandans and Tanzanians with diabetes mellitus to identify any phenotypic differences.

Methods: The clinical and anthropometric characteristics of HIV-infected and uninfected adults with diabetes mellitus recruited from four tertiary hospitals were compared.

Results: Of the 1,914 participants with diabetes mellitus, 164 participants (8.6%) had HIV infection. Compared with those who were HIV uninfected with diabetes mellitus, HIV-infected participants with diabetes mellitus had a lower median (IQR) age (54 [48-60] years vs 57 [49-64] years, p=0.0006), duration of diabetes mellitus (5 [2-11] years vs 7 [3-13] years, p=0.006), and less self-reported hypertension (49.4% vs 63.7%, p=0.001). Participants with diabetes mellitus and HIV infection were more likely to have a prior history of active tuberculosis (21.3% vs 3.3%, p<0.0001) and a lower frequency of latent tuberculosis infection test positivity (48.2% vs 57.9%, p=0.02). These participants also had a lower median (IQR) body mass index (25.2[22.6-29] kg/m2 vs 27.9 [24.5-31.4)] kg/m2, p<0.0001) and visceral fat level (8 [6-11] vs 10 [7-12], p<0.0001).

Conclusion: HIV Infection was relatively common and was associated with younger age, shorter duration of diabetes mellitus, less adiposity, self-reported hypertension, and LTBI test positivity.

PO-NCD-07. Insights into Diabetes: Clinical Profiles and Metabolic Markers in Tanzanian Populations

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Background: Sub-Saharan Africa (SSA) has the fastest-growing prevalence of diabetes mellitus (DM) worldwide. Little is known about the clinical characteristics of DM in SSA, including its underlying inflammatory and metabolic profiles. Aim: We aimed to compare circulating inflammatory proteins in DM and non-DM patients while examining the clinical characteristics of DM patients regarding inflammatory proteomics and lipidomic profiles.

Method: A cross-sectional study was conducted on 243 dm participants from an ongoing clinical trial, Prevention of tuberculosis in diabetes mellitus and 323 healthy non-diabetic individuals from the 300 Human Functional Genomics project. Clinical data, demographics including age, sex, BMI, total body fat, visceral fat, glycaemic control, medication use, c-peptide, creatinine and uric acid were collected for all dm participants. Circulating inflammatory markers and metabolites were assessed from the plasma samples through 92-Olink inflammatory panel and nuclear magnetic resonance (NMR) spectroscopy for 350 targeted metabolites provided by Nightingale Health Plc, respectively. All data was analysed using R software.
Results: Compared to controls, individuals with DM were more often female, older, and had a higher BMI. Duration of DM was 9(3; 14) years, BMI was 28(24; 31)kg/m2, mid-upper arm circumference was 28.8(27; 30) cm, total body fat was 36.4(28; 45), and visceral fat was 10(8; 13). Glycated haemoglobin was 9.8(8; 12)%,15% were on Insulin, and 82% metformin. More than 72% of DM patients had mild- end-stage kidney disease. 17% of females and 4% of males had hyperuricemia. The median c-peptide level was 0.7(0.5; 1)ng/mL. Circulating inflammatory protein concentrations were significantly higher in people with DM than in controls; unsupervised hierarchical clustering revealed three distinct clusters with varying inflammatory profiles. Age, disease duration, metformin use, uric acid levels, c-peptide, and chronic kidney disease were statistically significant between the clusters.
Conclusion: DM in SSA is characterized by a heterogeneous clinical

PO-NCD-08. Knee functional outcome after retrograde femoral nailing with sign nail at Mbeya Zonal Referral Hospital, Tanzania

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Introduction: The retrograde approach to the management of femoral shaft fractures has been gaining popularity among orthopaedic surgeons around the world, this is because of the short operation time and the easy way to position patients. Some questions are still there, especially on knee pain after the operation and general knee function
Methods: A retrospective review of patients with femur fractures operated with retrograde SIGN nail standard or fin design was followed for 18 months between 2018 and 2022. Data were collected from the SIGN surgical database and hospital patient register. Patients were interviewed by phone and some in person, who managed to attend. Oxford Knee Score, squat and smile criteria, radiological, and clinical were used to assess and grade functional outcomes. Data were analyzed with the Stata method.
Results: We studied 78 patients, male was 68% of the participants, with a mean age of 37.6 (16 years to 80 years); the majority had been involved in a motorway crash 83% and presented with closed femur fracture 81%. Six (7%) patients reported to have pain before surgery compared to sixteen (21%) after surgery. Older patients had significantly more pain post-operation (p value=0.002); those who operated with standard nails complained more pain compared to fin nails (p value=0.003). Oxford Knee Score shows 78.2% of patients scoring >30 which is good to excellent. We observed arthritic changes in 15.5% affecting the elderly (p value=0.002), pain on squatting was not significant (p value=0.296)
Conclusion: Retrograde nailing for the femur is a retrograde approach to managing femur fractures. It is mostly done when there is a femoral neck or acetabular fracture, an easy position for polytrauma patients in need of other surgeries. Knee function was assessed with OKS, and squat and smile were excellent in young patients and inferior in elderly patients. We recommend a

retrograde approach to managing femur fractures using SIGN nails as they do not compromise knee function or impair quality of life.

PO-NCD-09. Magnitude, parents' perception and factors associated with overweight and obesity among children under five years of age attending Kairuki Hospital

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Introduction: Overweight and obesity among children under five years of age is a significant public health concern due to its association with morbidity and mortality. However, little is known about the prevalence of overweight/obesity and its associated factors in this age group in lower- and middle-income countries, including Tanzania.
Objective: This study aimed to determine the magnitude, associated factors, and parents' perception of overweight/obesity among children under five years of age at Kairuki Hospital.
Methodology: This was a hospital-based cross-sectional study conducted at Kairuki Hospital in Tanzania from September to November 2023. Children under five attended the outpatient department, and RCH clinic was studied. A structured questionnaire was used to collect sociodemographic data on children and their parents and information on their parent's perception of their child's weight status. To determine overweight/obesity, children's weight and height were interpreted using WHO z-score charts.
Results: A total of 222 children were included in the study, with 142 (64%) being between 0-2 years of age and 90 (40.5%) females. Of the 222 children, 46 (20.7%) were classified as overweight/obese, with 30 (13.5%) overweight and 16 (7.2%) obese. Children below 2 years of age were more likely to be overweight/obese compared to those between 2-5 years (p=0.01). A significant association was seen between how parents perceive their children's weight status and their children's actual weight status (p=0.04). Parental education and parents' marital status also had a significant association with childhood overweight or obesity (p=0.04 and 0.03, respectively).
Conclusion: In this study, we found a high prevalence of overweight/obesity among children under five at Kairuki Hospital. The association between childhood overweight/obesity with certain sociodemographic factors and parental perception of their child, weight status emphasizes the need to educate parents and develop targeted interventions towards specific groups.

PO-NCD-10. Non-communicable disease multimorbidity in household contacts of people with TB and neighborhood households in Tanzania and South Africa

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Introduction: Data on the prevalence of non-communicable diseases (NCDs) in tuberculosis (TB) household contacts are limited, yet important to inform integrated NCD screening and care within contact investigations. It is also unclear if screening these contacts reveals more people with NCDs than individuals in the same neighbourhood.
Method: We conducted a pilot cross-sectional study in South Africa and Tanzania, enrolling adult household contacts of TB and individuals in neighbourhood households (controls). We inquired

about known NCD, systematically measured blood pressure, and tested for spot blood glucose and HbA1c.
Results: We enrolled 203 adult contacts of 111 persons with TB and 160 controls. Among contacts, 12.2% (95%CI 8.3-17.6) and 39.7% (95% CI 33.1-46.7) had diabetes and hypertension, respectively, compared to 14.1% (95%CI 9.2-21.0) and 44.7% (95%CI 36.9-52.7) among controls. More than half of NCDs were newly identified. We did not find a significant difference in the prevalence of at least one NCD between the two groups (Odds ratio 0.85, 95%CI 0.50-1.45, adjusted for age and gender).
Conclusions: We found a high prevalence of undiagnosed NCDs among contacts, suggesting a potential benefit of integrating NCD screening and care within contact investigations. Screening in the same community might similarly find undiagnosed NCDs.

2.3. HEALTH SYSTEMS STRENGTHENING, INNOVATION, AND TECHNOLOGICAL ADVANCEMENT

TECH03. ePOCT+, a digital health tool to improve care and reduce antibiotic prescription among children in primary healthcare outpatients in Tanzania: results from a cluster randomized controlled study

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Background: Excessive antibiotic use and antimicrobial resistance are major global public health threats. Management of sick children at primary health facilities remains of insufficient quality as health care workers lack appropriate diagnostics, supervision to improve their skills, and decision-support tools, leading to an increase in antibiotic prescriptions. We developed ePOCT+, a digital Clinical Decision-Support Algorithm, in combination with a C-reactive protein test, hemoglobin test, pulse oximeter, and mentorship, to guide healthcare providers.
Objectives: to assess the impact of ePOCT+ in improving quality of care and reducing antibiotic prescriptions in primary health care facilities.
Methods: We performed a cluster randomized control trial in 40 health facilities randomized at a 1:1 ratio to evaluate the impact of ePOCT+ compared to usual care and intervention on antibiotic prescription, outcome and quality of care. Twenty facilities were from Morogoro and 20 from Mbeya regions.
Results: Over 11 months, 23,593 consultations were enrolled in 20 ePOCT+ health facilities and 20,713 in 20 usual care facilities. Antibiotics were prescribed in 23.2% of consultations in ePOCT+ intervention facilities, and 70.1% in usual care facilities (adjusted difference, -46.4%, 95% confidence interval (CI) -57.6 to -35.2). Day 7 clinical failure in ePOCT+ facilities was non-inferior to usual care facilities (adjusted relative risk 0.97, 95% CI 0.85 to 1.10), and hence, despite low antibiotic use, the cure was similar to the control sites.
Conclusion: Using ePOCT+ could help address the urgent problem of antimicrobial resistance by safely reducing antibiotic prescribing.

TECH04. Digital health solution in mitigating social and health risks in Tanzania

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Background: Health systems worldwide are continuously challenged to adapt to evolving healthcare needs, population dynamics, and technological advancements. Strengthening health systems involves enhancing their capacity, efficiency, and resilience to deliver quality services. Furthermore, innovation is crucial in redefining traditional healthcare paradigms by introducing novel approaches, processes, and solutions to address existing health challenges. These innovations range from developing new medical devices and therapies to implementing novel healthcare delivery models and digital health solutions.
Objective: Conduct a literature review to address how digital health solutions may help mitigate health risks.
Methods: This study employs a literature review. Articles published between 2009 and 2024 in relevant databases like PubMed and Google Scholar were searched using predefined keywords, including "digital health," "health risks," "Technology integration," and "mitigation." Articles were screened based on relevance and quality assessment criteria. Data extraction includes information on digital health interventions, health risks addressed, and outcomes.
Results: The findings have revealed the importance of concerted efforts to ensure digital health to address barriers such as financial constraints, limited infrastructure and resources, policy and regulatory challenges and lack of awareness of the adoption of health risks of the adoption of health risk mitigation. Collaborative partnerships between governments, academia, industry, and society are essential to fostering a conducive environment for innovation, investment, and knowledge exchange to ensure health for all.
Conclusion: Integrating digital health solutions in healthcare represents a paradigm shift in healthcare delivery, offering unprecedented opportunities to address current and emerging health challenges. These findings call for collaborative efforts with different stakeholders to address social and health risks in the population with technological advancement.

TECH05. Insights and recommendations of Tanzanian stakeholders on the potential use of biocontrol technologies for malaria control

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Background: Malaria continues to be a public health threat in Tanzania. While significant strides have been made in reducing the burden of the disease, several challenges undermine the efforts. Biotechnology in malaria control is increasingly gaining interest as a potentially transformative approach to effectively controlling and potentially eliminating malaria in Africa. As these technologies are still in the early stages of development and testing, continuous engagement of stakeholders is crucial to ensure that they respond to specific country needs for malaria control.
Objective: This study aimed to explore the insights and recommendations of key stakeholders in Tanzania on the potential of mosquito modification technologies for malaria control and elimination in the country.
Methods: A questionnaire survey was used to assess knowledge and awareness of mosquito modification technologies for malaria control, and in-depth discussions were used to explore perceived benefits, potential concerns and recommendations for malaria control. Stakeholders were drawn from research and academic institutions, regulatory authorities, government ministries, media and activists' groups, and community-representative groups such as religious, political and community leaders.
Results: Despite high awareness of mosquito modification technologies, knowledge of their work mechanism was low among all stakeholder groups. Despite this, the stakeholders discussed their insights and concerns. They offered several recommendations, including: (i) increasing relevant technical expertise within the country, (ii) generating local evidence on the safety, applicability,

and effectiveness of the technologies, and (iii) developing country-specific regulations for safe and effective governance of modified mosquitoes for malaria control.
Conclusions: It is crucial to incorporate the views and recommendations of key stakeholders in the ongoing research and development of mosquito modification technologies for malaria control to maximize their potential for solving Africans' enduring malaria challenge.

HS01. Laboratory evaluation of two novel rapid diagnostics tests for Onchocerciasis on dried blood spots in Tanzania.
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Background: High-quality diagnostic tools are an essential component of Onchocerciasis elimination efforts. The tools used to make program decisions must be accurate, reliable, and appropriate for the intended use. However, as programs progress, prevalence declines, and case finding becomes more complex, the need for improved diagnostics becomes more critical. The objective of this study was to determine the diagnostic performance of two novel Onchocerciasis rapid diagnostic tests (RDT) developed by Global Access for Diagnostics (GADx) and Drugs and Diagnostics for Tropical Diseases (DDTD).
Methods: In October 2023, a laboratory-based study to evaluate two novel RDT tests for Onchocerciasis was conducted at Amani Biomedical Research Laboratory (AMBRELA). For both tests, purposeful sampling of previously confirmed negative 800 dried blood spots (DBS) was done using CDC AP ELISA for specificity assessment. It confirmed positive 100 DBS by SD Bioline Ov16 RDT for sensitivity assessment was done.
Results: The findings from GADx Ov16 RDT revealed a sensitivity of 98% and specificity of 100%. The DDTD biplex C RDT has a high specificity of 99.4 % but a very low sensitivity of 7.0 %, considering both T1 and T2 target antigens. The sensitivity of DDTD diplex C improves to 94%, considering the T1 target antigen only.
Conclusions: Both the GADx-OV16 RDT and the DDTD diplex C RDT are promising candidate tests for screening of Onchocerciasis. However, the DDTD diplex C test is recommended only for the T1 target antigen. More improvements are needed on the T2 target antigen of the DDTD diplex C RDT before it can be recommended for inclusion as part of the test.

HS02 Acceptability of point-of-care viral load monitoring among children and young people living with HIV in East Africa: a qualitative study
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Background: Point-of-care (POC) Viral Load (VL) monitoring is currently being implemented in countries to overcome bottlenecks of centralized VL monitoring, like long turnaround times, sample loss, and filing backlogs. Though POC-VL monitoring may overcome those bottlenecks, the acceptability of POC-VL monitoring may be hindered by challenges experienced by end-users.
Objectives: To investigate the acceptability of point-of-care viral load monitoring among children with their caretakers and young people living with HIV in East Africa (EA).
Methods: We conducted a qualitative study among participants in the intervention arm of the EAPOC-VL cluster randomized trial that investigates the effectiveness of POC-VL monitoring on viral load suppression in East Africa. Children and young people living with HIV who recently had a VL test using POC and their caretakers and treatment supporters were interviewed using in-depth

interviews and focus group discussions. Data was analyzed deductively using the Sekhon Framework, which comprises seven constructs of the acceptability of an intervention: affective attitude, perceived effectiveness, perceived burden, ethicality, self-efficacy, intervention coherence, and opportunity costs.
Results: Preliminary analyses show that POC-VL monitoring, in general, is acceptable. The affective attitude was mostly positive, as most liked to get results quickly, though some said this rapidity rather caused anxiety. Perceived effectiveness was favourable as most reported adhering better to medication after being given the results. Intervention coherence was high as participants understood that POC-VL monitoring offers quick results. On the other hand, there was a perceived burden due to waiting for results at the health facility on the day of testing. Further, there were opportunity costs such as missing school (and school lunch), homework, or other essential functions like birthdays.
Conclusions: POC-VL monitoring was considered acceptable. Though perceived burden and opportunity costs could be lowered by implementing strategies to overcome the long wait at the health facility.

HS03. Hybrid Digital Parenting Program: Assessing the ParentApp's Impact on Parenting Practices and Child Violence Reduction in Tanzania - A Pilot Study

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Introduction: In Tanzania, violence against children (VAC) is widespread and parenting programs have been shown to reduce VAC. Among these, the WHO-endorsed Parenting for Lifelong Health (PLH) for adolescents' program has demonstrated the potential to reduce VAC. However, the traditional in-person delivery of such programs often encounters logistical challenges. To bridge this gap, the ParentApp was developed by PLH as an offline mobile application offering digital parenting workshops. A pilot survey was conducted in Mwanza and Shinyanga regions to evaluate the effectiveness of ParentApp on key parenting dimensions and VAC.
Methods: This research targeted caregivers of adolescents aged 10-17 to improve positive parenting and reduce VAC. The pilot study utilized a pre- and post-survey design. Data was collected from caregivers and their adolescent children in Mwanza's urban areas and the Shinyanga regions' rural areas. VAC was measured by the ISPCAN child abuse screening tool. The effectiveness of the app was assessed through multi-level linear mixed-effects regression analysis.
Results: The study engaged 100 caregivers and 100 adolescents. Caregivers experienced substantial improvements: engagement with teens increased by 23.9% ($P<0.001$), positive parenting practices improved by 32.4% ($P<0.001$), and parental monitoring and supervision surged by 129.4% ($P<0.001$). Additionally, a reduction in corporal punishment was observed (170.1%, $P<0.001$). Adolescent reports reported: a notable rise in caregiver engagement (18.7%, $P<0.001$), enhancement in positive parenting practices (22.8%, $P<0.001$), and increased parental monitoring and supervision (31.8%, $P=0.004$), along with a significant decrease in corporal punishment (50.8%, $P<0.001$). Both caregivers and adolescents reported a significant decrease in VAC, with reductions of 237.9% ($P<0.001$) and 67.5% ($P=0.001$), respectively.

Conclusions: Although the pilot had a limited sample size, the findings suggest positive effects of the Parent App intervention on improving parenting practices and reducing VAC. A larger RCT is underway to explore the effectiveness of the programme."

HS04. Automated Transfer of GeneXpert 10-Color Module Results to Electronic Tuberculosis Register (ETL) through Adapter-Enabled Autofill.

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Introduction: Drug-resistant tuberculosis (DR TB) results from Mycobacterium tuberculosis (M.tb) strains developing resistance to standard anti-TB drugs. The GeneXpert XDR machine, equipped with 10-color modules, swiftly diagnoses TB and DR, aiding prompt treatment initiation for DR-TB patients. However, manual entry of Xpert results into the electronic TB registry (ETL) can introduce transcription errors, impacting treatment decisions and consuming time. The study aims to interface Xpert XDR machines with ETL, streamlining real-time data collection for informed clinical decisions in DR-TB treatment.
Methods: Three Xpert XDR machines were installed at different centers. Essential integration variables were identified through stakeholder interviews and document reviews, forming the basis for precise design specifications. The interfacing adapter was developed collaboratively with the NTLP and UDSM DHIS2 laboratory and underwent rigorous validation and testing. Successfully validated, the adapter seamlessly integrated into live ETL databases.
Results: Notably, it enabled synchronization of results within a minute of approval, markedly reducing integration time. This approach eliminated the need for printing and manual transcription, significantly enhancing efficiency and accuracy.
The implementation marked a significant advancement, connecting patient-oriented systems with diagnostic technology. This integration promises substantial improvements in patient management by optimizing processes and outcomes.
Conclusion: The study recommends extending the adapter's capabilities to other laboratory machines, such as GeneXpert RIF ultra, for direct result transmission to ETL. Given the success, stakeholders are advised to secure funding to expand integration to traditional GeneXpert machines, which could streamline diagnostics and enhance patient care. In conclusion, the study's integration process facilitates the accurate and swift transfer of GeneXpert 10-color module machine results to ETL, mitigating errors and delays. The adapter's potential extension to various machines promises an improved diagnostic process.

HS05. Optimizing delivery strategies for 3HP TB preventive treatment in Tanzania: A qualitative study on acceptability of family approach in HIV care and treatment centers

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Background: Tanzania is preparing to roll out 12 weeks of isoniazid and rifapentine (3HP) TB preventive treatment once. Although the 3HP completion rate is generally at 80%, variations exist depending on the type of delivery strategy and programmatic setting. A mixed methods study assessed whether a family approach involving family member support, SMS reminders and three health education sessions optimized 3HP uptake and completion.
Objectives: To assess whether the family approach is acceptable to people living with HIV (PLHIV), treatment supporters and community health workers (CHWs).
Methodology: This was a qualitative descriptive study in 12 HIV care and treatment centres across six administrative regions. We purposely sampled 20 PLHIV, 12 CHWs for in-depth interviews, and 23 treatment supporters of PLHIV for three focus group discussions held between September and December 2023. The theoretical framework of acceptability guided thematic analysis using a framework approach.
Results: Participants understood that PLHIV has a high risk for active TB and that 3HP provides shortened treatment for latent TB, thus preventing TB disease. They reported gaining knowledge of TB and 3HP from health education sessions. However, participation of treatment supporters in the second and third sessions was low, and many reported expensive transportation costs to clinics. Receiving support from someone closer and SMS texts were perceived as good reminders for adherence. The majority expressed positive attitudes because of the shortened treatment, TB counselling, satisfaction of helping others, alignment with lifestyle and work responsibilities and reduced work burden among CHWs. Some PLHIV reported difficulties in identifying family members for support thus, chose other close friends or CHWs.
Conclusions: Delivery of 3HP with support from family members and SMS texts is widely accepted by CHWs, PLHIVs and treatment supporters. However, restricting support from only family members and attending all three health education sessions by treatment supporters may not be feasible.

HS06. Evaluation of a point-of-care test for the diagnosis of Taenia solium neurocysticercosis in rural southern Tanzania: a diagnostic accuracy study

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Background: Neurocysticercosis is a common cause of epilepsy in Taenia solium-endemic areas in sub-Saharan Africa but is often undiagnosed because affordable diagnostic tools are lacking. This study evaluated the diagnostic accuracy of a T solium cysticercosis antibody-detecting lateral-flow point-of-care assay (TS POC test) for the neuroimaging-based diagnosis of neurocysticercosis.
Methods: Patients with epileptic seizures or severe progressive headaches were recruited consecutively from three hospitals in southern Tanzania. All patients were tested with the TS POC test. All patients are positive for cysticercosis on the TS POC test, and every tenth patient who was negative for cysticercosis received a brain CT examination and underwent reference testing for T solium cysticercosis (i.e., rT24H-EITB, LLGP-EITB, and antigen ELISA). The study's primary outcome was the sensitivity of the TS POC test for the diagnosis of neurocysticercosis.
Results: Of the 601 recruited participants, 102 (17%) tested positive for cysticercosis with the TS POC test. Overall, 48 (62%) of the 77 patients positive for cysticercosis and five (17%) of the 29 patients negative for cysticercosis on the TS POC test had CT-confirmed neurocysticercosis. The TS POC test yielded a sensitivity of 49% (uncertainty interval [UI] 41,Äì58) for neurocysticercosis. Sensitivity was like that of the rT24H-EITB (44%, UI 37,Äì51) and the antigen ELISA (50%, 43,Äì56). For the subset of

neurocysticercosis cases with at least one active (ie, vesicular) lesion, sensitivity was above 98% for the TS POC test, the rT24H-ETIB, and the antigen ELISA.
Conclusions: The TS POC test showed promising results for diagnosing neurocysticercosis in patients with vesicular lesions, which need to be confirmed in a larger study. This test could be considered to support policies on screening patients with suspected neurocysticercosis in clinical settings, which would allow appropriate referral for neuroimaging and early treatment.

HS07. The Impact of COVID 19 on HIV service Delivery and livelihood among PLHIV, A qualitative study done in Dar es Salaam, Tanzania.
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Introduction: People living with HIV (PLHIV) are at increased risk of suffering from opportunistic infections, the same is reported in COVID-19 infections. Interactions between two pandemics necessitate an understanding of challenges facing stakeholders, i.e., PLHIV and healthcare providers. Hence, this study has focused on understanding the challenges brought by the COVID-19 pandemic on HIV service delivery and the livelihood of PLHIV, thus recommending accordingly.
Objectives: To explore the Impact of the COVID-19 pandemic on HIV service delivery and livelihood among PLHIV in Dar es Salaam, Tanzania.
Methodology: We conducted a descriptive qualitative design to explore the Impact of COVID-19 on HIV service delivery and livelihood among PLHIV in Dar es Salaam, Tanzania. Focus group discussions consisting of 24 people (8 per session) were conducted with a semi-structured discussion guide. Thematic analysis was used to identify and interpret themes.
Results: Four major themes with ten sub-themes emerged. Participants indicated Healthcare Services were disrupted due to Shifts in Healthcare Priorities, Interruptions in Routine HIV Services, Decreased HIV Testing Rates and Delayed Diagnosis. Access to medicine was also reduced due to challenges in ART access and mild stock out. Psychological impact was also reported due to increased stress anxiety and social isolation. Economically, participants were also impacted since many lost their jobs and reduced their income, as well as economic instability and healthcare in-affordability.
Conclusions: The COVID-19 pandemic has affected HIV care services, resulting in disruptions of the supply of health commodities and psycho-socio economic effects. Efforts to mitigate the impact of COVID-19 on HIV service delivery and the livelihoods of PLHIV require a coordinated multidisciplinary approach to ensure uninterrupted access to medication and healthcare services, addressing socioeconomic vulnerabilities, and promoting psychosocial support.

