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MINISTRY OF HEALTH

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18th-19th MARCH 2024

THEME Harnessing local research and innovation on TB & Leprosy to shape national policy and practice to end TB & Leprosy in Uganda

ABSTRACT BOOK

LAYOUT & DESIGN
Jacob Nansinguza
Editorial Design, Scientific & Medical Illustration

Acknowledgements

On behalf of the Ministry of Health (MOH) and the National Tuberculosis and Leprosy Program (NTLP), I am writing to extend our heartfelt gratitude for your invaluable contributions to the inaugural MOH/NTLP Science Summit 2024. Your dedication, expertise, and unwavering support have played an instrumental role in making this event a resounding success.

To our esteemed partners, we extend our deepest appreciation for your collaboration and commitment to advancing the fight against tuberculosis and leprosy. Your sponsorship, participation, and active engagement have enriched the summit and facilitated meaningful discussions on critical issues facing our communities. Together, we have taken significant strides towards improving healthcare delivery and achieving our shared goals.

To the members of the technical team, your meticulous planning, attention to detail, and tireless efforts behind the scenes have ensured the seamless execution of the summit. Your dedication to excellence has not gone unnoticed, and we are immensely grateful for your hard work and dedication.

To the esteemed members of the Science Committee, your expertise, insights, and guidance have shaped the content and direction of the summit, ensuring that it remains relevant, informative, and impactful.

Last but not least, to the members of the Steering Committee, Your collective efforts in setting objectives, defining priorities, and mobilizing resources have laid the foundation for future editions of the summit to build upon.

It is through our collective efforts and collaboration that we have been able to host a summit that has exceeded expectations and made a meaningful impact on the fight against tuberculosis and leprosy. Your contributions have not only enriched the summit but have also inspired us to redouble our efforts in addressing these pressing public health challenges.

As we reflect on the achievements of the inaugural MOH/NTLP Science Summit 2024, let us continue to build upon this momentum and work together towards our shared vision of a healthier, more equitable future for all.

Once again, thank you for your unwavering support and commitment. We look forward to continuing this journey of collaboration and innovation with you in the days ahead.

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ABSTRACTS

Session 1: TB Epidemiology, surveys, burden

Chair: Prof. Noah Kiwanuka **Co-Chair: Dr. Luzze Henry**

10A1: Spatial Distribution and Temporal Trends of Tuberculosis Case Notifications, Uganda: A Ten-year Retrospective Analysis (2013–2022)

Freda Loy Aceng[1], Steven N. Kabwama[1], Alex R. Ario[1], Alfred Etwom[2], Stavia Turyahabwe[2], Frank R. Mugabe[2]

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BACKGROUND: Uganda has a high incidence and prevalence of tuberculosis (TB). Analysis of spatial and temporal distribution of TB is an important tool for supporting spatial decision-making, planning, and policy formulations; however, this information is not readily available in Uganda. We determined the spatial distribution and temporal trends of tuberculosis notifications in Uganda, 2013-2022.

METHODS: We conducted a retrospective analysis of routinely-generated program data reported through the National TB and Leprosy Programme (NTLP) surveillance system. We abstracted data on all TB cases diagnosed from 2013 to 2022 by district and region. We drew choropleth maps for Uganda showing the TB case notification rates (CNR) per 100,000 and calculated the CNR using the cases per district as the numerator and individual district populations as the denominators. Population estimates were obtained from the 2014 National Population and Housing Census, and a national growth rate of 3% was used to estimate the annual population increase.

RESULTS: Over the entire study period, 568,957 cases of TB were reported in Uganda. There was a 6% annual increase in TB CNR reported from 2013 (134/100000) to 2022 (213/100000) (p-value for trend p<0.00001). Cases were reported from all 12 Ministry of Health regions during the entire period. The distribution of CNR was heterogeneous throughout the country and over time. Moroto, Napak and Kampala districts had consistently high CNR throughout the ten years. Kalangala district had lower CNR from 2013-2018 but high CNR from 2019-2022. Moroto region, in the northeast, had consistently high CNR while Mbale and Soroti regions in Eastern Uganda had the lowest CNR throughout the ten years.

CONCLUSION: There was an overall increasing trend in TB CNR from 2013 to 2022. We recommend that the National TB program institutes intensified measures aided by more funding to mitigate and reverse the negative impacts of the COVID-19 pandemic on TB.

110A2: Pulmonary tuberculosis screening among travellers and migrants in Uganda at Points of Entry: analysis of surveillance data 2022–2023.

Introduction: Cross-border transmission of tuberculosis (TB) is a growing global public health concern. In 2022, Uganda introduced screening at Points of Entry to enhance active TB case finding and linkage to treatment and care. Currently, there is limited formal analysis of these data. We assessed the performance of Pulmonary tuberculosis screening among travellers and migrants in Uganda at Points of Entry, 2022-2023.

Methods: We analysed aggregate secondary surveillance data on the performance of TB screening indicators from the District Health Information System version 2 during 2022–2023. Indicators included the proportion of presumptive TB cases identified using the TB intensified case finding guide, the proportion of identified presumptive cases that were tested and the proportion of confirmed TB cases that were linked to care. We compared performance across regions.

Results: A total of 10,630,849 travellers and migrants were screened at the 45 PoEs conducting TB screening. Out of these 39,533 were identified as presumptive TB cases using the TB intensified case finding guide. On average 41% of the identified TB presumptive cases were tested with confirmatory testing with Gene Xpert MTB/RIF (Xpert; Cepheid, USA). PoEs in the central region(1%) had the lowest proportion of presumptive TB cases tested in comparison to the Western(30%), Northern(53%) Eastern(62%) regions, $p<0.001$. On average 5%(Range:2-9%) of the identified presumptive cases tested had a positive result. Of the 209 total confirmed TB cases identified 65% linked to TB treatment and care.

Conclusion: Despite the existence of TB cases among travellers, the performance of TB screening at PoEs remains sub-optimal with low testing rates and linkage to care. We recommend interventions to improve access to TB testing services and referral linkages.

110A3: Characterizing and understanding TB transmission dynamics in a high burden pastoralist region (Karamoja).

Geofrey Amanya[1,2], Evelyne Tibananuka[3], Karebo Fontiano[1], Alex Mulindwa[1]

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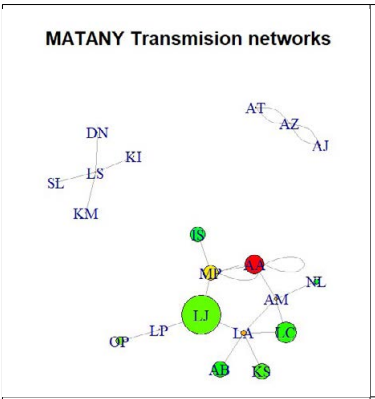
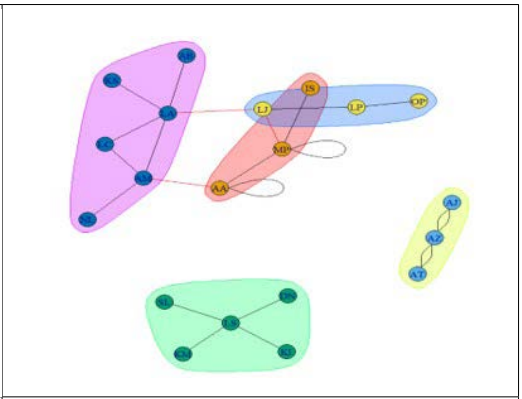
INTRODUCTION: Karamoja region bares the highest TB burden in Uganda, with some districts like Moroto having 3-Fold case notification rates (786 per 100,000 population) far above the national 223/100,000, in 2023 the region notified 5045 TB patients (24.8% being Pediatrics), even with high notification pediatric TB patients, 41% are still missed nationally. We aimed at conducting TB surveillance and understanding the Tuberculosis transmission chains in this setting

METHOD: This was a retrospective records review of TB data with the focus on pediatric TB from Jan 2021-Dec 2022. We adapted the Household Vulnerability ssessment tool (HVAT), and also administered a structured questionnaire for reverse contact tracing to assess and identify the cascade and access to TPT. Triangulations on patient data were done with case level data from eCBSS system for clinical, demographic laboratory and contact tracing. Data was analyzed in R Software

RESULTS: Data for total of 1501 children was analyzed, 40%(PCD's), 36.7%(ePTB), 25%(PBCs), TB/HIV coinfection rates were 5%. 51% (n=765) of these had malnutrition 16% of these had poor outcomes (n=58 died, 64 LTFuP, failure-7) their household risk mapping they were graded as critical vulnerability, 70% of the households reported having a meal per day, 54.5% suffered poor ventilation, 70% reported eating just a meal. Review of contact tracing data revealed, transmission chains within households and Social networks in the Manyattas, 31.2% (82/262) of the contacts had suffered TB in the households, only 44% (n=99) had started been started in TPTP, but had a good completion rate at 98%. Form the verifications none of these contacts on TPT reported history of, or acquired TB after initiation or completion of TPT

CONCLUSION: Scaling up mentorships in diagnostic for TB in children like WHO recommended WRD's (SOS) is critical for increased case finding efforts, there is a need for advocacy for social protection, food security in similar settings for good outcomes. We recommend further studies on TB disease prevalence among people who have completed TPT.





Isolated transmission networks	*Transmission around household Infections within one manyatta*

110A4: Death after cure: mortality among tuberculosis survivors in rural Uganda

Joseph Baruch Baluku[1,2,3*], Brenda Namanda[2], Sharon Namiiro[1], Diana Karungi Rwabwera[2], Gloria Mwesigwa[4], Catherine Namaara[4], Bright Twinomugisha[4], Isabella Nyirazihawe[4], Edwin Nuwagira[3], Grace Kansiime[3], Enock Kizito[5], Mary Mudiope[5], Moorine Ssekadde[6], Felix Bongomin[7], Joshua Senfuka[8], Ronald Olum[9], Aggrey Byaruhanga[9], Ian Munabi9, Sarah Kiguli[9]

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Background: Although TB survivors face a threefold higher mortality risk globally, data from rural sub-Saharan Africa remains limited. This study examined mortality and its predictors among TB survivors treated at a rural Ugandan tertiary hospital.

Methods: We conducted a retrospective cross-sectional study using data from Masaka Regional Referral Hospital (2010 -2023). We conducted a census of all people who met the World Health Organization's definition of TB cure and traced them or their next of kin through phone calls or physical visits to determine vital status (alive/deceased). We estimated the cumulative incidence of mortality per 1,000 population, crude all-cause mortality rate per 1,000 person-years, and

median years of potential life lost (YPLL) for deceased individuals. Using Cox proportional hazard models, we investigated factors associated with mortality.

Results: Of 334 TB survivors enrolled, 38 (11.4%) had died.
The cumulative incidence of all-cause mortality was 113.7 (95% CI: 81.4-147.3) per 1,000 population, and the crude all-cause mortality rate was 28.5 per 1,000 person-years. The median YPLL for deceased individuals was 23.8 years (IQR: 9.6-32.8). Hospitalization (aHR: 4.3, 95% CI: 1.1-16.6, p=0.034) and unemployment (aHR: 7.04, 95% CI: 1.5-31.6, p=0.012) at TB treatment initiation were significantly associated with increased mortality risk.

Conclusion: TB survivors in this rural setting experience a high mortality burden, losing about 24 years of life prematurely. Hospitalization and unemployment at TB treatment initiation predicted death. Social protection measures and long-term follow up of previously hospitalised TB patients could improve long-term survival of people cured of TB.

110A5: Chronic Pulmonary Aspergillosis in Uganda: burden, diagnostic challenges, and implications on TB care.

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INTRODUCTION: Chronic Pulmonary Aspergillosis (CPA) affects both immunocompetent and immunocompromised patients commonly with a previous or underlying lung disease. CPA and pulmonary tuberculosis (PTB) can co-exist, posing a challenge in distinguishing the two infections clinically. This group of patients is often misdiagnosed and managed as smear-negative TB. CPA can also appear as post-TB lung disease.

OBJECTIVES: We aimed to describe the burden of CPA in Uganda highlighting its link and implications to PTB care.

METHODS: Between 2015 and 2024, we published systematic reviews, case reports/series, retrospective, cross-sectional and modelling studies describing the burden of CPA in Uganda and its link to PTB.

Results: Our initial results suggested that Aspergillus infection may complicate active PTB. The case series suggests that CPA is commonly misdiagnosed as smear-negative TB and all patients were on anti-TB drugs before admission. CPA was present in 3-9% of HIV patients in Uganda. Using a simple diagnostic criterion and point-of-care test (POCT), we safely discontinued anti-TBs in patients with negative TB workup who met the diagnostic criteria for CPA and commenced them on antifungal therapy with good outcomes. Combined with radiology and clinical presentation, the Aspergillus-specific antibody POCT was excellent in diagnosing CPA. The cross-sectional studies showed that CPA causes persistent respiratory symptoms in up to 20% of patients after intensive PTB treatment. *Aspergillus niger* was the commonest cause followed by *A. fumigatus*. CPA also commonly complicates treated PTB with residual chest radiography cavitation. Our literature review and modeling studies showed that CPA in Uganda is present in 22% of TB patients with cavities and 4% without cavities. We estimate up to 3000 new cases of post-TB CPA annually. CPA with symptoms is 7% with an additional 1.5% developing an aspergilloma. CPA mortality is up to 500 deaths per year. CPA probably accounts for 14% of TB-related deaths in newly presenting cases. Major challenges include a low index of clinical suspicion, a shortage of trained clinical and laboratory personnel to make a definite diagnosis, high cost, lack of fungal diagnostics, and poor access to Itraconazole.

CONCLUSIONS: The Burden of CPA in among TB patients is high in Uganda. With the high burden of PTB in Uganda as the major risk factor for CPA, diagnostics for CPA can be incorporated into existing national TB and/or advanced HIV disease programs to screen routinely for early detection and anti-TB stewardship.

110A6: Prevalence of electrocardiographic abnormalities at TB cure: Preliminary results from a prospective cohort in southwestern Uganda

Timothy Mwanje Kintu, Mike Ssemusu, Provia Tumukunde, Kihumuro Raymond and Edwin Nuwagira and the IMPACT–U team

Affiliations
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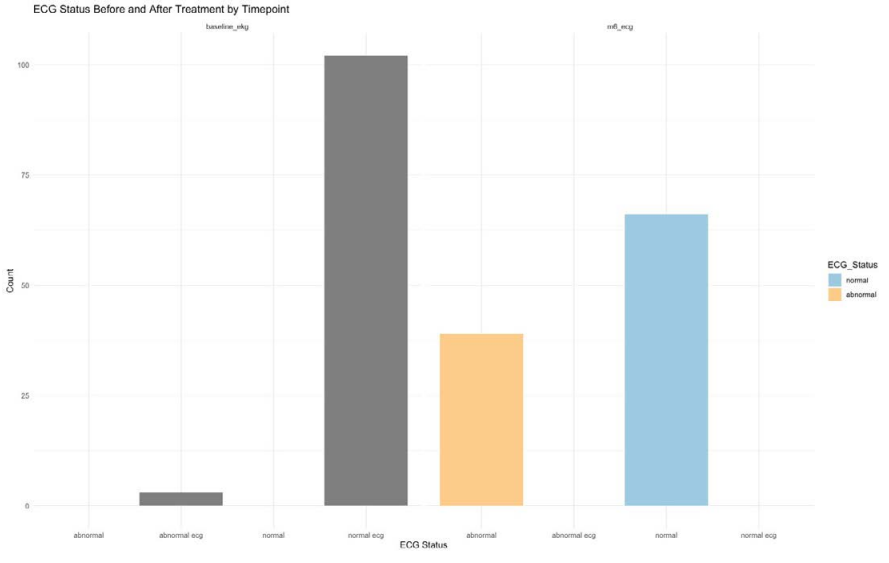
BACKGROUND: Tuberculosis (TB) carries significant disease risks with most death after TB cure attributed to cardiovascular disease (CVD) (Romanowski et al, 2019). Our aim was to describe electrocardiograph (ECG) abnormalities among pulmonary TB survivors at cure. We hypothesized that ECG abnormalities would be a surrogate to screening for post-TB CVD.

METHODS: We enrolled participants with index pulmonary TB prior to starting treatment at Mbarara Regional Referral Hospital, southwestern Uganda from November 2021 to December 2023. Participants had a laboratory confirmed

diagnosis of drug-susceptible pulmonary TB, no known prior lung disease, willing to be followed up for at least 18 months and had the capacity to consent. All participants received medication per the national TB program. We measured their pre-treatment clinical and sociodemographic characteristics. At cure, we assessed the pulmonary function using spirometry, and ECG using a 12-lead ECG. We summarized the findings using chi-square or Student's t-test as appropriate.

RESULTS: Out of the 189 participants enrolled, we performed ECGs and lung function assessments on 105 participants. Of these, 38 (37%) exhibited abnormal ECG findings. Notably, significant associations were observed between post-treatment pre-bronchodilator FEV1 (p = 0.043), pre-bronchodilator FVC (p = 0.02), FEV1/FVC ratio (p = 0.014) and the presence of an abnormal ECG finding at 6 months. Additionally, the development of ECG abnormalities was associated with the duration of cough (p = 0.02) and patient age (p = 0.01) prior to treatment. At the time of analysis, the majority of the patients, 96 (91%), had achieved cure status, with only one death reported. The outcomes for eight patients remain undetermined.

CONCLUSION: This study highlights a significant increase in the prevalence of ECG abnormalities among TB patients following treatment. Despite a high cure rate, the emergence of ECG irregularities signifies the need for continuous cardiac monitoring in TB management strategies.



11PA1: Incidence and risk factors for tuberculosis at a rural HIV clinic in Uganda; a retrospective cohort study

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BACKGROUND: Tuberculosis (TB) is the leading cause of death among people living with HIV (PLHIV). Antiretroviral therapy (ART) initiation lowers the risk of HIV-associated TB. Earlier studies in Uganda focused on urban settings. Our study assessed TB incidence and associated risk factors in a rural cohort.

METHODS: We conducted a retrospective cohort analysis study among patients aged ≥18 years, initiated on ART and TB disease-free at the time of starting ART, at Kalisizo rural HIV clinic. TB disease incidence was calculated by dividing the number of new TB cases by the total follow up time expressed per 100 person-years. Factors associated with the TB disease incidence were assessed in the multivariable analysis by Poisson regression analysis at 5% significance level.

RESULTS: For the period 2012 to 2019, 2589 patients were initiated on ART; 57% (1470/2589) were female. Females were more likely to be aged below 35 years while males more likely to be aged 25-44 years (p<0.001). Eighty-seven per cent (1269/1470) females compared to 78% (866/1119) males were in WHO clinical stage 1 (p<0.001) and 61 TB disease events were observed in 7,363 person-years. The overall TB disease incidence was 0.83 (95% CI: 0.63-1.06) per 100 person-years. Males were more likely than females to develop TB disease, adjusted incidence rate ratio (adj IRR) 2.13 (95% CI: 1.27-3.57) per 100 person-years, p = 0.004. Compared to using ART for 0-5 months, time on ART was associated with a lower TB incidence rate at 6-12 months, 13-24 months, >24 moths, adj IRR 0.20 (95% CI: 0.09-0.46), 0.14 (95% CI: 0.06-0.33), 0.16 (95% CI: 0.08-0.31) p < 0.001 respectively.

CONCLUSIONS AND RECOMMENDATIONS: Incidence of TB among patients on ART is low in this rural population and continues to decrease with time on ART. Increasing early ART coverage among PLHIV is a key strategy in lowering the burden of TB.

11PA2: Geospatial distribution and socio–demographic predictors of Pulmonary Tuberculosis in a pastoralist community in Eastern Uganda

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BACKGROUND: Moroto is one of the hard-to-reach districts in North-Eastern Uganda that faces a lot of challenges in prevention of pulmonary tuberculosis. Despite the high prevalence of PTB in Moroto district, there hotspots with much higher portion of the positive cases recorded compared to the rest. This study aimed to determine the Geospatial Distribution and Socio-demographic Predictors of Pulmonary Tuberculosis in Moroto so as to establish information useful, a more effective strategy for TB prevention and control in Moroto.

METHODS AND MATERIALS: A cross sectional-study was carried out between March-April 2021 among adults and children > 5 years. Face to face interviews, gene expert and chest x-ray radiology were employed to obtain results. To establish the distribution of PTB, geo-spatial mapping (UTM Geo map) was used to identify PTB hotspots with the aid of GIS technology.

RESULTS: For a period of one month between March and April 2021, 386 individuals aged five (5) and above participated in the study. A total of 26 (6.74%) were diagnosed with PTB including one rifampicin-resistant case. The following were socio-demographic predictors; unemployment, education level, alcohol use, tobacco use by both sniffing and smoking and living in semi permanent houses. There was no statistical significance among the following factors like age, type of alcohol, drinking duration and house hold occupancy.

CONCLUSION: The prevalence of PTB in Moroto district is still high at 6.74%, with the sub county of Nadunget being the most affected at 44.8%, this was aggravated due to the following socio-demographic predictors like unemployment, education level, alcohol use and tobacco use by sniffing, smoking and living in semi permanent houses. There is need for continuous PTB intensive case finding at all contact points and health education of the community about PTB in relation to tobacco and alcohol use.

11PA3: Deaths and Notification trends for Post TB lung diseases among TB survivors, Quarterly trend (2020–2023)

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INTRODUCTION: Worldwide, an estimated 10.6 million people fell ill with tuberculosis in 2021., with a total of 1.6 million people died from tuberculosis in 2021, even then its curable approximately 74 million lives have been saved, in 2020, it was estimated that there were 155 million tuberculosis survivors still alive globally. The current roadmap focuses on diagnosing and treating patients who are followed up until the end of treatment. However, monitoring and clinically and functionally evaluating after treatment is fundamental, since up to 50% of patients have post- tuberculosis lung disease (PTLD), defined as "evidence of chronic respiratory abnormality, with or without symptoms, attributable at least in part to previous (pulmonary) tuberculosis, with a long-term post-treatment mortality rate almost three times higher than the general population. We aim to provide evidence using surveillance data for need to focus on growing problem of PTLD.

METHODS: We collected surveillance data on key TB priority indicators for the three-year period, on the number of patients diagnosed with PTLD, Age and Sex disaggregation from the routine monthly reports. The Man-Kendal test for trend analysis was conducted for identified PTLD Patients. P value < 0.05 was considered statistically significant.