HS08. Male caregivers Engagement in a Digital App-Based parenting intervention using their phones in Mwanza, Tanzania: A qualitative study.
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Background: Digital platforms amplify the positive impact of caregiver engagement in parenting programs on child behavioral and mental health outcomes, enhancing participation. However, the involvement of male caregivers in digital parenting interventions, particularly through app-based platforms like ParentApp in Mwanza, Tanzania, remains underexplored.
Objectives: This study aims to assess the experiences, motivations, and barriers faced by male caregivers using their phones in the ParentApp optimization study.

Methods: We conducted four focus group discussions (FGDs) with 22 female and 16 male caregivers who participated in 12 weekly ParentApp sessions. The FGDs were audio recorded, transcribed, and translated into English. A codebook was developed with themes based on the interview guides and additional themes emerging during coding. Transcripts were double-coded with the aid of NVivo software. The identified themes were synthesized. Identified themes were organized into patterns that were interpreted into the following results.
Results: Individual-level engagement was found to be most effective, though group sessions offered valuable support and exchange opportunities. The training was seen as particularly empowering for male caregivers, encouraging broader family participation. Factors promoting enrollment and engagement encompassed local leader involvement, a desire to learn new parenting skills, the provision of free data, and observed changes in behaviour among teenagers. Deterrents for male caregiver participation included issues with community mobilization, scarce Android phone ownership, anticipated technical challenges, gendered parenting norms, anticipated economic losses, and misconceptions. Barriers to sustained engagement were digital illiteracy, phone loss or damage, and the challenge of finding time for engagement.
Conclusion: There is high motivation for caregivers to engage in digital App-based parenting interventions using male caregivers' self-owned phones. Barriers to engagement are mainly personal, technical, and infrastructural driven.

HS09. Strengthening capacity of the health system for access and delivery of pediatric praziquantel in Tanzania

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Background: Research reports have revealed moderate to high schistosomiasis among children aged below six years living in high-prevalence areas. Studies conducted in Mwanza, Simiyu, Ruvuma, and Geita regions in Tanzania have indicated the prevalence of 12 to >54% of schistosomiasis thus necessitating the need for intervention targeting this age group. Notably, there has not been a pediatric intervention for schistosomiasis until recently when the prospects for pediatric praziquantel (arPZQ) became a reality. This raised a need to prepare the health system for access and delivery of arPZQ.
Objective: to identify and address implementation gaps which may affect the timely adoption, access, and delivery of arPZQ in Tanzania.
Methodology: This was implementation research employing a mixed-method approach, namely, technical workshops, higher-level engagement meetings, and community engagements.
Results: 21 gaps related to policy and regulations, procurement and supply chain, service delivery, and financing were identified. Some gaps that required higher decisions were addressed, while those that needed research continued to be addressed throughout the process. Additionally, three delivery models for arPZQ were identified and recommended for piloting.
Conclusion: Strengthening the capacity of the health system is an ongoing process. However, objectives have been attained, including the development of tools to guide the delivery of arPZQ through the test-and treat approach and MDA programme. Training manuals for healthcare workers and frontliners who will be involved in the delivery of arPZQ have been developed. Implementation research protocol for pilot delivery of arPZQ has been developed and already funded.

HS10. Mapping private antimalarial supply chain sub-networks in Ghana and Tanzania

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Introduction: The supply of antimalarial medicines in Ghana and Tanzania is mainly controlled by private antimalarial outlets (ADDOs/OTCs, licensed pharmacies and suppliers). Studies on these private antimalarial outlets mostly focus on types of medicines sold, pricing, stocking reasons, substandard and falsified (SF) medicine peddling and smuggling, with little focus on the complex supply chain managed by private antimalarial outlets
Objectives: This study sought to spatially map the supply chain of private antimalarial outlets and examined the characteristics and factors which influence the distribution within the mapped network.
Methodology: The study used a bottom-up approach to sample a subset of the supply chains in Ghana and Tanzania. In total, 201 and 238 outlets were sampled in Ghana and Tanzania, respectively.
Results: The distributions of private outlets were not spatially determined by a place's high population density and relative wealth index. Also, they are less situated within areas with high malarial prevalence. Supply chain information indicated that most licensed pharmacies had more suppliers (links) and were more distanced from suppliers than ADDOs/OTCs, representing a possible risk of SF medicines.
Conclusions: The study recommends that governments in Ghana and Tanzania incentivize private antimalarial outlets in rural areas and areas with high malarial prevalence. Regulators also need to closely monitor of suppliers to help prevent potential SFs in the antimalarial supply chain.

HS11. Availability and quality of vaccine cold chain equipment at healthcare facilities in Mtwara region, Tanzania: evidence from routine assessment of vaccine cold chain equipment

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Background: Vaccine quality requires adequate and good-quality vaccine cold chain equipment (CCE) to be consistently maintained throughout the supply chain. Effective Vaccine Management Assessment (EVMA) 2021 reported CCE gaps in Tanzania, with an overall country-wide score of 73% below the 80% benchmark. Therefore, the ongoing measles outbreak in several districts in Tanzania, including Mtwara, could be linked to the delivery of low-quality vaccines as a result of sub-optimal storage conditions at various levels.
Objective: To evaluate the availability and quality of CCE at the healthcare facility level and provide recommendations for improvement.
Methods: A descriptive cross-sectional study was conducted by updating the vaccine CCE inventory from 263 HFs in Mtwara. The updated vaccine CCE inventories from HFs were merged to form a single dataset which was then analyzed in Microsoft Excel for frequencies and percentages of CCE parameters. The results were presented in tables for comparison.
Results: Routine immunization services were available in 263/301 (87.4%), out of which 252 (95.8%) HFs had functional refrigerators, with nearly 50% of all refrigerators being the RCW 50EG models 115 (43.7%). Although all refrigerators complied with the WHO pre-qualification standards, more than three-quarters, 192 (76%), had functional deficiencies, 115 (43.7%) had been in use for over ten years, and 48 (19%) had no temperature monitoring devices.
Conclusions: Most CCEs had suboptimal conditions, which may impair the quality of vaccines with a subsequent negative impact on vaccination services, including cancellation of immunization sessions and vaccine failure to confer protection to the recipients. Therefore, urgent efforts are needed to improve the availability and quality of CCE by rehabilitating or replacing the non-functioning, inefficient, old, and obsolete ones. Furthermore, we recommend frequent refresher

training for healthcare providers in assessing, troubleshooting and/or reporting vaccine CCE defects.

HS12. Optimizing engagement in digital parenting intervention for adolescent maltreatment prevention in Tanzania: findings from a cluster-randomized factorial trial

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Background: Violence against children and adolescents is a pervasive global problem. Parenting interventions have shown promise in preventing VAC, but in-person interventions are often expensive and inaccessible to at-risk families. Digital interventions present a scalable and cost-effective alternative. The aim is to examine the impact of 3 experimental implementation design factors on caregivers' engagement with a parenting app to prevent VAC.
Methods: We conducted a 2x2x2 pragmatic cluster randomized factorial experiment with caregivers of adolescents aged 10-17 years in peri-urban Tanzania (N=16 clusters, 8 experimental conditions, 614 caregivers in total). The experimental factors were guidance (self-guided/human guidance via e-facilitated WhatsApp groups), app design (sequential workshops/non-sequential modules), and digital literacy training (on/off). Engagement measures were automatically tracked within the app.
Results: About 33.39% of the study population were males, and 66.61% were females caregivers. The median retention duration was 31 days (95% CI 25-36), with no significant difference in retention based on caregiver gender (p=0.6). WhatsApp group support significantly increased engagement compared to the self-guided condition (incidence rate ratio [IRR]=1.29, 95% CI [1.05, 1.58], p=.016). The non-sequential modular session design, which allowed participants greater freedom in programme order, also increased engagement compared to the sequential design (IRR=0.71, 95% CI [0.61, 0.84], p<.001). The pre-programmed digital literacy training significantly increased engagement, but only for older caregivers (IRR=1.02, 95% CI [1.01, 1.02], p<.001).
Conclusion: This study is the first to optimize engagement in a parenting intervention delivered via an app in a low- and middle-income country. This study promises to provide key insights into engagement and effectiveness.

HS13: Application of nanopore sequencing in the direct diagnosis of drug-sensitive and resistant TB and non-TB mycobacteria and characterization of strains from human and animal

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Introduction: Tuberculosis is an ancient and now curable infectious disease caused by various species of mycobacteria. Transmission of TB is diverse. It happens between humans and humans, humans and animals, and between animals and animals. While Mycobacterium tuberculosis complex (MTBC) causes classical TB in both humans and animals, nontuberculous mycobacteria (NTM) also cause clinical conditions that present like TB. For setting effective control measures, early detection, and characterization of mycobacteria both from humans and animals need to be well understood. This study aims to generate evidence in Tanzania on the use of next-generation

sequencing diagnosis of mycobacteria pulmonary diseases and drug-resistant profile and characterize strains of humans in comparison to animals to determine genetic relatedness and transmission patterns.

Methods: This is a cross-sectional study in which mycobacteria DNA will be extracted directly from human and animal samples suspected to have tuberculosis. The samples will be used for assay validation, determination of drug resistance profile, NTM among clinically diagnosed TB patients and comparison of mycobacteria strains from humans and animals. While for humans only sputum will be used, tissue from lesions will be collected from animals at selected abattoirs and slaughterhouses in administrative districts in Tanzania. The performance of sequencing in TB and NTM detection will be determined. Extended drug resistance profiles of new, repurposed, and conventional drugs will be determined. The study will highlight the role of nanopore sequencing in clinical diagnosis and in the characterization of mycobacteria strains from humans and animals.

Conclusions: This study's findings will provide evidence of the performance of nanopore sequencing in TB and NTM detection, the determination of an extended drug resistance profile, and the comparison of mycobacteria strains from humans and animals in Tanzania.

HS14. Cost and cost-effectiveness of scaling-up point-of-care very early infant diagnosis in Mozambique and Tanzania.

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Introduction: Prompt HIV early infant diagnosis (EID) is critical, especially for neonates acquiring HIV in-utero who, without treatment, have high mortality rates in the first months of life. Late diagnosis causes delays in access to lifesaving antiretroviral treatment (ART). Point-of-care (PoC) testing at birth offers an opportunity for same-day treatment initiation. However, cost and cost-effectiveness evidence is needed for planning, scale-up and assessing the sustainability of EID programs.

Methods: We estimated the health system cost of birth plus 4-6-week testing (very early infant diagnosis; VEID) compared to standard of care (SoC) at 4-6 weeks only. The study was nested within the cluster-randomized LIFE trial conducted at 28 primary health facilities in Mozambique and Tanzania (7 facilities per arm per country). We evaluated the cost and cost-effectiveness of PoC-VEID using Abbott mPIMA in Mozambique and Cepheid GeneXpert in Tanzania. We report empirical costs during the study, simulate costs scaled to routine demand for EID, and assess cost-effectiveness in terms of age at ART initiation.

Results: The estimated cost per PoC-EID test in our study was $39.12 (95% CI: $37.69-$39.99) for VEID versus $40.57 ($40.57-$42.84) for SoC in Mozambique and $36.23 ($34.99-$38.40) for VEID versus $43.88 ($41.12-$45.21) for SoC in Tanzania. Incremental cost-effectiveness ratios for median 3.7 additional weeks on ART in Mozambique and 5.6 in Tanzania (both p<0.0001) were $673.32

($636.74-$679.82) in Mozambique and $386.96 ($366.37-$397.04) in Tanzania, representing 147% (139%-149%) of GDP per capita in Mozambique but only 35% (33%-36%) in Tanzania.

Conclusions: Birth PoC-EID is likely to be cost-effective in primary care, sub-Saharan African settings. When considering scaling up EID programs, multiplexing cost-sharing across programs or increasing access to testing through hub-and-spoke delivery could further reduce costs, particularly using GeneXpert.

HS15. The Road Towards Ending the HIV Pandemic: The Reality of Shifting Care and Treatment Responsibility to People Living with HIV in Shinyanga, Tanzania

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Introduction: The current shift of HIV care and treatment responsibility to HIV clients poses a dilemma among healthcare workers and People Living with HIV (PLHIV) in countries with lower economic power. The treat-all policy, aiming at achieving the WHO's 95-95-95 goal to end HIV/AIDS by 2030, has led to significant advancements in HIV management. Tanzania is among the few countries making remarkable progress towards this numerical goal. However, the experiences of health workers and PLHIV, who are the main drivers behind the statistical outcomes, often remain overlooked.

Methods: To address this gap, we conducted an ethnographic study within the Test and Treat intervention trial in Shinyanga, Tanzania, to assess the effectiveness and sustainability of the differentiated care model utilizing community health workers (CHWs). Over a 9-month period, we collected data through 103 in-depth interviews and 19 focus group discussions with PLHIV, healthcare workers, and community members in the trial sites.

Results: Findings reveal that behind the numerical outcomes of HIV treatment successes lie heavily funded interventions on the ground and collaborative efforts among multisectoral stakeholders to ensure the desired outcomes are achieved. To be able to initiate and adhere to treatment is a process that can take up to one year for some PLHIV. Despite being instrumental in facilitating the enrolment and retention of PLHIV in care, the contribution of CHWs is greatly overlooked.

Conduction: In conclusion, with the availability of antiretroviral treatment and the shifting landscape of global health priorities, funding for HIV is sharply declining. Our study highlights the imperative of holistic approaches to effectively address the complexities of HIV care and treatment in lower economic settings. Also, immediate adjustments in HIV/AIDS care and treatment for sustaining clinical outcomes are needed, including institutionalizing the work performed by CHWs.

HS16. Feasibility and acceptability of nurse-initiated GeneXpert birth HIV and maternal viral load testing as a task shifting approach: Mixed methods study among mothers and nurses in Tanzania

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Introduction: In Tanzania, centralized infant HIV testing at 6 weeks is associated with long result turnaround times, low rates of infant ART initiation, and poor HIV care retention. A cluster-randomized trial was conducted in Tanzania and Mozambique to establish the clinical impact of point-of-care early infant HIV diagnosis (POC-HEID) at birth and 4-8 weeks, linked with nurse-

supported immediate ART initiation in neonates diagnosed with HIV versus standard of care 4-8 weeks testing. This study assessed whether the intervention was acceptable to nurses and clients and feasible within Tanzanian programmatic settings.
Methods: A convergent mixed methods study was conducted in four regions from November 2021 to February 2023. We purposively sampled nurses and mothers living with HIV at the end of trial participation. Questionnaires were administered to 35 nurses, and in-depth interviews were held with 13 mothers. Descriptive and thematic analyses were applied.
Results: The majority (60%) of nurses were working at district hospitals and 74% in the reproductive and child health department. On average, nurses strongly agreed that training the training provided was sufficient. All nurses perceived handling GeneXpert machines as easy, although 69% sometimes experienced invalid test results. A majority (69%) disagreed that the intervention added a work burden. Furthermore, 20% perceived immediate neonatal ART initiation as complicated. All nurses recommended a national scale-up of birth POC-HEID. Mothers were knowledgeable about the intervention. They expressed positive attitudes on early receipt of results and immediate neonatal ART initiation however, they were concerned for their neonates about painful blood pricking. Due to non-disclosure, some mothers faced difficulties in providing ART or prophylaxis to neonates.
Conclusions: Our findings demonstrate that birth POC-HEID coupled with immediate infant ART initiation is feasible for nurses to implement and acceptable to clients in Tanzania. However, disclosure support is important if adherence to neonatal ART is to be maintained at home.

HS18. Detection of Low Bacterial Load of Mycobacterium Tuberculosis by a Novel Tuberculosis Molecular Bacterial Load Assay
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Introduction: Tuberculosis, a global public health threat caused by Mycobacterium tuberculosis (Mtb), can be difficult to diagnose in low-bacillary load specimens. The gold standard culture performs poorly due to contamination with non-TB organisms and the use of chemicals to eliminate contaminants can compromise its sensitivity. However, TB-Molecular Bacterial Load Assay (TB-MBLA) detects Mtb 16S RNA as the marker of viability and has great potential for diagnosis and monitoring of TB therapy. TB-MBLA has shown higher positivity than standard culture methods in treatment follow-up samples with low bacillary load.
Methods: Using M. tuberculosis H37Rv, which was adjusted to a 0.5 McFarland concentration to make low bacillary load samples, we performed a 10-fold serial dilution up to 10x100 CFU/ml. Each dilution was processed by microscopy, culture, GeneXpert, and TB-MBLA. Our in vitro experiment was replicated in real patient sputum.
Results: Using the unpaired t-test there was not significantly different ($P < 0.05$) $p= 0.4839$ for the MGIT control and NALC-NAOH treated with the mean TTP in days of 21.66 and 24.43. TB-MBLA was positively correlated with the 7H11 medium measured in bacterial load Log10eCFU/ml, $r2 = 0.9689$, $P <0.0001$. The 7H11 media had 7Log10eCFU/ml while the TB-MBLA had 6Log10eCFU/ml in both samples. TB-MBLA, MGIT and Xpert 102, 101 and 100 were positive by 50%, 50% and 25% respectively. The use of magnetic stirrer alone had more bacterial load than with the combination of NALC ranging from 5.5 to 0.7Log10eCFU/ml and 4.2 to 1.5 Log10eCFU/ml, respectively, with the $P =0.0313$ of which is significantly different between the two arms.
Conclusion: The TB-MBLA is a fast and sensitive method for detecting TB bacteria in low-burden samples. Culture is also sensitive but is negatively impacted by bacterial loss during processing. GeneXpert is more sensitive but not recommended for monitoring due to DNA.

HS19: Tuberculosis services delivery challenges and their mitigations during COVID-19 in Tanzania: A qualitative study among providers of healthcare

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Introduction: The WHO categorized Tanzania among the 30 high-TB-burden countries that experienced limited disruptions to TB detection during the COVID-19 pandemic. Although COVID-19 did not have detrimental effects, an understanding of service delivery was salient for future pandemic preparedness.

Methods: A qualitative descriptive study was conducted to explore the challenges of COVID-19 on TB commodities supply, TB care cascade, and responses taken by healthcare workers (HCWs) and community health workers (CHWs) between March 2020 and February 2021. HCWs and CHWs from 37 health facilities in seven highly COVID-19-affected administrative regions were purposively selected for 25 in-depth interviews and 10 focus group discussions. Transcripts were analyzed using framework approach.

Results: Many HCWs reported unusual stockouts and delayed receipt of GeneXpert cartridges and sputum containers. Few reported pediatric TB drugs shortages. A decline in clients attending TB services was reported by HCWs and CHWs. Clients, reluctance to TB screening, sputum sample collection and contact tracing were reported by some CHWs. Fear of contracting or being detected with COVID-19 with subsequent quarantine and subjection to COVID-19 vaccination or being unvaccinated against COVID-19 were reasons for the observed challenges. To adapt, HCWs used other containers at their disposal for sample collection, sputum pooling method to minimize GeneXpert cartridges use, differentiated care per TB risk groups and extended drug refills. Mobile communication was used for tracing missed clients while household visits were limited to TB risk groups. COVID-19 vaccination for CHWs was implemented to minimize fear and sustain TB services.

Conclusions: COVID-19 negatively affected the procurement and distribution of TB commodities, healthcare-seeking behaviour and TB ACF. However, adaptations in service operationalization and adoption of COVID-19 prevention strategies sustained service delivery, thus reflecting healthcare system resilience. Some of these adaptative responses are best practices to be taken up by National Tuberculosis Control Programs in post-pandemic period.

PO-TECH-01. Clients' and Providers' Perspectives to Inform a Digital Health Intervention to Improve Linkage to Care after Index HIV Self-Testing in Hai and Moshi Districts, Tanzania

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Introduction: Digital health interventions have the potential to improve linkage to HIV care after HIV self-testing (HIVST). This study aimed to understand clients' and providers' perceptions to inform a digital health intervention to improve linkage to HIV care in Tanzania.
Methods: This study was exploratory qualitative research conducted in Hai and Moshi, districts in Kilimanjaro region, Tanzania. Four health facilities were purposively selected based on their involvement in an HIVST pilot program implemented by Elizabeth Glassier Pediatric AIDS Foundation (EGPAF) Tanzania through the USAID-funded USAID-funded program. We used a semi-structured interview guide with open-ended questions for data collection. Data collection was conducted from 16th January 2023 to 3rd February3rd February 2023. Inductive-deductive thematic analysis of the qualitative data was conducted, guided by the Health Belief Model (HBM).
Results: A total of 42 participants were purposively included in the study, comprising 9 male clients, 17 women index clients, and 16 health care workers (HCWs) comprising 4 men and 12 women HCWs who were involved in delivering HIVST services. Majority of participants perceived digital health as a valuable intervention for enhancing linkage to care, improved health outcomes, improved communication with healthcare workers, and positive feelings toward increased privacy and supported scale-up of a digital health intervention. However, a few participants expressed concerns about the potential risks associated with sending health-related text messages. They feared that recipients might not be in a safe space, leading to stigma and avoidance of engagement.
Conclusions: Digital health interventions may improve the linkage of HIV self-testers to care. To make interventions effective and inclusive, personalized and culturally relevant communication and technical accessibility are recommended. This study provides valuable insights for designing patient-centred interventions for HIV care and treatment.

PO-TECH-02. Men willingness to use technology-delivered interventions for support with linkage to care following HIV self-testing results in Tanzania

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Introduction: Tanzania faces a significant burden of HIV, with particular challenges in reaching men and ensuring timely linkage to care. To address these issues, HIV self-testing (HIVST) has been implemented to increase HIV testing and technology-delivered interventions are being considered as a strategy to facilitate linkage to care.
Objectives: This study aimed to assess the willingness of Tanzanian men to use technology-delivered interventions for HIVST and linkage to care. Data from 505 men from the baseline survey of a cluster-randomized controlled trial conducted in June 2019 with 18 social networks or ,camps in Dar es Salaam, Tanzania. Participants were 18-year-old or older male camp members who were HIV-negative at the time of enrolment. Logistic regression models were used to assess factors associated with men, Ä comfort with talking with an HIV counsellor over the phone.

Results: The majority of participants were comfortable with texting about HIV self-testing (82.77%) and sending pictures of their self-test results (53.66%). Furthermore, individuals who were comfortable with these digital activities were more likely to feel at ease talking to an HIV counsellor. Surprisingly, awareness of the National HIV hotline was low (3.56%). Factors such as having a mobile phone, sharing it with an HIV counselor, and a solid willingness to receive information via text significantly influenced comfort levels.
Conclusion: This study underscores the potential for technology-based interventions to support HIVST and linkage to care in Tanzania, particularly among those comfortable with digital communication. However, efforts to raise awareness of essential services like the National HIV hotline are needed to enhance the impact of these strategies.

PO-TECH-03. Effect of a Digital adherence tool in improving adherence among children and adolescents living with HIV in Kilimanjaro, Tanzania

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Introduction: Interventions that assist with adherence are highly needed to help children and adolescents living with HIV (CALHIV) improve their adherence, hence achieving viral suppression. We aimed to investigate the effect of a Digital Adherence Tool (DAT) on improving adherence to treatment among CALHIV in Kilimanjaro, Tanzania.
Methods: We are conducting a two-armed trial, in which CALHIV were randomized to either the intervention (DAT) or control (standard of care) arm. Participants in the intervention arm use Wisepill boxes to store medication and receive daily SMS reminders 30 minutes before the intake time. The device records each intake and creates a report that is used to lead a feedback session. We conducted preliminary analyses including all follow-up visits completed between 2-3 months intervals since the study started. We calculated the Students' T-test for independent groups, analysis to compare mean adherence between the intervention and control arm based on pharmacy refills and self-report. We analyzed data for children and adolescents separately.
Results: We randomized 154 children: 78 in the intervention, 78 in the intervention and 76 in the control arm. Mean adherence was 88.9% vs 88.7% respectively (p-value 0.9) based on pharmacy refills, and 97.2% vs 98% (P-value 0.13) on self-report adherence. Adolescents were 182; 89 in the intervention, and 93 in the control arm. Mean adherence was 91.0% vs 92.9% respectively (p-value 0.19) based on pharmacy refills, and 93.5% vs 94.7% (p-value 0.39) on self-report adherence.
Conclusion: DAT did not improve adherence among CALHIV in this preliminary analysis. This could be due to incomplete follow-up visits, as most had completed only 3-4 visits, while participants are expected to complete 6-8 visits each. But this could also be due to our paying more attention to non-adherence in the DAT during the feedback sessions. We will conclude these findings when we finalize the trials.

PO-HSITA-HIV-01. A feasibility study of implementing Patient Health Questionnaire-9 for depression screening for people with HIV attending Tertiary Hospital; Tanzania.

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Introduction: Approximately one in three people with HIV (PHIV) are suffering from depression worldwide. In PHIV, depression is associated with poor health status. The gap in knowledge on the utilisation of validated screening tools, shortage of staff with mental health training, and slow progress in the operationalisation of national guidelines specifically for mental health have perhaps limited the capacity to identify depression in PHIV in most of the Sub-Saharan countries. Locally validated Patient Health Questionnaire-9 (PHQ-9) in an outpatient primary care population provides an opportunity to screen for depression at HIV-Care and Treatment Centers (CTCs). The current study explored the feasibility of utilizing PHQ-9 depression screening tool in a tertiary-level CTC setting for the identification and management of depression for PHIV.
Methods: This feasibility study was conducted at Mbeya Zonal Referral Hospital CTC in Tanzania. The utilization of PHQ-9 at CTC was implemented using the build-buy-in (Focus Group Discussions (FGDs) and In-depth Interviews (IDIs)) and on-job training strategies. The themes employed were build-buy-in and on-the-job training strategies. Three FGDs and two IDIs were conducted to a total of 22 non-specialized mental health care providers (nSMHCPs, 9 clinicians, and 13 nurses), and on-job training and mentorship to 28/31 (90.3%) nSMHCPs (13 clinicians and 15 nurses).
Results: Critical to success was the engagement of nSMHCPs in solving challenges to promote a sense of study ownership among them, maintaining capacity building on screening and management of depression, provision of appropriate medications, and support from the administration.
Conclusion: The lessons learned would be helpful in integrating screening for mental health conditions into other non-specialized mental health care settings.