RESULTS: Since 2020 to date, a total of 2,304 were admitted due to PTLD, with of 214 deaths, accounting for 9.5% IQR (5.5%-16.9%), Males 1,348 (58.5%) and 95% (>4 years). Annual proportion/prevalence for PTLD among those TB (1%), far less than WHO Afro region of 38.6%. Regions reporting highest PTLD patients were Kampala (601), South central (247) Acholi (227) and Bunyoro (229), with Bukedi (33.4%) and Karamoja (24.7%) highest mortalities. There was an observed increase in PTLD patients reported quarterly (fig 1), and a significant increase in numbers of TB cases reported (P < 0.0001)

CONCLUSIONS AND RECOMMENDATIONS: This surveillance further highlights the Burden for PTLD coordination has been largely un-recognized, plenty of missed opportunity from our surveillance system to capture for PTLD associated factors, diagnosis and Treatment. We recommend monitoring and treatment of PTLD must be implemented in various programmatic settings.

11PA4: Predictors of Mortality among Tuberculosis Patients at Butabika National Referral Mental Hospital: A Retrospective Study

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Affiliations

Reach Out Mbuya Community Health Initiative.

BACKGROUND: Tuberculosis (TB) continues to be a critical global health concern, particularly affecting vulnerable populations such as individuals with HIV and older adults. Despite advancements in medical treatment, TB remains a substantial burden, particularly in regions with constrained healthcare resources. Understanding the demographic and clinical characteristics of TB patients and identifying factors associated with mortality is crucial for customizing interventions and optimizing outcomes within TB management programs. The aim of this study was to ascertain predictors of mortality among tuberculosis patients, with the goal of informing targeted interventions and enhancing patient outcomes within this specific context.

METHODS: We retrospectively collected data on patients receiving TB treatment at Butabika National Referral Mental Hospital from March 2020 to August 2023. Demographic information, HIV status, treatment details, diagnostic methods, TB classification, comorbidities, and entry points were extracted from patient files and facility registers. Data were recorded in an Excel database and analyzed in Stata. Factors influencing mortality were assessed, adjusting for confounders such as age, gender, area of residence, and HIV status, to identify independent predictors for TB associated mortality.

RESULTS: We identified 150 patients who received TB treatment from March 2020 to August 2023. The majority of patients were men (64.67%), with 73% falling within the age range of 20-40 years (median age 35.5 years, IQR 29-45) and a mean weight of 50.8kg (SD 12.52) at diagnosis. Most patients (95.21%) were newly diagnosed with TB, and 44% were HIV-infected. Pulmonary Clinically Diagnosed Tuberculosis (PCD) was the most common TB classification (50.67%), with X-ray being a common diagnostic tool (46%).

Following TB diagnosis, 55/150 patients (36.67%) died, with a median time to death of 27 days after TB diagnosis. In adjusted logistic regression models, predictors of mortality included old age above 50 (adjusted odds ratio [aOR] 16.88, 95% confidence interval [CI] 1.66 - 171.57, p-value 0.017) and known HIV-positive status (aOR 3.57, 95% CI 1.57 - 8.15, p-value 0.002).

CONCLUSION: Alarmingly, 36.67% of patients succumbed to TB, particularly within a short time frame following diagnosis, with mortality significantly associated with advanced age and HIV positivity.Implementation of targeted interventions focusing on early detection and tailored management for elderly patients and those with HIV co-infection is crucial to mitigate the high mortality rates observed in TB cases.

Session 2: TB Preventive Treatment

Chair: Dr. Prossy Namuwenge

Co-Chair: Dr. Evelyne Tibananuka

120A2: The TB preventive therapy cascade-of-care among people with HIV undergoing systematic TB screening in Uganda

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BACKGROUND: Tuberculosis preventive therapy (TPT) is recommended for all people with HIV (PWH) as being highly effective in reducing TB incidence and mortality, but uptake and completion rates are suboptimal. We characterized the TPT cascade of care for PWH participating in a trial offering short-course TPT (3HP, 3-months of weekly isoniazid+rifapentine).

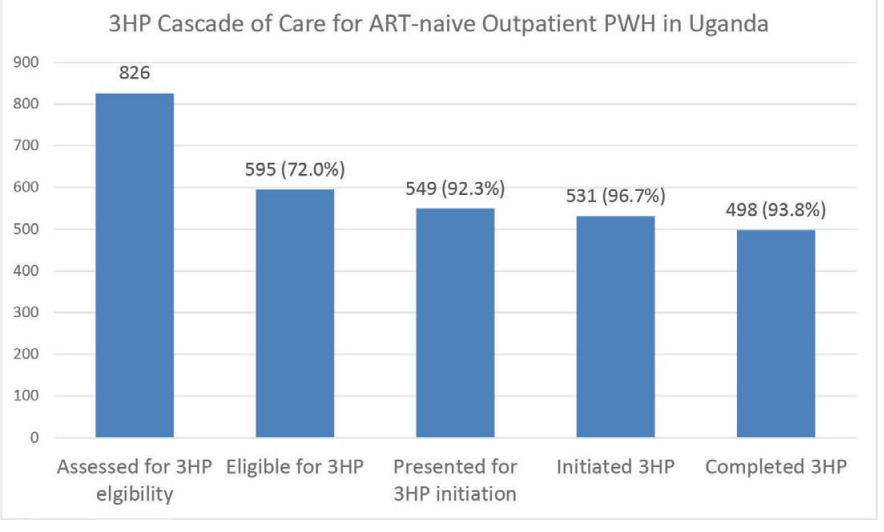
METHODS: TB SCRIPT is a randomized trial evaluating the impact of C-reactive protein (CRP)-based TB screening on case detection and TPT uptake among adult PWH initiating antiretroviral therapy (ART) in four HIV clinics in Uganda (ClinicalTrials.gov NCT04557176). We characterized the TPT cascade of care for PWH who screened negative by their randomization assignment (CRP <5 mg/L or 0/4 WHO symptoms), with each step expressed as a proportion of the preceding step. 3HP eligibility was assessed using a standardized questionnaire, liver enzyme testing, and urine pregnancy testing. Eligible PWH (liver enzymes <3x upper limit-of-normal, non-pregnant) initiating 3HP were assessed for adverse events and adherence by pill count and recall. 3HP completion was defined as taking ≥11 doses within 16 weeks.

RESULTS: From November 2020 to December 2022, 826 PWH screened negative for TB (71.9% female, median age 28 years [24-35], median CD4 count 285 cells/uL [176-445]). All 826 PWH (100%) were assessed for 3HP eligibility, of whom 595 (72.0%) were eligible (Figure 1). Most PWH ineligible for 3HP were pregnant (179/231, 77.5%) or had transaminitis (16/231, 6.9%). Of the 549 (92.3%) eligible PWH who presented for 3HP initiation, 531 (96.7%) initiated and 498 (90.7%) completed 3HP. The cumulative proportion initiating and completing 3HP was 64.3% and 60.3%, respectively.

CONCLUSION: 3HP completion rates were high, suggesting high tolerability. However, nearly one-quarter of all PWH were ineligible due to pregnancy. Rigorous safety data for short-course TPT regimens during pregnancy is urgently needed to optimize TPT benefit for pregnant women with HIV.

SUMMARY: 3HP—a short-course TB preventive therapy regimen comprised of 3-months of weekly isoniazid+rifapentine—is now recommended for persons with HIV (PWH) without TB. We describe the 3HP cascade of care for outpatient PWH initiative antiretroviral therapy in Uganda.

Figure 1



120A3: Incidence of Tuberculosis among PLHIV on Antiretroviral therapy who initiated isoniazid preventive therapy: a multi-center retrospective cohort study

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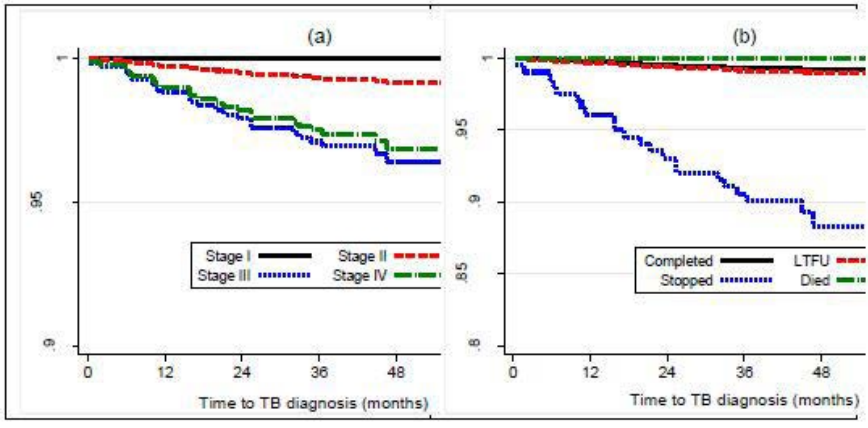
BACKGROUND: Isoniazid preventive therapy (IPT) is effective in treating tuberculosis (TB) infection and hence limiting progression to active disease. However, the durability and associated factors of the protection remain uncertain. As such, some countries including Uganda still recommend a single IPT course for eligible individuals. This study determined the incidence, factors associated and median time to TB diagnosis among People living with HIV (PLHIV) who initiated IPT, to contribute evidence for risk stratification of PLHIV for longer or repeat IPT courses.

MATERIALS AND METHODS: We conducted a retrospective cohort study at eleven The AIDS Support Organization (TASO) centers in Uganda. We reviewed medical records of 2634 PLHIV on ART who initiated TPT from 1st January 2016 to 30th June 2018, with 30th June 2021 as end of follow-up date. We analyzed study data using STATA v.16. Incidence rate was computed as the number of new TB cases divided by the total person months. A Frailty model was used to determine factors associated with TB incidence.

RESULTS: The 2634 individuals were observed for 116,360.7 person-months. IPT completion rate was 92.3%. Cumulative proportion of patients who developed TB in this cohort was 0.8% (22/2634), an incidence rate of 18.9 per 100,000 person-months. The median time to TB diagnosis was 18.78 months (minimum – 0.47; maximum – 47.3, IQR: 10.1 – 32.4). World Health Organization (WHO) HIV clinical stage III (aHR 95%CI: 3.66 (1.08, 12.42) (P=0.037), discontinuing IPT (aHR 95%CI: 25.96(4.12, 169.48) (p=0.001)), were associated with higher odds of TB diagnosis compared with WHO clinical stage II and IPT completion respectively.

DISCUSSION/CONCLUSION: Incidence rates of TB were low overtime after one course of IPT, and this was mainly attributed to high completion rates. Improving adherence to TB preventive therapy is critical in reducing TB incidence among PLHIV.

Figure 2. Probability of surviving from TB disease comparing WHO stages (panel a) and TPT outcomes (panel b) adjusted for clustering and other factors.



120A4: Leveraging the EXPAND TPT campaign to optimize TB case detection rates.

Chrispus Mbaha[1*], Joel kasakaire [1] Rodrigo Nyinoburyo[1] Moses arinaitwe[1] Samuel kawuma[1] Paul Iwevola1 Michael Kiyingi[1] Fred C. Semitala[1]

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BACKGROUND: Uganda is a high burdened TB country with an estimated incidence rate 200 per 100,000 populations and a mortality rate of 35 per 100,000(WHO Fact sheet, TREAT TB 2019). Ministry of Health Uganda under the NSP 2021-2025 recommends community case finding approaches as very effective at increasing TB case detection as well as prevention. World Alliance for Lung and Intensive Care Medicine- Uganda(WALIMU) in 2023 rolled out the Expand TPT campaign in Iganga district as an approach to preventing the transition to active TB disease for people with latent TB infection and ending TB in the district by 2025. By March 2023, Iganga district was performing sub- optimally at 44% of the annual target of TB case detection.

METHODS: A total of 3 health facilities of Bugono HC IV, Iganga M/C HC III and Namungalwe HC III were selected to participate in the campaign. A total of 6 staff which included 2 Health workers, 2 Community volunteers and 2 community riders were trained for 5days at each of the facilities. In June 2023, MJAP through her LPHS-EC Project engaged WALIMU and hired staff through a performance review meeting held at MAM resort hotel in Iganga to jointly pursue contact

tracing targets. Data clerks were re-oriented on TB indicators and allocated MIFIs to facilitate in entry of weekly TB surveillance reports, monthly and quarterly. USAID's Local Partner Health services – East Central Uganda (USAID LPHS–EC) project 2

RESULTS: Between April and June 2023, Iganga district identified 166 new and relapse TB cases with the three facilities in the WALIMU study contributing 63 cases (38%) while from July to September, 186 cases were realized with the same facilities reporting 79(42%) cases amongst them. These concerted efforts enabled Iganga district surpass its annual target for TB case detection by September 2023.

CONCLUSION: Community TPT campaigns/contact tracing provide an opportunity to reach out to inaccessible populations with TB screening and Diagnostic intervention hence contributing to the global plan of ending TB by 2030.

120A5: Improving TPT Uptake among child contacts >5 years through intensified health worker led community initiation of TPT

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CONCLUSION: Community TPT campaigns/contact tracing provide an opportunity to reach out to inaccessible populations with TB screening and Diagnostic intervention hence contributing to the global plan of ending TB by 2030.

120A6: Adverse drug reactions related to the three–month course of Isoniazid and Rifapentine (3HP) during programmatic rollout of Tuberculosis preventive therapy in Uganda

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BACKGROUND: There is limited data on adverse events related to the three-month course of rifapentine and isoniazid (3HP) for tuberculosis preventive therapy (TPT) when used in routine programmatic settings. We describe the adverse events (AEs) associated with 3HP and the risk factors for these AEs following a nation-wide roll-out of this regimen in Uganda.

METHODS/DESIGN: We carried out a prospective cohort study on people initiating 3HP at IDI and three primary health facilities in Kampala. Participants were followed up at 2 weeks, 1, 2 and 3 months following 3HP initiation for AE occurrence and adherence. We established the occurrence of AEs using clinical assessment and laboratory tests (liver function tests). We assessed the AEs were assessed for relatedness to 3HP using the Naranjo scoring assessment scale. Risk factors for AEs were established using modified Poisson regression models.

RESULTS: We enrolled 651 participants. Of these, 294 (45.2%) were males, 442 (67.9%) were HIV positive and on antiretroviral therapy. The median age was 32.0 (interquartile range (IQR) 26.0 – 42.0) years.

A total of 419 (64.4%) of participants reported 598 (80.92%) AEs; 492/598 (82.3%) grade 1, 67/598 (11.2%) grade 2, 39/598 (6.5%) grade 3 and 4. The most common AEs were flu-like syndrome 104 (17.4%) and neurological AEs including drowsiness and dizziness 77 (12.9%) and peripheral neuropathy 56 (9.4%). 6 (1%) Serious Adverse Events (SAEs) were reported. Only 13 (2%) participants discontinued 3HP due to AEs. Females (adjusted risk ratio (ARR) 1.12, 95% confidence interval (C.I.): 1.04-1.21, p=0.01), older participants ≥55 years (ARR 1.18, 95%CI: 1.04-1.35, p=0.01) and those with baseline neuropathy (APR 1.12, 95%CI: 1.01-1.25, p=0.03) were more likely to experience AEs. HIV status ARR 0.96 95% CI: (0.88-1.95, p=0.38) and BMI (p=0.39, 0.91) did not increase the risk of experiencing AEs.

CONCLUSION: In a programmatic setting, 3HP was well tolerated with minimal SAEs or discontinuations of therapy.

Factors associated with any AE using the modified Poisson regression model

Any AE	Unadjusted RR (CI)	p-value	Adjusted RR(CI)	p-value
Gender				
Male	Ref		Ref	
Female	1.13(1.05-1.21)	<0.01	1.12(1.04-1.21)	0.01
Age in years				
Below 55 years	Ref		Ref	
55+ years	1.22(1.08-1.39)	<0.01	1.18(1.04-1.35)	0.01
Baseline Neuropathy				
No	Ref		Ref	
Yes	1.15(1.04-1.27)	0.01	1.12(1.01-1.25)	0.03
BMI				
≤ 18.5	0.95(0.84-1.06)	0.32	0.95(0.85-1.07)	0.39
18.6-24.9	Ref		Ref	
>=25	1.04(0.96-1.13)		1.01(0.92-1.09)	0.91
HIV status				
Positive	1.02(0.94-1.10)		0.96(0.88-1.95)	0.38
Negative	Ref	0.66	Ref	

12PA1: Characteristics of PLHIV who contract TB disease after completion of TB Preventive Therapy at a large ART facility in Kampala, Uganda

Lyness Bitira[1], Gertrude Namale[1], Emmanuel Sendaula[1], Josephine Kaleebi[1]

Affiliation

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BACKGROUND: Tuberculosis preventive therapy (TPT) effectively reduces rates of developing active tuberculosis (TB) disease in people living with HIV (PLHIV) who are at increased risk. We aimed at investigating the characteristics of PLHIV diagnosed with TB after the successful completion of a standard course of TPT.

METHODS: We performed a retrospective cohort analysis of PLHIV records in TB and ART registers between 1st January 2022 and 31st December 2023 at Kawaala Health Centre IV, a large ART facility in Kampala. Data on socio-demographic and clinical characteristics were collected using a data transcription form, entered in Excel and later exported to SPSS for further management and analysis. In Excel, we traced back TPT completion using ART numbers from EMR and client files. Descriptive analysis was done.

RESULTS: A total of 9,417 PLHIV who had completed TPT were included in the analysis; the mean age was 36.6 (SD ± 13.6) years old and most were female 6,912 (73.4%). Eighty-seven (0.9%) PLHIV contracted TB disease after completion of TPT and of these 68 (78%) had a documented TPT completion date with the average duration between TPT completion and TB diagnosis 2.5 (SD ± 13.1) years, 55 (63%) were bacteriologically diagnosed, more than half were female 46 (53%), majority 80 (92%) were on DTG based regimens, most 66 (76%) had a documented viral load within 1 year of being diagnosed with TB and of these 52(79%) were virologically suppressed (viral load <200 copies/ml). Of the 87, 2 died before completion of treatment.

CONCLUSION: The characteristics of PLHIV that acquire TB disease after completion of TPT describe a stable population. This emphasizes the need for intentional routine screening of TB even among stable patients enrolled in various community and facility models Differentiated Service Delivery.

12PA3: Trends and spatial distribution of Tuberculosis Preventive Therapy uptake and completion among People on Antiretroviral Therapy in Uganda, 2020 – 2023

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BACKGROUND: Since 2015, Uganda adopted the WHO recommendations and guidelines for Tuberculosis(TB) prevention among PLHIV and has implemented several initiatives to scale up TB preventive therapy including the integration of TB Preventive Therapy (TPT) into HIV care services. However, data on trends and distribution of TPT uptake and completion among People on Antiretroviral Therapy (ART) in Uganda remains suboptimal to inform program implementation. We carried out a study to describe the trends and spatial distribution of TPT uptake and completion among PLHIV in Uganda from 2020 to 2023.

METHODS: Descriptive analysis of national and subnational aggregated data on TPT among people on ART as reported through DHIS2 from 2020 to 2023 was extracted and analyzed. We calculated rates of TPT eligibility, initiation, and completion. Failure to complete TPT was categorized as a loss to follow-up, TB diagnosis, and death while on TPT. We analyzed trends using Mann Kendall and described spatial distribution by region.

RESULTS: Over the study period, 1,330,693 ART clients were eligible for TPT and of these, 1,157,703 (87%) were initiated on TPT. The completion rates increased by 5% from 91% in 2020 to 96% in 2023 (Kendall's tau-b=0.9048, p=0.0069). Of the 79,106 ART clients who did not complete their TPT regimen, 29,435 (37%) were lost to follow-up, 2,356 (3%) died and 30,445(38%) were diagnosed with TB while on TPT. Overall, the loss to follow-up decreased at an average of 23% per semiannual period from 43% in 2020 to 33% in 2023, remaining highest in the Eastern central (Busoga) region.

CONCLUSION: TPT coverage and completion rates in Uganda are on an increasing trend and the loss to follow-up is on a downward trend. There is a need for efforts to determine the details for those who do not complete for unknown reasons.

Keywords: TPT, ART patients, loss to follow-up, Uganda

Disclaimer: The conclusions, findings, and opinions expressed by the authors do not necessarily reflect the official position of the U.S. Centers for Disease Control and Prevention or the authors' affiliated institutions.

Session 3: TB and Co-morbidities (Mental Health, PTLD, HIV, DM, under nutrition etc.)

Chair: Dr. Nuwagaba Edwin

Co-Chair: Dr. Semitala Fred

130A1: Cardiovascular risk factors among people with DR–TB in Uganda

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BACKGROUND: Tuberculosis (TB) and its risk factors are independently associated with cardiovascular disease (CVD). We determined the prevalence and associations of CVD risk factors among people with drug-resistant tuberculosis (DRTB) in Uganda.

METHODS: In this cross-sectional study, we enrolled people with microbiologically confirmed DRTB at four treatment sites in Uganda between July to December 2021. The studied CVD risk factors were any history of cigarette smoking, diabetes mellitus (DM) hypertension, high body mass index (BMI), central obesity and dyslipidaemia. We used modified Poisson regression models with robust standard errors to determine factors independently associated with each of dyslipidaemia, hypertension, and central obesity.

RESULTS: Among 212 participants, 118 (55.7%) had HIV. Overall, 196 (92.5%, 95% confidence interval (CI) 88.0-95.3) had ≥ 1 CVD risk factor. The prevalence; 95% CI of individual CVD risk factors was: dyslipidaemia (62.5%; 55.4–69.1), hypertension

(40.6%; 33.8–47.9), central obesity (39.3%; 32.9–46.1), smoking (36.3%; 30.1–43.1), high BMI (8.0%; 5.0–12.8) and DM (6.5%; 3.7–11.1). Dyslipidaemia was associated with an increase in glycated haemoglobin (adjusted prevalence ratio (aPR) 1.14, 95%CI 1.06–1.22). Hypertension was associated with rural residence (aPR 1.89, 95% CI 1.14–3.14) and previous history of smoking (aPR 0.46, 95% CI 0.21–0.98). Central obesity was associated with increasing age (aPR 1.02, 95%CI 1.00– 1.03), and elevated diastolic blood pressure (aPR 1.03 95%CI 1.00–1.06).

CONCLUSION: There is a high prevalence of CVD risk factors among people with DRTB in Uganda, of which dyslipidaemia is the commonest. We recommend integrated services for identification and management of CVD risk factors in DRTB.

130A2: Baseline cytomegalovirus viraemia is associated with long–term increased incident TB disease and mortality: a prospective cohort of 497 Ugandan adults

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ABSTRACT:

Adults with HIV-associated cryptococcal meningitis have high and over-lapping burdens of cytomegalovirus (CMV) and tuberculosis (TB) co-infections. CMV infection/reactivation is strongly associated with CMV-specific memory T cell activation and upregulation of type 1 interferons. This CMV-induced immune modulation may lead to increased risk of TB disease and contribute to mortality. We conducted a cohort study of Ugandan adults enrolled in two prior cryptococcal meningitis trials during 2010-2021 to determine TB incidence and all-cause mortality over time stratified by baseline CMV viremia and CMV serology status. We included trial participants who survived at least 2-weeks after commencement of antifungal therapy. We followed 497 adults with HIV-associated cryptococcal meningitis for a mean of 2.4 years. Overall, 40% (200/497) were women; mean age was 35 years and median CD4+ cell count was 18 cells/μL. Overall, 20% (98/497) developed incident TB and 29% (142/497) of participants died. We measured baseline CMV viral load (VL) in 259 of whom 37% (96/259) had concurrent CMV viremia. CMV viremia was positively associated with higher HIV VL (p=0.002).

On multivariable Cox analysis, participants with a CMV VL of >1000 IU/mL had twice the risk of incident TB compared to participants with no or low-level CMV viremia (aHR 2.01 (95% CI 1.00-4.01). The cumulative TB or death rate per 100 person years was 83 (95% CI 56-123) in participants with a CMV VL >1000 IU/ml, with a cumulative incidence rate ratio of 4.18 (95% CI, 2.51-6.73) compared to participants without CMV viremia at baseline (p<0.001). Amongst 59 participants with CMV serology data, there was no association between CMV IgG serology titer and incidence of TB or death (p=0.75). CMV viremia at time of cryptococcal meningitis diagnosis was strongly associated with increased incident TB disease and mortality during long-term follow-up. Targeted anti-CMV therapy presents a potential intervention to improve TB and survival outcomes in advanced HIV disease.

130A3: Yield and operational challenges of including urine LAM testing in intensified tb case–finding among outpatients with HIV: experience from the tb–script trial

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BACKGROUND: Scaling-up urine lipoarabinomannan (LAM) as a confirmatory TB test may improve outcomes among outpatient PWH undergoing intensified case-finding (ICF). However, distinguishing positive Grade 1 from negative tests can be difficult, and misinterpretation can lead to inappropriate initiation of anti-TB therapy. We assessed the benefits and challenges of LAM testing among PWH undergoing ICF.

METHODS: TB SCRIPT is an ongoing randomized trial evaluating point-of-care C-reactive protein (CRP)-based TB screening among ART-naïve PWH attending four clinics in Uganda (ClinicalTrials.gov NCT04557176). We performed TB

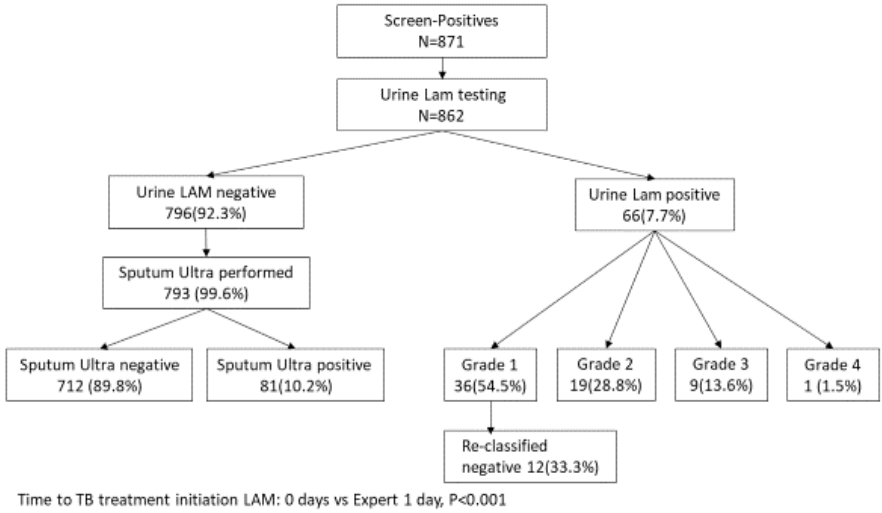
screening (CRP or symptom-based), and confirmatory TB testing (urine LAM ± sputum Xpert [Ultra], if indicated) on participants who screened positive by their randomization assignment (CRP≥5mg/L or ≥1/4 symptoms). LAM tests were interpreted by two nurses using a standard reference card; positive results were later reviewed by a TB lab expert who made the final determination using the same reference. We determined the 1) proportion of screen-positives diagnosed with TB by LAM and Ultra, 2) days-to-treatment initiation for LAM and Ultra, and 3) proportion of 'positive' LAM tests re-classified as negative

RESULTS: Of 871 participants who screened positive (53% female, median 33 years-old, 55% with pre-ART CD4+ <200 cells/μL), 862 (99%) underwent LAM testing, and 793 (99.6%) underwent Ultra testing after a negative LAM result. Overall, 147 (17%) were diagnosed with TB, including 66 (7.7%) by LAM (36/66 [54.5%] Grade 1) and 81 (9.4%) by Ultra. 12 (63%) Grade-1 positive LAM tests were re-classified as negative by the expert reader. LAM-positive participants initiated anti-TB treatment earlier than Ultra-positive participants (0 vs 1 days, p<0.001).

CONCLUSIONS: Although LAM detected more than one-third of PWH with active TB, 63% of Grade-1 positive LAM tests were re-classified as negative after expert review. LAM can improve TB/HIV outcomes by shortening time-to-treatment initiation, but careful interpretation of Grade 1 results is required.

SUMMARY: We evaluated the results of urine-LAM and sputum-Xpert Ultra testing among people with HIV who screened positive for TB (by symptoms or C-reactive protein) in Uganda.

Figure 1. Yield of intensified case finding incorporating urine LAM testing



130A4: Assessing the Influence of Coexisting Health Conditions on Tuberculosis Treatment Results at the Uganda Cares ART Clinic – Gombe General Hospital: A Cohort study.

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BACKGROUND: Tuberculosis (TB) remains a global health concern with millions of new cases annually, posing significant infectious disease burdens. Its impact extends beyond morbidity and mortality, affecting economies and societies worldwide. Particularly prevalent in low- and middle-income countries, TB perpetuates cycles of poverty and inequality. Concurrently, TB and HIV/AIDS synergize, complicating treatment and compromising outcomes. Understanding this interplay is crucial for effective interventions. This study, conducted at Uganda Cares, Gulu Regional Referral Hospital's ART clinic, aims to explain HIV's specific impact on TB treatment outcomes within the clinic's catchment area.

METHODOLOGY: A retrospective cohort study was conducted at Uganda Cares ART Clinic, Gombe Regional Hospital, involving 446 tuberculosis patients diagnosed between 2021 and 2022. Patient records were analyzed to assess the impact of coexisting health conditions, particularly HIV/AIDS, on TB treatment outcomes within the clinic's catchment area. Calculation of odds ratios (OR) and p-values, along with logistic regression analysis, was performed to evaluate the associations between sex, HIV status, and TB treatment outcomes.

RESULTS: The analysis of sex in relation to TB treatment outcomes revealed a statistically significant association, with males exhibiting an odds ratio of 0.5395336 ($p = 0.029$). This suggests that being male decreases the likelihood of successful TB treatment by approximately 46.05%. Conversely, the examination of HIV status yielded an odds ratio of 1.015343 ($p = 0.953$), indicating no statistically significant association between HIV status and TB treatment outcomes.

IN CONCLUSION: HIV status doesn't substantially affect TB treatment outcomes among patients at the clinic, whereas being male significantly decreases the odds of successful TB treatment.

130A5: Turning Advocacy into Action: Integrating Mental Health into TB Treatment and Care

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People with tuberculosis (TB) are more likely to develop mental health problems, which can have a negative impact on treatment outcomes, health-related quality of life, and other medical and social outcomes. Mental health conditions in turn, are one of the leading causes of disability among people living with TB. The mental health and tuberculosis scenario appears to be evolving. For the first time, the Global Fund's Strategy acknowledges the necessity of providing TB and mental health services in order to increase the quality of integrated, person-centered care. The 2023 UN General Assembly High-Level Meeting on Ending TB issued a political declaration emphasising the importance of integrating mental health into TB care and services. Meanwhile, the World Health Organisation has taken a significant step forward by launching a guidance document and an online course on tuberculosis and mental health. This tool helps healthcare workers recognise and manage mental health disorders such as depression and anxiety in patients on TB treatment, resulting in a more compassionate approach to TB care.

While global interest exists, prioritising the TB response and allocating resources for mental health at the national level remains inadequate; hence, more coordinated and grassroots-driven activities at the local level are required. To address the strong relationship between mental health and TB, a paradigm shift towards integrated care is essential. This approach involves multidisciplinary experts and professionals working together to deliver integrated physical and mental health care. In addition to collaboration, substantial domestic funding is essential to make mental health services available to persons living with TB and safeguard them from financial difficulty. These steps are crucial to fully integrate mental health into TB programmes. It should go without saying that the inclusion of mental health is critical to reaching the goal of ending TB.

13PA1: Incidence of acute kidney injury and associated mortality among individuals with drug–susceptible tuberculosis in Uganda

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BACKGROUND: Although tuberculosis (TB) is associated with significant mortality and morbidity, its impact on kidney function is not well-understood and often attributed to anti-TB drugs. We aimed to assess the incidence of acute kidney injury (AKI) in the immediate post-TB diagnosis period in Uganda, a TB/HIV endemic country in Sub-Saharan Africa.

METHODS: This is an observational cohort study of adults diagnosed with drug-susceptible TB followed longitudinally. Adults (⩾ 18years) without known kidney disease were enrolled between 8/2022-7/2023 at three regional hospitals serving 12.5% of the Ugandan population. Our primary outcome was incidence of KDIGO (creatinine)-defined AKI within two weeks of TB diagnosis. Secondary outcomes included predictors of AKI and its association with 30-day survival.

RESULTS: 156 (68.6% male) adults were included. The median (IQR) age was 39 (28-53) years, and 49.4% had HIV. HIV-positive participants had shorter time to TB diagnosis from symptom onset (21[7-30] days) compared to HIV-negative participants (60 [23-90] days), p<0.001. The incidence of AKI was 33.3% (52/156), and not different between HIV and non-HIV participants. Proteinuria or hematuria at enrollment was associated with higher odds of AKI (OR—2.68, 95%CI 1.09-6.70, p~0.033). AKI was associated with significant risk of mortality (aHR—5.82, 95%CI 1.54-21.95, p=0.009) regardless of HIV status.

CONCLUSION: The incidence of AKI in the immediate post-TB diagnosis period is high regardless of HIV status and is associated with increased mortality risk. According to our study findings, monitoring of kidney function should be routine among patients with TB even before treatment initiation.

Key words: Kidney disease, Acute Kidney Injury, Tuberculosis, HIV, Uganda, Sub-Saharan Africa

13PA2: Mitigating the Burden of Substance Abuse on Tuberculosis Control in Urban Slums

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BACKGROUND: As the global health community strives towards the ambitious goal of a tuberculosis (TB)-free world, urban slums emerge as critical focal points due to their heightened vulnerability to TB transmission compounded by the prevalence of chronic drug use. Uganda Cares- Owino is supported by AIDS Information Centre- Kampala as a CSO in the IDI USAID LPHS TB-Activity. According to statistics in July 2023 to September 2023, 60%-70% of identified community referred TB cases from the slums of Kisenyi and Mengo reported to use alcohol and or other drugs. An average of 8/10 patients reported to have had a poor adherence in the course of their TB treatment while an average of 30% were reported to have become lost from TB treatment. Only 4/7 patients were able to provide contacts for screening. 80% of these TB patients lacked a phone contact and or a permanent residence.

METHODOLOGY: The project works with trained CLFs, CORPs and VHTs to raise awareness about TB among the surrounding communities through ACSM, increase TB prevention, case detection and also improve treatment outcomes. The project also works with supportive structures at facilities and communities to ensure differentiated TB service delivery. Mapping of TB hotspots based on risk assessment by VHTs. Follow up of patients through home visits and contact tracing and offering referrals for other services like MAT and ART.

RESULTS: By the end of January 2024, TB CDR among patients with a history of drug use drastically fell from a peak of 68% to 34%. Fully updated locator forms for proper monitoring were made and 70% of patients had a phone contact and or treatment supporter way better than the 20% that earlier had phone contacts. Appointment keeping shifted from 20% to 85% while 100% contact tracing for index patients was observed. TB patients were supported to either reduce or stop drug abuse. Retention for TB patients improved drastically from 24 lost patients in the one year period to 05 patients. 4/34 patients were successfully linked for other services like MAT.

CONCLUSIONS: As we strive towards ending TB, it is imperative to address the growing menace of drug abuse among urban slum dwellers as a significant barrier to TB control. By implementing integrated, community-driven interventions that prioritize both TB prevention and substance abuse mitigation, we can reach the end TB goals by 2035.

13PA3: Enhancing screening for tuberculosis among clients with advanced HIV disease through urine lipoarabinomannan (LAM) testing at mother Francisca lechner HCIV– Rushooka

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INTRODUCTION: Early detection of TB among people living with HIV (PLHIV) is critical for improving patient outcomes and reducing transmission. Despite the availability of screening tools, a significant proportion of PLHIV with advanced disease remain undiagnosed, leading to increased morbidity and mortality. Urine lipoarabinomannan (LAM) testing has emerged as a promising point-of-care diagnostic tool for TB in PLHIV, particularly those with advanced immunosuppression. However, its implementation remains suboptimal.

At MFLHC1V-Rushooka, only 20% (three out of 15 clients who had AHD) had been screened using TB LAM by May 2023.

METHOD: The team reviewed its data during a departmental Quality Improvement (QI) meeting. Health care providers were trained on the use of urine Lipoarabinomannan (LAM) testing for tuberculosis (TB) screening among clients with advanced HIV disease as well as the principles of LAM testing. Urine LAM testing was integrated into the standard protocol for TB screening and LAM testing kits were be made readily available in HIV clinics and other relevant departments within the health facility. Standard operating procedures (SOPs) was disseminated to guide healthcare providers in the proper conduct of LAM testing, result interpretation, and documentation.

RESULTS: By August 2023, all clients with AHD were already screened for TB using LAM testing. This was maintained in the subsequent months.

DISCUSSION: Bridging knowledge gaps, line listing eligible clients as well as shifting point of care TB LAM from laboratories to relevant care points can reduce the missed opportunities.

LESSONS LEARNT: Continued investment in TB screening programs and the scale-up of LAM testing initiatives are essential for achieving the goal of ending the TB epidemic among people living with HIV.

13PA4: Unfavourable TB treatment outcomes and associated factors among TB/HIV co–infected patients in Eastern Uganda, 2015–2021

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BACKGROUND: Current global efforts aim to reduce tuberculosis (TB) deaths by 95% and incidence rate by 90% by 2035. To achieve this target, focus has shifted to improving patient outcomes in high-risk groups, such as TB/HIV-coinfected patients. We assessed unfavorable TB treatment outcomes and associated factors among TB/HIV-coinfected patients in Soroti, in Eastern part of Uganda for the period 2015–2021.

METHODS: We conducted secondary data analysis of TB/HIV-coinfected patients initiated on TB treatment between January 1, 2015 and December 31, 2021. We abstracted data from DHIS2 for patient records from six high-volume facilities in the region. These facilities contributed almost 96% of the total patients registered for TB treatment in this region and 90% of TB/HIV co-infected patients. We defined unfavorable TB outcomes according to WHO criteria as loss to follow-up, death, treatment failure, transferred out, or unclassified. We used logistic regression to identify factors associated with unfavorable outcomes.

RESULTS: Overall, 623 TB/HIV-coinfected individuals were initiated on TB treatment from 2015-2021. The mean age was 38 years (SD=15 years); 55% were females. One hundred two of the 623 (17%) had unfavorable TB outcomes, Of the 102 with unfavorable outcomes 53 (52%) died, 27 (26%) were lost to follow-up, 11 (11%) were treatment failures, 5 (5%) transferred out, and 6 (6%) unevaluated. Patients classified as HIV WHO clinical stage II (aOR=2.4, 95% CI: 1.2-5.0), III (aOR=4.7, 95% CI: 2.2-10) or IV (aOR=9.4, 95% CI: 3.3-27) had increased odds of unfavorable outcomes compared to those at stage I. Patients on anti-retroviral treatment (ART) at TB treatment initiation showed a 92% reduction in the odds of obtaining unfavorable outcomes (aOR=0.08, 95% CI: 0.06-0.46).

CONCLUSION: Our results demonstrate the key role of HIV treatment in determining the TB treatment outcomes for TB/HIV patients. Strengthening interventions such ‘same-day ART initiation’ algorithm may improve TB/HIV co-infection management.

Session 4: Policies and programmatic implementation (policies, civil society, human rights)

Ms. Getrude Namayanja (OPM) Co-Chair: Dr. Mary Mudiope

140A1: Lessons from Integrated Community Awareness, Screening, Prevention and Testing (CAST+) for primary prevention, control and treatment of Tuberculosis, HIV, Maternal and Child Health in Abia sub county, Alebtong district

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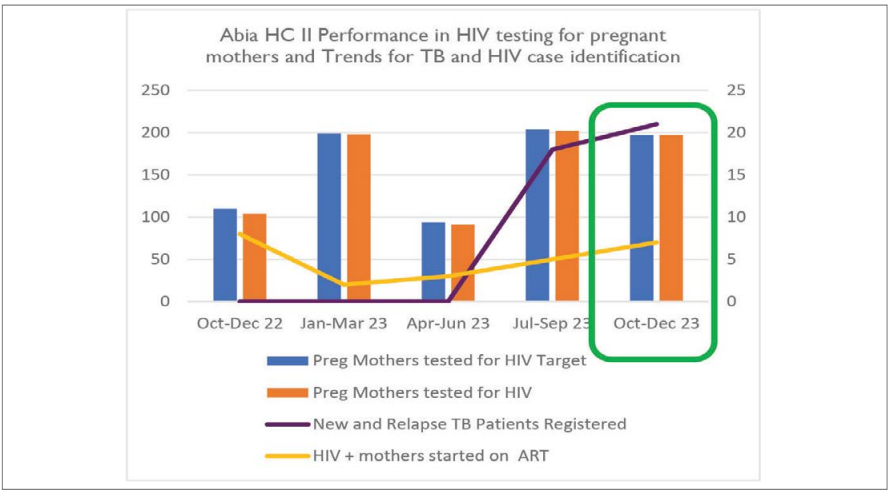
BACKGROUND: Alebtong district local government in collaboration with USAID Local Partner Health Services (LPHS) Kigezi and Lango, conducted the Integrated Community Awareness, Screening, Prevention and Testing (CAST+) campaign focusing on tuberculosis (TB), HIV, Maternal and Child Health (MCH) in Abia Sub county. The intervention was aimed at awareness creation on primary prevention of ill health within TB/HIV high burden communities and identifying the missed community TB, HIV, Antenatal care (ANC) attendance, none immunized children and HIV Exposed Infants (HEIs).

INTERVENTIONS: We targeted all (63) villages in Abia sub-county and engaged one Village Health Team (VHT) member per village from 8th to 14th November 2023. Field activities included community sensitization, TB hotspot screening and contact tracing, HIV Self-test kit distribution, referral of pregnant women for Antenatal care, Early Infant diagnosis (EID) and Immunization. The activity cost was nine million thirty thousand (9,030,000/=) shillings.

RESULTS: 393 Households were reached and 1921 individuals were given basic messages. 526 were presumed TB patients, 9 TB patients were identified and linked to care. 131 TB contacts were identified of whom 48 were under 5 years. 71 contacts did not have signs and symptoms of TB. 27 and 44 under 5 years and 5+ years contacts were initiated on TB preventive Therapy respectively. 400 HIV self-test kits were distributed. 5 clients had a reactive test but 3 were confirmed HIV positives and they were linked to care. 89 pregnant women were reached of which 31 were referred and received ANC1 at the facility. The 31 mothers were tested for HIV, Syphilis and Hepatitis B with no one testing positive. 4 infants tested negative while 2 were immunized.



CONCLUSION: The CAST+ campaign approach encourages integration and creates opportunities for leveraging resources from other program areas within the same project/district/Sub county/Health facility. The Impact of CAST+ on sustained community uptake of preventive and treatment innovations for layered services needs to be studied.

140A3: Evaluating a Tracking Tool for TB Screening: A Co-designed Health Systems Implementation Research Study to Improve Service Coverage and Quality

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INTRODUCTION: TB screening for outpatients in Uganda achieved 75% coverage against a 100% target and relied on a single checkmark for documentation. Men

have a higher burden of TB, lower access to healthcare services and two thirds of undiagnosed people with TB are men. We codesigned a 6-month implementation research "IGNITE" project in two peri-urban district hospitals in central Uganda, aimed at offering inclusive TB screening targeting men.

METHODS: The intervention included intensified case finding (ICF) with a checklist "stamp" for systematic TB screening documentation. In July 2023, we conducted training on ICF and male-friendly services. A participatory review with 40 healthcare workers was held in October 2023 using a wheel chart with a 5-point Likert scale and spider diagrams to assess implementation fidelity, dose, adaptations, reach, and contextual factors.

RESULTS: The stamp was reported to be easy to use, helpful for TB screening and investigation follow up with healthcare workers reporting and increased TB notification in their facilities. However, inconsistent usage was reported, with average fidelity and dose scores of 3/5 and 3.5/5, respectively attributed to a negative healthcare worker attitude stemming from a lack of interest or knowledge and heavy workloads. The training for the intervention failed to include all staff levels, notably excluding clinicians. Despite the overall study targeting men, the stamp's reach was higher for women, scoring 4/5, while male participation remained lower. Moderate adaptations (2.5/5) were noted, with some healthcare workers stamping only records of people presumed to have TB, potentially increasing TB stigma.

DISCUSSIONS/CONCLUSIONS: Systematic TB screening with proper documentation can significantly enhance TB case notifications within facilities for both men and women. Our findings underscore the importance of including all healthcare cadres in developing and implementing TB screening innovations to maximize effectiveness and adoption.