PO-HSITA-03. Automation in biobanking from NIMR-Mbeya laboratory and electronic temperature monitoring systems.

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Introduction: The collection of biological specimens in healthcare and biomedical research settings is now important in the advancement of human healthcare. At NIMR-Mbeya Medical Research Center (NIMR-MMRC), the routine research services collect large amounts of samples mainly for clinical diagnostic purposes during clinical trials but also for storage to allow further research that aims to contribute to human health. However, the establishment of biobanks with high-quality and usable human biological samples requires adherence to quality standards that are globally accepted.
Objectives: To highlight changes that NIMR-MMRC has undergone over the years in archiving biological specimens.

Method: Bio-banked samples are managed and tracked using Laboratory Information Management System (LIMS) software. The quality of bio-banked samples is checked quarterly in compliance with good clinical laboratory practices. Quality maintenance of the bio-banking facilities is performed twice a year, and temperature changes are digitally monitored by an automated freezer alarm system.
Results: NIMR-MMRC bio-banking facility was established in 2002 with few bio-banking facilities and specimens that were manually monitored. In 2010, a digital archiving system was established to ensure that archived specimens are of good quality and are stored in a way that can easily be made available when required. The bio-repository facility is comprised of 48 freezers (-20C and -80C) and 6 Liquid Nitrogen (LN) tanks, which are also automatically monitored. Additionally, the centre has 2 LN plants to ensure a reliable supply of LN gas needed for the storage of specimens in LN tanks.
Conclusion: The digital biobanking system has been a major asset for the NIMR-MMRC clinical research setting and has enabled the NIMR-MMRC to attract local and international research collaborators. Public health service providers and researchers should, therefore, employ digitalized sample storage and temperature monitoring systems to ensure the quality of samples and reagents used.

PO-HSITA-04. Unified integrated data collection tools for use in public health research and intervention programmes.

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Background: Unified integrated data collection tools named ‚Äúi-DataKit‚Äù for use in public health research and intervention programmes were developed and used at the NIMR Amani Medical Research Centre, which is a computerized data management system available for all researchers, academicians, and students to ensure the right data is captured, analyzed, and displayed. Collected data are vital for making informed decisions, measuring interventions, and meeting required standards in the management of vectors and vector-borne diseases.
Objective: To innovate the data management system and support health researchers in their programmes for timely data collection, compilation, and analysis to effectively control diseases and their vectors.
Method: i-DataKit was successfully developed by integrating technologies that enable a wide range of tools and platforms. The architecture of i-DataKit includes an application programming interface, a communication standard, an open-function integration, and a middleware component. i-DataKit was used in various national surveys to collect data on communicable and non-communicable diseases, vector-borne diseases, and monitoring of vector control interventions.
Result: The i-DataKit supported seven health projects, which focused on malaria, HIV, maternal and child health, and lymphatic filariasis. 280921 data entries were submitted and processed through the i-DataKit.
Conclusion: i-DataKit's data collection has been useful in evaluating and monitoring the performance of a given health project. This system will save money and time on data collection and processing.

PO-HSITA-06. Experience and challenges encountered during PBMC isolation and the impact of re-centrifugation procedure on isolating PBMC buffy coat at NIMR Mbeya Medical research center.

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Background: PBMCs are a variety of specialized cells that protect our bodies against infections; the isolation of PBMCs takes advantage of differences in cell density of the different blood components. The most common PBMC isolation involves centrifugation using a density gradient medium, e.g., ficoll paque. During PBMC isolation, some challenges may be accounted for, such as no buffy coat, reduced cell yield, diminished cell viability, or contamination by granulocytes.
Objective: To identify and quantify the challenges encountered during PBMC buffy coat isolation in association with the centrifugation procedure At NIMR Mbeya Medical Research Center.
Method; This was a retrospective study of the PBMC isolation done from June 2023 to Feb 2024 in two studies with high Workload of PBMC samples to determine and quantify the total number of samples whose PBMC buffy coat was directly isolated with separation medium after the initial centrifugation, number of Samples whose PBMC buffy coat was isolated with separation medium after repeated centrifugation and number of Samples whose PMBC buffy coat was not visible and not isolated even after repeated centrifugation.
Results: From June 2023 to February 2024, a total of 637 samples were processed for PBMC isolation. 620(97%) samples were isolated with PBMC buffy coat directly after initial centrifugation, 6 (0.94%) samples were isolated with PBMC buffy coat after repeated centrifugation, and 11(1.73%) samples did not show a visible buffy coat even after repeated centrifugation.
Conclusion: The results showed the successiveness of PBMC isolation for over 97% directly after the first centrifugation when all other factors, such as electric supply and centrifugation settings, are optimal. It also shows that when the buffy coat has not been clearly separated during the initial centrifugation procedure, repeating centrifugation can increase the chance of isolating the PBMC buffy coat.

PO-HSITA-07. The state of Academic bullying among medical students in Tanzania: Prevalence, forms and associated factors. A cross-sectional study

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Introduction: Academic bullying is prevalent in medical schools due to their unique study settings. Globally, the prevalence of academic bullying is increasing markedly; it ranges from 27% to 99.1%. However, the extent, forms, and associated factors of academic bullying among medical students in Tanzania are unknown.
Objectives: This study aimed to determine the state of academic bullying among undergraduate medical students in Tanzania, focusing on its prevalence, forms, and associated factors.
Methodology: This was a cross-sectional study among medical students in 10 medical schools in Tanzania using an online structured questionnaire. Statistical analysis included the use of frequencies, percentages, chi-square and univariate logistic regression at 95% confidence intervals (CIs) and significance at p-value <0.05.

Results: The study included 427 medical students. The majority (71.7%) of the medical students were in their clinical years. Among the participants, 80.8% had never heard of academic bullying in medical school. Prevalence of academic bullying was 34.7% while 28.7% had a secondary experience. It was more common in clinical rotation settings (65.4%). Verbal abuse was the most common form of bullying. Factors associated with academic bullying included age, sex, marital status, religion, class category, year of study, presence of mentorship programs, having a mentor or not, presence of a bullying reporting system, friendliness of bullying reporting system and students' perceived overall rating of the learning environment.
Conclusion and recommendations: Despite being relatively low compared to most countries, the prevalence of academic bullying among medical students in Tanzania is the potential of medical education, career prosperity and mental health concerns concerning medical education, career prosperity, and mental health, especially among medical students. Collaborative efforts among national respective authorities, medical schools, and students are crucial in preventing and controlling academic bullying.

PO-HSITA-08. Accreditation and Laboratory Quality Improvement to support HIV early infant diagnosis and Virological testing: Experiences, challenges and lessons learnt at NIMR Tanga Laboratory.

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Background: The Ministry of Health established a program to support Laboratory international accreditation as part of continuous HIV services improvement. The NIMR Tanga Laboratory offers specialised HIV viral load (HVL) and Early Infant Diagnosis testing (EID) in Tanga region. To meet international quality standards, the National Institute for Medical Research- Tanga Centre (NIMRTC) Laboratory participated in a continuous quality improvement process towards accreditation.
Objective: This study outlines experiences, lessons learnt and challenges to achieve international accreditation.
Methods: In 2019, NIMRTC Laboratory adopted an HVL/ EID training program based on national policy. Assessment and measures to address gaps in the quality system through work plan development, supervision, and personnel mentorship were implemented. Quality indicators assessed were turn-around time (TAT), rejection rates, and service interruptions.
Results: In November 2019, NIMRTC Laboratory received the Viral Load (VL)/Infant Virological Testing (IVT) training based on national policy. Based on the scorecard done in May & November 2021 and June 2022, VL/IVT scored 75%, 89% and 85% simultaneously. followed by CLSI mentorship. In July 2022, a conversation between management and the SADCAS team was conducted; thereafter, 11 management and technical non-conformances were rectified and closed. In April 2023, NIMRTC was officially accredited and certified by SADCAS with accreditation number MED 132 for the scope of Molecular Biology to ISO 15189. During the process, we learned that proper documentation of whatever is done in the laboratory is needed.
Conclusion and recommendation: For a successful quality management system, management and personnel involved in the process need to be highly committed. Accreditation is never individual work but rather teamwork.

PO-HSITA-09. Improving client perceived quality of healthcare in Tanzania- An intervention study at Same District Hospital

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Background: Clients' perceived quality of care is a key indicator for evaluating healthcare delivery, with feedback mechanisms essential for assessing service quality and demand. In 2018, Tanzania's healthcare sector ministry launched guidelines for managing client feedback in healthcare facilities to oversee and improve clients' perceived care quality. This research aims to determine if these guidelines have enhanced the management of client feedback and improved healthcare quality perception.

Methods: This intervention trial took place at Same District Hospital from July 2020 to June 2022. The hospital initially implemented national client feedback guidelines and tracked progress. Client input was collected daily and assessed monthly throughout the study. Feedback was classified into complaints, praises, and ideas, with complaints divided into 12 categories for analysis and decision-making. These areas included information, medicine accessibility, corruption, hygiene and cleanliness, patient care, physical access, staff attitude and conduct, treatment fees and concerns, waiting times, staffing levels, etc. The study needed 384 clients for statistical power.

Results: Over the intervention time, 1,580 clients provided feedback: 74.6% (1179) complained, 16.6% (262) complimented, and 8.8% (139) suggested. The top complaints were staff shortages (33.3%, 392), medicine accessibility (28.2%, 332), long wait times (13.2%), and staff attitudes (9.0%, 106). By mid-intervention, staff attitudes and waiting times were no longer complained about. The entire time, staff and pharmaceutical shortages continued. There were no complaints regarding corruption, treatment prices, or treatment difficulties; clients only requested for hospital improvements.

Conclusion: Implementing the national guideline for managing clients' feedback at healthcare facilities improved clients' perceived quality of care at Same District Hospital. Complaints like staff attitudes and long waiting times were eliminated under the hospital's control, except those needing external stakeholder involvement. However, a two-year period is insufficient for studying complex complaints thoroughly.

PO-HSITA-10. Strategies for Enhancing Clinical Trial Recruitment in Resource-Limited Countries: Experiences from the META Trial in Dar es Salaam, Tanzania

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Background: Clinical trials are crucial for medical advancement but face recruitment challenges, especially in low-resource settings. This abstract examines strategies for overcoming clinical trial recruitment challenges in such settings.
Methods: The META trial, designed as a phase III, randomised, double-blind, placebo-controlled study, aimed to enrol 2100 participants within 6,Äì12 months starting in October 2021. However, recruitment extended to over 17 months to reach 1691 participants, highlighting the need for improved strategies in such environments.
Challenges and Mitigation: The trial encountered multifaceted recruitment challenges related to protocol design, infrastructure, and regulatory challenges. Efforts to overcome these included amending the protocol to broaden eligibility criteria, adapting study procedures for participant convenience, and employing efficient logistical strategies for sample transport and analysis. Key barriers included stringent inclusion criteria and trial infrastructure issues, such as reliance on distant laboratories. Mitigation strategies involved protocol adjustments, enhanced engagement efforts, and improved logistical and regulatory processes, demonstrating the importance of flexibility and proactive management in trial conduct.
Conclusion: The META trial underscores the essential role of adaptive design, improved infrastructure, and streamlined regulatory approaches in addressing recruitment challenges in low-resource settings. Such adjustments are crucial for ensuring equitable participation and the success of clinical trials in these contexts.

PO-HSITA-HIV-11. The effect of real-time medication monitoring on adherence to antiretroviral therapy and viral suppression in people living with HIV: a systematic literature review and meta-analysis

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Background: Universal antiretroviral therapy (ART) enables improved treatment outcomes in persons living with HIV (PLHIV). Adherence to ART is required to achieve virological suppression, reduce transmission, and reduce morbidity and mortality. Real-time medication monitoring (RTMM)- based digital adherence tools (DATs) could improve ART adherence. The objectives of this review were to assess the effect of RTMM-based DATs on ART adherence and viral load suppression, respectively.
Methods: We searched MEDLINE, Embase, and Global Health for publications published up to 11 October 2022. We conducted narrative synthesis and random effects meta-analyses to synthesize the results.
Results: Out of 638 papers identified, eight were included. Six studies were randomized controlled trials (RCTs), and two were cohort studies. Two studies, an RCT in China (mean adherence: 96.2% vs 89.1%) and a crossover cohort study in Uganda (mean adherence: 84% vs 93%), demonstrated improved ART adherence. No studies demonstrated improved viral load suppression. In the meta-

analyses, we estimated that RTMM-based digital adherence tools did not significantly improve ART adherence with a standardized mean difference of 0.2068 [95% CI = -0.0367; 0.4502, p = 0.0960]) and viral load suppression with an odds ratio of 1.3148 [95% CI, 0.9199 ,1.8791].
Conclusion: Our meta-analyses found that RTMM-based DATs did not significantly affect ART adherence and viral load. However, due to the limited number of published studies, heterogeneity of target populations, intervention designs, and adherence measurement instruments, more data are required to provide conclusive evidence.

PO-HSITA-12. Pre-implementation assessment of the context and potential barriers and facilitators of an HIV/TB mobile health program in Kilimanjaro, Tanzania

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Background: Despite increasing smartphone penetration globally and potential benefits for other chronic illnesses, personalised mobile health (mHealth) care interventions remain underutilized for tuberculosis (TB) with or without human immunodeficiency virus (HIV). Digital adherence monitoring tools have shown improved TB medication adherence in Tanzania Kilimanjaro region. However, more robust mHealth functionality could further enhance the quality of treatment and completion. A smartphone platform designed for HIV/TB care in a distinct urban population showed high usage and improved clinical outcomes in a pilot study. However, a systematic evaluation of contextual influences on mHealth implementation is needed to ensure appropriateness, feasibility, and acceptability.
Methods: We conducted semi-structured qualitative in-depth interviews at Kilimanjaro Christian Medical Centre and Kibong'oto Hospital with patients aged 18+ with drug-susceptible TB, TB/HIV co-infection, and at least one month of treatment experience. Care providers were also included. A brief demo session introduced participants to the previously piloted smartphone app interface and the implementation strategy deployed in outpatient clinics. Interview guides were designed using Bury Framework for Chronic Illness and Consolidated Framework for Implementation Research (CFIR). A thematic content analysis approach using Nvivo was used for analysis.
Results: A total of n=20 patient and 12 provider interviews were conducted. Themes identified from interviews include population needs and experiences related to current TB and HIV/TB care delivery, mobile phone ownership and usage, network and data accessibility, preferences and perspectives on smartphone functionalities and the current implementation strategy. Additional context-specific implementation barriers and facilitators emerged throughout the interview process and will guide further iteration of the codebook.
Conclusions: The preliminary analysis reveals significant population needs in technology, smartphone ownership, usage patterns, and HIV/TB health service delivery. Using this and potential implementation challenges to be identified using probes guided by CFIR, guide the redesign of the current mobile app.

PO-HSITA-13. Insights from seventeen years experience of in quality monitoring and laboratory accreditation maintenance at NIMR-Mbeya Center

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Background: The quality monitoring system serves as a cornerstone for clinical and research laboratories, ensuring the delivery of dependable results and high levels of satisfaction among customers or patients, both locally and globally. NIMR-Mbeya Medical Research Center (NIMR-MMRC) is committed to maintaining the quality of laboratory services and testing through its external quality assurance (EQA) system and accreditation programs. This retrospective study seeks insights into the performance of the NIMR MMRC safety laboratory over the seventeen-year accreditation period with the College of American Pathologists (CAP).
Methods: A retrospective evaluation was done on quality indicators across various sections of the NIMR-MMRC safety laboratory, including Hematology, Serology, Biochemistry, Viral Load, and Immunophenotyping. The review considered nine key indicators aligned with CAP standards, such as TAT, CAP-EQA performance, competency, lot-to-lot testing, quality management, safety incidents, equipment maintenance, CAPA, inventory control, and audit reports, spanning seventeen years from 2007 to 2023.
Results: The overall performance of EQA proficiencies in the last sixteen years, from 2007-2023, was above 90%. Of which >95% was observed in haematology, clinical chemistry, viral load and immunophenotyping sections, and 100% was observed in the serology sections. Furthermore, the report based on CAP audits done every two years since 2007 was 99%¬± 0.5% as overall performance in all audited key quality indicators. Lastly, the threshold for external quality control panel reports to pass was 80% compared to 95% as the criteria for CAP ISO 15189 to be accredited.
Conclusion: High-quality monitoring and management plans are vital for reliable results. Despite operational challenges, NIMR MMRC Safety Laboratory has maintained high standards for 17 years. Therefore, continuing external EQA schemes and audits are crucial for consistently providing dependable results.

PO-HSITA-14. 3HS Model: The Model to improve notification, Post Donation Counselling (PDC), and linkage to improved care and treatment for blood donors infected with HBV, HCV, HIV, and Syphilis in Tanzania

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Background: Globally, over 350 million people live with viral hepatitis, with 90% unaware of their status. In Tanzania, more than 2 million individuals are infected with hepatitis B and C. National Blood Transfusion Services (NBTS) provides crucial data on HBV and HCV, key among Transfusion-Transmitted Infections (TTIs), alongside HIV and Syphilis. In 2022, NBTS reported that 10% (21,000) of donated blood units carried TTIs. However, Post-Donation Notification and Counselling (PDC) rates have remained unacceptably low, ranging from ,7.5% to 1.5% in most regions. Developing innovative approaches to enhance notification and PDC is indispensable. This will raise awareness of donors' health status and facilitate prompt linkage to healthcare. Addressing these gaps will significantly contribute to achieving the objectives of the Tanzanian National Strategic Plan for the Control of Viral Hepatitis.
Objectives: Creating an e-health surveillance system to notify blood donors and facilitate their linkage to PDC, assessing the impact of adding a Pre-donation Diseases information form on the

uptake of PDC and linkage to healthcare for blood donors with TTIs and evaluating and enhancing the capacity of healthcare facilities (HCF) and healthcare workers (HCWs) to manage viral hepatitis.
Methods: We are developing a new e-health notification system and a supplementary disease information form to be included with the current NBTS-ICF. A quasi-experimental pre-post implementation approach will assess the impact of these interventions. The study will span two years in Songwe, Njombe, and Mbeya. The Gilead Scholar Public Health Program funds the project.
Expected Outcomes: The e-health notification system is expected to enhance the current notification process and capture and digitally store data at each blood donation stage. Additionally, we anticipate an increase in the uptake of PDC and linkage to designated facilities for treatment and care. Evaluation of HCF and HCWs' training will lead to recommendations for improvement, enhancing the skill set of HCWs and improving care for patients with these infections.

PO-HSITA-15. Enhancing Health Research Ethics Oversight in Tanzania: Lessons from Integrating National Research Ethics Information Management System (NREIMS)

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Background: Ethical review processes are critical for safeguarding health research participants and promoting research benefits. However, with the increased number and complexity of designs of health research proposals, efficiency and adequate review capacities are required by Research Ethics Committees (RECs). Tanzania is challenged by multiple time-consuming layers of health research approvals and inefficiencies relating to the sequential processing of ethics and regulatory approvals. With this regard, through the CCRREEA project, the National Institute for Medical Research developed an integrated National Research Ethics Management System (NREIMS) to enhance oversight of health research ethics in Tanzania.
Objectives: The study aimed to understand research ethics clearance processes, evaluate existing electronic systems, identify RECs challenges, and provide commendations for an integrated NREIMS.
Methods: A mixed-methods approach involved self-administered questionnaire surveys to Institutional nominees of 12 RECs and 3 National Regulatory Authorities / Agencies (NRA) and interviews with Principal Investigators in Tanzania.
Results: 15 institutions, including 12 RECs and 3 NRAs, were surveyed. Only two institutions were found not to charge fees for protocol approval; the rest were charged with varying fee structures. Five out of fifteen institutions had client service charters (CSC). Two institutions lacked mechanisms for research oversight. Six institutions relied on hard copies for proposal approval, while others used web portals. Stakeholders were in favour of the integrated NREIMS for protocol approval.
Conclusion: The variability of review fees poses challenges to researchers and deters applications to relevant authorities. The lack of CSC and oversight mechanism for some RECs affects their capability for study monitoring. Using hard copies for proposal approval compromises the quality of health research oversight in Tanzania. NREIMS can address all the challenges identified in this study.

PO-HSITA-MAL-17. Is there integrity in routine malaria data in Tanzania?

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Introduction: Routine malaria data generated by the Health Management Information System is important for monitoring malaria burden and intervention coverage. However, data generated using this framework are often incomplete and inconsistent. This study was set to assess the completeness and consistency of routine malaria data reported from the health facility level and the management of malaria patients from the point of entry and exit.
Methodology: The assessment was conducted in the selected 84 health facilities (21 hospitals, 21 health centers and 42 dispensaries) from 21 councils in the 7 regions. Three councils were selected based on their performance indicators on routine malaria data for a period of 6 months. In the OPD registers, an overall of ten (10) patients (with malaria diagnosis) were selected for record review, in ANC registers five (5) pregnant women who have already delivered, five (5) children from child registers aged at least 9 months before the date of the supervision visit and six (6) patients from IPD register.
Results: The findings indicate more than 80% of health facilities had standard and in use OPD registers and monthly reports compared to the 60% of the hospitals. The availability of standard-used laboratory registers, tally sheets and monthly summary reports were reported in more than 80% of the health facilities. A review of records indicates more than 90% of malaria testing records were reported compared to malaria test outcomes (75%) (Pos, Neg) were reported in the OPD registers. Overall findings indicate average performance in Antenatal care service (ANC) score 62%, Laboratory score 58%, Outpatient (OPD) score 52%, while poor performance observed in Dispensing score 45%, Child health score 48% and IPD score 43%.
Conclusion: Strengthening data quality assessment and promoting data use for decision-making at the health facility level.

PO-HSITA-RM-19. Awareness and participation of men in antenatal care services critical for promoting maternal and child health

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Introduction: Recently, Tanzania has made recommendable efforts to strengthen healthcare system and maternal and child health (MCH) outcomes. This study was set to assess the awareness and participation of men in antenatal care services in the Pwani region, Tanzania.

Methodology: This was a cross-sectional study conducted between 26 October and 9 November 2023 among men whose wives/partners have recently delivered in the 9 councils in Pwani, Tanzania.

Results: Ninety-seven per cent were aware that their wives/partners had antenatal check-ups during pregnancy, whereas three-quarters (75.68%) of them escorted their wives to attend clinics. Forty-two percent of men accompanied their wives/partners at the time of delivery. Men's awareness of family planning methods shows male condoms (89.8%), pills (86.2%) and injections (91.7%) were more common to the majority of men, however, they were less common to most men,

results indicate some of the natural methods such as standard days (56.7%) and lactational amenorrhea (26.8%) were known to the majority of men. Regarding the perception and attitude of men concerning family planning methods, findings indicate that the majority (64.8%) of men disagree that contraception is a woman's concern and that men should not worry about it also most (60%) men showed their disagreement with the assertion that use of female condom promotes promiscuous behaviour among women. The most common source of information regarding family planning reported by most men was magazines (67.1%).

Conclusion: The antenatal check-ups among wives/partners during pregnancy were known by many men, indicating improved awareness of the importance of antenatal care services. Despite the improved awareness recorded in this study, nearly a quarter of men did not escort their wives/partners to attend the services during pregnancy, which calls for more education among men. The findings indicate more education is needed to promote equally the existing family planning methods among men, especially natural family planning methods.

Therefore, this study recommends that more education is needed to promote understanding of the importance of men escorting their wives or partners while attending antenatal care services.

PO-HSITA-20. Improvement of infection prevention and control implementation at 37 referral hospitals in Tanzania from 2021 to 2022: Lesson learnt through the application of a consolidated framework for implementation research

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Background: Improper implementation of Infection Prevention and Control (IPC) interventions in Health Facilities (HFs) predisposes healthcare workers (HCWs) and clients to infections. Coronavirus diseases 2019 (COVID 19) pandemic increased need to strengthen IPC in HFs. However, limited information exists on improving IPC in Tanzania. This study aimed to determine how to improve IPC implementation at 37 referral hospitals (RHs) through an adapted Consolidated Framework for Implementation Research (CFIR).

Methods: This was a pre-post intervention study with quantitative and qualitative parts. The first part is the National IPC Standards Tool for Hospitals, which assesses IPC performance trends. Median and Wilcoxon signed rank score tests were calculated to find the p-value, where a p-value of < 0.05 was taken as significant. Second, the Adopted CFIR was used to evaluate IPC implementation at HFs to determine the reasons for the improvement of IPC practices. Qualitative analysis was done to come up with the main themes.

Results: Median adherence to IPC practices in 37 RHs was 46% (IQR: 49, 55) in 2021 and 64% (IQR: 52, 73) in 2022 (P value <0.001). About 1850 and 1955 HCWs were mentored in 2021 and 2022 respectively. Strong management support, ongoing on-the-job training, exchange of best practices, and organised Quality Improvement Teams (QITs) were explained as the main reasons for IPC improvement at HFs.

Conclusion: IPC practices at 37 RHs improved, although still insufficient. High-performing HFs were differentiated by strong managerial support, inter-facility exchanges of best practices, and ongoing capacity building. To increase the quality of healthcare services, we urge all HFs to strengthen IPC interventions.