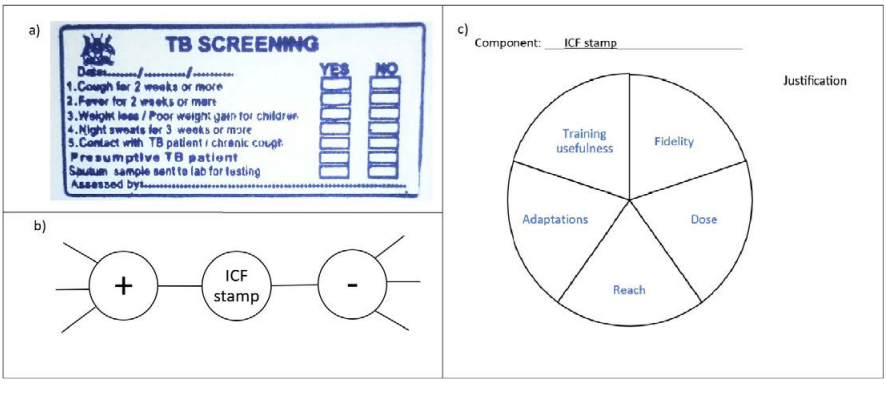

Figure 1: a)TB screening tracking tool b) spider diagram to collaboratively brainstorm and identify contextual factors influencing implementation and c) wheel chart can be used to collectively review fidelity, dose, adaptations, and reach.

140A4: Improving Tuberculosis Preventive Treatment (TPT) uptake among 5 years and above TB contacts through intensified health worker–led community initiation of TPT. Lessons learnt from Kampala, Mukono & Wakiso (KMW)

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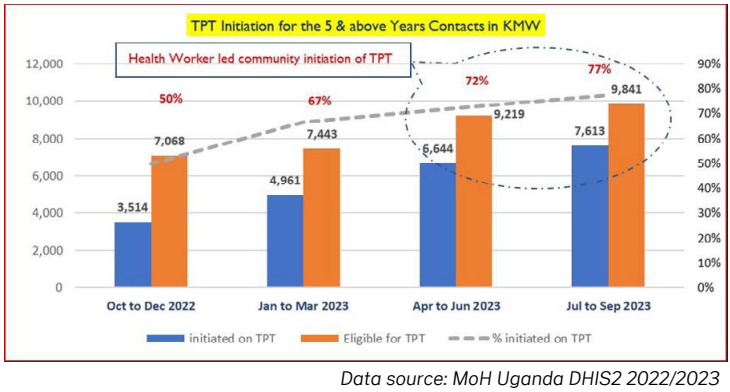
INTRODUCTION: WHO's ambitious 'end TB goals emphasize early diagnosis of TB. This involves reaching TB infected people and their community contacts early enough to diagnose and put them on treatment and preventive treatment of persons at high risk. In Uganda, MoH is leading efforts to accelerate the uptake of Tuberculosis Preventive Treatment (TPT) – a proven course of treatment that can prevent TB disease and death among those at high risk of developing TB. Despite its proven effectiveness and affordability, the implementation of TPT remains low at 40% globally and Uganda reporting 70% among those living with HIV. USAID LPHS TB Activity in collaboration with MoH/NTLP and other partners implemented TPT mop-up activity where the missed TB contacts were screened and initiated on TPT at the community level

METHOD: The project supported site-based teams with a line listing all PBCs identified between January 2022 and March 2023 whose contacts were neither identified, screened nor initiated on TPT

Community health workers- Community Owned Resourceful Persons (CORPs) and Village Health Teams (VHTs) were oriented and supported to follow up with the listed PBCs in the community and identify their contacts. These included neighbors, workplace, social, and home contacts. Health workers were then supported to do community initiation of TPT of all identified and eligible contacts.

RESULTS; At the start of the activity, 2,576 PBCs were line-listed and contact traced, and 19,060 Contacts 5 years and above were eligible for TPT. Between June to Sept 2023, 14,257(75%) contacts 5 years and above were screened and initiated on TPT



Data source: MoH Uganda DHIS2 2022/2023

DISCUSSION: Intensified TB contact screening and community initiation of TPT for those eligible can help low-income countries mop up missed opportunities to be initiated on TPT among eligible PBC contacts 5 years and above. With 8-10% of active TB close contacts developing TB within the first two years after exposure, prevention and treatment of TB infection is crucial to ending TB

CONCLUSION: Despite Uganda making progress in TPT coverage among PLHIV and TB contacts under five years, a big gap still exists among 5 years and above. It's evident that community initiation is paramount in reaching this group of TB Key populations. By embracing Community TPT initiation, low-income countries can mop up missed opportunities for the identification of persons at risk of acquiring and transmitting TB infection among communities that have limited knowledge or access to healthcare facilities.

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Policy brief to enhance community active case finding and prevention strategies for TB, to reduce the burden of tuberculosis in Uganda.

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BACKGROUND: The national TB strategic plan aims to achieve 20% reduction in TB incidence by 2024/2025, but only 2.7% was attained by 2021. This policy brief aims at synthesizing and recommending strategies to improve community TB case finding and prevention, to reduce the TB burden in Uganda.

DESCRIPTION OF INTERVENTION: We reviewed evidence from published studies using PubMed, Cochrane and Google Scholar search engines to identify relevant articles for inclusion and also conducted document review of non-published reports, from the national TB/ leprosy program.

RESULTS AND LESSONS:

Policy options	Evidence
Intensive initial case finding followed by serial TB case finding	TB case finding in a defined community led to drop in TB yield from 0.94% to 0.52% and TB prevalence by 45% (Kendall, 2023)
Sputum tuberculosis tests for everyone	Active case-finding intervention based on sputum TB tests for everyone reduced the TB prevalence (Burke, 2021)
Community TB case finding and prevention package among high-risks	Enhancing a defined TB package can achieve TB elimination with 16% projected annual TB reduction (Agizew, 2022).
Community-wide active case finding of TB using a mobile van	Repeated rounds of active case finding has higher TB yield from mobile van (4.7%) compared to door-to-door visits (2.9%) and drop in TB prevalence (Corbett, 2010)

CONCLUSION AND RECOMMENDATIONS: Integrated community-based TB case finding and prevention approaches involving serial campaigns targeting well-defined communities using mobile clinics and sputum test for every one may reduce the TB incidence. Ministry of Health and partners should invest more

resources to expand coverage and intensity of these interventions to impact on TB incidence.

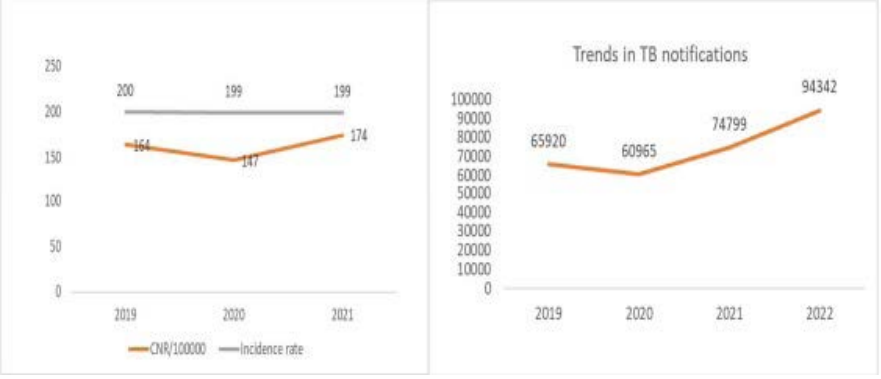

Figure 1: Trend of new and relapse cases

140A6: Using root cause analysis approaches to improve TB Treatment success rates (TSR) among adults with tuberculosis in Ankole Region

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1. USAID Local Partner Health Services Ankole & Acholi Activity/TASO

INTRODUCTION: Tuberculosis (TB) remains a significant health challenge in Africa, with the World Health Organization (WHO) estimating 500,000 deaths in 2021, accounting for 31% of global TB fatalities.

Uganda has shown progress in combating TB, reducing mortality from 35 to 33 deaths per 100,000 people between 2019 and 2020.

However, districts of Rubirizi, Bushenyi, Mitooma and Sheema reported low treatment success rates (TSR) of 84% and a cure rate of 57% in the last quarter of 2022 attributed

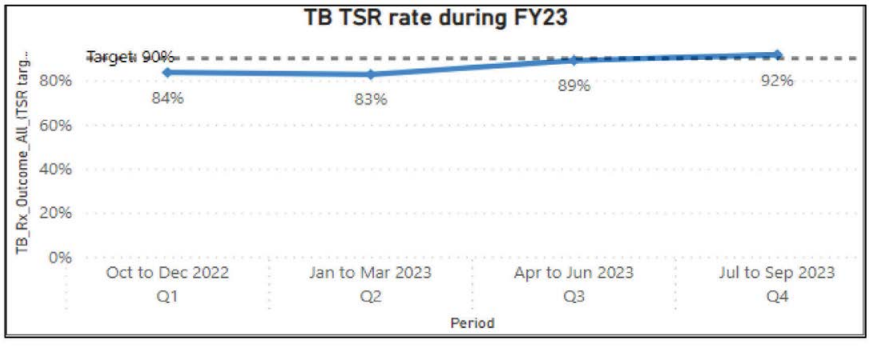
Inadequate follow-up systems, Poor appointment tracking, and Lack of clear interpretation of TB indicators by health workers

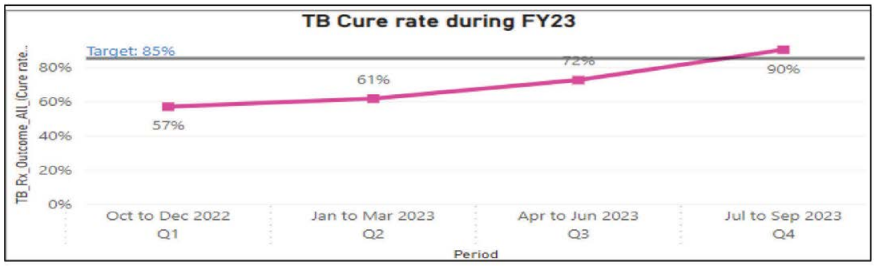
METHODS: A collaborative approach involving health teams, community volunteers, and data harmonization efforts was implemented. Key interventions included; Booking and monitoring client attendance, with volunteer follow-up for missed appointments and eliciting reasons for missing appointment to inform treatment adjustments; Complete referrals and updating of care records through inter-facility communication; Pre-reporting data validation and continuous staff

orientation on TB indicators and data management and utilization of data to create process quality improvement projects.

RESULTS: Interventions led to a significant increase in both treatment completion rate (84% to 92%) and cure rate (57% to 90%) within one year. These outcomes surpassed the UN's 2025 TB elimination targets of 90% treatment completion and 85% cure rate.

This demonstrates effectiveness of a multi-pronged approach addressing systemic challenges in TB care





CONCLUSION: Improved follow-up, data management, and staff knowledge significantly enhanced treatment adherence and cure rates, offering a valuable model for broader TB control efforts in Uganda and beyond

RECOMMENDATIONS: By integrating community engagement, data quality control, and staff training alongside clinical interventions are promising approaches to improve TB treatment outcomes (TSR and cure rates) and contribute to achieving global TB elimination goals.

140A7: Lessons learned from improved HMIS 106a TB Reporting Rates and Timeliness from Mbale City

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1 Mbale City Council
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INTRODUCTION: The ministry of health uses data to monitor the progress of the TB program across the country from the smallest organization unit; TB diagnostic and treatment unit. It has standard data capture tools at each health facility from which standardized report templates are used to compile periodic reports which are entered into an online system (DHIS2) for public use. The data can then be analyzed and used for planning, mapping areas of high TB burden and appropriate resources equitably. However, data can only be of high impact if reported in time and with complete data elements. Districts support health facilities feed the data into a Health Management Information System (HMIS) weekly, monthly, quarterly.

PROBLEM: Between October to December 2022, in Mbale City the TB reporting rates for the HMIS 106a stood at 77%. The poor reporting rates were due to inadequate computers in Mbale City, inadequate knowledge among health information Assistants (HIAs) in compiling HMIS106a reports, and complacency among some HIAs. The City health office also lacked platforms for routinely reviewing how the individual health facilities were performing in terms of quality of reports hence many data errors were observed in the submitted reports.

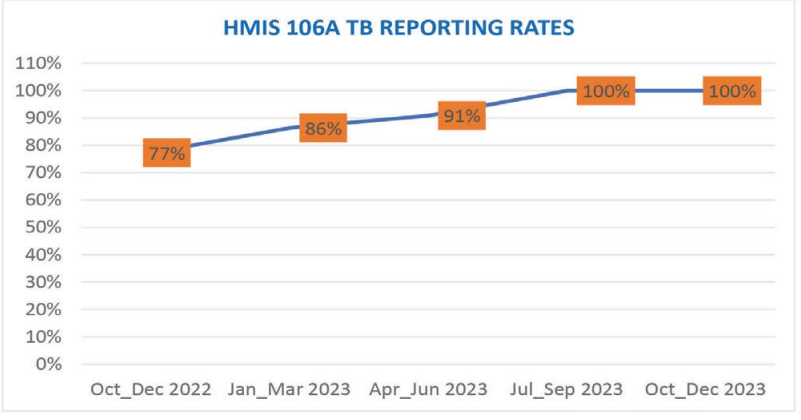
Strategies implemented

- USAID LPHS-E- Baylor Foundation supports City TB and Leprosy Supervisor and other technical persons to conduct continuous quarterly data collection, validation, support supervision, coaching, and mentorships which started in the first quarter 2023. The TB and leprosy supervisor also provide onsite mentorship of the HIAs in compilation of the HMIS106a to improve the quality of reports.
- Mbale city quarterly performance reviews and data validation meetings were all Incharges, Health information assistants of different health facilities and stake holders are invited to review their data.
- In August 2023 USAID LPHS-E- Baylor Foundation Uganda provided a laptop to the Mbale City TB and Leprosy Supervisor which helped her to monitor timeliness and quality of reports submitted by different health facilities. She also uses the same laptop to provide hands on data entry in DHIS2 to the HIAs at site level during mentorships and data collection.
- City Biostatistician created a WhatsApp group which was used to send timely reminders to facilities on which they share challenges and strategies for reporting. The members also share facilities which are not reporting

- During data collection and validation, facility technical focal persons (TB FP, HIV FP, HIA, DA and LAB FP) sit together to promptly update their registers as a team before compiling the final report to be entered in the DHIS2.

RESULTS

- The reporting rates for Mbale City had progressed from 77% in October to December 2022 to 100% by July to September 2023 and sustained through October Dec 2023.
- Facility technical focal persons promptly update their registers before compiling the final report.



CONCLUSION: DTLS and Biostatician of Mbale City to continue supporting and reminding their facilities to compile and enter reports in to the DHIS2 on time.

LESSONS LEARNED

- Regular TB performance reviews at both district and facility levels can improve on most of the TB indicators.
- Provision of the computer to the DTLs enabled routine monitoring of reporting rates and the quality of TB reports which improved the quality and timeliness of reporting
- Peers sharing challenges in a safe space helps adaptation and performance improvement as was seen during the exchange between health workers on the WhatsApp group.

RECOMMENDATIONS

- All DTLSs should be empowered to navigate DHIS2 and provide onsite support to HIAs and TB FPs in report compilation and to make routine system checks and give feedback to health facilities and the biostat.
- Team work between the Biostatistician and district TB supervisor is key in improving TB program reporting rates and quality of reports.
- Health facilities need to be reminded routinely about reporting timelines and data quality checks shared in time to ensure clean reports.

14PA1: Gender differences of Drug Resistant TB (DR–TB) case notification at Mbale Regional Referral Hospital, Eastern Uganda

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Affiliations:

1 Mbale Regional Referral Hospital
2 National TB and Leprosy Program

BACKGROUND: Globally, Tuberculosis disease(TB) is more common among males than females. Data from the country's 2015/16 prevalence survey for the non-diagnosed TB, combined with data on the notified TB cases provides more insight in the magnitude of sex differences in TB, affirming that men genuinely have a four-fold higher burden of disease and suggest the male sex being a risk factor for TB disease. Little is known about the association between gender and treatment history for DR-TB.

METHODOLOGY: We conducted a secondary data review at Mbale Hospital for the period 2020 - 2023 and using descriptive statistics, we identified that this was still and this information was used to identify the age and patient type characteristics in the gender based differences in patients registered with DR-TB.

RESULTS: Of the 186 DR-TB patients notified, 64% were males, of which 91% were over 25 years of age and 60% newly diagnosed. Of the 71 patients previously treated with anti-TB treatment, 70% were men.

Given that the non-diagnosed TB is the key driver for transmission in communities, these men are likely to remain in the community for a longer period of time than women, their poor health seeking behavior and social mixing patterns may suggest that, as a result are responsible for the majority of infection in men, women and children.

CONCLUSION: Greater effort, investment and priorities are needed to improve gender focused TB awareness, diagnosis and treatment as individuals and a public health issue. Further understanding of gender and DR-TB treatment outcomes is critical for better TB control efforts.

14PA2: Improving Bacteriological Diagnosis Coverage among all incident Tuberculosis patients in Lango sub region, Northern Uganda

Geoffrey Kabaale[1], Alex Batwaula[1], Gilbert Sangadi[2], Paschal Ssebbowa[2], Herbert Kisamba[2]

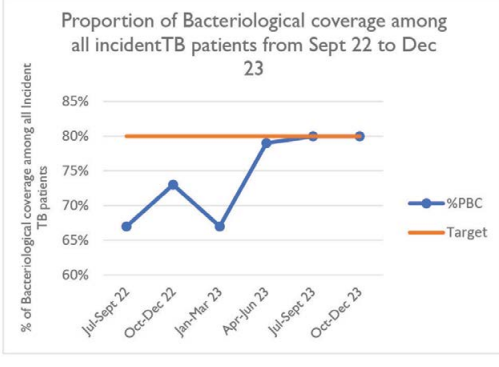
BACKGROUND: Worldwide, the percentage of people diagnosed with Tuberculosis (TB) based on bacteriological confirmation improved between 2018 and 2021, from 55% to 63%. However, over this same period in Uganda, 55.9% to 56. 8% coverage was observed. Lango's performance was slightly higher at 60.9% to 67.4% but below the current national target of 80%.

The suboptimal performance in Lango was attributed to sputum sample rejection at the Laboratories, GeneXpert sample processing restricted to day time and knowledge gap among health workers on some of the molecular WHO-recommended rapid diagnostics (mWRD) tests.

We aimed to improve bacteriological coverage in a TB high burden region in response to the renewed global and national approaches enshrined in the END TB strategy.

METHODS: We sensitized Village Health Team (VHTs) members on sample collection and packaging, strengthened the sample referral network and emphasized the 'no discard policy' for samples. The project conducted trainings and mentorships to health workers on mWRD to improve access of these tests to patients. We supported the laboratory staff operating GeneXpert machines to work extended hours especially when there is an influx of samples.

RESULTS



From September 2022 to December 2023, bacteriological coverage improved from 67.4% to 80%. The proportion of the different mWRD tests in October-December 2023 were;
- Mycobacterium tuberculosis positive (MTB+) (69%), lateral flow urine lipoarabinomannan (LF-LAM) (16%) and Microscopy (16%) in 2022 to MTB+ 65%, TB LAM 18%, Microscopy 16% in 2023.

CONCLUSION: Capacity building to health workers on the mWRD tests contributes to increased TB investigations. Support the laboratory team to operate flexi-hours to clear samples generated during intensified TB community activities.

14PA3: Extended TB contact tracing through engaging VHTs: An adaptation from the CAST TB campaign

Tadeo Nsubuga[1,2]

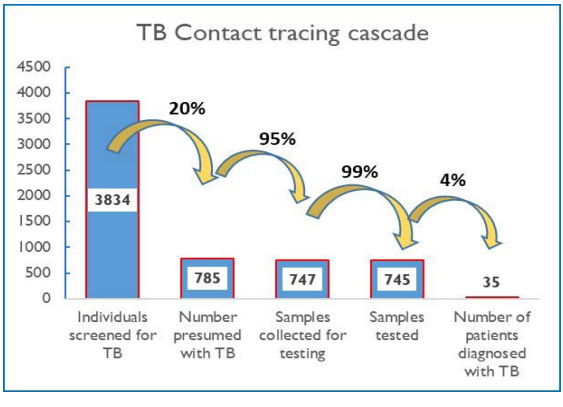
Affiliation;

1 Infectious Disease Institute, 2 Makerere University

INTRODUCTION: In the race to end TB by 2030, there is an urgent need to quickly adopt TB case-finding interventions to reach all undiagnosed TB cases. A missed TB patient will infect an average of 10-15 individuals annually (Dye et al 2005). The CAST-TB campaign introduced by NTLP, where Village Health Team (VHT) members support TB screening, is one of the interventions that has shown great potential for finding missed cases. How we use the approach to modify and support other TB case-finding activities has the potential to improve the identification of missed TB cases. We piloted the use of VHTs to support extended contact tracing in the Karamoja region.

INTERVENTION: Between Oct-Dec 2023, we line-listed 45 DR-TB patients across 26 villages attached to 21 health facilities in the districts of Nabilatuk, Moroto, and Nakapiripirit district diagnosed between January 2022 to September 2023. HCWs (clinician and laboratory officer) worked with two (2) VHTs to support screening of immediate household contacts. Thereafter the VHTs were provided with tools (education chart, sputum mugs and IPC materials) to support screening in all other nearby households within a radius of about 10 -15kms. All samples collected were transported by the VHTs to the nearby Health facilities from where they were transported to the GeneXpert testing site through the Hub system.

RESULTS: A total of **35** bacteriologically diagnosed DS-TB patients were diagnosed. 77% (27/35) TB cases were diagnosed outside the index patients' households by VHTs. No DR-TB was identified.



CONCLUSION: Engaging VHTs to support extended TB case-finding during targeted activities has potential to support identification of undiagnosed TB cases. These activities would include; hot spot testing, contact tracing for DR & DS TB patients.

14PA4: Predictors of Treatment Interruptions Among Patients Initiated on Tuberculosis Treatment at Reach Out Mbuya: A Retrospective Analysis (January 2020 – January 2023)

Damalie Nakyomu[1], Patrick Kazooba[1], Emmanuel Sendawula[1], Gertrude Namale[1], Josephine Kaleebi[1]

Affiliations

1 Reach Out Mbuya Community Initiatives

BACKGROUND: Tuberculosis (TB) remains a global health concern, particularly in Uganda, where prevalence is high. Treatment interruptions undermine efforts to control TB, especially in resource-constrained settings like Mbuya Reach Out Clinic. This retrospective study aimed to identify factors contributing to TB treatment interruptions at the clinic from 2020 to 2023. Understanding these factors within the local context is crucial for developing targeted interventions to improve treatment adherence and outcomes.

METHODS : We retrospectively reviewed TB patients' medical records at Mbuya Reach Out Clinic from January 2020 to 2023. Data on demographics, clinical parameters, TB diagnosis, treatment initiation and completion dates, HIV status, diagnostic methods, classification, and referrals were extracted. Data were recorded in an Excel database and analyzed using Stata. TB treatment interruption was defined as exceeding 168 days between treatment start and completion. We conducted a chi-squared test to assess associations with treatment interruption. Significant variables ($p < 0.05$) underwent multivariable logistic regression, adjusting for confounders like age, gender, treatment class, and outcome. Adjusted Odds Ratios (aORs) with 95% confidence intervals (CIs) determined associations with interruptions.

RESULTS: In our study comprising 268 patients, 55% were male, with a median age of 35.5 years (IQR 29-45), mean weight of 53.75 kg (SD 15.27), and mean Mid Upper Arm Circumference (MUAC) of 25 cm (SD 9.7). Predominantly, patients were new TB cases (88.81%), with pulmonary bacteriologically confirmed TB being the most common diagnosis (61.57%), and the LAM being the most frequently used diagnostic tool (35.82%). The cure rate among patients was 57.30%.

A substantial proportion (51.87%) of patients experienced treatment interruptions, with 100% of patients who died (13) and were lost to follow-up (4) experiencing interruptions. Adjusted logistic regression showed higher odds of interruptions in patients aged above 50 years (adjusted odds ratio [aOR] 3.73, 95% confidence interval [CI] 1.20-11.66, p-value 0.017) and those with and those with PBC (aOR 10.19, 95% CI 1.17-88.36, p-value 0.035) compared to patients aged below 20 years and those with Extra-pulmonary TB (EPTB). Conversely, New TB patients had a reduced risk of interruptions. (aOR 0.27, 95% CI 0.10-0.70, p-value 0.007) Compared to Relapses.

CONCLUSION: Treatment interruptions significantly impact TB outcomes, with all deceased and lost to follow-up patients experiencing interruptions. Older age and Pulmonary Bacteriologically Confirmed TB pose higher risks. Targeted interventions are essential to minimize interruptions, particularly among high-risk groups, crucial for improving treatment success and reducing mortality

DAY 2

Session 1: TB Vaccines, Immunology and PTLD

Chair: Prof. William Worodria

Co-Chair: Dr. Julie Mwanga

210A2: Population differences in vaccine responses (POPVAC): results of three linked, randomized controlled trials

Ludoviko Zirimenya,[1,4] Gyaviira Nkurunungi,[1,2] Jacent Nassuuna,[1] Agnes Natukunda,[1,3] Emily L Webb,[3] Alison M Elliott,[1,4] **and the POPVAC trial team**

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4. Department of Clinical Research, London School of Hygiene and Tropical Medicine, London, United Kingdom

BACKGROUND. Vaccine responses differ between populations, and are often impaired in rural, low-income settings, but the reasons for this are not fully understood. The immunomodulating effects of chronic, active infections or prior infection exposure may contribute.

HYPOTHESIS. Helminth and malaria infections suppress, and BCG vaccination improves, responses to unrelated vaccines.

METHODS. We enrolled adolescents in rural high-schistosomiasis (trial A) and rural high-malaria (trial B) settings and from an established urban birth cohort (trial C). We tested the effects of intensive vs standard praziquantel treatment of *Schistosoma mansoni (Sm)* (trial A), monthly intermittent preventive treatment of malaria with dihydroartemisinin-piperaquine (DP) (trial B), and BCG revaccination (trial C), on a common set of vaccine responses. Participants received BCG on day '0'; yellow fever (YF-17D), oral typhoid (Ty21a), and HPV vaccines at week 4; and HPV and tetanus/diphtheria (Td) booster vaccine at week 28. Outcomes were BCG-specific IFN-γ 8 weeks post-BCG vaccination, YF neutralising antibody titres, *Salmonella typhi* LPS-, HPV 16- and HPV 18- specific IgG 4 weeks post-vaccination, and Td-specific IgG 24 weeks post-Td vaccination.

RESULTS. There were statistically significant differences in vaccine responses between settings for all vaccines. In trial A, intensive Sm treatment improved the week 8 BCG-specific IFN-γ ELISpot response: geometric mean ratio 1.20 (95%CI

1.01-1.43) but reduced the response to HPV. In trial B, there was no effect of DP versus placebo on primary vaccine response outcomes but DP reduced waning of the yellow fever response between weeks 8 and 52. In trial C, there was no effect of BCG revaccination on vaccine responses.

CONCLUSION. Despite substantial differences between settings, we found only modest effects of treating current parasitic infections and no enhancement of responses by BCG revaccination. Results of ongoing immunological and mediation analyses exploring mechanisms of the observed between-setting differences will be presented at the meeting.

210A3: Babies born to mothers with Active Tuberculosis have reduced BCG, Tetanus, and Diphtheria IgG responses, in addition to heightened IL–17 responses

Diana Sitenda*[1,2,3], Phillip Ssekamatte[1,2,7], Rose Nakavuma[2], Andrew Peter Kyazze[2,8], Felix Bongomin[4], Joseph Baluku[7], Rose Nabatanzi[1], Annette Nakimuli[5], Davis Kibirige[2,6], Stephen Cose[7], Irene Andia–Biraro[2,7,8].

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6. Lubaga Hospital, Kampala, Uganda.
7. MRC/UVRI & LSHTM Uganda Research Unit, Entebbe, Uganda. 8. Makerere University, School of Medicine, Department of Internal Medicine, Kampala, Uganda.

BACKGROUND: Pregnancy-mediated changes predispose latent TB mothers to active TB. However, there is insufficient data elucidating how this risk affects the quality of life of their babies. We hypothesized that babies born to active TB mothers have reduced vaccine responses compared to babies born to mothers without TB.

OBJECTIVES: (i) To determine IgG responses to BCG, Measles, Tetanus, and Diphtheria vaccines, and (ii) To determine TB-specific cytokine responses.

METHODS: This was a longitudinal study whose cases were babies born to mothers with active TB and controls were babies born to mothers without TB. Quantitative IgG-specific BCG, diphtheria, tetanus, and measles ELISAs were performed on baby heparin plasma samples collected after immunization at months 0, 3, 6, and 9. Luminex (5-plex) assay was performed on baby QFT supernatants for TB-specific cytokines: IFN-g, TNF, IL-2, IL-17, and GM-CSF.

RESULTS: Babies born to active TB mothers had reduced vaccine-specific IgG responses compared to controls. BCG at baseline: [mean difference for cases versus control (95%CI): 125.8/141.1 (-29.30 to -1.449); (p=0.0319), Diphtheria at 3 months [0.02235/0.07450 (0.08795 to -0.01635)]; (p=0.0059), and tetanus at baseline and 3 months respectively: [1.744/2.917 (-1.647 to -0.6989)];

CONCLUSION: The reduced responses could result from persistent antigenemia. We speculate a similar scenario to the DoHAD theory. Therefore, TB-exposed infants need monitoring to evaluate whether the vaccine responses rebound with time, otherwise they might require booster doses.

210A4: Diagnostic accuracy of plasma LAM antibodies in combination with urine LAM detection in high TB burden settings

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4 Center for Tuberculosis, University of California San Francisco, San Francisco, United States of America,
5 College of Health Sciences, Makerere University, Kampala, Uganda

BACKGROUND: Non-sputum triage tests are needed to improve tuberculosis (TB) case detection. Combining lipoarabinomannan (LAM) antibody testing with urine LAM detection has demonstrated improved sensitivity among people living with HIV (PLHIV). However, this has not been evaluated in populations including people without HIV.

METHODS: We conducted a diagnostic accuracy study among adults with presumptive tuberculosis at two outpatient clinics in Kampala, Uganda. All participants had sputum tested for TB (Xpert Ultrax1 and MGITx2), urine tested using Alere Determine TB-LAM, and blood tested for HIV. Stored plasma samples were tested for LAM antibodies using ELISA. The sensitivity and specificity of LAM antibodies alone and in combination with Alere-LAM were calculated in reference to sputum TB test results.

RESULTS: Among 227 participants, median age was 36 years (26-45), 143 (63%) were male, 98 (43%) were PLHIV (median CD4 count: 344 cells/ul), and 108 (48%) had confirmed TB. The sensitivity of Alere-LAM was 25% (95% CI: 17-34%) and specificity was 94% (95% CI: 88-98%). At the cut-point where Youden's index was maximized, LAM anti-IgG had higher sensitivity (59%, 95% CI: 49-69%, p<0.001) and lower specificity (83%, 95% CI: 75-89%, p<0.001). LAM anti-IgM had similar

sensitivity (58%) but lower specificity (66%), compared to LAM anti-IgG. Combining LAM anti-IgG and anti-IgM with Alere-LAM further increased sensitivity (66%, 95% CI: 56-75%, p<0.001) but had lower specificity (85%, 95% CI: 77-91%, p=0.002) than Alere-LAM alone. At the cut-point that achieved 90% sensitivity as recommended for a TB triage test, specificity was low for LAM anti-IgG (28%) and LAM anti-IgM (13%) alone, or when combined with Alere-LAM (Anti-IgG+Anti-IgM:38%, Anti-IgG:35%, Anti-IgM:17%).

CONCLUSION: Combining LAM antibodies with Alere-LAM improved diagnostic accuracy for TB. However, neither Alere-LAM alone nor the combination of Alere-LAM and LAM antibodies achieved WHO target product profile accuracy thresholds for a TB triage test

	Cut-point that Maximizes Youden's Index						Cut-point that Achieves >90% Sensitivity						
Diagnostic test or model	Sensitivity			Specificity			Sensitivity			Specificity			AUC
Alere LAM	0.25 (0.17	- 0.34)	0.94	(0.88	- 0.98)	--			--			–
Anti-IgG	0.59 (0.49	- 0.69)	0.83	(0.75	- 0.89)	0.91	(0.84	- 0.95)	0.28	(0.20	- 0.37)	0.74
Anti-IgM	0.58 (0.48	- 0.68)	0.66	(0.56	- 0.74)	0.91	(0.84	- 0.95)	0.13	(0.08	- 0.21)	0.61
Alere LAM + Anti-IgG	0.72 (0.63	- 0.80)	0.80	(0.71	- 0.87)	0.91	(0.84	- 0.95)	0.35	(0.27	- 0.45)	0.79
Alere LAM + Anti-IgM	0.69 (0.60	– 0.78)	0.65	(0.55	– 0.73)	0.91	(0.84	– 0.95)	0.17	(0.11	– 0.25)	0.68
Alere LAM + Anti-IgG + Anti-IgM	0.66 (0.56	- 0.75)	0.85	(0.77	- 0.91)	0.91	(0.84	- 0.95)	0.38	(0.29	- 0.47)	0.80

210A5: Notification trends of PTLD among TB survivors since 2020.

210A6: Post–Tuberculosis Lung Disease: Interval Analysis of Risk Factors and Characteristics in a Ugandan Cohort

P.D. Jackson[1], N. Robertson[2], B. Mudarshiru[3], T. Siddharthan[4], S. Zawedde–Muyanja[3], B. Kirenga[3], L. Rezai Gharai[1], M. Helwig[1], P. Sime[1]

Affiliations;

1 Virginia Commonwealth University,
2 Johns Hopkins University,
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4 University of Miami

BACKGROUND: Pulmonary tuberculosis (TB) infects approximately 10 million people annually and is a leading cause of infectious death. While cure rates for drug susceptible TB are high, 40-50% of TB survivors develop post-TB lung disease (PTLD). PTLD is heterogeneous with obstructive, fibrotic and bronchiectatic phenotypes. We are actively conducting a prospective cohort study to examine risk factors for PTLD and develop a biobank to investigate PTLD pathogenesis. Here we present interim data on risk factors for PTLD, its impact on quality of life (QoL) among patients in Uganda and radiologic phenotypes.

METHODS: This study enrolled adults with pulmonary TB confirmed by chest x-ray (CXR) in Uganda. Demographic, socioeconomic, exposure, TB treatment and QoL data were collected at enrollment along with CXR and biologic specimens. Post-treatment visits collected updated clinical data, pulmonary function tests including diffusion capacity (DLCO) and total lung capacity (TLC), repeat CXR and biologic specimens. PTLD was defined as DLCO or TLC) < 80% or forced expiratory volume in one second (FEV1) to forced vital capacity (FVC) ratio less than the lower limit of normal post-treatment. Chi-square and univariate logistic regression evaluated risk factors and impact of PTLD.

RESULTS: Interim analysis included 87 participants with post-treatment visits. PTLD prevalence was 44.8% (n=39). PTLD participants were more likely to be male (61%), further from a TB health-center, miss school or work in the last week (81.6%), and report disruption in daily activities in the past year due to respiratory symptoms (92.3%)

CONCLUSION: There is high burden of functional lung impairment, increased respiratory symptoms, reduced QoL, and radiologic abnormalities in Ugandan TB patients. PTLD participants had more respiratory symptoms at diagnosis. Rates of fibrosis at 6-months on CXR were high. Larger prospective studies to identify modifiable risk factors for PTLD development and investigate pathogenesis are paramount.

Session 2: Laboratory, Diagnostics, Imaging

Chair: Dr. Richard Katuramu

Co-Chair: Dr. Willy Sengooba

220A2: Continuous cough monitoring with an AI–enabled mobile phone app for TB evaluation and treatment response

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Track: TB data in a globalised world

ABSTRACT SUMMARY: Cough patterns are valuable for tuberculosis (TB) assessment and monitoring but are subjectively measured at few time points. We demonstrated the use of an artificial-intelligence (AI)-enabled mobile phone application to continuously record cough sounds and characterize longitudinal cough trends among people being evaluated for pulmonary TB. (46/50 words)

INTRODUCTION: Although cough assessment is important for tuberculosis (TB) evaluation and monitoring, cough is typically assessed subjectively at single timepoints. Artificial-intelligence (AI) algorithms can automatically detect cough sounds and enable objective monitoring via mobile phones. We evaluated if changes in continuous cough patterns can distinguish patients with TB versus other respiratory conditions and reflect TB treatment response.

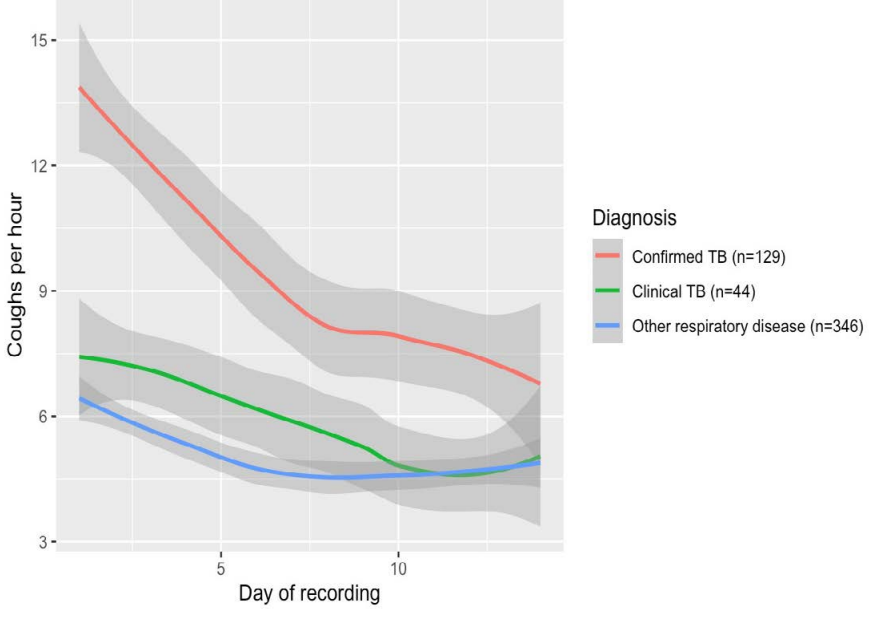
METHODS: We prospectively enrolled people with presumptive TB at outpatient clinics in five countries (India, Philippines, South Africa, Uganda, and Vietnam) and classified TB status based on positive sputum Xpert Ultra or culture results (Confirmed TB) or empiric TB treatment initiation (Clinical TB). Participants continuously carried a smart phone for 14 days with the Hyfe cough recording

application. Cough frequency was calculated as the median number of coughs per hour (mCPH), and the mCPH was compared between participants with Confirmed or Clinical TB and those with other respiratory diseases (ORD) using Wilcoxon testing.

RESULTS: We included 519 participants (median age 39, 53.6% female, 12.7% living with HIV) who completed reference standard testing and cough recording. The mCPH for all participants on the first recording day was 5 (interquartile range [IQR] 3-9) and decreased to 3 mCPH (IQR 2-6) by day 14 (Figure 1). On day 1, mCPH was higher in participants with Confirmed TB (8, IQR 3.5-20) vs. ORD (4, IQR 3-7.63) ($p<0.001$), but similar between participants with Clinical TB (4.75, IQR 2-9) vs. ORD ($p=0.89$). All three patient groups had significantly reduced cough frequency by day 14 ($p<0.01$; Figure 1) but the reductions were steepest among participants with Confirmed or Clinical TB initiated on treatment.

CONCLUSION: An AI-enabled smart phone was able to characterize distinct cough patterns and show treatment response in participants with Confirmed and Clinical TB. Objective cough monitoring should be further evaluated for TB evaluation and treatment response monitoring.

Figure 1, Locally weighted regression (LOESS) smoothing of median coughs per hour over days of longitudinal recording by diagnosis.
Shaded regions indicate 95% confidence regions of LOESS models.



220A3: Advancing TB diagnosis: comparative evaluation of GeneXpert urine, urine LAM, and conventional sputum test

Author; Okot Amos, Lab Scientist, Kampala Capital City Authority Kawaala Health Centre IV

Co–author; Dr Yona Mbalibulha, Mbarara University of Science and Technology

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BACKGROUND: Tuberculosis (TB) remains a global health challenge necessitating precise diagnostic techniques. Despite recent advances , critical gaps persist in pediatric diagnostics, drug resistant TB detection, affordable point-of-care tests, TB-HIV co-infection diagnosis, extra-pulmonary TB solutions and efficient High-Burden region Screening, these gaps hampers development of evidence-based diagnostic tests. This study addresses the pressing need for improved TB diagnostic. We conducted a comprehensive study assessing three diagnostic methods (GeneXpert-based urine testing, urine Lipoarabinomannan (LAM) testing, and conventional sputum testing) across diverse demographics and clinical profiles.

METHODS. Using a prospective cohort approach, we enrolled 100 individuals from the pediatrics, adult, and geriatric populations who had TB suspicions. The range of TB manifestations, participant clinical histories, and participant demographics were all extensively recorded in the study. The three diagnostic GeneXpert-based urine testing, urine Lipoarabinomannan (LAM) testing, and conventional sputum testing were administered to each participant, allowing for reliable direct comparisons. The diagnostic capability of the studied approaches was shown through subgroup analyses based on age and clinical manifestations, particularly when applied to particular clinical profiles.

RESULTS: Our study's findings underscore the diagnostic promise of urine-based tests for TB. Specifically, the sensitivity of GeneXpert-based urine testing was determined to be 85.2% (95% CI: 75.1 - 92.3), urine LAM testing exhibited a sensitivity of 76.8% (95% CI: 65.7 - 85.6), and conventional sputum testing yielded a sensitivity of 82.5% (95% CI: 72.3 - 90.2). The corresponding specificities for these tests were 93.4%, 91.7%, and 96.5%, respectively. , our study found notable patient acceptance rates, especially in pediatric cases, highlighting the viability of urine-based diagnostic techniques in various demographic scenarios.

CONCLUSION. Our study significantly advances TB diagnosis by highlighting

the potential of urine- based tests, GeneXpert urine, urine LAM, and conventional sputum tests show comparable sensitivity, making urine-based GeneXpert promising option for TB diagnosis, notably in pediatrics, our finding enhance diagnostic accuracy and accessibility, addressing a critical research gap and improving patient centric TB management and public health.

220A4: Performance evaluation of the Uganda National TB Program algorithm for diagnosis of childhood Tuberculosis

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BACKGROUND: Because of the challenges in diagnosing childhood pulmonary Tuberculosis (TB), the Uganda national TB control program (NTLP) has developed a clinical treatment decision algorithm for children. However, there is limited data on its accuracy and how it compares to new World Health Organization (WHO) treatment decision algorithms (A and B) for children.

OBJECTIVE: To evaluate the performance of the 2017 Uganda NTLP and 2022 WHO algorithms against the NIH Consensus classification (as a reference) for diagnosing Tuberculosis among children presenting at the Mulago National Referral Hospital Pediatric TB clinic.

METHODS: We conducted a secondary data analysis of children 0-14 years from Kampala, Uganda who underwent an evaluation for possible pulmonary TB (including physical examination, chest x-ray, tuberculin skin testing, HIV testing, and respiratory specimen collection for Gene-X-pert MTB/RIF testing and culture) between September 2018 and November 2022. We calculated the TB treatment decision based on the NTLP and WHO algorithms, with and without CXR, and determined and compared the sensitivity, specificity, positive and negative predictive values in reference to the National Institute of Health (NIH) consensus definitions.

RESULTS: Overall, 875 children were included in this analysis with 64% being children under 5 years, 54% male, 7% with severe acute malnutrition, 11% HIV positive, 55% had a history of TB contact, 53% had abnormal chest X-ray and 10% had positive Gene-X-pert. Using the NIH consensus definitions as a Pure reference, we had 131 confirmed TB and 361 unlikely TB compared to 371 TB cases and 361 non-TB when we considered the NIH definitions as a Composite reference. The Uganda NTLP algorithm (without addition of Chest X-ray) had a

sensitivity of 80% (CI: 77-83) and specificity comparable to the WHO algorithm B (settings without Chest X-ray) (Table 1).

CONCLUSION: The NTLP algorithm seems to perform similarly with or without chest X-ray with a very low specificity; which would result in over treatment if implemented with high fidelity.