PO-HSITA-RM-21. Peer-Led Neonatal Resuscitation Training Among Medical and Nursing Students: Experience of Hubert Kairuki Memorial University

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Introduction: The first 28 days of life continue to be a crucial period for newborn survival in Sub-Saharan Africa. Tanzania has high Neonatal Mortality Rates primarily driven by birth asphyxia. To address this challenging burden in resource-limited areas, the Helping Babies Breathe (HBB) initiative trains future and current Healthcare Professionals (HCPs) in neonatal resuscitation techniques. This retrospective study highlights the novel approach to peer-led neonatal resuscitation training among medical and nursing students at Hubert Kairuki Memorial University (HKMU).
Methods: The HBB-HKMU initiative is a student-led program established in 2016. The workshop includes both theoretical and practical components attended by future and current HCPs. Pre- and post-training knowledge surveys and self-evaluation tests are routinely conducted to assess participants' knowledge and level of confidence. Test results of all workshop participants between November 2016 and November 2023 were analysed using paired t-tests. P-value was considered significant at $p<0.01$.
Results: The HBB-HKMU initiative successfully trained 1389 trainees. A total of 1243 (93.11%) of participants were medical students, nursing students, and other health and allied science students. Pre (10.63¬±2.53) and post (14.71¬±1.60) training knowledge test-scores demonstrated statistically significant ($P<0.01$) improvements. Confidence to conduct neonatal resuscitation assessed through self-evaluation surveys showed 213 (15.97%) participants feeling very confident prior to training; however, following training, a substantial increase to 784 (56.03%), demonstrating a marked difference of 40.06%.
Discussion: The results indicate that the HBB-HKMU initiative is effective in mitigating knowledge gaps and boosting confidence among neonatal resuscitation participants. Significant improvement in the pre-to-post knowledge tests illustrated the training's impact on participants' understanding. An increase in confidence post-training emphasizes assurance in practical abilities. Utilizing students to teach and train peers and practising HCPs may be an effective way to expand neonatal resuscitation training programs in settings where health educators are limited in number.

PO-HSITA-22. The Effect of Outlet Location on Regulatory Visits and Quality Compliance at Private Retail Drug Outlets in Tanzania

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Background: Achieving Universal Health Coverage (UHC) depends on ensuring access to quality-assured essential medicines. In Low- and Middle-Income Countries (LMICs), private-sector drug retail outlets are crucial in providing medicines, particularly in remote areas. However, regulatory compliance and inspection of these outlets, especially in remote regions, pose significant challenges. This study investigates the relationship between outlet location and regulatory compliance in Tanzania, focusing on cleanliness, staff availability and qualifications, and inspection frequency.
Methods: A mixed-methods cross-sectional approach was employed, surveying 158 private medicine outlets across four regions. Sampling followed a four-stage process, combining purposive and stratified random sampling. Data collection encompassed detailed assessments of

outlet characteristics, regulatory compliance levels, and the frequency of regulatory inspections. We employed a robust suite of statistical methods to analyse the collected data, including descriptive statistics, chi-square tests, Fisher's exact tests, and logistic regression. This facilitated a comprehensive examination of compliance patterns and regulatory dynamics within the private retail drug sector.
Results: Findings revealed significant disparities in compliance levels between pharmacies and Accredited Drug Dispensing Outlets (ADDOs), with pharmacies demonstrating higher compliance, particularly in urban areas. Outlets closer to regional capitals exhibited better compliance with cleanliness and staff presentation standards. Despite regulatory requirements for annual inspections, many outlets reported infrequent visits, worsening compliance challenges.
Conclusions and Recommendations: The study reveals systemic compliance issues in private retail drug outlets, necessitating increased regulatory oversight and capacity building, especially in remote areas. Addressing compliance challenges is crucial for ensuring access to quality-assured medicines, particularly for vulnerable rural populations. Urgent measures are needed to enhance regulatory enforcement and capacity building, safeguard healthcare access, and advance progress towards UHC.

PO-HSITA-TB-23. The Efficiency of Mobile Diagnostic and Treatment Centre (MDTC) in the screening active Tuberculosis with associated risk factors in Mbeya and Songwe Region
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Background: Approximately a quarter of the world's population is believed to have contracted TB bacteria. Among those infected, approximately 5-10% will eventually develop symptoms and progress to TB disease. Consequently, early detection of tuberculosis cases is vital to prompt treatment initiation, thereby enhancing treatment outcomes and curtailing community transmission, particularly within hard-to-reach populations. This study evaluates the effectiveness of MDTC, a community-based active case-finding strategy employing the Mobile Diagnostic and Treatment Centre (MDTC), in detecting tuberculosis cases among hard-to-reach populations in the Mbeya and Songwe regions from 2020 to 2022.
Methods: In this community-based study, a cross-sectional approach was employed to screen for active tuberculosis (TB) cases within hard-to-reach populations across the Mbeya and Songwe regions. The screening protocol involved two key steps: Firstly, individuals visiting the mobile laboratory were assessed for TB symptoms, forming the initial phase of the screening process. Secondly, individuals exhibiting symptoms indicative of TB underwent sputum sample collection, with each sample subsequently analyzed for the presence of M. tuberculosis using the GeneXpert real-time technique. Descriptive statistics and measures of association were utilized to summarize and analyze the obtained data.
Results: 11,853 were screened for TB using MDTC, and 1,232 (10.4%) had at least one TB symptom. 1,166(94.6%) could produce sputum for the Xpert TB/RIF testing of which 98 (8.4%) were positive for M. tuberculosis. Of Positive TB cases, 6 (6.1%) had rifampicin resistance M. tuberculosis infection. Males (AOR=1.99, 95% CI 1.22-3.26); p=0.006, also TB symptoms like fever (AOR=9.25, 95% CI 4.49-19.6); p=0.001 and Night sweats (AOR=9.34, 95% CI 5.53-15.77); p=0.001 were associated with the increase of TB case detection and is statistically significant
Conclusions: The study indicated that a community-based active case detection strategy via MDTC successfully identified cases of M. tuberculosis within the community.

PO-HSITA24. On-going initiatives to develop a critical mass of data scientists and mathematical modellers in malaria-endemic countries.

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Introduction: National Malaria Control Programs (NMCPs) in sub-Saharan Africa increasingly recognise the value of mathematical modelling for decision-making. However, insufficient modelling expertise in most malaria-endemic African countries hampered efforts to integrate modelling into routine planning and decision-making. We aim to present initial initiatives for developing a critical mass of data scientists and mathematical modellers in Tanzania, including creating a vector control model and database system and providing support on analysis that can be attached or readily accessible to NMCP for giving the required technical support. The roles of different key stakeholders needed to strengthen the malaria modelling ecosystem in malaria-endemic countries will also be highlighted.
Methods: The team has developed a modelling framework, the Vector Control Optimization Model (VCOM), that integrates vector control interventions to ensure malaria control and aid decision-making. We have created an electronic database management system (Mosquito) to manage diverse entomological studies to control and eliminate vector-borne diseases. Moreover, the team provides technical support for data analysis in different projects at the Ifakara Health Institute and the NMCP to ensure the transfer of these skills through workshops and training. The VCOM model has been applied in different modelling projects with several published and ongoing works. At the same time, Mosquito is a multi-country application and is utilized mainly by researchers and NMCPs focusing on malaria vectors.
Conclusion: These initiatives in Tanzania demonstrate efforts to develop a critical mass of expertise in data science and mathematical modelling, addressing the need for such skills in malaria-endemic African countries. Through collaborative efforts and capacity-building, these tools strengthen the malaria modelling ecosystem and support evidence-based decision-making in the fight against malaria and other vector-borne diseases.

PO-HSITA-25. Pharmaceutical or herbal: The choice dilemma in health-seeking behaviour

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Background: The beginning of the twenty-first century has witnessed a growing tendency to use alternative medicines in human health-seeking behaviours. Herbs have promotionally been favoured over pharmaceuticals, arguably being merited with safeness, efficacy, affordability, accessibility, and cultural acceptance. On the other hand, conventional medicine, founded in pharmaceutical agents (drugs, vaccines, and devices) is credited with optimal scientific back-up in their efficacy and safety as well as information on dosage, shelf life, indications and contraindications. With alternative forms of medicine being formally recognised, regulated and integrated into formal healthcare systems, consumers/clients find themselves in limbo as to which direction to take when picking between pharmaceutical or herbal formulations as treatment choices.
Methods: This is a review work achieved through a detailed review of relevant literature. Sources of information include publications in peer-reviewed journals, grey literature, and government documents related to health systems and the formalization of traditional medicine.

Results: Complementing the conventional healthcare system with traditional medicine comes under a philosophy that there is untapped potential in herbal medicine, which can be opted for when treatment challenges are encountered with pharmaceutical products. Empirical evidence has shown some successful interventions using herbal formulations when treatment is unavailable or does not respond with pharmaceutical products. However, cases of severe side effects, treatment failures, and confusing prognoses have sometimes been encountered with the use of herbal medicines.
Conclusion and recommendation: Comparative advantages should factor in the authenticity of information about the drug of choice (particularly in safety and efficacy), the diagnosis of the medical problem, and the prognosis. The choice between pharmaceutical and herbal options in health-seeking behaviour should better be handled individualistically (individualised medicine) rather than in a generalised approach (public health medicine).

PO-HSITA-26. Surveillance of Lymphatic Filariasis morbidities by community health workers using semi-digital methods in the integrated health system in Mtama district, Tanzania.

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Background: Lymphatic filariasis (LF) has been reduced in the Mtama district to a circulating filarial antigen (CFA) prevalence of 5.2 % after fourteen rounds of MDA. Despite the achievement in reducing transmission, LF morbidities have remained a public health problem. Morbidity Management and disability prevention (MMDP) strategies have helped to alleviate suffering. Little has been done to address LF morbidities due to a lack of data on the burden of the problem. This study sought to determine the burden of LF morbidities.
Methods: Trained community health workers (CHWs) conducted a house-to-house survey to screen LF morbidity patients using a structured questionnaire. CHWs identified and reported LF morbidities. CHWs staged lymphoedema patients according to the Dreyer stages, and the HPs re-diagnosed a sample of them for verification. HPs entered data into the health promotion section and DHIS2 database and analyzed them using the Stata programme.
Result: The burden of hydrocele, lymphoedema and both lymphoedema and hydrocele were 1072 (980.4 per 100,000), 341(311.6/100,000) and 14 (12.8 per 100,000) respectively. The large majority, 288(81.4%) of the lymphoedema were located on the lower limb, and more than half, 185(59.6%), were in the early stages. The majority, 328(92.5%) of lymphoedema cases, had experienced filarial fever attacks. The presence of attacks was significantly associated with the stages of lymphoedema ($p < 0.01$). A total of 287 (79.7%) lymphoedema patients had education on hygiene management and had a reduced risk of getting attacks compared to those with no education ((odd ratio 0.22,95%CI (0.10-0.51) $p<0.001$).
Conclusion: This study has demonstrated the feasibility of a surveillance system for identifying and reporting morbidities related to LF. It highlights the need for the government's attention in adopting the system, as it would ensure the sustainability of health necessities for LF morbidity cases.

PO-HSITA-27. Utilizing Health Information Technology to Enhance Chronic Disease Management in Urban Health Clinics

Introduction: This study investigates using health information technology (HIT) to enhance chronic disease management in urban health clinics. The study uses digital tools and systems, such as electronic health records (EHRs), clinical decision support tools, and patient portals, to manage health information and support healthcare delivery. The study aims to improve the care and treatment of chronic diseases, which are long-term medical conditions that require ongoing management, such as diabetes, heart disease, HIV, hypertension, asthma, etc. With chronic conditions' increasing prevalence and complexity in urban populations, innovative solutions are needed to improve patient outcomes and healthcare delivery efficiency.
Objectives: This research aims to assess the impact of HIT implementation on patient outcomes, healthcare provider workflows, and clinic operations. Using a mixed-methods approach, we implemented an electronic health record (EHR) system integrated with clinical decision support tools and patient portals in urban health clinics.
Methods: Quantitative analysis included pre- and post-implementation assessments of clinical indicators, patient adherence rates, and healthcare utilisation patterns. Qualitative data from interviews with healthcare providers and clinic administrators provided insights into the usability, acceptability, and effectiveness of HIT solutions in improving chronic disease management.
Results: Preliminary findings indicate significant improvements in patient outcomes, including better disease control, reduced hospital readmissions, and improved medication adherence rates following HIT implementation. Qualitative feedback highlighted the streamlining of clinical workflows, enhanced communication among healthcare team members, and increased patient engagement through access to health information via patient portals.
Conclusion: This research contributes to advancing research and development in health services by demonstrating the potential of HIT to optimise chronic disease management processes, improve patient outcomes, and enhance healthcare delivery in urban settings.

PO-HSITA-28. Preparing Prospective Researchers on Policy Briefs Writing and Presentation to Maximize Health Research Dissemination and Utilization in Tanzania and Beyond

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ABSTRACT
Background: Policy briefs (PBs) remain advocated among the identified crucial means for research dissemination to increase chances for research evidence use for policy consideration and for guiding better some managerial decisions. Their advocates report them as being more advantageous than peer review journal-based publications. At the same time, the debate on this point is yet unclosed as critics find them to have shortcomings as compared to peer-reviewed journal-based publications. Owing to the controversies raised, the current paper argues in favour of a point raised regarding a need for orienting academicians and students in high learning institutions (HLIs) and full-time researchers on PBs issues.
Methodology: An overview of selected literature searched from online publications and in physical libraries.
Results: Proponents report PBs as being preferred for conveying the key research evidence-based messages to policy-makers and other research-interested audiences amongst whom are pro-public benefits-oriented planners and managerial and administrative executives as well as field-based practitioners since their concise and simplistic language natures reduce or prevent such stakeholders' fatigue or boredom feelings than reading or hearing from research reports or peer

review journal-based articles typically presented in lengthy styles while containing technically jargoned languages. Conversely, critics report PBs as lacking sufficient background and methodological details to rationalize the results presented, and the conclusions reached while lacking a uniform presentation format and so far being lowly popular in most academic and research institutions. Their acknowledged advantages at enhancing research-based knowledge for policy and practice purposes remain; however, a need for orienting current and prospective academicians and their students in HLIs and the graduates employed as researchers on what they are and how to write and present them is highly proposed.
Conclusion: The prevailing discourse on PBs suggests the need to orient academicians, students, and full-time researchers to them without emphasizing that they are substitutes for peer-reviewed journal-based articles.
Keywords: health policy, decision-making, knowledge transfer, research utilization, high-learning institutions.

2.4. REPRODUCTIVE, MATERNAL, NEWBORN, CHILD AND ADOLESCENT HEALTH (RMNCAH)

MCH01: Prevalence of Herbal Medicine Use for Maternal Conditions in Tanzania: A Systematic Review and Meta-Analysis

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Background: Several studies reported the prevalence of herbal medicine use for various maternal conditions across regions in Tanzanian communities. However, the lack of a national estimate of herbal medicine use makes it challenging for policymakers, herbal medicine regulators, and healthcare practitioners to make informed decisions on herbal medicine-related policies and practices to optimize their contribution to maternal healthcare. Objectives: This meta-analysis synthesized the national prevalence of herbal medicine use for maternal conditions based on ethnomedical studies conducted in Tanzania.
Methods: Authors systematically searched for published articles and grey literature in PubMed, Google Scholar, Embase, CINHAL, and Scopus databases from inception to 30th August 2023. Later, two authors independently assessed the retrieved articles for eligibility and risk of bias using pre-determined criteria. We used Cochran Q statistics and I2 tests to evaluate heterogeneity. Also, we used the random-effects model to determine the pooled prevalence.
Results: About 21 studies with 5,232 women from 15 regions of Tanzania included. They had a low to moderate risk of bias. Fourteen studies (n = 4,817) were included in the meta-analysis. Overall, the average prevalence of herbal medicine use for maternal conditions was 46% [95%, CI: 34 – 58], I2 =93.4%. The Southern Highlands zone had the highest prevalence, at 68% [95%, CI: 39 – 97]. Similarly, the majority of women 69% [95%, CI: 42 - 96] used herbal medicines to manage labor induction. Based on a seven-year interval, the prevalence changed from 39% [95%, CI:40 – 78] in (2008 – 2015) to 59% [95%, CI: 40 – 78] in (2016-2023).
Conclusions: The evidence suggests that for every five Tanzanian women, at least two use herbal medicines to manage maternal conditions. Data from better-designed ethnomedical surveys from all regions are still needed to achieve a robust generalizable estimate.

MCH02: Leaving no one behind: using action research to promote male involvement in maternal and child health in Iringa region, Tanzania

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Introduction: Male involvement has been reported to improve maternal and child health (MCH) outcomes. However, most studies in low-income and middle-income countries have reported low participation of men in MCH-related programmes. While there is a growing interest in men's involvement in MCH, little is known about how male involvement can be effectively promoted in settings where entrenched unequal gender roles, norms, and relations constrain women from inviting men to participate in MCH. This paper reports on using participatory action research to promote male participation in pregnancy and childbirth in Iringa Region, Tanzania.
Methods: The paper used data generated from 20 villages in two rural districts of Iringa region which were part of the Innovating for Maternal and Child Health in Africa project conducted between 2015 and 2020. The common strategies used were engaging health facility committees; using male champions and male gatekeepers; and using female champions to sensitize and provide health education to women.
Results: The findings revealed an increase in the number of male partners who participated in MCH programmes.
Conclusion: The participatory approach not only empowered communities to diagnose barriers to male involvement but also developed culturally acceptable strategies that may last long beyond the project's lifespan.

MCH03: Once Government delays, we fix: Exploring the Uturo model community-based initiative for improved maternal and child health in rural Tanzania.

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Background: Improving maternal and child health (MCH) is a task that resource-constrained countries are grappling to meet the maternal mortality rate of 70 per 100,000 live births by 2030. In Tanzania, government efforts are complimented by locally grown initiatives like the Uturo model, a community-based initiative for improving MCH that began in 2000 in the Mbarali district, Mbeya region. While the initiative has been widely revered, there is still a missing critical analysis of this initiative and its impact since its inception.
Methods: The study was conducted in Mbarali District using a qualitative case study design. In-depth interviews, focus group discussions and document reviews were employed to collect the data involving 69 participants; 41 participated in interviews and 28 in the focus group discussions. Participants included implementers of the Uturo model: female champions, champion leaders, and community health workers. Others were local community leaders, healthcare workers and district health managers. Thematic analysis was employed to analyze data.
Results: The model presents a unique initiative that has lasted for over two decades, contributing to improved MCH services. Under the model, different strategies, such as community mobilization, referral systems, a special nutrition day, and a new transport scheme, were employed. The initiative reduced maternal and child deaths, improved accountability among health workers, with female champions integrated into health systems, and increased budget allocation among facilities implementing the model.

Conclusion: Governments living in developing countries cannot stop witnessing maternal deaths. The government is to pool community resources to complement the local efforts to improve MCH. Given such promising results, the government needs to consider scaling up such community initiatives in rural settings. During the designing of the initiative, there is a need to consider the socioeconomic and cultural context of the respective community to warrant sustainability.

MCH04. Community health workers roles in Maternal and Child Health in Pwani, Tanzania: the status of training, motivation and supportive supervision

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Background. Community health workers (CHWs) are a necessary intervention to provide basic preventive health care services and health promotion at the Community level, in Tanzania. started was used in 1983 when the Ministry of Health and Social Welfare (MOHSW) developed a guideline for training primary healthcare workers in every village to promote access to health services at the Community level. This study aimed to assess the role of community health workers in promoting maternal and child health in the Pwani region of Tanzania.
Methods: This cross-sectional study was conducted between 26th October and 9th November 2023 in 44 randomly selected villages from 22 wards of the nine councils in Pwani region in Tanzania. The study population was CHWs with working experience in the area in the last 12 months. Data was collected by using structured questionnaires.
Results: A total of 46 CHWs were recruited and the majority were aged over 40 years. Thirty-eight (82.6%) CHWs had attained primary education level, while 30 (88.9%) CHWs had received Integrated Community Case Management (ICCM) training before working as CHWs. Out of 31, Only 19 (61.29) have received refresher training courses for more than 6 months before the survey. Twenty-six (56.52) CHWs were not paid to work in the community. Ten (22%) CHWs never receive Supportive Supervision from their Supervisors for more than 3 months before the Survey. In the region, the CHWs were mainly involved in conducting home visits for mothers and newborns, providing health education such as food for pregnant women, referring pregnant women with danger signs, referring to severe or complicated cases and treating sick children.
Conclusion: Regular refresher training and motivation among CHWs should be the necessities in enhancing their job performance. Training of CHWs in ICCM is highly recommended to strengthen their capacity in service provision.

MCH05: Accessibility and utilisation of maternal, newborn and child health services among women of reproductive age in Pwani region, Tanzania

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Introduction: Over the past two decades, Tanzania has made tremendous efforts to strengthen its healthcare system in collaboration with national and international organizations. Improving maternal, newborn, and child health services has been the top priority agenda in Tanzania's healthcare system. This study aimed to assess access and utilization of maternal and child services received among women of reproductive age in Pwani, Tanzania.
Methods: This cross-sectional study was conducted in October and November 2023 among recently delivered women (RDW) aged 15-49 in Pwani, Tanzania. Data was collected using structured questionnaires and analyzed using STATA 16.
Results: A total of 585 RDW were involved. Results indicated that about 9 in 10 RDW received antenatal care services during their pregnancy, and the majority (86.1%) had an overall of 4 antenatal visits. They were mainly served by nurses and midwives (49.8%) from government health centers (51.4%). Over 80% of the RDW received essential preventive treatments during pregnancy such as iron syrup, SP/Fansidar, tetanus injection and anthelmintic medicines. Most of the deliveries (84.73%) reported in this survey took place in government healthcare facilities, for which the majority were normal deliveries (73.6%). Over three-quarters of RDW reported maternal and newborn health care services received during delivery and birth, which include privacy during delivery, blood pressure monitoring, skin pounding, and baby weighing. The findings indicate the majority (>90%) of RDWs reported the availability of essential postnatal care services; for instance, no RDW was either delayed/prevented from leaving the health facility nor denied medical services due to lack of payment.
Conclusion: This study showed improvement in the uptake of vital interventions provided during pregnancy, delivery, and postnatal care in Pwani, Tanzania. Overall, efforts must be increased to meet important SDGs 3 (targets 3.1 and 3.2) for 2030 while also aligning with overall national goals and policies.

NBHIV01: Newborn HIV high risk categorization: an observational study in 29 health facilities of Tanzania

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Introduction: In 2019, Tanzania adopted WHO recommendations to categorize HIV-exposed infants (HEI) into high or low risk for vertical HIV transmission (VHT) with appropriate follow-up care according to risk status. However, there is limited information on how infant risk categorization and subsequent care is being implemented in Tanzania.
Methods: A prospective cohort study was conducted in 2020 that included 24 health facilities across nine regions of Tanzania. We assessed healthcare workers , risk categorization for pregnant women living with HIV (PWLHIV) and their newborns who were enrolled and followed-up workers , risk categorization for pregnant women living with HIV (PWLHIV) and their newborns who were enrolled and followed up for 3 months post-delivery. We used both Point-of-care (PoC) HIV testing and centralized HIV testing platforms.
Results: A total of 629 PWLHIV and 640 newborns were included. The median age of PLWLHIV was 30 years (IQR 26-35). Sixty-two percent (393) of the mothers had at least one viral load test done during pregnancy or delivery. Of these, only 86% (340) received results. 113 (17.7%) newborns were categorized as high-risk. Of these, 82% were identified as high-risk based on clinical criteria only. Only 6.4% of all high-risk newborns had a birth test performed and 8.5% were initiated on enhanced post-natal prophylaxis. The median turnaround time (TAT) of EID results was 11 days versus 38 days through POC and centralized testing platforms respectively.
Conclusion: These findings underscore the need for continual training and support of health care workers on newly adopted recommendations such as high-risk categorization. We also

demonstrated the shorter TAT of EID results using PoC platforms, which can complement the existing centralized platforms, especially for remote health facilities.

NBHIV02: Birth Point-of-care Test-and-Treat Reduces Early Clinical Events Among HIV-Positive Infants: A Cluster Randomized Trial

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Introduction: We assessed the impact of point-of-care (PoC) test-and-treat at birth on clinical outcomes and viral suppression among HIV-positive infants in Mozambique and Tanzania.
Methods: This cluster-randomized trial allocated health facilities to intervention, providing PoC-early infant diagnosis and antiretroviral treatment from birth, or control, starting these at 4-8 weeks. The primary outcome was the proportions of clinical events (mortality, morbidity, retention) among HIV-positive infants at 18 months. We also estimated hazard ratios adjusted for time of HIV-infection (aHR) and reported viral suppression rates <1000 copies/mL.
Results: Out of 6601 neonates enrolled from October 2019 to September 2021, we analyzed 125 who were HIV-positive by week 12. In the intervention group, 38/69 (55¬∑1%) were diagnosed at birth with 35 initiating ART within two days. In the control group, 27/56 (48¬∑2%) retrospectively detected HIV-infected at birth could have benefited from birth test-and-treat, 6/56 (10¬∑7%) of whom died or were lost to follow-up before HIV testing. Median time to ART initiation was 6 (intervention) versus 33 days (control). Birth test-and-treat was associated with a borderline significant reduction in combined clinical events up to month 3 (intervention: 12 (17¬∑4%), control: 18 (32¬∑1%); aHR: 0¬∑471; 95% CI: 0¬∑219,Äì1¬∑011) and mortality alone up to month 6 (intervention: 4 (5¬∑8%), control: 8 (14¬∑3%); aHR: 0¬∑328; 95% CI: 0¬∑099,Äì1¬∑093), neither of which were sustained until month 18 (intervention: 42 (60¬∑9%); control 34 (60¬∑7%); aHR: 0¬∑967; 95% CI: 0¬∑552,Äì1¬∑692). Viral suppression was poor overall but improved in the intervention group at week 4-8 (37¬∑8% versus 5¬∑7%; p=0¬∑001), month 6 (37¬∑0% versus 23¬∑3%; p=0¬∑126), and month 18 (65¬∑7% versus 29¬∑6%; p=0¬∑005).
Interpretation: PoC test-and-treat at birth is feasible in resource-poor settings and results in clinically significant reductions of early clinical events among HIV-positive infants. Low rates of virologic suppression may undermine the early survival benefit, calling for better paediatric treatments.

NBHIV03: Pediatric HIV disclosure influence on depressive symptoms and quality of life among children living with HIV in Tanga region, North-Eastern Tanzania

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Background: Disclosure of HIV status among HIV-infected children is important for psychosocial well-being. However, there is limited information on the effects of HIV disclosure on depressive symptoms and quality of life in HIV-infected children in Tanzania.
Objective: To investigate the effect of HIV disclosure and associated factors on depressive symptoms and health-related quality (HRQOL) of life in HIV-infected children aged 8 -14 years in Tanga region, Tanzania.
Methods: A cross-sectional study was conducted from June to November 2023 in 11 public HIV clinics in Tanga, Tanzania. Information on depressive symptoms, HRQOL, antiretroviral treatment (ART) adherence, HIV disclosure status, sociodemographic factors and caregiver burden were collected. Multiple linear and negative binomial regression analyses assessed associations between variables. Variations in findings were considered significant at $p < 0.05$.
Results: A total of 278 children (median age 12 years (IQR:10 –13) with their caregivers (median age 44 years (IQR: 38–53) participated. A total of 131 (47.1%) children knew their HIV status. In multiple linear regression models, no differences were seen in HRQOL or depressive symptoms by HIV disclosure status. However, a one-unit increase in depression scores was associated with a 1.1-unit decrease in HRQOL scores (Coefficient= -1.1, 95% CI:-1.3, -0.9. p<0.0001). Children reporting poor ART adherence had a 3.7 unit decrease in HRQOL scores compared to those reporting good ART adherence (Coefficient= -3.7, 95% CI: -76.4, -0.9, p=0.01). The difference in the logs of expected depression scores is expected to be 0.2 units higher for children with higher reported caregiver burden when holding other variables constant (Coefficient= 0.2, 95% CI:0.01, 0.4, p=0.043).
Conclusion: Disclosure had minimal or negligible influence on HRQOL or depressive symptoms in CWHIV. Depression and poor ART adherence were associated with lower HRQOL when adjusted with other variables. Further longitudinal follow-up studies are needed to find the temporal relations.

NBHIV04: Prevalence of HIV in exposed infants measured by dried blood spots real-time PCR assay, a retrospective study in Tanga, Tanzania

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Introduction: Infants born to HIV-positive mothers require early HIV diagnosis at week six after birth to identify HIV infection by DNA PCR and timely treatment. The objective of this study was to determine the prevalence of HIV among infants born by HIV-positive mothers in the Tanga region.
Methods: A retrospective analysis of data generated between 2020 to 2023 during real-time PCR assay measurement of dried blood spots (DBS) collected from infants born by HIV-positive

mothers was conducted at NIMR Tanga virology Laboratory. Data was managed and analyzed using STATA package version 15.
Results: Data revealed that of the 3,588 infants, 2.6% (n= 93) were HIV positive. However, in the years 2020, 2021, 2022 and 2023, 2.8% (n= 9), 2.1% (n= 11), 3.6% (n= 41) and 2.0% (n =32) infants were HIV positive, respectively. Male infants accounted for 50.3% (n= 1805) to their counterparts. The majority of the exposed infants were at the age range of six weeks to twelve months (n= 46, 49.5%).
Conclusion: The findings highlight high HIV prevalence among exposed infants in Tanga over the last four years. To eliminate mother-to-child transmission (MTCT), adherence to ART care, ART prophylaxis for infants, care and treatment clinic (CTC) and enrollment of HIV-positive pregnant women to prevent mother-to-child transmission (PMTCT) should be strengthened. A prospective study to explore risk factors associated with high HIV prevalence in exposed infants is recommended.

NBHIV05: Operation Triple Zero intervention through triple attachment model on improving viral load coverage and suppression among Children and Adolescents living with HIV in Tanzania
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Introduction: Continuity in treatment and HIV viral load suppression remains sub-optimal among Children and Adolescents living with HIV (CALHIV). Only 49% of all Children and Adolescents living with HIV (CALHIV) were suppressed, necessitating the need for initiatives to address the 51% of the gap with unsuppressed Viral Load in FY19Q3.
Objective: The main aim of the intervention was to evaluate the role of Operation Triple Zero (OTZ) champions in improving viral load coverage (VLC) and viral load suppression (VLS) among CALHIV in Tanzania.
Methodology: Fifty-five OTZ champions were trained on friendly pediatric services in January 2023. The trained OTZ champions were tasked with raising awareness among fellow CALHIV and their caregivers on the importance of VL testing, suppression, and treatment continuity with clear messaging of family-centered monitoring and management of CALHIV with high viral load. The triple attachment model for enhanced adherence counselling (EAC) was used to reduce missed opportunities in viremia clinics on Saturday.
Results: From June 2019 to October 2022, HJMFRI had less than 95% for both VLC and VLS among CALHIV. After the use of trained OTZ champions, the VLC and VLS increased from 47% to 49% in June 2019, respectively, to 96% and 95.2% by March 2023.
Conclusion: The HJFMRI using OTZ intervention achieved increased VLC and VLS. This intervention is designed to foster both intrinsic and extrinsic developmental assets to promote a health-seeking attitude, resulting in better health outcomes. Therefore, adolescent-friendly intervention through OTZ champions is vital in improving treatment continuity among CALHIV.

YOUTH02: A systematic approach for addressing inconsistencies in self-reported age at first sex and marriage among youths and older populations in Northwestern Tanzania: serial cross-sectional surveys (1994, 2016)
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Background: Accurate and consistent data are crucial for understanding human behavior, especially in health and demographic surveillance. Reported ages at first sex (AFS) and first marriage (AFM) are vital indicators for sexual health. Spurious trends and misdirected program efforts can arise from unreliable data, highlighting the importance of scrutinizing the consistency and variability of reported ages.
Methods: This study used data from the Magu Health and Demographic Surveillance System (MaguHDSS) to explore AFS and AFM across eight survey rounds from 1994 to 2016. We Categorized reported AFS/AFM into consistent and inconsistent data into usable and unusable. A robust fixed-effect panel regression model was used to uncover within-individual variability. We scrutinized 58,654 observations from 33,177 individuals, of whom 31,522 were eligible for analysis of reported AFS and 31,627 for reported AFM.
Results: Substantial within-individual variability was observed, with over half (52% for AFS and 69% for AFM) of reported variations explained by individual-specific reporting changes. 52% reported consistent AFS and 56% reported consistent AFM, while 27% of AFS and 21% of AFM data were deemed unusable due to inconsistency. In the young population (15,Äì24 years), around 50% reported consistently for AFS, 68% for AFM, with 19% of AFS and 8% of AFM data considered unusable. The sub-analysis showed age, gender, education level, and other factors influencing variability and consistency, although the differences were small. Younger individuals, particularly adolescents, tended to report more consistently, while females exhibited higher consistency in both AFS (56.7%) and AFM (61.0%) compared to males (43.5% and 44.9%, respectively).
Conclusions: Caution is warranted in interpreting self-reported AFS and AFM data due to inherent variability and inconsistency over time. Given the challenges of face-to-face questionnaires for sensitive events, where alternative data collection methods have shown limited improvement, a systematic analytical approach is essential for improving data quality.

YOUTH03: Levels, trends and inequalities in mortality among 5 - 19-year-olds in Tanzania: Magu Health and demographic surveillance study (1995-2022)

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Background: Understanding mortality patterns beyond 5 years is important in bridging a healthy gap between childhood to adulthood. This study aimed to estimate mortality levels, trends and inequalities among 5,19-year-olds using population data from Magu Health and Demographic Surveillance site (HDSS) in Tanzania and further compares the population level estimates with global estimates.
Methodology: Using data from Magu HDSS from 1995 to 2022, from Kaplan Meir survival probabilities, we computed annual mortality probabilities for ages 5-9, 10-14 and 15-19 and determined the average annual rate of change in mortality by fitting the variance weighted least square regression on annual mortality probabilities. We compared 5-19 trends with younger children aged 1-4. Mortality was further disaggregated by sex, area of residence and wealth tertiles, and age-stratified risk ratios with respective 95% confidence intervals were computed using the Cox proportional hazard model to determine inequalities. The population-level estimates in all-

cause mortality were further compared with global estimates from UN IGME and GBD by computing the relative differences to the estimates forecast.
Results: Mortality declined steadily among the three age groups from 1995 to 2022, and the average annual rate of decline increased with age (2.2%, 2.7% and 2.9% for 5-9 10-14 and 15-19 years, respectively). The pace of mortality decline was lower compared to younger children aged 1-4 years (4.8% decline). We observed significant mortality inequalities with boys, those residing in rural areas and those from the poorest wealth tertiles lagging behind. Magu estimates were close to global estimates for 5-9 years. However, we observed divergent results for adolescents (10-19 years) with Magu estimates lying between the global estimates.
Conclusion: The pace of mortality decline for 5-19 age group is lower compared to younger children and inequalities by socio-demographic characteristics exist. Determining the burden of disease across different stratifiers is essential.

YOUTH04: Acceptability, satisfaction and experience with a digital Parenting intervention to Prevent Violence Against Children in Tanzania. Implications for digital parenting interventions
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Introduction: Violence against children (VAC) is a major public health issue with short-and long-term consequences for children. Although parenting interventions are effective at reducing and preventing VAC, there are challenges related to human delivery. The study aimed to understand caregivers' and adolescents' views on the relevance, acceptability, satisfaction, and usability of an app-based parenting intervention (ParentApp) to prevent VAC.
Methods: This paper draws from qualitative interviews with 21 caregivers and 18 adolescents. Participants were sampled purposely based on engagement levels in ParentApp interventions. Semi-structured interviews focused on caregiver and adolescent experiences with the app, satisfaction, motivation to use the app, relevance, and challenges of using the app. Thematic analysis was conducted with the aid of NVIVO qualitative data analysis software NVIVO 12.
Results: Four themes emerged on the caregiver experience of using the app: 1) Acceptability and relevance of app-based intervention to prevent VAC; 2) satisfaction/motivation to use the app; 3) support with the use of the app; 4) Challenges using the app. Digital parenting intervention was widely accepted by caregivers and their adolescents. Caregivers reported that the modules were relevant to their cultural norms on parenting and were motivated to use the app. Caregivers and adolescents liked the structure of the sessions. However, caregivers reported encountering challenges that hindered engagement with the app, e.g. busy schedules, lack of charge on mobile phones, and caregiver-limited digital literacy.
Conclusions: It is feasible to deliver a digital parenting intervention to prevent VAC in Tanzania. The digital parenting programme was acceptable and relevant to caregivers' parenting needs.

YOUTH05. Curriculum-based Sexual and Reproductive Health Education: Revealing its Relevance for Risky Sexual Behaviors among Secondary School Students in Mwanza, Tanzania
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Introduction: Secondary school students are vulnerable to risky sexual behaviours (RSBs), which lead to negative health outcomes, including teenage pregnancies and sexually transmitted diseases (STIs) like HIV/AIDS. In Tanzania, the prevalence of teenage pregnancy was reported to be 27% in 2016. Integrating sexual and reproductive health (SRH) education into the school curriculum is recognized as a crucial intervention. However, there is limited information on how effective curriculum-based SRH education is in promoting healthy practices for managing RSBs. This study aimed to describe students' and teachers' perceptions regarding the relevance of curriculum-based SRH education.
Methods: A qualitative study involved 5 secondary schools in the Ilemela district, in Mwanza, Tanzania. In-depth interviews (30) were conducted among secondary school students and teachers. Data were collected in Swahili then transcribed and translated into English after which thematic content analysis was performed.
Results: The majority (56%) of secondary school students were revealed to have a limited understanding of curriculum-based SRH education, which was limited to a few health aspects involving married people and pregnant women. Subject teachers had different perceptions about the relevance of curriculum-based SRH education. Civics teachers perceived it as relevant and enough, while Biology teachers thought it was not enough. Students reported utilizing the information taught in class to manage and navigate RSBs. Moreover, they expressed a need for additional delivery strategies to be used for a comprehensive understanding of SRH matters.
Conclusion: Despite the identified gaps in providing comprehensive knowledge that builds on the appropriate attitudes and skills, the existing curriculum-based SRH education in secondary schools was utilized to help students address and manage RSBs. However, more comprehensive information and an improved delivery approach are needed for SRH to equip students with the necessary skills when faced with RSBs.

ADOL02: Prevalence and correlate of modern contraceptive use among adolescents and young girls in Tanzania: evidence from a national representative survey.

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Introduction: Modern contraceptives are vital in improving maternal and child health through birth spacing and mitigating risks associated with unwanted pregnancies. However, its utilization remains suboptimal, particularly among adolescent girls and young women (AGYW) who are most vulnerable to unintended pregnancies. This study aimed to determine the prevalence and correlates of modern contraceptive use among AGWY in Tanzania. The objective of this study is to assess the prevalence of modern contraceptive use among AGYW and identify the correlates of modern contraceptive use among AGYW.
Methods: This was a cross-sectional analysis of the 2022 Tanzania Demographic and Health Survey (2022 TDHS) dataset. The study population included sexually active AGYW aged 15-24 years. Modified Poisson regression with robust standard error was used to identify correlates of modern contraceptive use.
Results: A total of 1,705 AGYW with a mean age (¬±SD) of 21¬±2.3 years were included in the analysis. Overall, the prevalence of modern contraceptive use was 37.5%. In the multivariable analysis, educational attainment (PR 1.31, 95% CI 1.06-1.62 for primary education; and PR 1.48, 95% CI 1.16-1.89 for secondary education and above) and number of living children (PR 5.35, 95% CI 3.99-7.18 for one child; and PR 6.71, 95% CI 4.90-9.18 for at least two children) were associated with increased prevalence of contraceptive use. On the contrary, being in a marital union (PR 0.58, 95% CI 0.47-0.73) and a household headed by a female (PR 0.79, 95% CI 0.65-0.86) were associated with

a lower prevalence of modern contraceptive use. Furthermore, there was variation in the prevalence of modern contraceptive use by zones and household wealth index.
Conclusion: This study revealed a sub-optimal utilization of modern contraceptive use among AGYW. The findings underscore the need for targeted interventions to improve modern contraceptive use among AGYW, considering factors like education, parity, marital status, household dynamics, and regional disparities.

ADOL04: Research Network for Design and Evaluation of Adolescent Health Interventions and Policies in sub-Saharan Africa: protocol for a longitudinal study in seven countries

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Introduction: Annually, 1.2 million adolescents die prematurely due to preventable or treatable causes, while many more suffer from poor health and disability. In sub-Saharan Africa (SSA), the burden of adverse outcomes is exacerbated due to exposure to undernutrition, overnutrition, urbanization, infections, impoverished living conditions, poverty, abuse and violence. With an interest in increasing awareness about the issues that affect adolescents and developing policies, this study aims to boost adolescent health in SSA through population-based intervention and policy research in Burkina Faso, Ethiopia, Ghana, Nigeria, South Africa, Tanzania, and Uganda.
Methods: This longitudinal study will be conducted at each country's health and demographic surveillance systems sites. A cohort of 2000 adolescents and young adults aged 10-24 years will be randomly selected for the five years of the study. A surveillance tool will collect activity nutrition and physical activity data, sexual and reproductive health, and mental health. The surveillance will develop an understanding of the temporal and spatial patterns of health and health behaviours of adolescents and young adults. Randomized trials of light-touch interventions will be embedded in the study cohort, focused on the three domains. The interventions will be co-designed, prototyped, and evaluated to assess the impact and performance at each site. Evaluation of population-level policies will be done to understand the impact of how they affect the health of adolescent and young adults. Methods to establish the transportability of interventions and policy effect will also be done through the evidence generated.
This protocol has been approved by the Ethics Committee of the Medical Faculty of the University of Heidelberg in Germany, and the University of Dodoma and is under review by the National Institute for Medical Research in Tanzania. Findings will be disseminated during stakeholder meetings, peer-reviewed publications, tailored policy briefs, and presentations at national and international conferences.

ADOL05. Enhancing Adolescent Health: The Impact of Supplementation, Delivery Methods, and Overcoming Barriers.

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Introduction: Over 1.1 million adolescents aged 10-19 years died worldwide in 2016, mostly from preventable or treatable causes and iron deficiency anemia is a primary cause of death and disability among adolescents. SSA region continues to have high levels of micronutrient deficiencies and anaemia in school-age adolescents, primarily due to food insecurity and low dietary diversity, this study aimed to evaluate the impacts of weekly IFA and daily MMS on anaemia status, school attendance/performance, adolescent development outcomes and micronutrient status, to assess outcomes, exploring various supplementation delivery methods and assessing barriers to implementing national supplementation programs.
Methods: The study was an exploratory school based cross-sectional study conducted in 42 schools in a cluster randomized trial of daily IFA (iron plus folic acid supplementation) and weekly MMS (multiple micronutrient supplementation), was conducted in March 2022 in Zanzibar and 3 FGD each having 8 participants making it 24 adolescents aged 10-17 years and KII with 7 teachers in the selected Schools in the urban and peri-urban districts of Wilaya ya Magharibi A and Wilaya ya Kati. Thematic analysis was used to analyze and identify all key themes.
Results: Participants considered academic improvements as the positive impact of supplementation; adolescents reported increased haemoglobin levels during hospital visits and reduced hospital visits as health improvements from the supplementation program; schools were preferred settings for delivering supplements, community involvement, and hospital setting. Inadequate knowledge, logistic challenges, myths, and human resource challenges were considered barriers to the national supplementation programs.
Conclusion: The Supplementation program was influenced by the high prevalence of undernutrition, obesity, and anemia among adolescents in LMICs such as Tanzania and the need to examine the role of supplementation in anaemia, school performance/attendance, adolescent development outcomes, and micronutrient status. Addressing the basic health needs of adolescents is a key component of building resilient communities.

MENS01: Menstrual Health and Hygiene Situation among school Girls with Disabilities in Tanzania
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Introduction: Caring and supporting girls with disabilities during menstruation can be challenging and frustrating depending on the type and severity of a disability. Girls with disabilities experience challenges which limit them to lead a healthy life and perform well in school. There is a dearth of information on the Menstrual Health and Hygiene (MHH) situation among school girls with disabilities in Tanzania.
Objective: This study aimed at assessing the situation of menstrual health and hygiene among girls with disabilities in schools.
Methods: A school-based cross-sectional study was conducted in 194 schools across 19 districts 2019. Self-administered surveys, focus group discussions, in-depth interviews, and site observations were employed for data collection. Qualitative data were analyzed thematically, while quantitative data were analyzed descriptively to arrive at determined proportions. The study evaluated knowledge, attitude and practices during menstruation, social norms, myths, taboos, infrastructure and menstrual materials available.
Results: Overall, the mean knowledge score on MHH among girls with disabilities was 66.1%, almost 75% had a negative attitude towards MHH, and about 67% followed poor practices during menstruation. About 19.3% of the students with disabilities missed school due to menstruation three months before the study.
Conclusion: Unsatisfactory knowledge, attitude and practices, unsupportive Infrastructure, limited socio-economic support, unsupportive social, cultural norms and taboos were found to hinder girls' healthy living during menstruation. We recommend that the government and partners

design and implement capacity-building strategies for girls with disabilities in addition to equipping caregivers and teachers with skills to support girls with disabilities. There is also a need to review teachers' curricula and improve school infrastructures to support girls with disabilities.

MENS02: Coping Strategies of Dysmenorrhea on Girl's School Life in Tanzania

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Introduction: This paper intends to improve the school life of girls with dysmenorrhea in selected secondary schools in Tanzania. Specifically, the paper focuses on assessing the prevalence of dysmenorrhea among secondary school girls, determining the consequences of dysmenorrhea, and examining coping strategies of dysmenorrhea to enhance a girl's school life.
Methods: A descriptive design of a quantitative approach was employed. A sample of 185 secondary school girls was purposely selected from two schools in Temeke Municipal, Dar es Salaam region. A questionnaire with both closed and open-ended questions was used to collect data for the three objectives. Descriptive statistics were employed to analyze the data into frequencies, percentages, means and standard deviation using SPSS version 22.
Results: The findings revealed that most girls, 183 (99%), had dysmenorrhea, of which most of them experienced severe pain with a menstrual duration of three and above days. It was also found that dysmenorrhea has negative consequences, including poor academic performance, absenteeism, poor interaction and school dropout among girls. The coping strategies for pain include the use of non-steroidal anti-inflammatory drugs and natural herbs, and learning management includes ICT recorded sessions or materials, flexible schedules and attending tutorial sessions.
Conclusion: It is concluded that most girls experience dysmenorrhea during their school life. Therefore, it is recommended that responsible authorities should seek intensive measures for managing and treating dysmenorrhea among girls to minimize the associated negative consequences for improving their school life. Correspondingly, systematic interventions should be made on natural herbs and other related pain treatments.

MENS04: Association between socio-economic status and menstruation hygiene management practices among in-school adolescent girls and young women in Uganda

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Background: In-school adolescent girls and young women (AGYW) living in poorer households may have challenges managing their menses, which may affect their ability to attend school regularly. We assessed how in-school AGYW manage their menses and determined the association between socio-economic status and menstruation hygiene practices among in-school AGYW in Uganda.
Methods: In July 2023, we conducted a cross-sectional survey among 5,457 AGYW aged 10-24 years, resident in 14 districts. Data were collected on background characteristics (including household possessions), and materials used to manage menses. We used data on household possessions as a measure of socio-economic status and categorized AGYW into lowest, middle, or highest wealth tertile using Principal Component Analysis. We computed descriptive statistics and performed a multivariable logistic regression to determine the association between after adjusting for age-group socioeconomic status and the use of disposable menstrual pads after adjusting for age group and schooling level.

Results: Of 5457 AGYW, 50.1% (n=2735) were in school, 87.1% (n=2383) had ever had their menstruation period, with a mean age at first menarche of 14.3 years (¬±1.6). Disposable menstrual pads (83.5%, n=1991) were the most common material used to manage menstrual flow followed by cloth pads (8.8%, n=211) and recyclable pads (5.5%, n=131). However, the use of disposable menstrual pads was lowest (61.6%, n=958) among AGYW in the lowest wealth tertile. AGYW in the middle (adjusted Odds ratio [aOR] = 1.43; 95% Confidence Interval [95%CI]: 1.07, 1.91) and highest (aOR = 2.02; 95%CI: 1.52, 2.68) wealth tertile were significantly more likely to report that they used disposable menstrual pads than those in the lowest wealth tertile.
Conclusion: AGYW in wealthier households were more likely to use disposable menstrual pads. These findings suggest a need for supporting in-school AGYW living in poorer households with affordable menstruation hygiene materials that they can use to manage their menses.

PO-RM-01. A systematic review of the parenting interventions on the reduction of violence against children in sub-Saharan Africa.

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Introduction: Violence against children (VAC) is a global problem affecting about 1.5 billion children aged 2,Äì17 years worldwide. Parenting interventions have been shown to contribute to the reduction of child abuse, enhanced child protection, improved child development, good family or parent-child relationships, and the prevention of various negative social and health outcomes. We conducted a systematic review on Education Resources Information Centre (ERIC), ClinicalTrials.gov, ISRCTN Registry, PubMed, Embase, and Google Scholar up to March 2023, to provide evidence around parenting intervention on VAC in SSA.
Methods: A total of 385 articles published between 2015 and 2022 were retrieved, and 22 studies from eleven countries in SSA reporting 15 non-commercial parenting interventions aimed at reducing VAC were included. Most studies (96%) were RCTs and were delivered in person to either a group of participants or individual persons at home or in safe spaces in the community. More than half of the studies were dyadic, with sample sizes ranging from 30 to 50,000 parent-child dyads [34].
Results: All studies reported positive effects of parenting on primary and secondary outcomes. These included reduced violence against children (49%), reduced corporal punishment or harsh discipline (up to 55%), improved positive and involved parenting (87%), improved parental supervision (50%), improved household economic welfare and financial management, improved family planning that avoided adolescent violence victimization in the community, and reduced substance use among both caregivers and adolescents (47%). Caregivers also reported reduced depression and stress, fewer attitudes condoning corporal punishment, and improved social support
Conclusion: Despite the growing evidence of child maltreatment in SSA, the evidence of existing parenting interventions addressing child maltreatment in SSA remains minimal. However, of the few parenting interventions that have been implemented in SSA focusing on the reduction of VAC, the majority have been proven feasible and have a desirable community

PO-RM-02. Sexual Behaviours among Adolescents in a Rural Limited Resource Setting: Evidence from the African Research, Implementation Science, and Education (ARISE) Network

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Introduction: Adolescence is a crucial time in the development of sexuality and reproduction. Rural adolescents, like those in many other regions, are entering adulthood younger than in the past. This has led to higher risks of many sexual partners, unplanned pregnancies, HIV, and other STIs, as well as unprotected sexual activity. We aimed to analyse ARISE Network data to explore sexual behaviour among adolescents
Methodology: This cross-sectional study utilized data from the African Research, Implementation Science, and Education (ARISE) Network's Adolescent Health Study, which was carried out at eight sites in six countries. Both univariate and multivariate Poisson regression analyses were used.
Results: The proportion of adolescents who ever had sex is 21.1% ((95% CI: 18.9-23.5). We assessed the factors associated with sexual behaviour among adolescents whereby findings showed that being a female adolescent, APR = 0.37, 95% CI = 0.29-0.47, p<0.001. Another factor was the age which was positively associated with the likelihood of adolescents ever having sexual intercourse, APR = 1.17, 95% CI = 1.12-1.23, p<0.001. Living with a spouse, APR = 4.77, 95% CI = 3.08-7.38, p<0.001, living with a colleague, APR = 2.92, 95% CI = 1.96-436, p<0.001, adolescents who have been employed within the past year, APR = 1.34, 95% CI = 1.09-1.65, p<0.001, being exposed to pornography, APR = 2.07, 95% CI = 1.64-2.60, p<0.001 and receiving a sex joke, APR = 1.84, 95% CI = 1.51-2.24, p<0.001
Conclusion: This study finds multiple factors impacting sexual behaviour and emphasizes the early initiation of sexual activity among teenagers. Promoting teenage sexual health and well-being requires addressing these variables with focused community-based interventions, family involvement, and comprehensive sexual education programs. To lessen the negative effects of teenage sexual debut, efforts must be made to raise public understanding of STI prevention and contraception."