Table 1: Diagnostic accuracy of the 2017 Uganda national diagnostic algorithm for childhood Tuberculosis and the 2022 WHO childhood TB diagnostic algorithms in predicting TB (using the 2015 NIH consensus definitions [confirmed Vs unlikely TB] as the reference standard) among children at Mulago national referral hospital. Algorithm Sensitivity (95% CI) Specificity (95% CI) PPV (95% CI) Uganda NTLP (with CXR) NPV (95% CI) 82.8% (80.0 - 85.6) 5.3% (3.7 – 7.0) Uganda NTLP (without CXR) 80.0% (77.1 – 83.0) 6.1% (4.3 – 7.9) 79.4% (76.4 – 82.4) 6.6% (4.8 – 8.4) 78.9% (75.9 – 81.9) 6.5% (4.7 – 8.3) WHO Algorithm A 82.3% (79.4 – 85.2) 10.8% (8.4 – 13.2) WHO Algorithm B 81.8% (78.9 – 84.8) 11.1% (8.7 – 13.5) 90.9% (88.7 – 93.1) 4.6% (3.0 – 6.2) 82.8% (79.9 – 85.7) 9.1% (6.9 – 11.3) CXR- chest x-ray, PPV- positive predictive value, NPV- negative predictive value, Algorithm A(in settings with chest x-ray), Algorithm B(in settings without chest x-ray)

220A5: Diagnostic Accuracy of Mycobacterium tuberculosis Stool Ultra in detecting TB among Adult People Living with HIV: A Multicenter Study

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INTRODUCTION: Detection of TB among people living with HIV (PLHIV) and children relies mostly on non-readily available respiratory samples (sputum). Hence, the need for alternative non sputum based specimens and biomarker-based tests. We determined the diagnostic performance of stool Xpert MTB/RIF Ultra "Ultra" for TB detection in adult PLHIV in three high TB and HIV countries.

METHODOLOGY: This was a cross-sectional diagnostic evaluation study within a nested longitudinal cohort in Eswatini, Mozambique and Uganda between December 2021 and August 2023. Presumptive TB participants coinfected with HIV/AIDS were enrolled. These provided sputum, stool, blood and urine specimens for laboratory testing; urine TB LAM, sputum culture and Ultra, and CD4 stool.

RESULTS: A total of 523 participants were enrolled. The sensitivity of stool Ultra compared to sputum Ultra, culture, urine TB LAM, and the composite reference standard (CRS) were 66.7%, 61.5, 16.4%, and 31.6% versus specificity of 94.6%, 92.4%, 90.7%, and 95.0%, respectively.

Sensitivity of stool test reduced in almost all comparison cases above to 54.8%, 50.0%, 14.7%, and 28.7%, respectively after re-categorization of stool and sputum Ultra trace result to negative.

Conditional recategorization of the stool Ultra result to negative for all participants with a previous TB treatment episode did not seem to change the performance statistics compared to the unconditioned analysis. The overall sensitivity of stool Ultra was higher and specificity lower in patients with CD4 less than 200 cells/µl.

CONCLUSION: Stool Ultra test showed a higher sensitivity and reduced specificity against sputum ultra in detection of TB in adult presumptive TB population among PLHIV. The sensitivity of stool ultra was higher in participants with CD4 < 200 cells/µl. Stool Ultra test identified additional cases in combination with the three reference methods. Our results indicate that stool ultra can be used as a diagnostic TB test among adult PLHIV unable to produce sputum.

220A6: Outcomes and lessons from programmatic implementation of digital X–ray and computer aided detection technology to improve tuberculosis case detection in Uganda.

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BACKGROUND: The WHO recommends systematic TB screening in high burden settings, to improve TB case detection. In Uganda, TB screening among people receiving healthcare is low, with 3% TB presumption and 0.5% diagnostic rate. We present lessons from implementing digital X-ray and computer aided detection (CAD) to enhance TB case detection.

DESCRIPTION OF INTERVENTION: The Ministry of Health deployed twelve portable digital X-ray systems for TB screening at health facilities and health workers were trained and mentored in X-ray use. Individuals with suggestive CXR were considered presumptive TB and their sputum samples tested with GeneXpert. Those diagnosed with TB were started on standard TB treatment.

RESULTS AND LESSONS: Overall, 21,432 individuals were screened with digital X-ray between 2022 and 2023. Of these 3,558 (17%) had suggestive X-ray. Sputum samples from 7,751 presumptive TB patients were tested using GeneXpert and 632 (8%) were confirmed with TB. An additional 620 patients (17%) of those with suggestive CXR were clinically diagnosed with TB and all were started on TB treatment. Of those screened 9,489 (44.3%) were TB high-risk and TB diagnostic yield was 15% among tobacco users, 12% among HIV infected individuals, 7% in both contacts and diabetics and 2% in both refugees and prisoners.

CONCLUSION AND NEXT STEPS: The presumption rate and yield of TB from X-ray screening is high, compared to that reported from routine screening using symptoms. The TB diagnostic yield is also high among tobacco users and people living with HIV. National TB programs and partners should scale up digital X-ray use targeting high-risk individuals, to optimize TB case detection.

220A7: 15,000 samples in less than seven days! Laboratory experiences and strategies during a CAST campaign in Kampala Metropolitan, Uganda

[1,2,3]Mona Muhammad, [1,2,3]Kato Gerald, [1,2]Annet Akello, [1,2] David Ssemugabi, [1]Fred Muwanga, [4]Alex Kakeeto, [1,2,3]Semei C. Mukama, [1,2] Stella M. Zawedde, [1,2] Mary N. Mudiope

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4 Wakiso District Local Government

BACKGROUND: Uganda's National TB program implements a nationwide CAST (Community awareness, screening, testing, prevention and Treatment to end TB/ Leprosy) campaign twice a year. During CAST, Kampala, Wakiso and Mukono (KMW) districts yield loads of samples beyond their molecular diagnostic capacity therefore requiring strategies to ensure samples are processed while still viable.

METHODS: Following lessons learnt in March-2022 (high sample loads, sample rejections, poor results dissipation), USAID LPHS-TB Activity re-strategized for the September-2022 CAST campaign: - Before the campaign, different stakeholders were engaged, capacity-building activities and orientation of VHTs on sample handling were conducted. GeneXpert machines were serviced/repaired and required supplies distributed. The district laboratory focal persons (DLFPs) identified at each facility one committed personnel to oversee CAST activities and pooled staff to support GeneXpert sites. During the campaign, samples and accompanying forms were double-checked by health workers before referral for molecular testing. The hub-system was streamlined and Hub-rider visits increased. Sample tracking logs were used to acknowledge sample dispatch/ results reception, ensuring no missing results

The GeneXpert sites operated for 24 hours, conducted daily inventory of samples received and processed, communicated critical results, dispatched results through SMS and participated in Daily CAST update meetings. After the campaign, data was reviewed and HMIS tools updated.

RESULTS: The CAST campaign generated 15,723 samples across Kampala (59%), Wakiso (22%) and Mukono (18%). Implementing the strategies described above, all the samples generated were tested at 35 Genexpert\Truenat sites with 134 modules within less than 7 days while still viable. A total of 376 MTB and 12 Rifampicin Resistant cases were diagnosed. Only 1% of the samples were rejected due to poor labeling and transcription errors as compared to a 12% rejection in the previous campaign.

CONCLUSIONS: Molecular diagnostics can be efficiently utilized during mass TB campaigns in resource-limited settings, with proper planning, stakeholder engagement, optimization of sample management and results dispatch.

22PA1: The burden of TB in children. Simple –one–step diagnosis of MTB in stool, an innovative diagnostic approach in Karamoja region, Uganda

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INTRODUCTION: The high burden countries in the world with TB and TB/HIV co-infection include Uganda with 15% of TB cases are in children below the age of 14 years and TB in children in Karamoja stands at 27%.

The Ministry of Health introduced new recommendations for the diagnosis of Tuberculosis (TB) in children aged 0 – 14 years using Simple –one-step (SOS) to systematically improve diagnoses in mobile and hard to reach communities like Karamoja.

IDI PACT Karamoja and ANNECCA are the main leading Implementing Partners in supporting TB diagnosis and management in all districts of Karamoja region.

The primary aim was to report on achievement of MTB/ MTB/RIF Ultra on children stool samples diagnosis in Karamoja, Uganda

METHODS: Karamoja regional health team reviewed TB data registers for 9 district in January 2024.

All the health units offering TB services in Karamoja region, from October to December 2023 were reviewed

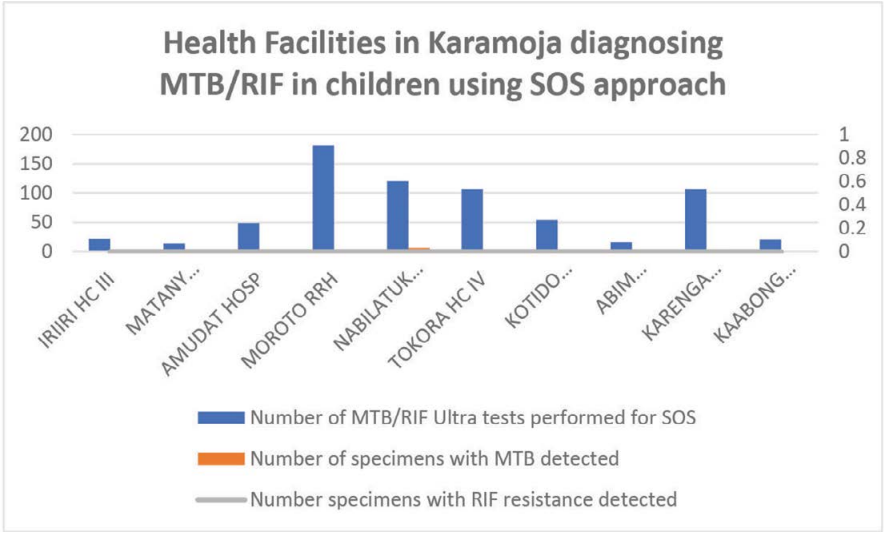
A total of 692 children aged 0-14 years old stool samples were collected and tested for MTB using Simple – one – step innovative approach of detection of MTB in stool.

Data were entered into DHIS-2 by biostastician per district and data extract of 106a from DHIS-2 of all nine districts analyzed at regional level by regional biostasticians and monitoring and evaluation Officers with a focus on SOS on TB for children less than 14 years.

Results will be presented in March 2024 in Karenga district during regional TB/ HIV performance review meeting and Kampala during MOH NTLP science summit

FINDINGS: The TB gene x-pert utilization among children in all the nine districts is progressing steadily. A total of 692 stool samples were tested for MTB/RIF and only 17 were diagnosed of TB in children with zero rifampicin resistance

Children TB detection using SOS approach in karamoja region stands at 2% with Nabilatuk HC IV leading with 7(121) cases and 4 (107) in Karenga HCIV while Kotido Hospital, Iriri HC III, Amudat hospital and Matany hospital being the least with zero cases.



CONCLUSION: In Uganda, diagnosis of MTB in children using SOS approach of stool Xpert MTB/RIF is worthy supporting and scaled in entire country for its simpler and easy way of detection of MTB in children stool among mobile and rural hard to reach communities.

22PA2: Contrasting of GeneXpert MTB/RIF Ultra results of Stool and Sputum Samples among Presumptive TB patients

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Affiliation

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BACKGROUND: As work begins towards SDG target to End the global tuberculosis epidemic by 2030 with 90% reduction in incidence rate by 2035 besides according to WHO in 2018, 69% of children <5years missed in notification therefore much need to done to improve on the diagnosis of TB in children. Annually, about 91,000 people in Uganda get TB infection, 2/100 gets MDR mean while approximately 15% of TB cases are in children <14 years therefore with the introduction of SOS stool processing method in 2021 by WHO, this study aimed at optimizing the SOS stool processing method on Xpert assay by comparing results from stool and sputum samples at Kulikulinga Genexpert between April and September 2023.

METHODS: This was a cross-sectional, retrospective record reviews of results obtained from both sputum and stool processed using GeneXpert technology

(Cepheid) at Kulikulinga from April to December 2023.The data were analyzed using SPSS version 20, compared (agreement versus variation) between stool and sputum samples of same persons; Negative & Positive Results, Quantity of MTB detected & Rifampicin resistance.

RESULT: From April to December 2023, 90 study samples (stool and sputum) were processed at Kulikulinga Genexpert site. Of that 70 (77.7%) were negative and 20 (20.2%) were positive.

On the Quantity of MTB, Sputum and stool results were as follows; HIGH 6(30%) 0(0%), MEDIUM 4(20%) 4(20%), LOW 6(30%) 4(20%), TRACE 4(20%) 6(30%), MTB NOT Detected 0(0%),6(30%) respectively.

Rifampicin Resistance Status, Sputum and stool results were as follows; Rif Resistance NOT Detected 16(80%) 8(40%), Rif Resistance INDETERMINATE 4(20%),6(30%), Rif Resistance UNDETERMINED 0(0%) 6(30%) respectively.

CONCLUSIONS: The SOS stool processing method for TB detection yields comparable results with sputum sample testing. Therefore, Stool samples can be used as an alternative to respiratory specimens in children preferably below 5 years, without the need for additional supplies or equipment.

22PA3: Improving TB Microscopy EQA participation; lessons from Karamoja region

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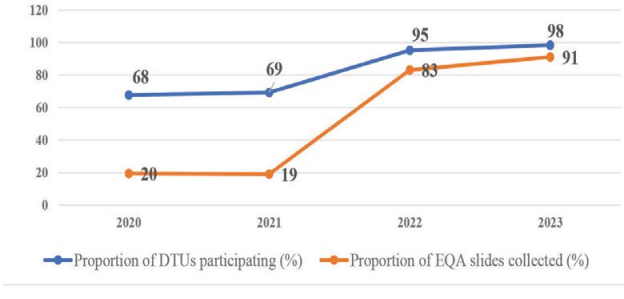
BACKGROUND: External Quality Assurance (EQA) is integral to maintaining the quality of laboratory tests. Mandated by ISO 15189:2022 and the World Health Organization, EQA participation is a requirement for all laboratories. In Uganda, the TB Microscopy EQA program follows a three-step process: sampling slides from facilities, conducting first level EQA at the district, and second level QA at the National TB Reference Laboratories (NTRL). In 2020, only 68% of all TB diagnostic laboratories in the Karamoja subregion participated in the TB microcopy EQA program with only 20% of the expected slides sampled and first controlled.

CHALLENGES & INTERVENTIONS: Some of the observed hinderances to microscopy EQA participation in the region included; non-functional microscopes, knowledge gaps among lab staff about the program, lack of facilitation to support sampling and controlling

The USAID PACT-Karamoja project conducted timely servicing and repair of microscopes including procurement of microscope mirrors, and supported ordering and redistribution of reagents to minimize interruptions to microscopy testing. The projected also carried out refresher training on TB microscopy and EQA for all laboratory staff and instituted monthly onsite mentorship sessions.

The project also facilitated District Tuberculosis and Leprosy Supervisors and District Laboratory Focal Persons to oversee slide sampling and perform first-level quality control across all districts every quarter. Leveraging the national sample transportation system, the project supported the transportation of slide boxes to the National Tuberculosis Reference Laboratory (NTRL) for second-level quality control and feedback reporting.

RESULTS: The proportion of health facilities participating in EQA increased from 68% to 95% while the proportion of slides collected increased from 20% to 91% The pass rates have also been sustained at over 95%.



CONCLUSION: Ensuring availability and proper use of microscopes, capacity building for staff and intentional support by the implementing partner are critical in improving TB microscopy EQA participation.

22PA4: Engaging District Tuberculosis and Leprosy Supervisors to Improve the Quality of TB Sample Processing at LDSA Supported PNFP Facilities in Eastern Uganda

Ivan Eriku[1], James Tusiime[1], Dan Mugisha[1], Hillary Alima[1], Ambrose Muhumuza[1], Robinah Takwaza[1], Gordon Karukoma[1], Johnson Masiko[1], Tonny Tumesigye[1]

Affiliation:

1. Uganda Protestant Medical Bureau

BACKGROUND: Ministry of Health Uganda requires all Diagnostic Treatment Units (DTU) for Tuberculosis (TB) to participate in the quarterly TB microscopy blinded rechecking External Quality Assessment (EQA). TB EQA in all DTUs is conducted by District Health teams (DHT). For DTUs at Private Not For Profit (PNFP) health facilities supported by the USAID funded Local Service Delivery for HIV AIDS (LSDA) in eastern region, it was observed that only 32% (16/50) participated during the October to December 2022 quarter. 53% (18/34) of PNFPs had not participated due to lack of transport for District Tuberculosis and Leprosy Supervisors (DTLSs) to sample slides. The unchecked quality of TB microscopy testing posed a risk of unreliable laboratory results for TB patients being monitored on treatment.

Uganda Protestant Medical Bureau's USAID funded LSDA set out to facilitate District Health Teams to conduct Microscopy external Quality Assessments.

What was done

LSDA provided transport to DTLSs to visit PNFPs every quarter to conduct TB EQA activities. Close follow up on districts was done to ensure continued implementation of this TB EQA scheme in PNFP sites.

RESULTS: The TB EQA participation rate for PNFP facilities steadily improved from 32% to 92.6% by the end of 2023. Pass rate remained at 100% for all PNFPs that participated in the EQA.

DISCUSSION: The great improvement was attributed to routine facilitation of DTLSs to sample TB slides from PNFP sites every quarter to confirm their participation. Facilitation of District Laboratory Focal Persons (DLFPs) ensured that all sampled slides were rechecked, feedback reports returned to facilities, and mentorships provided to facilities as required.

CONCLUSION: Direct facilitation of DHT members to implement TB EQA is key in ensuring continued participation of PNFP facilities in TB EQA activities as a low cost high impact intervention.

Session 3: Leprosy and zoonotic diseases

Chair: Dr. Musinguzi Patrick

Co-Chair: Dr. Kawuma Herman

230A1: Talking Neglected Tropical Diseases

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Affiliations

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2 Uganda National Alliance for Leprosy
3 National TB/Leprosy Program/ Ministry of Health Uganda

BACKGROUND: The social, emotional and economic impacts of leprosy constitute enormous burden to patients. Stigma and discrimination lead not only to isolation but also present major barriers to early diagnosis and treatment. To overcome social upheavals, GLRA supported persons affected by leprosy in Mayuge district to form 03 self-care groups.

METHODOLOGY: In 2023, GLRA in partnership with UNALEP and Mayuge district local government mobilized and sensitized persons affected by Leprosy to form self-care groups. 3 Self-care groups comprising of 15-25 persons affected by leprosy were registered at sub-county. They were also trained in care for chronic ulcers, eye care and advocacy. The groups meet regularly (weekly) for members to learn from their peers how to care for themselves.

RESULTS: Peer support reduced stigma and increased cases of self-referral to health facilities of people with skin changes for early screening and treatment.

03 groups have started income generating activities including Village Saving and Loan Scheme to improve livelihoods of affected persons and sustain self-care group activities.

During the end term GLRA project evaluation, Racheal [not real name] a member of God's Grace Self-care group reported: "Since I joined the group and learned how to soak my feet, the wound on my foot is much better. It no longer smells. So, I can now join my family members for lunch."

CONCLUSION: Self-care groups have enabled affected persons embedded in their respective communities to adequate wound care management, preventing deterioration of disabilities and improve quality of life through peer support. Self-care for self-management of wounds complemented by self-help for addressing the wider psychosocial, social and economic factors are important aspects of rehabilitative programs for leprosy.

230A2: Addressing the interrelation between leprosy and zoonotic diseases: a one health approach to Uganda

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Affiliations

1. A private practitioner

Leprosy as a neglected tropical disease persists like a public health challenge in Uganda with implications beyond human health. One such area of concern has been the very close human animal interaction in various settings across the country which predisposes to zoonotic transmission of Mycobacterium leprae - the causative agent for leprosy.

This abstract brings the need to consider One Health approach in handling the complexity of handling leprosy and zoonotic diseases into perspective for a professional perspective in preventive veterinary medicine. The presentation reflects on epidemiological linkages of leprosy with zoonotic diseases focusing on the role of animals, wildlife, and domestic species as sources of hosts for Mycobacterium leprae.

Through this, we shall be able to bring out the transmission pathways and potentially locate hotspots of zoonotic leprosy transmission in Uganda. In addition, the implications of zoonotic leprosy to both human and animal health will be discussed in this particular abstract, including ramifications in socio-economic aspects for the affected communities.

This will strengthen the surveillance, early detection and intervention components to mitigate the risks of zoonotic transmission by incorporating veterinary public health strategies within the existing leprosy control programs.

The symposium therefore presents an opportunity for a multi-stakeholder dialogue in bringing together health professionals, veterinarians, researchers, policymakers, and members of communities to synergistically harness local research and innovation as a driver to inform evidence-based policies and practices aimed at ending leprosy and zoonotic diseases in Uganda.

Adopting a holistic One Health approach will help Uganda to deal with the intertwined challenges of leprosy and zoonotic diseases, thus reducing their prevalence and contributing to easy eradication as well as improved overall health of both human beings and animals.

230A3: Exploring the pathways of leprosy patients from their communities to a diagnosis in the districts of Mayuge, Yumbe and Kasese–Uganda

Dr. Rose Kengonzi[1] Dr. Orach Samuel[1] Dr. Turyahabwe Stavia[1] et–al

Affiliations

1.

BACKGROUND: Despite being treatable and curable, Leprosy is known to cause disability that leads to severe outcomes like stigma, discrimination, mental health problems and participation restriction. In this study we describe patient journeys from first symptoms to a diagnosis and individual as well as community level factors associated with health seeking behavior of leprosy patients.

METHODS: This was a cross-sectional explorative study implemented in Kasese, Mayuge and Yumbe districts where leprosy patients with visible disability were enrolled.

RESULTS: 53% of the respondents identified as female. The median age of the respondents was 34 years, with a range of 1 to 76 years. 22 % of the patients reported having visited multiple health facilities before receiving a proper diagnosis.

The most common first symptom reported was skin lesion (65%) followed by deformities (18%) (P value = 0.05%) occurring mostly in the feet (P value = 0.48). A delay of more than 2years occurred in 52% (SD 18.72 OR 2.75) for a diagnosis to be made with a maximum delay of over 60 months. The most common cause of delay in seeking health care was lack of knowledge on leprosy (P value=<0.05), inaccessibility of the health facilities (p value =<0.0), stigma and discrimination. Perceived causes and modes of transmission of leprosy included: curses from ancestors and witchcraft and being hereditary.