PO-RM-03. Early outcome and factors associated with early mortality among preterm babies admitted in Regional Referral Hospitals in Dar es Salaam, Tanzania.

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Introduction: Around 22% of newborns in Tanzania are born prematurely, which increases the risk of early death. However, the early outcome and associated factors are not well understood. This study was conducted to determine the early clinical outcomes and related factors among preterm babies born in a regional referral hospital in Dar es Salaam.
Methodology: This study was a descriptive longitudinal conducted in Dar es Salaam regional referral hospitals. Participants were enrolled consecutively after meeting a set inclusion criterion and followed up for 7 days post-delivery. Data was analyzed using the Statistical Package for Social Sciences (SPSS). A chi-square test or Fischer's exact test was used to compare categorical variables, while Binary logistic regression was used to identify factors associated with early preterm mortality.
Results: A total of 216 preterm babies were enrolled in the study. Among these, 35(16.2%) died within 7 days after delivery. The most common causes of death were respiratory distress syndrome (RDS); 21(61.8%) and sepsis 8(23%), while 72 (33.3%) were admitted due to complications. Presence of hypoglycaemia (AOR=3.4 (1.08,Äì10.94), P=0.04); extreme and very low birth weight (AOR=5.56 (1.36,Äì22.67), P=0.02, and need of resuscitation at birth (AOR=7.4(1.2-44.5), P=0.03) were associated with early mortality.
Conclusion: The magnitude of early mortality among preterm newborns was high with RDS and sepsis being the leading causes of mortality. Additionally, extreme and very low birth weight; hypoglycaemia, and need of resuscitation at birth were associated with early mortality. More

improvement in quality of care of preterm newborn including the use of surfactant and respiratory support, appropriate preterm feeding, and infection prevention and control measures may improve the preterm newborn outcome.

PO-RM-04. Early Childhood Development Scores Among 24-59 Months Children Attending Routine Clinics in Temeke Municipal, Dar es Salaam: A Cross-sectional Analytical study

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Introduction: Early Childhood Development (ECD) is a social and public health concern, especially in low- and middle-income countries. Approximately 43% of children living in these countries are at risk of developmental delay. This may negatively affect their potential during their adulthood. Data from Tanzania Demographic and Health survey (2022) has shown that around 47.4% of children aged 24-59 months scored low in their early childhood scores. However, factors associated with low scores are not well understood. Therefore, in this study, we aimed to determine the magnitude and factors associated with low ECD scores among children aged 24-59 months attending RCH clinics in Temeke Municipal, Dar-es-salaam region.
Methods: The study was a facility-based cross-section study design involving Children aged 24 ,Äì 59 months attending RCH clinics in Temeke District, Dar-es-salaam region for a period of three months from November 2023 to January 2024. Four hundred and twenty-two children from four health facilities were enrolled. An interviewer-guided questionnaire was used to collect basic demographic information, while ECD scores among participants were determined using the ECD-I2030 tool designed and validated by UNICEF. Data analysis was conducted using Statistical Package for Social Sciences (SPSS). The magnitude of children on track was expressed in frequency and percentages. Factors associated with poor ECD were determined by using binary logistic regression analysis. The probability level of 0.05 or less was considered statistically significant.
Results: A total of 422 children were enrolled in the study. Among participants, only 144 (34.1%) were on track based on their childhood development scores while 278 (65.9%) were off-track. Young age (AOR=0.149 (0.354-0.63); p value =0.001), nutritional status (AOR =7.729 (2.234-26.735); p value=0.010) and parents, employment status (AOR=3.730 (1.937-7.184); p-value=0.001) were independently associated ECD scores.
Conclusion: Majority of children enrolled in this study were off-track in their ECD scores which may become

PO-RM-05. Lower dose calcium supplementation is as effective as WHO recommended high-dose in reducing the risk of Preeclampsia and Preterm

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Introduction: The World Health Organization (WHO) recommends 1500 to 2000mg daily calcium supplementation to pregnant women in populations with low calcium intakes to reduce risk of preeclampsia (PE). High cost and dosing complexity are barriers for implementation in low- and middle-income countries (LMICs)

Methods: Two individually randomized trials were conducted in Tanzania and India to assess the effectiveness of a lower calcium dose (500mg/day) compared to a high dose of calcium (500mg three times/day) in reducing preeclampsia and preterm birth. The noninferiority margins for the risk (RR) of preeclampsia and preterm birth were 1.54 and 1.16, respectively.
Results: 11,000 pregnant women were enrolled and followed. Cumulative incidence of PE was 3.0% in the low-dose calcium group and 2.7% in the high-calcium group in Tanzania (RR=1.10; 95% CI, 0.88 to 1.36). In India, the incidence of PE was 3.0% in the low dose calcium group and 3.6% in the high dose calcium group (RR=0.84; 95% CI, 0.68 to 1.03). In both Tanzania and India, low-dose calcium was non-inferior to high-dose calcium in reducing PE. The proportion of preterm livebirths in Tanzania was 10.4% in the low calcium group and 9.7% in the high dose calcium group (RR=1.07; 95% CI, 0.95 to 1.21). In India, the proportion of preterm livebirths was 11.4% in the low calcium group and 12.8% in the high dose calcium group (RR=0.89; 95% CI, 0.80 to 0.98). The upper margin of the 95% CI for PTB exceeded the noninferiority margin in Tanzania, but not in India.
Conclusion: Low-dose calcium supplementation was non-inferior to the WHO-recommended high-dose calcium supplementation in reducing the risk of PE in Tanzania and India. Additionally, low-dose calcium supplementation was non-inferior to high-dose calcium supplementation in reducing the risk of PTB in India but not in Tanzania.

2.5. MULTI-SECTORAL AND COMMUNITY ENGAGEMENT IN DISEASE PREVENTION AND CONTROL

MS01. Engagement of Vulnerable Ethnic Communities (VECs) in health research activities: Views from Datooga, Maasai and Hadzabe from Arusha and Manyara Regions in developing national ethics guidelines, in Tanzania.

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Introduction: Protecting the rights of Vulnerable Ethnic Communities (VECs) has become an important component of international law and policy. Safeguarding these groups from exploitation in health research is very important in pursuing justice. Tanzania has developed a guideline for research activities involving these vulnerable ethnic groups. We present views of VECs from Arusha and Manyara regions which played a major role in developing the national guideline. The study aimed to solicit Vulnerable Ethnic Communities (VECs) views from Arusha and Manyara regions to inform the development of national guidelines for the protection of these communities when participating in health research in Tanzania.
Methods: We used participatory methods, including Focus Group Discussions (FGDs) and Nominal Group Techniques (NGT), to solicit the opinions of VECs. Consultation visits were conducted with Datooga (Barbaigs), Hadzabe (hunters and gatherers), and Maasai from the Arusha and Manyara regions. Six groups were engaged, involving both men and women elders.
Results: We identified key issues regarding VECs' protection, including respect for their dignity. We also identified specific areas where VECs could benefit from health research activities, including material and non-material aspects and Intellectual Property Rights. In addition, we identified key priority issues related to the preservation of VECs' cultures, traditions, and values.
Conclusion: Tanzania has developed a national guideline to protect ethnic groups' rights and safeguard them from potential exploitation by researchers. This guideline is informed by the views and insights of these VECs in the Manyara and Arusha regions.

MS02. Community benefits of mass distribution of three types of dual-active-ingredient long-lasting insecticidal nets against malaria prevalence in Tanzania: evidence from a 3-year cluster-randomized controlled trial.

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Introduction: Long-lasting insecticidal nets (LLINs) were once fully adequate for malaria prevention; however, mosquitoes have developed resistance to pyrethroids. Dual-active ingredient LLINs have been an alternative to pyrethroid-only LLINs. Understanding the minimum community usage at which these LLINs elicit an effect that also benefits non-users against malaria infection is important.

Methods: We conducted a secondary analysis of a 3-year randomized controlled trial (RCT) in 84 clusters in North-western Tanzania to evaluate the effectiveness of: pyriproxyfen and alpha(Œ±)-cypermethrin, chlorfenapyr and Œ±-cypermethrin, and the piperonyl-butoxide (PBO) and permethrin compared to Œ±-cypermethrin only LLINs. We measured malaria infection in children 40% of dual-AI LLIN was significantly associated with protection against malaria infection: chlorfenapyr arm (OR: 0.44 (95% CI: 0.27-0.71), p=0.0009), PBO arm (OR: 0.55 (95% CI: 0.33-0.94), p=0.0277) and pyriproxyfen arm (OR: 0.61 (95% CI: 0.37-0.99), p=0.0470) compared with non-users in clusters with >40% usage of pyrethroid-only LLINs. There were indications of some protection against malaria infection to non-users in the chlorfenapyr arm when community-level usage was ,40% (OR: 0.65 (95% CI: 0.42-1.01), p=0.0528) compared to those living in clusters with >40% usage of pyrethroid-only LLINs.

Conclusion: Our study demonstrated that at a community usage level of >40% of dual-AI LLINs, non-users benefited from these nets. Noticeably, even when usage was 40% in the chlorfenapyr arm, non-users were better protected than non-users in the higher coverage pyrethroid-only arm. The greater difference in malaria risk observed between users and non-users indicates that LLINs play a crucial role in providing personal protection against malaria infection for users.

MS03. The untapped potential of traditional knowledge and practices for the control of pests and vectors of public health importance; a review of published and unpublished data.

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Introduction: For generations, indigenous people in Tanzania have used their indigenous knowledge and practices to control both crop pests and vectors of public health importance. However, the potential of indigenous knowledge and practices to control crop pests and vectors has received little attention. In this review, we investigated the potential use of local knowledge and practices to control crop pests and vectors of public health importance.

Methods: Published and unpublished data were reviewed. Published articles were searched on the Internet using the terms "anti-mosquito plants," "anti-pest plants," "local knowledge in pest and vector control," "plant insect repellents and insecticides," Google Scholar, PubMed, and Academia. Edu databases. Further information on uses and plant scientific names was searched in the JSTOR-Global plants and Useful Tropical Plants search engines. Unpublished data were obtained from authors' files. Themes were developed using a thematic analysis approach.

Results: Twenty-five published articles and three unpublished data from three vector control trials were reviewed. Several plants such as Muarobaini, (Azadierachta indica), Kivumbasi, (Ocimum

gratissimum L. subsp.), Mchaichai, (Zangrass), Buyu, (Baobab/andansonia digitata), Eucalyptus leaves and essential oils, and Clove Basil (Ocimum gratissium) were reported to be excellent mosquito repellents. On the other hand, Ocimum gratissium has been reported to be highly toxic to adult Gramineae and eucalyptus essential oils to Spodoptera Frugiperda, a major pest of maize. In addition, mint leaves (Mentha arvensis L.) and garlic (Allium sativum L.) have been reported to be effective against adult graminoids (cereal pests).
Conclusion: Tanzania has a vast wealth of untapped indigenous knowledge and plants that contain compounds that, if harnessed, could solve the growing threat of pests and vectors of public health importance. We call for investment in botanical pesticide research and trials for sustainable pest and vector control interventions.

MS05. Community-based epilepsy care in an onchocerciasis endemic area in Mahenge, Tanzania: a three-year cohort study

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Introduction: Epilepsy afflicts over 50 million people globally, with over 80% living in low- and middle-income countries. In onchocerciasis endemic areas including Mahenge, a high epilepsy burden has been reported, with stigma and treatment gap being among the challenges facing people with epilepsy (PWE). Improve epilepsy care by initiating a community-based epilepsy treatment programme using community health care works (CHWs) in Mahenge, Tanzania.
Methods: This was a prospective cohort study in four rural villages (Mdindo, Msogezi, Mzelezi, and Sali) in Mahenge area between 2019 and 2022. From each village, two CHWs were trained on epilepsy screening using previously established evidence-based criteria. The training also encompassed promoting control of onchocerciasis through bi-annual uptake of ivermectin during mass drug administration, preventing epilepsy-related accidents, distributing anti-seizure medications (ASM) and monitoring of seizure-related events every month. Negative binomial model was used to determine the temporal relationship between risk factors and the mean weekly number of seizures. A two-tailed p-value less than 0.05 was considered significant.
Results: 237 (51.5% females) PWE were enrolled in the programme during the 3.25 years of follow-up. 72 (30%) never attended school, 15(5.5%) died during the study period. The number of PWE with seizure freedom increased from 66.2% in 2019 at enrollment to 82.6% in 2021. Majority of patients (213, 89.9%) were on phenobarbital. Patients who were enrolled in the cohort for a longer period, who had good adherence to ASM and who visited the clinic often had a lower risk of reporting weekly seizures ($p<0.001$). Moreover, patients on carbamazepine (IRR 0.75, 95%CI 0.60-0.94), phenytoin or lamotrigine (IRR 0.44, 95%CI 0.23-0.84) were at lower risk of seizures than those PWE on phenobarbital.
Conclusion: There was a reduction in seizure frequency in the majority of the people with epilepsy. This was probably achieved by improving.

PO-MS-01. Agricultural pesticides use in the three districts, Lake zone, Tanzania: An implication for insecticide resistance among malaria vectors

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Introduction: Malaria is a major public health problem in Tanzania whereby about 93% of the population is living at endemic risk. The use of indoor vector control interventions has contributed to the reduction of malaria in sub-Saharan Africa. These interventions are challenged by the rapid increase in insecticides resistance among malaria vectors. The higher resistance among mosquito vectors is linked to the use of agricultural pesticides. There is limited information on agricultural pesticide use in many parts of Tanzania. Therefore, the present study was conducted to assess the agricultural pesticides used in three rural districts in the Lake zone, Tanzania.
Methods: Data were collected through interviews with small-scale subsistence farmers, with 160 farmers in total. During the interviews, farming practices, various agricultural pesticide usage practices, and knowledge of pesticide use among farmers were assessed.
Results: The present study has revealed that agricultural pesticides are common among small-scale subsistence farmers. The study has shown variations in the frequency of herbicides, insecticides, and fungicides use. Most of the respondents reported using insecticides (n=92, 96.7%). Mixing multiple insecticides in one spray tank was also reported by 34.8% of the respondents. The study also found that many farmers stored remaining mixed, diluted, or undiluted pesticides for the next farming season. Lack of training on the proper use of pesticides among farmers was pointed out by many respondents (n=92, 98.9%).
Conclusions: The study provides essential information on agricultural pesticides in rural settings. It has also highlighted the need for further research on the impact of agricultural pesticides on insecticide resistance among malaria vectors. These findings have important implications for developing policies for promoting the safe use of agricultural pesticides.

2.6. CLIMATE CHANGE AND SOCIAL DETERMINANTS OF HEALTH

Social determinants of health

SDH01. Analysis of Policy Environment for Implementation and Scaling Evidence-based Parenting Programmes to Improve Parenting and Address Violence against Children (VAC) in Tanzania.

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Introduction: Violence against children (VAC) affects child development and well-being. Over 70% of children experienced violence before turning 18 years. Evidence-based parenting is effective in addressing VAC when implemented through relevant policies. We monitored and analyzed the policy environment to identify supportive and opposing narratives for scaling evidence-based parenting to prevent VAC in Tanzania. VAC need urgent policy interventions for early childhood development and well-being. To elucidate government thinking about parenting and preventing VAC through analyzing public pronouncements and written directives by senior officials. To monitor pronouncements and actions of other key policy actors (e.g., religious, and social leaders) about parenting and prevention of VAC. To recommend context-appropriate ways for scaling up evidence-based parenting and prevention of VAC.
Methods: From January 2023 to date, we collected information on the policy environment through Monitoring and recording information on parenting and VAC from mainstream media, including

radio, television, and newspapers. Monitoring discussions on parenting and VAC in social media and online platforms including Facebook, Instagram, Twitter WhatsApp. Monitoring conversations through public spaces, interactions, and gatherings. We discussed information in weekly policy meetings and summarized it in a word document.
Results: Analysis identified positive/supportive, negative, and neutral narratives for scaling and preventing VAC. POSITIVE: Government and community realize that children at early ages must spend more time with their parents. Parents, government, and community must work together in parenting to ensure children's wellbeing and preserve national norms and values. NEGATIVE: Imported cultural practices and external influences destroy children and the community NEUTRAL: Parenting children must conform to national values, norms, and cultural practices.
Conclusion: Government ministries must collaborate with non-governmental organizations, policy actors, and other stakeholders to implement programmes and formulate policies for preventing VAC.

SDH02. Between a rock and hard place? The toxic interface of online and in-person intimate partner violence against female college students in Tanzania.
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Introduction: Despite the numerous benefits of digital technologies and online platforms to intimate communication, emerging evidence shows that they also exacerbate violence against women, a global problem with devastating social, economic and health consequences. There is a lack of clarity on how contextual factors such as socio-economic dynamics and sexual exchange practices drive the perpetration and victimization of violence against young women through online and in-person spaces. To determine the forms of online intimate partner violence against female college students in Mwanza, Tanzania, and its interface with in-person violence.
Methods: We conducted 31 in-depth interviews with purposively sampled female college students aged 20 ‚Äì 24 years at four higher-learning colleges in Mwanza City, Tanzania. Interviews were conducted using a semi-structured guide in Kiswahili. Data were analysed through a multistage inductive thematic analysis process.
Results: Psychological violence, controlling behaviours and sexual harassment were the dominant forms of online violence from intimate male partners and other men. Perpetrators used shaming and blackmail to exert psychological control and harm through the distribution or threat of distribution of images taken in private intimate interactions. Men who supported the students economically, including paying for their phones and internet costs, felt entitled to monitor and control their online communications. Some students reported online harassment after receiving sexually offensive nude pictures from their intimate partners, male college mates and lecturers, and online strangers. Suspected online infidelity was the main link to in-person physical and sexual violence.
Conclusions: Rigorously developed hybrid interventions should engage the toxic combination of the different forms of intimate partner violence against women across online and in-person spaces. Interventions need to address the wider structural drivers of these different forms of violence such as transactional sex and age-disparate sexual relationships. Support systems for victims at higher learning colleges need to be strengthened.

SDH03. Conceptualisation of violence and discipline among students, teachers, and parents in Nyarugusu Refugee Camp, Tanzania.

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Introduction: Little academic research has been conducted on how people conceptualise , violence and disciplines, especially in humanitarian settings. This may limit the transferability of violence prevention interventions. This paper examines the understanding of violence and discipline concepts among students, teachers, and parents in the Nyarugusu Refugee Camp in Tanzania.

Methods: A qualitative study was undertaken as part of the larger trial testing the effectiveness of the EmpaTeach intervention to prevent physical violence from teachers to students implemented in 27 schools in Nyarugusu Refugee Camp. Data from baseline and midline surveys in control schools that did not receive the intervention informed this paper where 14 in-depth interviews (eight with students and six teachers) and six focus group discussions (two with teachers and four with parents from the Parent Teacher Association) were analysed. Both audio recordings from in-depth interviews and focus group discussions were transcribed verbatim and translated from Kiswahili to English (Congolese) and Kirundi to English (Burundian). Translated data were verified and coded using thematic analysis based on the views of students, teachers, and parents.

Results: Participants revealed that the same behavioural acts could be differentially classified as violence or discipline. Violence was understood in relation to the consequences of acts, which could include physical or psychological harm, or other harms which were seen as detrimental to children's futures and life chances, particularly adolescent pregnancy. Sexual acts without consent were also seen as violence. In contrast, discipline was understood according to intent, and perceived acts done towards students to correct bad behaviour.

Conclusion: The results imply that education about the harmful consequences of behavioural acts intended as discipline may be important for violence prevention interventions and that framing interventions in terms of positive child development could help change school discipline strategies.

SDH04. Behavioral change intervention to reduce teachers' violence in schools in Nyarugusu refugee camp Tanzania: Experience from EmpaTeach intervention

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Introduction: More than one billion children ,Äì half of all children in the world ,Äì are exposed to violence every year. Students living in refugee camps experience double violence, which affects their well-being more than those in non-humanitarian settings. This study explored the experiences and perceptions of school staff and students with the EmpaTeach intervention to prevent teachers' violence against school students.

Methods: In-depth interviews and focus group discussions were held with 58 and 39 participants at midline and end-line phases, involving Burundians and Congolese intervention schools in Nyarugusu refugee camp. These participants comprised coordinators, teachers, and students.

Results: Coordinators and teachers widely reported positive experiences with the EmpaTeach programme. The intervention helps teachers to reflect on their values and experiences of using

corporal punishment. It equips them with useful alternative discipline, including advice and counselling, praise and rewards, and joint discussions with students and parents, which help students reduce fear and anxiety. Students also reported increased confidence and closeness to their teachers and were free to discuss academic issues, increasing their academic performance and improving their mental well-being.
Conclusion: Coordinators and teachers widely accepted the EmpaTeach intervention and found it helpful, as it offered knowledge and skills on alternative disciplinary methods. Students noticed positive changes in discipline, where non-corporal punishments were mainly used. More studies on a wider scale, including non-humanitarian settings, can produce viable policy recommendations.

SDH05: Exposure to pornographic material and perpetration of intimate partner violence among young men in Mwanza, Tanzania.

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Introduction: Intimate partner violence (IPV) is a public health concern that negatively impacts women's health. Preliminary evidence from high-income countries suggests that IPV perpetration is linked with exposure to pornographic materials among men, by encouraging negative norms of masculinity. Despite those findings, there is limited data on that relationship from the low and middle-income countries. This study aims to generate evidence on the relationship between exposure to pornography and IPV perpetration in low and middle-income countries. To examine the relationship between frequent exposure to pornography and IPV perpetration among young men in Mwanza City, northwestern Tanzania.
Methods: We conducted a cross-sectional survey among 1002 randomly selected young men aged between 18 and 24 years living in Mwanza City, Tanzania. Data was collected using tools previously pilot-tested and used by other similar studies. We describe the prevalence of exposure to pornography and IPV perpetration and assess their associations after adjusting for other factors using logistic regression models.
Results: Of the 828 ever-partnered young men included in the study, 396 (47.8%) reported having been exposed to pornography in the past 12 months, with 14.1% of them reporting to have been exposed at least once a week. In the last 12 months, 21.4% of participants perpetrated sexual IPV, while 43.2% and 15% reported to have perpetrated emotional and physical IPV respectively. After adjusting for covariates, exposure to pornography was significantly associated with sexual (aOR=2.77 95% CI 1.51 ,Äì 5.08), emotional (aOR = 1.84 95% CI: 1.01, 3.37) and physical (aOR= 1.65 95% CI 1.00 ,2.74) IPV perpetration. Frequent exposure to pornography was associated with sexual, emotional, and physical IPV perpetration in this study population.
Conclusion: Interventions aiming at reducing exposure to pornography could help to reduce the perpetration of IPV among young men in these settings.

SDH08. Social support availability and its influence during and after TB treatment in Mbeya and Songwe Regions, Tanzania.

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Introduction: Tuberculosis (TB) is among the life-threatening diseases in Tanzania, resulting in negative physiological health effects. meanwhile causing catastrophic financial costs as well as certain life dissatisfaction and unhappiness with negative psychological sequels to patients and survivors. Policies and programs can be informed by researchers investigating the role of social support on TB patients' and survivors' abilities to seek and adhere to the recommended medical care. The study explores the role of social support received and perceived as needed by TB patients and survivors during and after treatment.
Methods: A qualitative study was conducted between October 2020 and March 2021, employing face-to-face interviews with TB patients, survivors, and healthcare providers. Purposive selection was used to obtain the required number of participants, and the principle of saturation was used to determine the sample size. NVIVO Version 12 aided the data coding and analysis processes.
Results: Respondents expressed a need for psychological and material support from whoever could enable them to cope with life difficulties faced during and after treatment. Some testified that they had striven to seek TB treatment and care but faced financial problems when travelling to distant TB clinics. Seeking help was an immediate option, but sometimes the benefit sought did not materialize. Emotional support is significant to TB patients and Survivors; however, it is hardly accessed.
Conclusion: A full recovery from TB infection and resultant illnesses is medically possible but returning to everyday life is unlikely if the individual sufferers are denied essential emotional and financial support. Prioritizing policies and programs aimed at increasing opportunities for social support to TB patients and surviving is urgent since it is likely to lead to a realization of improvement in TB-related treatment and care-seeking practices and adherence in Tanzania, supplemented with palliative care for TB survivors.

PO-SDH-01. Gender distinguishes in knowledge of tuberculosis and associated health-care finding behaviors in Simanjiro District From 2018 to 2023

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Introduction: Tuberculosis detection under the national tuberculosis control program in Tanzania follows passive case-finding guidelines, which could be influenced by the accessibility of health services and patient health-care-seeking behaviours services and patients' health-care-seeking behaviours. The correlation between men's and women's knowledge on TB and their healthcare-seeking
Objectives: This study aimed to determine the gender distinction in knowledge of Tuberculosis and associated healthcare finding behaviours among Maasai in Simanjiro district, northern Tanzania general population
Methodology: Cross-sectional studies were conducted in Simanjiro District, Tanzania, using a randomly selected method from 2018 to 2023, including 1,335 subjects, to investigate tuberculosis knowledge among the household population. Individual interviews were then carried out. Gender differences in knowledge of tuberculosis and healthcare finding behaviours were analyzed.
Results: Among the Maasai general population, men, 15.0%, and women, 13.0% knew that a prolonged cough of a duration of 3 weeks or longer was a symptom of suspicious tuberculosis. Fewer women than men knew the local appointed health facility for TB diagnosis and treatment as well as the current free TB service policy. Moreover, women were less likely to learn information about TB, and a large part of women preferred to visit the village's traditional healer. This study found that 30.3% males learned tuberculosis compared to 20.6% females (p=0.001)
Conclusion: Findings from our study indicate that knowledge and awareness of TB are still unsatisfactory in the Simanjiro population; gender issues should be considered in promoting

patients' healthcare seeking and shortening the delay of diagnosis. Tuberculosis and direct observing treatment program were not well known by Maasai in Simanjiro. Gender issues should be considered to reduce diagnostic delay of TB and improve both men's and women's access to qualified health facilities for TB care. Strengthening awareness of TB and improving the accessibility of healthcare service is essential in TB

PO-SDH-02. Determinants of Acceptability and Implementation of Schistosomiasis Mass Drug Administration (MDA) Among Primary School Children in Busega District, Northwestern Tanzania.

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Introduction: In Tanzania, schistosomiasis is endemic across the country, with a prevalence ranging between 12.7% to 87.6%. Busega district has documented a concerning prevalence of intestinal schistosomiasis among school-aged children, reaching as high as 90.6%. Mass drug administration (MDA) with Praziquantel is the current recommended choice of preventive treatment for the disease. The 2021 annual schistosomiasis MDA report indicates that Busega district had a treatment coverage of 46.6%, far less than the WHO recommended targets of ,â•75%. Such coverage could indicate low acceptability and poor uptake of MDA. Furthermore, inconsistencies in the implementation of the MDA program have been noted in the district.
Objective: This study determined factors associated with the acceptability of schistosomiasis MDA among primary school children and explored determinants shaping the implementation of the MDA program in Busega district, Tanzania.
Methodology: A mixed-method design was used, with quantitative methods using a cross-sectional study to interview 615 primary school children and qualitative methods adopting a case study to interview 9 key informants.
Results: The acceptability of schistosomiasis MDA among primary school children was found to be low (55.28%); this was significantly associated with perceived effectiveness, intervention coherence, self-efficacy, affective attitude and gender. The study also identified barriers to the implementation of the MDA program, including lack of financial capacity to implement the program, the impact of the Covid-19 pandemic, inadequate funding, lack of toilets, absence of sustainability plan, food availability, misconceptions and false beliefs, unequal access to schistosomiasis drugs, and limited reach of education.
Conclusion and recommendation: MDA's acceptability among schoolchildren was not adequate. Low acceptability was identified as a major barrier to achieving adequate treatment coverage. These findings underscore the need for a multi-pronged approach, including community involvement, improved education, equitable access, and government commitment, to successfully integrate schistosomiasis MDA programs into routine health services.

PO-SDH-03. Understanding the Impact of Epilepsy: Insights from Mahenge, Tanzania

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Introduction: Epilepsy is one of the most common brain diseases globally. Its burden includes physical hazards, social exclusion, and psychological distress due to stigma. Many of these impacts can be revealed to people with epilepsy, their families as well as community members.
Objective: To explore the impact of epilepsy on individuals' life experiences.
Methods: data study using ethnographic (oral history interviews) research methods. It was conducted between May 2021 and July 2022 in 20 selected villages. Participants were selected using purposeful sampling, and data were analyzed using thematic analysis.
Results: A total of 45 participants, 18 (40%) males aged 18 years and above, were interviewed. All participants had a normal life before the onset of the epilepsy. The participants and their families could not believe that the first seizures could be due to epilepsy, and the majority were sent to traditional healers. Participants narrated various challenges, including school dropout, stigma, injuries, emotional distress, social isolation, and financial constraints. Consistent access to quality antiepileptic drugs emerged as a vital solution.
Conclusions: Continuous awareness programs are crucial in Mahenge to educate the community and reduce the stigma surrounding epilepsy. Additionally, government efforts should focus on improving health care and ensuring an uninterrupted anti-seizure supply.

PO-SDH-04. Menstrual Health and Hygiene and Adolescent Pregnancy in the Rorya District: A Case Study about Two Health Education Interventions in Rural Tanzania

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Introduction: Poor menstrual health and hygiene (MHH) is a significant burden for girls,Äô academic achievement and well-being, particularly in rural regions of sub-Saharan Africa (SSA). At present, research is lacking about country-specific programming of comprehensive rights-based health interventions incorporating MHH and the possible link between MHH education and other health outcomes such as adolescent pregnancy.
Objective: The purpose of this research is to conduct a study in rural Tanzania about two health education interventions teaching about MHH: the Gender Respect Project by REACH Shirati and the Hygiene Program by the Maji Safi Group. More specifically, this study seeks to find out how these two interventions address known issues regarding MHH and if they also indirectly address established concerns regarding adolescent pregnancy.
Methods: This qualitative study merges the capabilities approach with a structure-agency interplay and focuses on the lived experiences of participants, non-participants, staff members, and national and international MHH experts to investigate the design implementation, effects, and improvements of MHH programming.
Results: Key findings indicate that comprehensive rights-based MHH education can provide participants with applicable MHH knowledge and an increased sense of empowerment. Additionally, findings reflect that comprehensive rights-based MHH education is linked to adolescent pregnancy and girls' capability to make informed decisions about their sexual and reproductive health. The findings further illustrate the connections of MHH with mental health, harmful gender social norms, and climate change.
Conclusion: These findings emphasize the need for additional empirical research into the relationship between MHH education and health concerns such as adolescent pregnancy in

Tanzania and other countries in SSA. Subsequently, intervention research is required to increase the level of evidence-based and solution-driven research that produces findings that can then be implemented into MHH programming in Tanzania and beyond. Finally, more research is needed to understand how policymakers can incorporate evidence-based

PO-SDH-05. Mohamed Seif [1], Antonia Schmidt [3], Peter E. Mangesho,[1, 2] Sebastian Mllers,[3] Lea Steinkampf,[3] Victor Mwingira,[1] William N. Kisinza[1]
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Introduction: The colonial invasion displaced healing practices and the control of health conditions. During his work as a botanist at the Amani Institute from 1904 to 1920, Dr. Karl Braun amassed an extensive collection of ethnological objects, which were taken to Germany after the Institute was closed. In 1934, he donated his collection to the Stade City, and in 1997, it was handed over to the Stade Museum. In 2018, it was catalogued and prepared for further research.
Objective: We investigated the local names of the objects, assessing the context of acquisition, the existence, past and present use of the ethnographic objects.
Methods: The study was conducted in Muheza and Lushoto districts, Tanga region, and Longido district, Arusha region. We examined archival material in Tanzania and in Germany. Karl Braun's inventory books and diaries were also studied. Supplementary data was obtained through individual and focus group discussions. Themes were developed using a thematic analysis approach.
Results: A total of 141 ethnographic objects were analysed in three field studies. Of these, 11 objects were associated with traditional healing practices of the Sambaa, Zigua, Pare and Maasai societies. The objects were divided into two main groups: diagnosis and treatment. Items such as "Engidom/Endeleti" were reported to be used in divination and "Namog'aa Onjondo" in circumcision and marriage rituals among the Maasai, while wax from "Kiko" in Sambaa or "Kipunde" in Pare was reported to cure constipation, "Engahu" (basket) in Sambaa for healing power, "Muuka" in Sambaa for divination, "Tunguli" in Zigua and "Idhakaa" in Pare for storing herbs.
Conclusions & recommendations: Documenting the health history of the object has the potential to understand the nature of ancient healing practices and their evolution, thus facilitating the preservation of knowledge and understanding of their current influence on current health behaviour practices in different communities."

PO-SDH-06. Accessibility to formal education among persons with epilepsy in Mahenge, Tanzania

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Background: Epilepsy is estimated to affect 50 million people globally, with 80% living in sub-Saharan Africa (SSA). Children with epilepsy (CWE) in SSA are often socially isolated, and many do not get access to school. This study aimed to explore the barriers hindering accessibility to formal education among CWE in Mahenge, Tanzania.
Methods: The study was conducted in June 2022 in four villages (Mdindo, Msogezi, Mzelezi and Sali) using quantitative and qualitative methods. The quantitative included 203 persons with

epilepsy (PWE), while the qualitative involved six focus group discussions and 17 in-depth interviews. Quantitative and qualitative data were analyzed using Stata and Nvivo software, respectively.
Results: Of the 203 PWE, 62 (30.5%) had never enrolled in school, while 77 (54.6%) of those enrolled dropped out before completing it. The perceived barriers to accessing education were categorized as individual barriers (such as frequent seizures, learning difficulties, anti-seizure medication side effects and perceived stigma), Community barriers (such as stigma and discrimination, negative beliefs and misconceptions, relocation to farms and poor socio-economic status), and Institutional barriers (including lack of knowledge about epilepsy among stakeholders, topography and distance to schools).
Conclusion: There is a high rate of dropouts and non-enrolment of CWE in schools within the Mahenge area. Negative beliefs and low awareness of the community about epilepsy and formal education contribute to this issue. This calls for more advocacy to raise community awareness on epilepsy. The government should enforce an inclusive education policy and provide free and uninterrupted anti-seizure medication for seizure control.

PO-SDH-07. Program Evaluation: A Case Study of Santa Maria Institute of Health and Allied Sciences

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Introduction: Technical Institutions should undergo systemic process program evaluation each year. This evaluation involved students and technical tutors. It provides a room to envisage insight into how well training is delivered across different courses.
Rationale: Program evaluation is important for improving course performance. It also engages students by providing views and perceptions on program process delivery. It provides room to examine program effectiveness and enhance growth. The objective is to examine students' opinions about the course delivery process and its challenges.
Methods: This evaluation used a cross-sectional study design and a mixed-method approach. One hundred and fifteen 114(23.3%) out of 511 student respondents were involved. Thirteen (13) Pharmaceutical students responded to self-evaluation.
Results: shows that the majority of students were satisfied with the way the training is delivered 11(85%), while 2(15%) were not satisfied with some of the modules. The reason for dissatisfaction varies from the taught module to the short practice time. Also, for the same course (32) students responded to the feedback rating scale. Results indicated that most students provided excellent performance in thirteen, 13(65%) out of twenty (20) modules taught. Furthermore, twenty-two (22) Clinica Medicine students responded to self-evaluation. Results show that, show that most students were satisfied with the way the contents were delivered. However, a few students were not satisfied in different areas for different modules. Among the reasons for dissatisfaction were changes of tutors in between the semester and short practice time for some modules. Results on Student feedback indicated that most students were very satisfied while few were not on program assessment areas.
Conclusion and Recommendations: The majority of Students' views and perceptions on how taught module contents are delivered provided very good feedback. Despite these positive responses, we recommend that the institute revisit areas of dissatisfaction for future program improvement.

PO-SDH-08. Negative attitudes and perceptions against epilepsy in Mahenge: Use of a mixed methods approach to determine their magnitude and driving factors

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Introduction: Epilepsy persists as a public health concern in Tanzania, with individuals living with the condition enduring stigma, whether through actions or perceptions. This stigma originates from persistent myths, misunderstandings, and misconceptions that have endured over time due to a multitude of factors. This study was conducted to explore factors associated with negative attitudes and perceptions against epilepsy in Mahenge.
Methods: A cross-sectional study utilizing a mixed-method approach was undertaken in eight villages of the Mahenge area in the Ulanga district, integrating a semi-structured questionnaire and focus group discussions (FGDs). The questionnaire involved 793 community members, and 15 FGDs were conducted (seven groups with people with epilepsy and eight with people without epilepsy). Descriptive statistics, chi-square, and logistic regression were done with SPSS version 29 for quantitative analysis, while NVivo version 14 was utilized for thematic analysis of qualitative data.
Results: Out of 793 participants in the questionnaire, over half were women (54.5%) with a median age of 41 years (IQR: 30-55) and having completed primary education (68.2%). Most participants were aware of epilepsy (96.8%), yet they displayed low knowledge (88.2%), negative attitudes (44.6%), and perceptions (42.1%) towards it. In the qualitative analysis, hereditary factors and infections were commonly cited as causes of epilepsy, along with misconceptions involving witchcraft and divine punishment. Additionally, there was a misconception about its contagiousness, with traditional healers often being the initial point of treatment. Moreover, epilepsy-related stigma was evident, with individuals with epilepsy facing derogatory labels, social isolation, and barriers to education. Finally, there was a lack of understanding regarding the association between epilepsy and onchocerciasis.
Conclusions and Recommendations: Despite high awareness, epilepsy often faces inadequate understanding, negative attitudes, and perceptions, including misconceptions and stigma. Therefore, a community-based education program is essential for promoting proper healthcare-seeking behavior and dispelling myths.

Climate change

CC01. Environmental health issues and developing countries' sustainability.

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Introduction: Environmental health (EH) problems are among the barriers to sustainable development (SD) in developing countries. To ensure the achievement of SD, there is a need to know the magnitude and extent of EH problems and their impacts in developing countries.

Moreover, there are some opportunities and challenges facing efforts to solve these problems. However, there are limited comprehensive studies that provide the issues in detail. This study aimed to examine the EH issues that are alarming in developing countries and the opportunities and limitations related to sustainability. This goal was supported by the following specific objectives: (i) to identify the main EH problems in developing countries and (ii) to identify opportunities and limitations facing EH in developing countries.
Methods: This is a narrative literature review paper that incorporates data and information from various sources, including academic journals and articles, books, government and non-governmental organization reports, and thesis searches from sources such as Google Scholar and institutional repositories.
Results: The study revealed that the top EH problems are unsafe water, poor sanitation and hygiene, indoor smoke, malaria, urban air pollution, climate change impacts, lead exposure, traffic accidents, and accidental poisoning. In addition, policy and strategic management, political commitment, financial and human resources, people's practices, and behaviours and monitoring and evaluation systems were identified as the key opportunities and limitations for EH in developing countries.
Conclusions: Despite various efforts to improve EH, developing countries face significant challenges in achieving sustainable EH. It is commended that countries and other stakeholders strengthen capacity building of human and financial resources for more effective policy responses by consolidating the knowledge base and developing cross-sectoral cooperation strategies. Furthermore, socioeconomic and political approaches that sustainably link the environment and health should be introduced.

CC02. Socio-economic factors exacerbating risks of climate change on health: case Studies of two districts in Tanzania
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Introduction: Climate Change has both direct and indirect impacts on health. This paper draws from two case studies and presents the findings of qualitative research using key informants and focus group interviews.
Methods: The research was done with the disaster committee and facility health workers.
Results: The finding shows that while efforts have been made to reduce the impact of climate change, these efforts have largely paid little attention to socio-economic and cultural factors. Some of these factors, as the paper argues, exacerbate climate change, leading to more indirect than direct effects.
Conclusion: The paper outlines how some social factors work to produce risks of climate change on health in three districts. We can address the risks by contextualizing them into the local contexts. The paper then provides recommendations for policy makers.

CC03. Assessing Healthcare Workers' Views and Actions on Climate Change in a Private Healthcare System: Moving Beyond Stethoscopes to Embrace Sustainability
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Introduction: The window to act before climate change becomes irreversible quickly closes. Globally, the healthcare sector is one of the top contributors to climate change. Among patients,

Healthcare workers (HWCs) are believed to be trustworthy sources of information. Research shows that HCWs can facilitate climate action by disseminating accurate information, leading through example, and addressing the burden that future generations will face. Therefore, HCW-facilitated educational initiatives are one way this sector can take accountability for its role in environmental degradation. This study aims to understand the climate change attitudes, perceptions, and practices of HCWs and address any identified gaps through training and ongoing professional development, ultimately building their capacity to act as environmental advocates and reduce carbon emissions within their workplaces.
Methods: A cross-sectional, online survey was administered to all HCWs across AKHST 28 facilities. The survey included questions to assess their awareness of the sector's environmental impact, understand sustainability practices undertaken within their workplace, and identify barriers encountered to promoting environmentally sustainable healthcare practices. Convenience sampling was utilized to ensure maximum participation of all HCWs to generalise findings.
Results: Preliminary results demonstrate this study's capability to address the discrepancies between climate crises and health sector practices. Findings indicate a varied landscape of awareness and commitment among HCWs. While a considerable proportion acknowledges the link between healthcare activities and climate impact, barriers such as resource constraints and lack of training are evident. Positive correlations emerge between sustainable practices and perceived improvements in patient outcomes, reinforcing the interconnectedness of healthcare and environmental stewardship.
Conclusion: Training HCWs as environmental advocates is pivotal for reducing workplace carbon emissions and combating climate misinformation within the medical system. Interventions should target knowledge gaps, integrate sustainability practices into medical education, and foster a culture of environmental responsibility to transform healthcare ecosystems toward a sustainable future.

CC04. A data driven model for predicting infection severity and its modulation by climate change.
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Introduction: Infectious diseases pose a significant global health burden, and their severity varies depending on various factors. Emerging evidence suggests that climate change may exacerbate the severity of some infections.
Methods: In this work, we use logistic regression to develop a data-driven model that can predict future severity of infections. We also investigate the potential influence of climate variables on predicted severity. Clinical data about patients' records, demographics, medical history, laboratory results and disease severity classifications are used as well as climate data consisting of relevant locations, temperature, humidity, precipitation, and historical and projected climatic conditions is also incorporated in the model.
Implication: After data cleaning, significant variables are admitted into the model using dimensionality reduction techniques. Support vector machines, random forests and deep learning models are used to choose a suitable machine learning algorithm. The model is trained and optimized using clinical data to predict infection severity. Its performance is evaluated using the F1 score.
Conclusion: Climate data will be integrated into the model, and the model will be re-trained and evaluated to understand the impact of climate variables on severity prediction. The model will then be analyzed to identify climate variables significantly influencing the predicted severity. This study is important because a trained machine-learning model can predict an infection with high accuracy. It will also give insights into how climate variables affect predicted severity. The findings of this work will be used by healthcare professionals, public health policymakers and researchers to

manage infectious diseases in a changing climate. By effectively utilizing data and combining expertise, we shall move closer to mitigating the detrimental effects of climate change and other social determinants of health.

CC05. Medicinal Plants Conservation to Adapt with Climate Change: Time for Implementation Science to Demonstrate with Experiment-based Responses Informing Policies and Programs in Africa

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Background: Climate change's impacts increasingly threaten the world, provoking debate on what and how to successfully cope or adapt to it, given the complex nature of its diverse albeit interconnected determinants. Implementation science-oriented researchers, if given a chance, can prove empirically that the adaptation possibilities are subject to a strong backup from local populations and the existing community governance structures, superstructures, and policy and programs in Africa.
Aim: To argue in favor of the ability of implementation researchers to demonstrate evidently through their carefully conceived and then field-tested exemplar farms established to inform policy, program, and development partners' authorities so that they prioritize funding for climate change's adaptability preparedness via the strategies found to lead to an enhanced communities' awareness and engagement in natural plants' conservation movements so that the plants with medicinal potentials are sustained and when needed made sufficiently available for manufactured drug production uses.
Methods: An account based on the literature overview focusing on Africa, triangulating views of various authors and those of the present author based on personal field-based experiences.
Results: The key message from the reviewed literature is that national and international debates remain about the so-far reported success stories in climate change adaptation and regulation strategies in Africa, whereby the issue of natural plant conservation and herbal medicinal raw material resources seems to be a challenge. Concern also prevails about the limited funding opportunities for implementation scientists wishing to propose or who have actually proposed experiment-based interventions for climate change adaptability and regulation so that certain plants can be grown and these along with the naturally endowed ones are conserved with community members' and local governance structures' awareness and engagement, and this happening concurrently with balancing the trade-offs prevailing on whether to respect the policies and the regulations favoring natural plants conservation or those embracing development projects established for economic growth and for private or public business purposes.
Conclusion: Experimental research aimed for local community participation can prove climate change adaptation feasibilities with reasonable and socially-acceptable strategies field-tested in Africa.

2.7. NUTRITION AND HEALTH

NH01: Factors Influencing Nutritional status among children aged 6-59 months at Njombe Town Council

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Background: The nutritional status of children aged 6-59 months is of great importance to a nation. Poor nutritional status exposes children to both communicable and non-communicable diseases, which will then cost the nation a lot of resources. What factors influence nutritional status among children aged 6-59 months in Njombe town council?
Objective: This study aims to assess factors that influence nutritional status among children 6-59 months in Njombe town council.
Methods: A cross-sectional study was used to collect data from 383 respondents in Njombe town council with children aged 6-59 months. Systematic sampling was used to select the study participants. Data processing and analysis were done using STATA version 15 College Station, TX, USA. Means and standard deviations were calculated for continuous variables while categorical variables were analyzed using frequencies and percentages. The chi-square test was used to determine the association between categorical variables. Logistic regression was used to determine the association of independent variables and stunting. A p-value of <0.05 was considered statistically significant.
Results: The majority of children had stunting (53.7%), and males were more affected, with 60% of stunting as compared to females (47.34%). Waste was higher among females (11.7%) than males (10.26%), and underweight was higher in males (12.31%) than females (11.7%).
Conclusion: Most of the children in Njombe had chronic malnutrition; the prevalence of stunting was 53.8%, which is still high. Stunting differed significantly by child sex and number of children in the household. it was more prevalent in male children than female. We didn,Äôt observe any significance between stunting and age; we speculate that we did the study at school time when some of the children were at school, and the remaining children were of the same age. The mean age of children with stunting was 23.7¬±14.3SD Months.

NH02. Associations between dietary patterns and intestinal inflammation among HIV-infected and uninfected adults: a cross-sectional study in Tanzania.

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Introduction: The increased burden of non-communicable diseases is fueled by lifestyle factors, including diet. This cross-sectional study explored among Tanzanian adults whether a potential mechanism for increased diabetes risk is dietary patterns which lead to low-grade intestinal inflammation, bacteria translocation, and systemic inflammation, a risk factor for insulin resistance.
Methods: The study included 574 participants, with both diet and inflammatory markers data. Dietary patterns were derived using principal component analysis and reduced rank regression, revealing three main patterns: vegetable-rich, vegetable-poor, and carbohydrate-dense diets.

Faecal myeloperoxidase (MPO) neopterin (NEO) and plasma lipopolysaccharide-binding protein (LBP), and C-reactive protein (CRP) were assessed as markers of intestinal and systemic inflammation. Ordinal logistic regression was used to assess associations between quintiles of the inflammatory markers and terciles of dietary patterns, adjusting for potential confounders.
Results: High adherence to a vegetable-poor dietary pattern was associated with elevated MPO (adjusted OR, 1.7 95% CI 1.1, 2.8). NEO tended to be higher in people with high adherence to both vegetable-poor patterns (adjusted OR, 2.6 95% CI 1.0, 6.4) and vegetable-rich patterns (adjusted OR, 2.7, 95% CI 1.1, 6.5). No associations were found between dietary patterns and systemic inflammation markers (LBP and CRP). We found links between dietary vegetable intake and intestinal inflammation but not systemic inflammation.
Conclusion: These findings suggest that diet impacts non-communicable diseases through pathways other than the intestinal inflammation-intestinal permeability-systemic inflammation axis. However, the study's cross-sectional nature limits establishing causality, emphasizing the need for further studies to understand how dietary habits influence diabetes in this population.

NH03. Leaving No One Behind: Call for Advocacy to Address Anemia Among Vulnerable Children in First 1,000 Days in Tanzania.

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Introduction: Despite Tanzania's commitment to prioritize inclusiveness and addressing malnutrition across life cycles, children below 2 years old continue to face the highest rates of anaemia than any other social group. This paper aims to review the current state of anaemia prevalence, existing strategic policies, interventions, and monitoring systems, focusing on identifying gaps and areas for improvement. It also advocates for including targeted measures to address anaemia during the first 1,000 days in line with the principle of "leave no one behind."
Methods: A comprehensive review approach was employed, encompassing analysis of anaemia prevalence and identifying existing gaps in health policies, program interventions, and monitoring systems linked to anaemia in infants under two years. Results: About seven in ten children below two years old suffer from anaemia, a persistent public health concern in Tanzania. Anaemia in children under six months remains poorly understood, highlighting a critical gap in research and interventions targeting this age group. Existing policies, interventions, reporting systems, and monitoring indicators often lack specific targets and segregated data for this vulnerable population.
Conclusion: To address the identified gaps, policymakers and stakeholders must prioritize including targeted measures to combat anaemia, particularly in the first 1000 days of life, within Tanzanian health policies and interventions. By embracing the principle of "leave no one behind," Tanzania can take earnest steps towards reducing anaemia prevalence and improving the health outcomes of this most vulnerable group. Policymakers must ensure that in-country policies explicitly include measures to address anaemia in infants below two years old. Programs and interventions should prioritize targeted interventions by incorporating specific measures to address anaemia in this population group, including early screening and treatment of anaemia. Research funds should be allocated to support anaemia studies in children under six months.