CONCLUSIONS: There was a delay of 2 years in seeking health care for majority of the patients. Key barriers to early diagnosis were lack of knowledge and infrastructure. Community sensitization and strengthening capacity building are needed to achieve early diagnosis of leprosy and proper management.

230A4: Capacity building of private health facilities for TB and Leprosy testing in Uganda, A case of Kampala Metropolitan area

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Affiliations

1. A private practitioner

BACKGROUND: Uganda is one of the world's thirty (30) high-burden countries for TB. Each year, approximately 91,000 people in Uganda get sick of TB. Two out of every 100 people with TB have drug-resistant TB, while approximately 15% of TB cases in Uganda are children aged below 14 years. (WHO,2023).To improve TB case detection, Uganda adopted the WHO recommendations on systematic screening of TB using sensitive tools like digital CXR and CAD which were placed at 12 health facilities for TB screening among people seeking health care and for community outreach, targeting TB hotspots.(Kampala, Wakiso and Mukono)

METHODOLOGY: The study employs a document review method and analysis of existing literature on TB testing. Academic journals, research reports and government publications were reviewed to gather relevant information. This allows valuable insights for future research and policy development.

RESULTS: Health facilities in Uganda total to 6,937. 45.16% (3,133) are Government owned, 14.44% (1,002) Private and Not For Profit (PNFP) , 40.29% (2,795) are Private For Profit (PFP) majorly lower level facilities and 0.10% (7) community-owned facilities.

Kampala has a total of 1458 health facilities, 26 government owned, 1371-PFPs and 61-PNFPs. A randomized survey of Busiro East Constituency, Wakiso Sub-county and Wakiso Town council reveals only 4 health facilities that are able to test for TB (3 private health center IVs and Wakiso HC IV) National Health Facility masterlist, 2018.

CONCLUSION: There needs to be massive capacity building e.g building a hub-system, comprehensive training of health workers especially in densely populated areas to increase screening capacity and contact tracing (community-based) in order to curb the incidence of TB in Uganda.

230A5: Assessing Preparedness of Lower Health Facility Staff in Diagnosis and Management of Leprosy: A Case Study of Bidibidi Refugee Settlement, Yumbe District, West Nile

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Co– authors: **Dr. Hakim Kulungi, Dr. Asibazuyo Patience, Dr. Oculi Williams, Sunday Monks**

INTRODUCTION: Leprosy is a neglected tropical disease (NTD) caused by Mycobacterium leprae. Globally, the estimated new leprosy cases were 127,898 cases in 2020 (WHO, 2022). However, WHO has set a goal to achieve global leprosy elimination by 2030, with prevalence of less than 1 case per 10,000 populations (WHO, 2022). Uganda ranks among the 20 countries most affected by leprosy globally with 1,809 new leprosy cases in 2020 (MOH, 2022). And West Nile carried the biggest burden of new leprosy cases reported in Uganda at 80.2% with Yumbe, Arua, Maracha, Madi okullo districts having the highest prevalence (MOH, 2022).

OBJECTIVE: This study aimed at assessing knowledge and competence among lower health facility staff in identifying and management of leprosy cases at the Bidibidi Settlement from January 2023 to December 2023.

METHODS: We used cross sectional study design where the knowledge and competence of healthcare staff and Village Health Teams (VHTs) were assessed in clinical management and diagnosis of leprosy cases at the community level within Bidibidi Refugee settlement.

RESULTS:

The cross-sectional study was conducted with the aim of assessing the knowledge and competence of health workers and Village Health Teams (VHTs) in diagnosing leprosy. The study revealed a prevalence of leprosy at 52.6% at the Bidibidi

Refugee settlement, with a majority of cases being male refugees at 60.8%, compared to female refugees at 39.2%.

The findings showed that 80.5% of health workers and 40.2% of VHTs were knowledgeable in diagnosing and managing leprosy cases, respectively. Additionally, it was found that 39% of VHTs and 98% of TB/Leprosy focal persons had received training in leprosy diagnosis and management.

The survey results indicated a significant increase in leprosy diagnosis competency post-training, suggesting that the training had a positive impact on the knowledge and skills of health workers and VHTs. This highlights the importance of training programs in improving leprosy diagnosis and management in the healthcare system. Further evaluation may be warranted to assess the long-term effectiveness of the training.

CONCLUSION: The study has shown a positive correlation between the training received and the ability of health workers at lower-level health facilities (Health Centre III and III), as well as Village Health Teams (VHTs), to diagnose leprosy. This indicates that training and post-training supervision are crucial for identifying and treating leprosy cases effectively. Therefore, these elements should be considered key components in efforts to eradicate leprosy.

RECOMMENDATION: There is need for comprehensive training on management of leprosy to both health workers and VHTs besides distribution of IEC material translated in the local language about leprosy and Creating community awareness.

230A6: The Economic Burden of Leprosy Diagnosis and Care Linkage: A case report from Buluba Leprosy treatment Centre

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Affiliation

1 St. Francis Hospital Buluba

BACKGROUND: Globally an estimated 9600 leprosy cases were reported by WHO in 2022, with Uganda detecting approximately 217 cases annually. Delayed diagnosis and treatment of Leprosy is associated with lifelong disability and socio-economic implications. This case report presents financial costs of diagnosis and linkage to treatment of leprosy, an experience of a 65-year-old male patient of multibacillary leprosy at Buluba Hospital.

AIM: To present the economic experience and total healthcare costs incurred before correct diagnosis and linkage to care of leprosy in a multibacillary leprosy case at St. Francis Buluba hospital in eastern Uganda.

METHODS: This was a case study of a 65-year-old male with confirmed diagnosis of multibacillary leprosy with grade III disability and right foot planter ulcers Buluba hospital who reported having active symptoms of leprosy 4 years prior to right diagnosis and linkage to leprosy care. He was a referral in from Mulago national referral hospital with provisional diagnosis of leprosy. Both direct and indirect cost met by patient in search for health care were estimated from his medical records. His personal economic path and experience to get final linkage to health facility were recorded.

RESULTS: An estimated total cost 14 million Uganda shillings ($4000) for the entire diagnostic and linkage care due to misdiagnosis and treatment from various health facilities and transport to various health facilities. The adjusted disability life years of this case was not determined.

CONCLUSION: The case insights that high costs are incurred by patients in multiple health facilities on misdiagnosis before actual diagnosis and linkage to treatment. This might be as result of low index of suspicion, knowledge gap in diagnosis and treatment among health care providers, lack of diagnostics and treatment supplies. The case informs that there is still need for capacity building in diagnosis, treatment and surveillance of leprosy throughout the country. We recommend scaleup of capacity building through training and provision supplies to enable quick diagnosis, treatment and disease surveillance.

23PA1: A Feasibility of integrating Leprosy post–exposure prophylaxis with single–dose rifampicin (LPEP) into routine leprosy control program in Bukedi and Teso Regions in Uganda

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Affiliations

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BACKGROUND: In Uganda, contact investigation is not routinely systematically performed and neither is leprosy Post Exposure prophylaxis (LPEP) given to contacts who need it. To accelerate the uptake of this evidence and introduction of Leprosy post exposure prophylaxis (LPEP) into national leprosy programmer, a cross sectional study among contacts of leprosy patients was conducted to investigate the feasibility of integrating leprosy systematic contact tracing and post exposure prophylaxis (PEP).

METHODS: This was a mixed methods study in which we concurrently collected both quantitative and qualitative data; the findings of which were merged at the point of data analysis. All incident Leprosy Cases from July 2019 up to May 2022 were enrolled into the study. The study was implemented in Kumi, Ngora, Serere, Soroti, Budaka and Kibuku Districts. Outcomes were assessed in terms of number of contacts traced, screened, and Single Dose Rifampicine (SDR)administration rates.

RESULTS: 45 index patients were line listed and 44(97.8%) were contact traced. Of the 135 contacts successfully traced, 134(99%) consented and were screened. Of those screened, 132(97.8%%) were eligible and received SDR. Two of the contacts screened had suspicious leprosy lesions and were referred to the health facility for further evaluation where one of them was confirmed to have leprosy and started on MDT. Overall, SDR was administered to 133(98.5%) screened contacts. No serious adverse events were reported.

Factors associated with successful contact investigation and management included: the involvement of index cases, health care workers during SDR and Contact screening, LPEP being administered as Directly observed Therapy (DOT), participation of District leadership and incentives to District Tuberculosis and Leprosy supervisor (DTLS), Health care workers (HCW) and Voluntary Health Team (VHT) as well as support supervision by the research assistants with in the districts and investigators

RESULTS INTERPRETATION: The integration of leprosy post-exposure prophylaxis with administration of SDR and contact tracing is feasible and can be integrated into the National leprosy control programmes with minimal additional efforts once contact tracing has been established. The Integration is generally well accepted by index patients, their contacts, and health-care workers. Therefore, we recommend rolling out of systematic contact tracing, screening and administration of SDR to all eligible contacts of index leprosy cases.

23PA2: Participation of persons with disabilities due to Leprosy and Zoonotic diseases in generic development programmes – West Nile

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Affiliation

1 Uganda National Alliance Against Leprosy

BACKGROUND: Leprosy and Zoonotic Diseases often affect the most impoverished people in society. Uganda carries a heavy burden of Leprosy and Zoonotic disease which cause disfigurement and disability, often impacting the participation and inclusion of the affected persons. Their exclusion largely rises from stigmatization of the conditions and their limited knowledge and information. The research project conducted in 2018 investigated Participation of persons with disabilities due to Leprosy and Zoonotic diseases in generic development programmes to inform appropriate interventions.

Methods: The approach including quantitative and qualitative methods was applied. A variety of data collection methods were used to achieve the conclusions on aspects of limitation and inclusion.

RESULTS: People with Leprosy and Zoonotic diseases disability realize being affected by the diseases when they have advanced and have developed visible disabilities. About 27% reported no participation restriction, 25% severe restriction and 17% extreme restriction.

Persons with disability due to Zoonotic diseases reported higher percentage of no restriction while higher percentage of respondents with disabilities due Leprosy reported severe and extreme restriction. Participation restriction was more experienced by female population.

CONCLUSION: Experience by people affected, sow significant percentage (24.1 %) experienced participation restriction. Disability due to Leprosy is more likely to cause participation restriction than disability attributed to Zoonotic diseases. Adequate knowledge and information, accessibility, acceptability and affordability of services are key enablers of participation while their lack hinders participation and inclusion.

Session 4: Policies and programmatic implementation (policies, civil society, human rights)

Chair: Dr. Seyoum Co-Chair: Dr. Estella Birabwa

240A1: Improving Tuberculosis Diagnosis at Private Not for Profit HIV/TB Health Facilities through Strengthening Collaborations with District Health Teams: Mid Northern Region UPMB supported sites.

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Affiliation

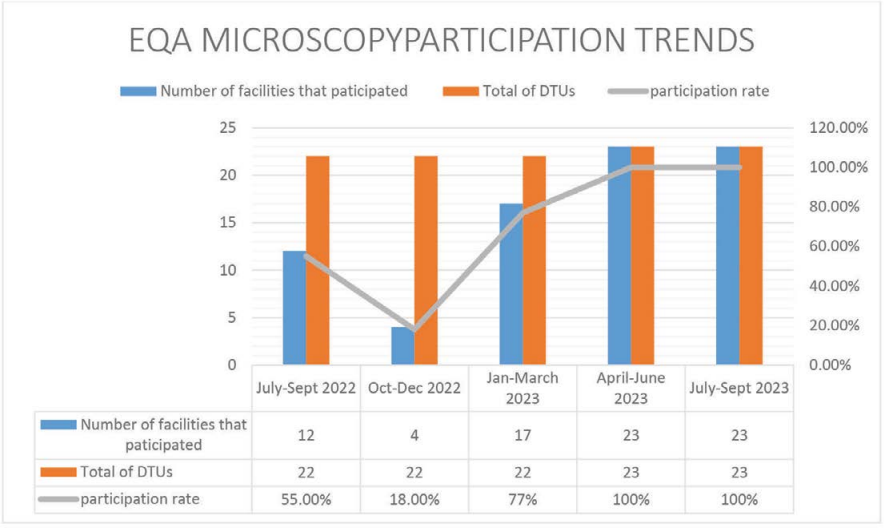
1 Uganda Protestants Medical Bureau

BACKGROUND: The Ministry of Health mandates the District Health Teams particularly the District Tuberculosis and Leprosy Supervisors (DTLSs) and District Laboratory Focal Persons (DLFPs) to spearhead External Quality Assessment (TB blind –Rechecking) by actively sampling slides and supporting private not for profit (PNFPs) facilities with stock redistribution for microscopy TB commodities.

External Quality Assessment programs (EQA) is one of the ways to examine the quality of microscopy testing for TB in Uganda. The July to September 2022 quarterly performance data analysis revealed a drop from 55% (12/22) to 18% (4/22) EQA participation rate for the 23 Local Service Delivery for HIV/AIDS (LSDA) activity supported Diagnostic and Treatment Units (DTUs) in the Mid Northern region. The suboptimal performance was due to over-reliance on GeneXpert testing, scarcity of microscopy TB commodities and poor results transportation networks. The LSDA activity sought to strengthen its collaboration with the District Health Teams to improve TB diagnosis at 23 PNFP facilities/DTUs.

METHODOLOGY: USAID/LSDA engaged all the DTLSs and DLPFs from the 16 districts of Mid north, produced an activity schedule for close monitoring and tracking of sites participation, discussed expectations of LSDA from the DHT including; Support in the redistribution of the TB microscopy commodities from public facilities, timely slides sampling by DTLSs, timely slides first control and submission to the second controller by DLFPs. USAID/LSDA also supported the DHT to Conduct quarterly support supervision and mentorships to Laboratory team to ensure that GeneXpert sites conduct follow-up tests and kept slides and that non-GeneXpert sites perform microscopy before referring samples for molecular testing.

RESULTS: EQA participation rates increased from 55% in July – September 2022 to 100% in July-September 2023.



	July-Sept 2022	Oct-Dec 2022	Jan-March 2023	April-June 2023	July-Sept 2023
Number of facilities that paticipated	12	4	17	23	23
Total of DTUs	22	22	22	23	23
participation rate	55.00%	18.00%	77%	100%	100%

DISCUSSION: Coordinated strategies such as equitable distribution of diagnostic resources, that is; the TB microscopy commodities and optimization of Microscopy as a testing modality greatly enhanced performance. Additionally, monitoring and tracking for chain of custody of slides in the transportation network mitigated the risk of lost slides, thereby expediting diagnosis, treatment initiation and deducing the final treatment outcomes.

CONCLUSION: The transformative impact of collaborations with District Health Teams in fortifying TB diagnostic capacities provides invaluable insights for sustainable TB control programs.

240A2: Using quality improvement initiatives to improve paediatric TB case finding experiences from East Central region of Uganda

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BACKGROUND: Globally, tuberculosis (TB) poses a significant threat to children, with around 1.12 million new paediatric TB cases annually, leading to approximately 200,000 deaths according to the World Health Organization (WHO) reports. Diagnosis is hindered by challenges such as difficulty in obtaining respiratory samples from young children, atypical symptoms in HIV-infected or malnourished children, and complex chest radiography findings. Vulnerable groups, including malnourished or HIV-infected children, face a disproportionately high risk of developing TB. In Uganda, TB case notifications reveal concerning statistics, with 67% of cases reported, including 12% among children aged 0-14 years (quality TB service assessment report,2020). During (October to December) 2022, only 18% (172/832) of TB case notifications were reported among children and adolescents in the east central region, attributed to factors like low community awareness, lack of child contact screening, and knowledge gaps among health workers, inability of children to produce sputum especially those under 5years. .

METHOD: The USAID LPHS-EC project empowered facilities in East Central Uganda through a quality improvement team, introducing impactful measures: 1. Onsite mentorship and training on intensified pediatric TB diagnostic algorithms. 2. Introduction of Simple One Step (SOS) Stool testing via GeneXpert for efficient TB diagnosis. 3. Systematic processes to generate TB client line lists for effective community contact tracing. 4. Regular meetings and data reviews to monitor progress and identify areas for improvement. 5. Community sensitization campaigns heighten awareness on pediatric TB, emphasizing early detection and treatment.

RESULTS: Pediatric TB case notification cumulatively improved from 18% (172/832) October to December 2022 to 83% (693/832) October to December 2023 after implementing the interventions above.

CONCLUSION: simple and adaptable quality improvement tested changes have the potential of improving TB case identification among children in rural Uganda. We recommend scale up of these interventions in the rest of Uganda.

240A3: Leveraging on innovations to improve TB screening in Intensive Care Unit (ICU) at Kabale RRH

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Affiliations

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INTRODUCTION: In spite of newer modalities for diagnosis and treatment of TB, unfortunately, people are still suffering, worldwide it is among top 10 killer infectious diseases, second only to HIV. Low TB screening at Kabale RRH ICU led to delayed diagnosis and treatment, upon realizing this, the team implemented active TB screening to increase case detection through combination of interventions at ICU. The impact of the interventions yielded additional cases detected and initiation to treatment.

METHODOLOGY: Customized the Intensified TB case finding Tool (WHO ICF) for screening all patients admitted to ICU with or without signs and symptoms of TB to aid case finding activities. This was implemented in one year (2023), Then evaluated for its effectiveness compared to the previous year (2022).

All symptomatic patients were subjected to testing for TB with chest x-ray, sputum evaluation using GeneXpert MTB/RIF Ultra, Urine TB-LAM for TB diagnosis and linked the detected cases to treatment.

RESULTS: Before intervention, 1 out of 56 (1.79%) individuals admitted in ICU screened was positive for TB. After intervention, 5 out of 63 (7.94%) were positive. Two (02) cases were confirmed by GeneXpert MTB/RIF Ultra, two cases (02) by Urine TB-Lam and one case (01) were diagnosed by chest x-ray. The TB case detection rate increased from 1.79% to 7.94% during the period of intervention.

CONCLUSIONS: The total number of TB cases detected during the intervention period were more compared to those in the pre-intervention period. Customization of screening tools aid case finding and reduces chances of missing cases in ICU, hence leading to early detection and linkage to treatment to avert TB related mortality

240A4: Strategies to resolve the gap in Adolescent Tuberculosis care at four health facilities in Uganda: The TEEN TB Project

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BACKGROUND: In 2021, an estimated 10.6 million people fell ill with tuberculosis (TB) globally, 1.2 million were children. About 40% of them aged 5 and 14 years with TB were missed annually. In Uganda, 44% of adolescents with chronic cough of ≥2 weeks don't seek care from health facilities. Strategies to promote health care-seeking behaviour among adolescents were urgently needed. We piloted a project aimed at improving uptake of tuberculosis (TB) care services among adolescents at Ugandan health facilities.

OBJECTIVE: To develop and evaluate the effectiveness of adolescent friendly screening package in increasing TB case detection among adolescents at four health facilities in Uganda.

METHODOLOGY: We developed an adolescent TB awareness and screening package using the human centred design. The package consisted of 3 interventions (TB screening cards, awareness poster messages and local song) deployed in health facilities and surrounding communities. Socio-demographic and clinical characteristics of adolescents were collected from October 2021 and March 2022 at Kawolo, Iganga, Gombe and Kiwoko Hospitals. We collected before and after intervention data from facility level records to determine the effect of the package.

RESULTS: A total of 394 adolescents were included and the majority (76%) were still in school. Overall, the intervention improved adolescent TB care in the four health facilities. The average number of adolescents screened increased by 94% from 159 to 309, an incidence rate ratio (IRR) of 1.9 (95% CI: 1.9- 2.0, p <0.001), a 2-fold increase among those presumed to have TB; from 13 to 29, IRR of 2.2 (95% CI: 1.9-2.5, p <0.001) and those tested with Gene X-pert and microscopy increased 3 times more from 8 to 28, IRR of 3.3 (95% CI: 2.8-3.8, p <0.001). There was a minimal increase in the average number of adolescents with a positive result from

1.6 to 2.4 and linkage to TB care services from 2 to 3.1. These were not statistically significant at p=0.170 and p=0.154 respectively.

CONCLUSION: The project improved uptake of TB services among adolescents along the TB care cascade

RECOMMENDATION: We recommend a robust and fully powered randomized controlled trial to evaluate the effectiveness of the package.

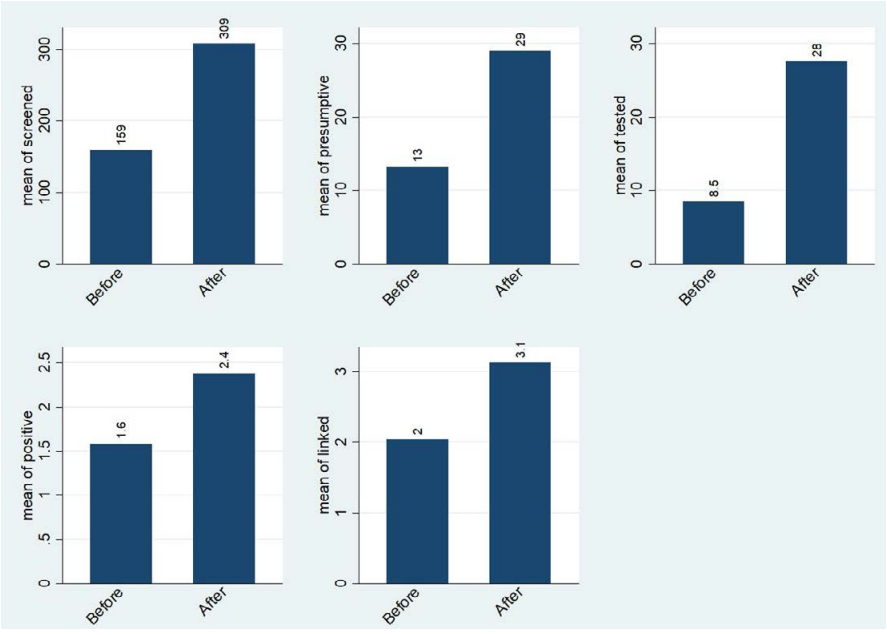

Figure 1. Bar graph showing the overall six months average scores for adolescents screened, presumptive, tested, positive and linked to treatment and care before & after the intervention.