NH04. Anemia Prevalence, Severity, Trend and Geographical Distribution Among Adolescent Girls Aged 15-19: Insights from Tanzania DHS of 2010-2022

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Introduction: WHO categorizes anaemia as a severe public health issue when the prevalence is above 40%. This analysis aimed to evaluate the prevalence, severity, trends, and geographical distribution of anaemia among adolescent girls aged 15 and 19.
Methods: This analysis utilized data from the three most recent Tanzania Demographic and Health Surveys (DHS) of 2010, 2015, and 2022. Anaemia prevalence and severity were categorized based on Hemoglobin cut-off points for non-pregnant women based on WHO guidelines. Capillary blood was used to assess Hb levels using Hemocue Mashine (201+). Geographic Information System (GIS) techniques were used to visualize the geographical distribution of anaemia prevalence across different regions.
Results: The prevalence of anaemia among adolescent girls aged 15-19 years ranged from 41% to 45% for the survey period between 2010 and 2022, with a peak prevalence of 47% observed in 2015. A significant regional difference in anaemia prevalence was observed, and the most affected region had a prevalence three times that of the least affected. Most adolescents had mild anaemia, which declined from 76% in 2010 to 49% in 2022. Moderate anaemia, on the other side, almost doubled from 24% in 2010 to 47% in 2022. The trend of anaemia shows an increase in prevalence and severity among adolescents. Geographical mapping depicted repeated patterns in the distribution of anaemia prevalence across different regions in the country.
Conclusion: Anaemia prevalence among adolescent girls aged 15-19 years is a persistent severe public health problem in Tanzania, which differs significantly across regions. Understanding the severity and geographical distribution of anaemia is crucial for designing effective and targeted interventions tailored to high-risk areas to address the persistent burden of anaemia and improve adolescent health. Targeted policy and tailored interventions should prioritize resource allocation to high-risk areas and address specific determinants contributing to anaemia in different regions.

NH05. Prevalence and factors associated with iron deficiency among children attending the Sickle cell clinic at Kitete Regional Referral Hospital in Tabora, Tanzania.

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Introduction: Iron deficiency affects more than two-thirds of children in Tanzania. Sickle cell anemia is also a challenge, with a sickle cell trait prevalence of 20.3% among newborns in the country. While sickle cell anemia patients have frequent hemolytic crises that release iron into the bloodstream, several studies have paradoxically reported a high prevalence of iron deficiency among sickle cell patients. We report the prevalence and factors associated with iron deficiency among children attending the Kitete Regional Referral Hospital sickle cell clinic in Tabora, Tanzania.
Methods: In this cross-sectional study, we screened for iron deficiency among 199 children aged 6 months- to 12 years attending the sickle cell clinic at Kitete Regional Referral Hospital in Tabora, Tanzania. Data were collected using a structured questionnaire and a blood sample was used to test for serum ferritin levels. Stool sample examinations were carried out for potential associated factors.

Results: Thirty-one out of 199 or 15.6% [95%CI 11.0-21.1] were iron deficient. Factors associated with iron deficiency at multivariable analysis included infestation with hookworms (AOR 26.75; 95% CI 5.68-125.96) and Helicobacter pylori (AOR 2.74; 95% CI 1.01-7.40).
Conclusion: One in six children with sickle cell anemia had iron deficiency. Children with hookworm infestation and Helicobacter pylori infection were more likely to have iron deficiency. There is an urgent need to intensify the deworming of sickle cell children in this environment.

NH06. Investigation of medicinal foods used for maternal health in 10 regions of Tanzania mainland.

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Introduction: Access to quality food and nutrition before and during pregnancy is critical in improving the well-being of both mothers and neonates. Despite promising programs such as iron and folic acid supplementation, there remain challenges related to micronutrient deficiency, thus impacting pregnancy outcomes. The investigation of medicinal foods and herbal supplements used by different tribes may provide clues to closing the nutrition gap before and during pregnancy. In 2021, the maternal mortality rate in Tanzania stood at 576/100,000 live births, mostly related to poor nutrition, among other reasons, during pregnancy. The rich ethnomedical information harbored by 126 tribes in Tanzania may provide contextually relevant solutions to the pressing nutrition and food gaps during pregnancy**.** We aimed to identify medicinal foods and herbal nutraceuticals used by different tribes before and during pregnancy and determine the micronutrient composition of a priority 15 identified plant species.
Methods: This employed quantitative and qualitative methods. The study covered 10 regions and 20 districts involving 20 different tribes.
Results: A total of 417 food and herbal plants were collected for taxonomic identification, of which 314 plant species were identified. The parts used, mode of preparation, uses of the supplements, and collection sites were documented. 15 priority medicinal foods and herbal supplements were analysed for micronutrient content, including Iron, Zinc, Calcium, Potassium, Magnesium, and proteins. Over 60% of these had higher concentrations of micronutrients, thus providing opportunity for further product development.
Conclusion: 314 plant species were identified as potential candidates for further research and product development. The most common food plants identified in this study should be prioritized for consumption before and during pregnancy. Based on the findings, medicinal foods such as Bidens pilosa, Ipomoea batata, Cucurbita maxima, and Vigna unguiculata should be promoted for consumption before and during pregnancy.

NH07. Nutritional Status and Barriers to Optimal Nutrition among Pediatric Cancer Patients in Mwanza, Tanzania: A Quantitative Analysis.

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Introduction: Childhood cancer is a growing problem in low- and middle-income countries where over two-thirds of the patients worldwide are currently diagnosed. Despite the recent success in its diagnosis and management, malnutrition remains a key setback in attaining better outcomes.
Methods: Parents/guardians of children with cancer were conveniently recruited with regard to nutrition status in children with cancer. Children were assessed for signs of undernutrition. Furthermore, laboratory tests for markers related to nutrition status were also evaluated. Parents/guardian's information regarding accessibility and availability of food, economic influence,

community awareness, and the time they spend caring for their sick children was assessed for their impact on children's nutritional status.
Results: The magnitude of undernutrition among children undergoing treatment at a major referral hospital in Tanzania is 60%, more significant than the global estimate of 50% and larger than the level of undernutrition reported in the general paediatric ward in the same hospital at 55.8%. This shows that undernutrition is more pronounced in children with cancer. The effectiveness of most cancer drugs depends on the availability of various nutrients in the body for their efficient functions. Albumin, total protein, and iron help in drug distribution, body repair, and blood production. Parents/guardians of children with cancer reported facing various factors that hamper ensuring their children are getting optimum nutrients. The factors include food unavailability and inaccessibility, living with a large family, difficulty getting to the hospital, and a lack of knowledge and skills about diet and children with cancer.
Conclusion: Undernutrition is prevalent among children with cancer. This may be attributed to the disease itself, the knowledge, attitude, and perception of the primary caregivers, living conditions at home, economic situation, and community systems. We recommend extra attention when diagnosing and treating children with cancer.

NH08. Assessment of Nutrition status, feeding problems and existing oral nutritional support among children with cancer, Pediatric Oncology Unit, Muhimbili National Hospital, Dar es Salaam, Tanzania.

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Introduction: Nutrition among the pediatric population is essential as children grow exponentially; their bodies need nutrition for developing their immune system, brain, physical strength, and overall growth. Malnutrition in pediatrics has negative consequences on the health of children. A chronic disease like cancer affects the nutrition of developing children either by the disease process itself or resulting from complications of treatments. More than 85% of childhood cancers occur in developing countries, including countries in Sub-Saharan Africa. Weight loss is one of the frequent and earliest symptoms in cancer patients, making malnutrition a common consequence of cancer in children. Reports show that presence of malnutrition co-morbidity in children with cancer can play a critical and decisive role in clinical outcome measures, affecting the type and duration of treatment, tolerance to chemotherapy, overall treatment response, patients' quality of life, and cost of care. This study aimed to elucidate and describe nutritional status, feeding problems, and existing oral nutritional support among children with cancer, as well as the Pediatric Oncology Unit, Muhimbili National Hospital, Dar es Salaam, Tanzania.
Methods: A hospital-based, prospective cohort study involving 246 patients was done at the Pediatric Oncology Unit, Muhimbili National Hospital, Dar es Salaam. Patients with any malignancy were recruited in the study and were assessed nutrition status, feeding problems and common oral nutritional support practices. The data was collected using Excel, and the analysis was conducted using R version 4.2.3.
Results: A total of 246 participants aged 0-19 Years met the inclusion criteria and were enrolled for the study on admission. Most recruits were males accounting for about 55.7%, followed by females accounting for 44.3%. On follow-ups, the frequency of males was still high compared to females across follow-up points: after 4 weeks, after 8 weeks, and after 6 months. This study has revealed that 11.8% of the participants had severe acute malnutrition, 28.5% moderate acute malnutrition and about 59.3 % had normal nutrition. Almost half of the participants reported to be malnourished on admission, either moderately malnourished or severely malnourished. Age group 0 - 5 Years contributes to high frequencies of malnourished children compared to other age groups from

baseline across other follow- ups. This study has reported that the majority of children present at hospital on admission with different types of feeding problems which complicates further 4 weeks later after starting cancer therapy. Hospital meal is the commonest nutritional support accounting for more than 85%, followed by smoothie, then special porridge, peanut and F75/100 is the least used nutritional intervention. Studies showed that a high percentage of patients receive nutrition education and advice from the point of admission to follow-ups throughout the treatment period. Their chi-square test revealed a statistically significant association between feeding problems and nutrition status with P-value of 0.0000001476.
Conclusion: This means that the occurrence of Feeding Problems is related to the participants' Nutritional Status; hence, nutrition is one of the components requiring attention during cancer management among children with cancer. Nutrition should be adequately integrated in managing cancer while making clinical decisions and ensuring that key nutrition interventions are easily accessible.

NH09. Assessment of the nutrition service delivery in the context of patient management in health facilities in Tanzania.

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Introduction: Clinical nutrition practice has evolved into a significant discipline within modern medicine. In developing countries like Tanzania, the field of nutrition has been growing gradually, especially community nutrition, but clinical nutrition is still at its infant stage. To propose refinements in nutrition services, addressing areas where patients/clients' needs might be unmet or processes could be optimized. To assess nutrition service delivery in the context of patient management in health facilities in Tanzania.
Methods: This study surveyed nutritionists, dieticians, and other healthcare providers who are responsible for providing nutrition care in selected health facilities in Tanzania.
Results: The study findings reveal that overall nutrition care and management received varying scores: poor (4) at 9%, fair (13) at 28%, good (10) at 22%, and excellent (19) at 41%. Crude analysis identified significant associations with postgraduate education (p-value = 0.000), Institutional affiliation with a national hospital (p-value = 0.016), and 0-1 year of experience (p-value = 0.019) correlating positively with good and excellent nutrition care and management.
Conclusion: The evaluation highlights strengths and deficiencies in providing nutrition services across health facilities in Tanzania. Ministry of Health and health facilities to address the shortage of nutritionists in health facilities. Ministry of Health, academic institutions, and national and specialized health facilities to provide comprehensive training on advanced nutrition assessments, nutrition diagnosis, and medical nutrition therapy. Health professionals to implement standardized documentation processes using INDT and ADME to improve data quality and continuity of care and facilitate comprehensive communication among professionals. Ministry of Health and stockholders to develop comprehensive and accessible clinical nutrition guidelines and job aids to guide practitioners effectively. Health facilities should strengthen the utilization of collected data by consistently analyzing and displaying nutrition-related information for informed decision-making.

NH10. Assessment of the relationship between mothers' and caregivers' complementary feeding knowledge, attitudes, and practices and the achievement of a minimum acceptable infant/young child diet in Tanga, Tanzania.

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Introduction: The complementary feeding of children aged 6-23 months in the transition out of exclusive breastfeeding is necessary to achieve a minimum acceptable diet (MAD) and ultimately prevent the immediate and long-term consequences of malnutrition. Tanzanian statistics demonstrate poor complementary feeding practices nationwide, with only 10% of children achieving a MAD. As a result, about 1 in 10 is chronically malnourished. Despite these trends, few studies describe the status of complementary feeding in Tanzania, including the knowledge, attitudes, and practices (KAP) of mothers and caregivers and how the KAP and other factors influence infant and young child nutrition.
Methods: This cross-sectional study was conducted in Korogwe, Tanzania from November to December 2023 among 291 urban and rural mothers or caregivers of children aged 6-23 months. We used a validated questionnaire to assess knowledge, attitudes, and practices towards complementary feeding. This information was used to determine whether children were achieving MADs and assess factors related to the achievement of an adequate child diet.
Objectives: To determine the factors related to the achievement of an acceptable child diet among urban and rural Tanzanian mothers and caregivers of children, aged 6-23 months.
Results: About 20% of children achieved the MAD, and the statistical analysis using bivariate and multivariate regressions determined that a combined urban status and high knowledge, exposure to nutrition information, and unemployed status were significantly associated with MAD achievement.
Conclusions: The study findings suggest that dismal trends still prevail, especially among rural Tanzanians. Future studies and policies should consider empowering mothers or caregivers with regard to education, employment, and access to information about proper nutrition to make a meaningful difference.

NH11. The benefit of psychosocial stimulation among children with Severe Acute Malnutrition: Caregiver's perceptions in Mwanza, Tanzania.

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Background: Severe acute malnutrition (SAM) during early childhood is associated with delayed cognitive, communication and motor development. Psychosocial stimulation (PS) may benefit these but there is limited information on PS interventions for children with SAM in Tanzania. This study aimed to explore the caregivers' perceptions about the psychosocial stimulation (PS) among children with SAM in the Mwanza region in Tanzania.
Methods: This qualitative study was nested in a pilot study enrolled eighty-two children diagnosed with SAM admitted at Bugando Medical Centre and the satellite hospitals in Mwanza. Twenty caregivers/ parents were purposely selected for in-depth interviews to discuss the psychosocial stimulation program that was being provided as a component of treatment for children with SAM

for eight weeks. The interviews were transcribed, translated, coded, and analyzed using thematic content analysis with the support of NVIVO software.
Results: Caregivers felt the PS program was very beneficial to the children and families. Playing and communicating helped their children become very active, increasing their ability to learn new things. PS strengthens body muscles, and children can perform more physical activities that they were unable to perform before the program. PS increased enjoyment and happiness; children socialized and played games with other family members at home, further improving the bond between caregivers and the children.
Conclusions: The findings suggest that psychosocial stimulation is beneficial to SAM children and caregivers. Psychosocial stimulation interventions need to be integrated into the SAM treatment units to hasten children's development and enable them to attain their full brain development potential.

NH12. Reducing Nutrition-related Non-Communicable Diseases in Adolescence and Youth: Interventions and Policies to Boost Nutrition Fluency and Diet Quality in Africa

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Introduction: Behaviors established in adolescence, such as diet, exercise, alcohol and tobacco use, violence, and sexual behaviour, determine behaviours in adulthood and long-term health outcomes. Adolescents in sub-Sahara Africa (SSA) are facing the double burden of undernutrition and diet-related obesity, increasing preventable or treatable non-communicable diseases (NCDs). There remains a gap in data availability on adolescent nutrition in many SSA, including Tanzania, as most national surveys focus on younger children and women of reproductive age. This study aims to deliver a comprehensive understanding of diets, nutrition, physical activity, and sexual and reproductive health-related risks of NCDs in Burkina Faso, Ethiopia, Ghana, Nigeria, South Africa, Tanzania, and Uganda.
Methods: This longitudinal study will be conducted at the health and demographic surveillance system (HDSS) sites at each country. A cohort of 1200 adolescents and young adults aged 10-24 years will be enrolled for the four years of the study. Through surveillance data collection, the trends in key adolescent and youth health and nutrition, well-being, and risk behaviours will be identified. This will be integrated with qualitative data collection. A co-designing workshop with local adolescents and youth stakeholders and paper prototyping of the adolescent nutrition fluency intervention will be conducted in Burkina Faso and then be adopted in Ethiopia, Tanzania, and Uganda. The intervention will be randomly assigned to adolescents as a trials-within-cohorts implementation strategy and evaluated for its impact, performance, and cost-effectiveness. This protocol has been approved by the Ethics Committee of the Medical Faculty of the University of Heidelberg and the Muhimbili University of Health and Allied Sciences in Tanzania and is under review by the National Institute for Medical Research. Findings will be disseminated during meetings with the Ministries of Health and other stakeholders, peer-reviewed publications, nutrition-related policy briefs, and various national and international conferences.

NH14. The magnitude of Xeroderma pigmentosum and care-seeking practices in Micheweni District, Pemba.

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Introduction: Anecdotal evidence indicates an increased incidence of Xeroderma Pigmentosum (XP) in Pemba, Zanzibar for the past 15 years. The study sought to determine the magnitude of XP disease and health care-seeking practices in Micheweni, Pemba, in response to the public's widespread information on the increased burden of the disease.

Methods: In 2020, a cross-sectional study employing mixed methods in data collection and analysis was conducted. The study participants included 211 male and female adults in the household survey, three caretakers or parents of XP patients in the case study, 20 key informants, including community leaders, influential people, and health workers, in in-depth interviews, and 50 community members and other leaders in six focus groups.

Results: Few families have XP patients and some of them have more than one child with the disease. Hospital data showed that a total of 17 XPD patients were diagnosed for the past three years, but only 10 were alive during the time of survey. Community members reported knowing a number of XP patients. However, some cases identified as XP disease by community members, were found to be other skin conditions following clinical examination by the study team. The study participants perceived the causes of the disease to include inheritance, food types, beliefs, and other sociocultural practices. Stigma and discrimination were reported by care takers and religious leaders.

Conclusion: XP affects few families, hence termed as concentrate rather than a generalized disease. Due to the rareness of the disease, the majority of people in the district are unaware of the disease, hence confusing it with other skin conditions. There is a need for the government in collaboration with other stakeholders to provide education programs to community members about the disease to address the misconception about the magnitude of the disease.

SYMPOSIA

The symposia aimed to offer a platform for in-depth conversations on the scientific evidence generated regarding health concerns and technological advancements. These gatherings revolve around topics or notable achievements by organizations or research groups.

Symposium Number 1. The Future of NCD Care: Unleashing innovative partnerships and technologies

Most known patients with NCDs are not on regular medication, which risks them developing disease complications. Those in rural areas are more likely to be affected than their counterparts in urban settings. NCD services are, in most cases, accessed at referral services, which are far from most communities, and attending services there comes with a lot of opportunities and direct costs.

Pharm Access is actively developing and testing digital care models and financing for chronic care to address the above challenges. The approach revolves around the holistic empowerment of patients for self-management, with remote support when feasible, alongside in-person care when necessary.

NIMR, in collaboration with other partners, is implementing PEN-Plus, an integrated care delivery strategy focused on alleviating the NCD burden among the poorest children and young adults by increasing the accessibility and quality of chronic care services for severe NCDs—such as type 1 diabetes, rheumatic heart disease, and sickle cell disease—in the rural areas of low- and lower-middle-income countries, where more than 90 per cent of the world's poorest people live.

This session aims to share practical strategies for addressing the challenges of accessing care for NCD patients, using practical experience from Zanzibar, Kondoa, and Karatu in the United Republic of Tanzania.

Presentations

1. Lessons from the PEN Plus Project - **Dr Mary Mayige**
2. Digital enabled community-based management of NCD: A case of Zanzibar - **Faiza B. Abbas**

Symposium Number 2. Towards programmatic diagnosis and care for Post Tuberculosis Lung Disease

Tanzania has a high prevalence of TB, making post-TB lung disease a significant public health concern. Recent studies suggest a high burden of post-TB lung disease among individuals who have completed TB treatment in Tanzania. Post-TB lung disease is often undiagnosed or misdiagnosed, leading to delayed treatment and potential complications.

Early diagnosis and management can improve patients' quality of life and reduce the burden on healthcare systems. Effective strategies can potentially save lives and prevent further lung damage. This session will delve into the importance of addressing post-TB lung disease in Tanzania and discuss the current situation, challenges, and potential solutions to improve the health outcomes for individuals who have completed TB treatment.

Presentations

1. Current evidence on PTLD - **Dr Nyanda Elias Ntinginya**
2. TB-Sequel Cohort Study - **Dr Julieth Lalashowi**
3. Socio-economic risk factors & consequences of PTLD & suggested interventions – Ms. **Stella Kilima**
4. Therapeutic strategies for PTLD, incl. rehabilitation and education - **Dr Issa Sabi**
5. Programmatic stakeholders' direction on PTLD – **Dr Riziki Kisonga**

Symposium Number 3. Malaria

Malaria remains a serious threat in Tanzania. This session will explore various aspects of the fight against the disease. We'll delve into new vector control tools like genetic modification and targeted baits, alongside the crucial role of communities through End Malaria Councils. Medical advancements in drugs and vaccines offer hope while understanding mosquito resistance through surveillance is vital. Researchers presented findings on barricading and mosquito populations in high-burden areas. This comprehensive session emphasized the importance of a multifaceted approach that combines cutting-edge interventions, community engagement, and ongoing research to achieve a malaria-free Tanzania.

Presentations

1. The Toolbox of Novel Malaria Vector Control interventions-**Dr Patrick Tungu**

2. The role of End Malaria Councils in the fight against Malaria-**Dr Adiel Mushi**
3. Malaria Medicines/Vaccines-**Dr Samwel Gesase**
4. Trends of insecticide resistance in Tanzania: implications for malaria control in Tanzania-**Dr. Bilali Kabula**
5. Malaria Vector Entomological Surveillance in Tanzania-**Dr Yahya Athman**
6. Investigating the Impact of Larviciding as a Supplementary Malaria Vector Control Tool in Rural Southeastern Tanzania- **Gloria Salome**
7. Surveillance of Malaria Vectors in Selected Hot Spots Districts: Implications for Understanding the Composition of Vectors That Drive Persistent Malaria Transmission in Mainland Tanzania-**Dr Yahya Derua**
8. Role of human Pegivirus infections in whole Plasmodium falciparum sporozoite vaccination and controlled human malaria infection in African volunteers-**Anneth-Mwasi Tumbo**

Symposium number 4. HIV Epidemic Control by 2030: The role of Evidence-Based Practices in monitoring progress

Tanzania aims to control the HIV epidemic by 2030. Effective monitoring through evidence-based practices is crucial for this. This session will explore successful strategies and remaining challenges to achieving and sustaining the 95-95-95 UNAIDS targets.

Presentations:

1. HIV Epidemic Control: what is the status of the adopted indicators **- Dr. Werner Maokola: Head, Strategic Information Unit NASHCoP**
2. HIV Population Survey (THIS 2023) – Dr **George Mgomella; Assistant Programme Director CDC Tanzania**
3. HIV infection among Adolescents and Young People (AYP) - **Dr. Neema Makyao; HIV Prevention Advisor, AMREF**
4. Opportunities to improve ART monitoring through HIV Drug Resistance Surveillance **- Dr David Sando, Chief Executive Officer, MDH**
5. Pathway to evidence-based policies- **Dr Elizabeth Shayo; Head, Health System, Policy and Translational Research Section, NIMR**
6. HIV Epidemic Control: Sustaining the gains beyond 2030 - **Ntuli Kapologwe; Director of Preventive Services MoH**

Symposium 5. Prevention and Control of NCDs' current status and progress towards agenda 2030

The rising burden of non-communicable diseases (NCDs) such as heart disease and diabetes threaten Tanzania's healthcare system and economic development. This session will focus on the latest research on the NCD burden in Tanzania, exploring the prevalence and key risk factors. Sharing successful strategies for prevention and control will also be a central focus, along with identifying critical gaps and coming up with recommendations. Through this collaborative approach, researchers will present current data, implementing partners will provide updates on status, progress, and challenges, and policymakers will engage in dialogue to discuss how to create an enabling environment and ensure sustained resource allocation for NCDs.

Presentations

1. NCD risk factors - **Dr Tumaini Goodluck**
2. Cardiovascular diseases- **Dr Pedro Pallangyo**
3. Diabetes - **Prof Kaushik Ramaiya**
4. Asthma and COPD - **Dr George Msengi and Lucy Mrema**
5. Injuries and Trauma - Dr **Gibson Kagaruki and Frank Hassan**
6. Mental Health - **Dr Samuel Likindikoki**

CHAPTER 3: Closing Session

3.1 Closing remarks

The Minister for Health, Honourable Ummy Mwalimu, graced the Conference's closing ceremony. She applauded and thanked all speakers, panellists, other conference participants, the Organizing Committee and NIMR Management for a successful conference. She pointed out that over 241 presentations and six symposia were delivered, and the recommendations obtained from the conference were to be utilized by the Ministry of Health accordingly for those needing quick, short-term solutions and those requiring longer term and policy considerations. The Minister pointed out that research findings support policy shifts toward greater efficiency and give scientists inspiring proof of their work's real-life impact on improving Tanzanians' health. She stated that billions of dollars are spent on health research each year worldwide, and a significant amount of this investment goes to the discovery and development of pharmaceutical and biotechnology products. However, research on health systems and service delivery receives only a tiny proportion of this investment.

As the world enters the post-2015 era, it faces far more complex health challenges than at the start of this century. The sharp distinction between health problems in developed and developing countries is dissolving, and the same universal health pressures are faced due to population ageing and rapid urbanization. She said that the rise in NCDs adds considerably to the cost of health care. She insisted that anti-microbial drug resistance is a global health challenge and has led to multi-drug-resistant tuberculosis and gonorrhoea. She urged scientists to address this health crisis and avoid moving into a post-antibiotic era in which common infectious diseases will once again kill the human population.

The Minister reminded NIMR to increase research in traditional medicine to address the double burden of diseases. She affirmed that the government of Tanzania is committed to investing in health, and a political will has already gained momentum as a reflection of good governance. She assured NIMR that in the 2024-2025 financial year, there will be an allocation of two billion for addressing priority areas identified by the Ministry of Health.

CONFERENCE RECOMMENDATIONS

1. The Ministry of Health to ensure that the financial support to the National Institute for Medical Research is strengthened to fulfil its mandate.
2. The Ministry of Health to engage health research and academic institutions or any other institutions/organizations/non-state actors in the monitoring, evaluation and learning of performance of the national disease control programmes.
3. The Ministry of Health to ensure sustainability of investment in research and development relevant to the local needs.
4. The Ministry of Health to strengthen health promotion and preventive services for effective risk-based management of health challenges.
5. The Ministry of Health to ensure that the decision making in policy and practice is based on research evidence.