240A5: Integration of TB into nutrition: a case study of TB Screening at food distribution points in the Karamoja subregion–North–Eastern Uganda

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BACKGROUND: The Karamoja subregion is a food and water stressed region with high rates of malnutrition. In 2022, 3.2 % and 13.9% of children aged 6-59 months screened for malnutrition in Karamoja sub region had severe acute malnutrition (SAM) and moderate acute malnutrition (MAM). In addition, 15% of pregnant/ lactating women had MAM. Malnutrition increases the likelihood of activation of latent TB into active TB. Integration of TB screening into a nutrition service is therefore a key intervention to improve TB case detection rates in this region.

INTERVENTION: The USAID PACT Karamoja project supported trained healthcare workers to screen for TB among recipients of food aid at monthly food distribution points run by Andre Foods International (AFI). Healthcare workers screened patients for TB, and collected sputum samples from patients with presumptive TB and transported them for TB testing at nearby public health facilities. Results were returned to the health care workers by hub riders. Participants who were diagnosed with TB were then followed up and started on treatment using available community health tracking systems like community owned resource persons.

RESULTS: From October to December, 2022, TB screening was carried out at 20 food distribution points in seven districts in Karamoja sub-region. At these distribution points, 1756 people were screened for TB. Of these, 279(15.9%) were diagnosed with presumptive TB and 257(92.1%) had their sputum samples collected & tested using GeneXpert testing. Eighteen (7%) of patients were diagnosed with TB, 10 of whom were male.

CONCLUSION AND RECOMMENDATIONS: Integrating TB screening into malnutrition services among the nomadic communities in Karamoja sub region, North Eastern Uganda resulted in identification of cases of TB which would have been missed by routine TB care programs.

240A6: Description of tuberculosis contact follow–up across the care cascade in four selected regional referral hospitals, Uganda, 2022

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INTRODUCTION: Uganda's tuberculosis (TB) incidence was 200/100,000 population (2022); far from the WHO END-TB target of 10/100,000 population by 2035. Contact tracing facilitates early diagnosis and treatment breaking the transmission cycle thereby reducing incidence. We evaluated the TB contact follow-up cascade in selected regional referral hospitals during 2022.

METHODS: We reviewed and abstracted data from unit and contact tracing registers to identify pulmonary bacteriologically confirmed (PBC) TB cases and their contacts at four regional referral hospitals. We calculated proportions of PBC-TB cases whose contacts were listed, contacts screened for TB, presumptive cases among contacts, presumptive contacts tested for TB using gene-expert and their result, TB positive contacts initiated on treatment, TB contacts below 5 years initiated on TB preventive therapy (TPT), contacts with HIV who were initiated on TPT and treatment outcomes.

RESULTS: We identified 491 index TB cases of whom 231(47%) had their contacts (1,215) listed for follow-up. Median age of the contacts was 18 years (range: 0-98), 14% of whom were <5 years. 54% were female. Majority (97%) of the contacts were household members to index cases. Of the contacts, 1,067 (88%) were screened of whom 222 (21%) were presumed for TB. Of those presumed, 98% were tested for TB; 10% tested positive. Of those who tested positive, 91% were initiated on treatment with 37% declared cured while 63% were still on treatment at the time of data collection. Only 1% of the contacts were HIV positive. None of the TB contacts >5years or HIV positive were initiated on TPT.

CONCLUSION: The care cascade was successful overall. Missing data on contacts could have resulted in an under-estimation of contact follow-up rate. While the majority of the national targets were achieved, contact listing and initiation of eligible clients on TPT was unmet.

24PA1: Lost to follow up (LTFU) TB patients are likely to get LTFU again on TB treatment when restarted on anti TBs: findings of a retrospective Study at a large volume clinic in Kampala, Uganda

Lyness Bitira[1], Mwanga Prisca[1], Mark Muhumuza[1], Patrick Kazooba[1], Gertrude Namale[1]

Affiliation

1 Reach Out Mbuya Community Initiative

BACKGROUND: TB remains a leading cause of global mortality, especially in an endemic country like Uganda.

While use of anti TBs has been key in reducing TB related mortality, LTFU while on TB treatment remains a major obstacle in this fight. It is not only associated with clinical complications but also with drug resistance and the potential spread of resistant strains to communities.

METHODS: We conducted a retrospective review of TB treatment records at Kawaala Health Centre IV from January 2021 to December 2022. Demographic data, HIV status, diagnosis methods, TB type and presence of phone or treatment support were extracted from unit TB facility registers. Data were entered into an Excel data abstraction tool and analyzed using Stata 13. We assessed factors associated with LTFU and adjusted for a priori confounders such as age, gender and HIV status to determine independent predictors for TB patient attrition.

RESULTS: There were 746 TB entries, more than half, 468(63.87%) were male, mean age was 31.6 years (SD±13.62), 66% were PBCs, treatment success rate (TSR) was (656/741) 88.5%. There was 78% reduction of LTFU among the newly diagnosed clients compared to those who had been restarted on anti TBs after being LTFU (aOR 0.22,95% CI 0.08- 0.60, p=0.001) and association with facility referrals compared to community referrals (aOR=2.86,95% CI 0.63- 5.08, p=0.005). No association with age, sex, distance from the health facility or presence of a treatment supporter.

CONCLUSION: Clients that are restarted on anti TBs after being LTFU were more likely to have LTFU outcome after reinitiation on anti- TB treatment regardless of other factors.

There is need to customize interventions when LTFU patients are restarted on TB treatment to mitigate recurrence of LTFU and associated risks.

24PA2: Effect of COVID–19 Period on Tuberculosis Treatment Success; a Mixed Methods Study among Tuberculosis patients at Jinja Regional Referral Hospital

Higenyi James1,2, Achilles Katamba1,5,7,8,9, Mupere Ezekiel1,3,4.

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7 International Union Against Tuberculosis and Lung Disease
8 Uganda Society for Health Scientists (USHS)
9 School of Public Health Higher Degrees, Research and Ethics Committee

TB epidemic may be exacerbated by the COVID-19 pandemic. The lockdown in response to the pandemic and the events related to it can have an adverse epidemiologic impact on TB treatment outcomes through its effect on poverty, and dietary intake.

Therefore, this study during COVID-19 would determine the effect of COVID-19 period on Tuberculosis Treatment success among TB patients.

Sequential explanatory mixed methods were used. A retrospective cohort study was employed for the quantitative component to determine the association between COVID-19 period and Tuberculosis treatment success. A data abstraction sheet was used to extract the required data from the TB treatment registers. Treatment outcomes were dichotomized as successful treatment outcome and poor treatment outcome. Modified possion regression was used to explore associations . A qualitative study with a phenomenology approach was adopted to get an in-depth understanding. The lived experience of the TB patients who had participated in the quantitative component was captured. Data from audio recordings was transcribed and analyzed using a deductive thematic analysis to explore barriers and facilitators.

There was no significant effect of COVID-19 Period on TB treatment Success (aRR=1.04: 95% CI 0.78-1.38). In addition, sex, HIV status, age, distance from the health facility, disease classification and treatment mode were not significantly associated with treatment success. The barrier to treatment success was lack of adequate health care information, fearing the COVID thing in the hospital. Some health workers pointed out that donors failed to support most of the TB activities as government redirected most of its funding to COVID-19 activities and

neglected TB services.

The major facilitators were good relationship with health care workers, TB awareness programs, updating of TB guidelines, and availability of free drugs and services.

This study did not find a significant effect of COVID-19 period on treatment outcomes. Measures towards alleviating fear and stigma and ensuring financial securities of the patients during the time of health crisis are important for preparedness against future epidemics such as COVID-19.

24PA3: Utilizing Quality Improvement Approaches to Enhance TB Key Performance Indicators at Baitambogwe HC III

Nabirye Carloine[1], Joel kasakaire[1], Rodrigo Nyinoburyo[1], Moses Arinaitwe[1], Samuel kawuma[1] ,Paul Iwevola[1], Michael Kiyingi[1] , Fred C. Semitala[1]

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BACKGROUND: Tuberculosis (TB) remains a significant global health challenge, with 10 million individuals falling ill and approximately 1.5 million deaths reported worldwide in 2020. Gender disparities were evident, with over half of new TB cases (5.6 million) in men and a quarter (2.8 million) in women.

Uganda reported an estimated 60,000 new TB cases in 2020, with males constituting about 60% of cases. Despite efforts aligned with WHO and MoH targets for TB control, Baitambogwe Health Center III in Mayuge district faced sub-optimal TB key performance indicators in October to December 2022. TB screening coverage was at 90.3% (4511/4996), the TB presumption rate at 1.4% (62/4511), and the TB case identification rate at 18% (13/72).

Barriers included poor screening practices, inadequate documentation, data deficiencies, knowledge gaps, and a lack of committed personnel at screening points.

METHODS: Baitambogwe HCIII, with USAID Local Partner Health Services in East Central Uganda (LPHS-EC) and Makerere University Joint AIDS Program support, implemented TB awareness and screening interventions: 1. Supported cough monitors for TB awareness and screening. 2. Introduced ICF stamps for TB screening. 3. Provided on-site orientation and mentorship for data documentation and reporting.

RESULTS: Between October and December 2022 and the same period in 2023, there was improvement in key TB indicators. TB screening coverage of total attendances increased from 90.3% (4511/4996) to 98.2% (6368/6487), TB

presumption rate increase from 1.4% (62/4511) to 1.6% (102/6368, the TB case identification rate increased cumulatively from 18% (13/72) to 106%(76/72) respectively.

CONCLUSION: Quality Improvement methods have substantially enhanced TB key performance indicators (KPIs), notably through innovative interventions such as ICF screening stamps used by trained cough monitors. This approach, proving both feasible and highly effective, has improved TB screening and case identification by reducing missed opportunities. The success highlights its potential for scalability across Uganda, presenting a promising model for nationwide implementation to advance TB management and control practices.

24PA4: Fixing GeneXpert utilization bottlenecks through a continuous quality improvement approach to improve Tuberculosis Case Detection

Tusiime James[1], Hillary Alima[1], Ambrose Muhumuza[1], Robinah Takwaza[1], Gordon Karukoma[1], Johnson Masiko[1], Tonny Tumwesigye[1]

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BACKGROUND: The GeneXpert MTB/RIF assay was recommended for Tuberculosis (TB) diagnosis in 2010 by WHO and has been used worldwide. In Uganda, the assay was introduced in the laboratory network in 2012 to universalize access to TB diagnostic services using the hub-spoke model. USAID Local Services Delivery for HIV/AIDS Activity (LSDA) project supports 18 GeneXpert sites across its catchment area. The eighteen sites are expected to examine 14,400 sputum samples per quarter. However, analysis of the routine HMIS data revealed that 7,882 (54.7%) TB sputum samples were examined in January-March 2023 quarter (Q2). During the Q2 2023 quarterly performance review, low GeneXpert utilization was identified as a key area for improvement.

What was done

LSDA instituted a root cause analysis in April 2023, that revealed; low patient referral, low specimen referral from spoke sites, delayed replacement of faulty modules, poor coordination with spoke sites as the root causes of low GeneXpert utilization. On-site targeted mentorships were conducted to empower health care givers and trained laboratory personnel on generating system logs. Monitored and reported GeneXpert module functionality weekly. Community Linkage facilitators were engaged to pick samples from communities to facilities. Re-aligned hub routes in collaboration with regional partners and hubs. Conducted weekly review of utilization data to inform targeted interventions for underperforming facilities. Provided airtime for coordination at GeneXpert sites.

RESULTS: GeneXpert utilization was at; 54.7% (7882) in Jan-March, 60.1% (8653) in April–June, 69.3% (9983) in July–Sept and 94.3% (13573) in Oct–Dec. During the same TB case detection was at; 4.8% (378), 4.2% (360), 4.6% (456) and 4.7% (643) respectively.

DISCUSSION: Utilization of GeneXpert machine improved from 54.7% (7882/14400) samples examined in Jan-March 23 to 94.3% (13573/14400) in Oct-Dec 23 quarter. The positivity rate is similar at 4.8% (378) in Jan-March 23 and at 4.7% (643) in the Oct-Dec 23 quarter, but the absolute number of identified positive cases increased with the increase in number of tested samples.

CONCLUSION: Intensified case finding activities in the communities, clinical-laboratory interactions, utilization of data at facilities, minimal equipment breakdown and proper coordination are vital for improved utilization and TB case finding.

Session 5: Cost-effectiveness, Costing, and Social Protection

Chair: Prof. David Kitara Co-Chair: Dr. Raymond Byaruhanga

250A1: Conducting gender–responsive TB research in a gender–unequal world: A critical reflection for research teams

Dr Beate Ringwald[1], Dr Winters Muttamba[2], Dr Rachael Thomson[1] for The LIGHT Consortium

Affiliations:
1 Liverpool School of Tropical Medicine, UK;
2 Makerere Lung Institute, Uganda.

BACKGROUND: While sex and gender analyses in health research are common, it can be challenging to incorporate actions to reduce harmful effects of gender on health and research within time and budget-constrained research projects. Based on LIGHT, a six-year cross-disciplinary research programme on gender and tuberculosis in urban contexts in Kenya, Malawi, Nigeria and Uganda, this abstract seeks to critically reflect on measures and lessons for gender-responsive TB research.

INTERVENTION DESCRIPTION: At the start of the programme, LIGHT defined its gender mainstreaming goals, and each partner appointed a gender focal person. All researchers familiarised themselves with key gender theories, frameworks, and concepts. Webinars and learning events served to strengthen existing gender equality competence. Gender was considered during study design, sampling, data collection, and analysis. As a consortium, we also assessed the state of gender equality in our national, institutional and research contexts. Our gender mainstreaming approach was regularly reviewed.

LESSONS LEARNED: All LIGHT partners operate within gender unequal environments, depending on location and gender equality indicators used. Opportunities for policy and structural change are limited within complex policy environments. The community, rights and gender agenda promoted by TB survivors and funders creates demand for sex and gender-disaggregated data. Our results expand understanding on how gender norms and roles are harmful to women and men, including exposure to TB and delay in accessing care. Commitment to gender equality required us to consider whether our proposed interpretations or interventions are potentially detrimental to women.

NEXT STEPS: We will review our monitoring and evaluation strategy to assess the impact of our gender-responsive approaches.

250A3: Beyond Health: Exploring the economic sequel of Tuberculosis in Southwestern Uganda: A Qualitative study

Raymond Bernard Kihumuro[1, 3], Timothy Mwanje Kintu [2, 3], Mike Ssemusu [3], Joseph Mugerwa [3], Stellah G. Mpagama[4,3], Edwin Nuwagira [3, 5] and the IMPACT–U team

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5. Tuberculosis Treatment Unit, Mbarara Regional Referral Hospital

BACKGROUND: Despite the improved treatment success rate of drug-sensitive TB (DS-TB) majority of the TB survivors continue to grapple with lifelong health complications. TB survivors lose up to 6 months of work time, resulting in a 20-30% loss of annual household. What is not known is if the TB survivors continue to face economic hardships after TB cure and if the hardships are related to the health-related symptoms despite microbiological cure. The Improving Pulmonary Function After Tuberculosis in Uganda (IMPACT-U) study sought to describe the economic consequences of TB survivors at Mbarara Regional Referral Hospital TB treatment unit.

METHODOLOGY: We conducted individual interviews among 33 TB survivors who had declared cured of pulmonary DS-TB between 2020 and 2021. Participants were purposively selected and the interviews lasted 30 to 40 minutes following a structured guide until saturation was achieved. The data was transcribed, coded and analyzed thematically.

RESULTS: Of the 33 participants, 21(64%) were male. From the interviews, four major themes emerged: (1) Increased Financial Demands; participants reported added economic strain from dietary, medication, and travel expenses for treatment; (2) Destroyed Future Plans; participants experienced significant disruptions in educational, career, and entrepreneurial goals due to TB; (3) Inability to Work and Job Loss, indicating the economic impact of TB's physical debilitation on employment and labor capacity; and (4) Compromised Family Care; reflecting the challenges in meeting basic family needs due to the inability to work and the financial burdens of TB treatment.

CONCLUSION: The findings demonstrate the previously unknown socioeconomic impact of post-TB health consequences, demonstrating how the TB not only disrupts health, but also the economic stability and well-being of patients and their families. We recommend a trial of targeted economic interventions addressing economic consequences after TB cure.

250A4: Cost comparison of delivery strategies for three months of weekly isoniazid–rifapentine (3HP) among people living with HIV: results from the 3HP Options Trial

Allan Musinguzi[1], Yeonsoo Baik[2], Anne Nakitende[1], Jillian L. Kadota[3], Hojoon Sohn[4], Fred C. Semitala[1,5,6], Achilles Katamba[7,8], Adithya Cattamanchi[3,7,9], David Dowdy[10]

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8. Clinical Epidemiology & Biostatistics Unit, Department of Medicine, Makerere University College of Health Sciences, Kampala, Uganda
9. Division of Pulmonary Diseases and Critical Care Medicine, University of California Irvine, Irvine, CA, USA
10. Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

BACKGROUND: Short-course regimens for tuberculosis (TB) prevention, such as three months of Isoniazid-Rifapentine (3HP), have shown high levels of treatment completion in a trial of facilitated directly observed therapy (DOT), facilitated self-administered therapy (SAT), and informed choice between facilitated DOT and facilitated SAT (using a shared decision-making aid) among people living with HIV (PLHIV). We aimed to compare per-patient costs for 3HP across delivery strategies.

METHODS: In a pragmatic implementation trial, PLHIV at an HIV clinic in Kampala, Uganda, were randomly assigned to receive 3HP by DOT, SAT, or informed choice. At enrollment, all participants underwent a detailed costing survey followed by a shortened costing survey at the dose-six visit to a random subset of 50 participants per arm. Study and routine clinic staff were asked to log their weekly time requirements for study activities; clinical activities were directly observed using time-and-motion surveys.

RESULTS: Facilitated SAT was substantially less costly to the health system ($56 vs. $107 per participant) and to participants ($8 vs. $28) than facilitated DOT (total cost: $64 vs. $135). This difference primarily reflected more frequent clinic visits for DOT, requiring increased payments for transport reimbursement that outweighed the higher cost of the digital adherence technology (99DOTS) platform for SAT (Figure 1). Participant costs reflected more frequent clinic visits

which incurred lost wages and requirements for work coverage (e.g., childcare). Implementing shared decision-making added only minimally to the total cost.

DISCUSSION/CONCLUSIONS: For PLHIV receiving 3HP, facilitated SAT required less than half the cost of facilitated DOT. This cost differential may be reduced in clinics that are located closer to participant homes and/or workplaces. Shared decision-making is feasible to implement from the cost perspective.

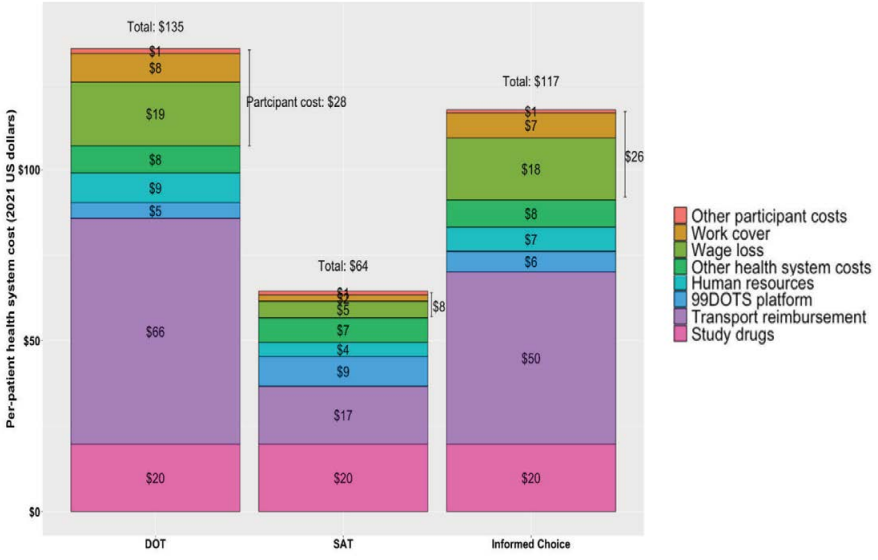

Figure 1 *Per-patient cost of short-course 3HP delivery from the health system and participant perspectives*

250A5: Leveraging on existing community structures (VHTs) for real–time tracking, follow–up and return to care of patients that miss clinic appointments to improve TB treatment outcomes: A case of five Southern Karamoja Districts

Mary Abuko[1], Joseph Katetemera[1], Ralson Okidi[1], Simone Cadorin[1], Jerry Ictho[1], Peter Lochoro[1], Joseph Omilo[1], Rose Nakolong[1], Vella Tinagarukayo[1], Korobe Fontiano[2], James Lemukol[3], Timothy Teko[3], Peter Lokwang[3], John Anguzu[3], Patrick Sagaki[3]

Affiliations:

1 Doctors With Africa CUAMM (Implementer),
2 National Tuberculosis and Leprosy Program,
3 District Local Governments of Napak, Nakapiripirit, Amudat, Nabilatuk and Moroto.

BACKGROUND: In Uganda, high TB treatment interruptions pose a challenge, especially in Karamoja due to rural poverty, poor health-seeking behavior, limited access to care, insecurity, alcoholism, and nomadic lifestyles. Inadequate patient information and follow-up strategies fuel TB spread and Multi Drug Resistant cases, straining resources. CUAMM's 3-year project aims to enhance TB services in Karamoja's 5 districts (Amudat, Nakapiripirit, Nabilatuk, Moroto, Napak). One of the goals is raising TB treatment success rates from 52% as of March, 2020 to 90% and reducing lost-to-follow-up rates from 35% to <5% by July-September 2024.

INTERVENTION DESCRIPTION: CUAMM implements a Back-to-Care Strategy; project and health facility staff compile lists of newly diagnosed TB patients and those who missed appointments or require sputum monitoring at selected facilities. They identify Village Health Teams (VHTs) closest to each patient using VHT registers, match patients with appropriate VHTs, and assign tasks including patient tracing, medication refills, sputum collection, and treatment support. VHTs locate patients through home visits and phone calls to ensure continuity of care.

RESULTS: By October-December 2023, the Treatment Success Rate (TSR) in the 5 districts had improved from 52% to 88%, a 36% increase. The VHT-led Back-to-Care Strategy contributed 14.5% to this improvement, alongside a decrease in the Lost to Follow-Up rate from 35% to 5.6% during the same period.

Figure 1 illustrates the TSR trend in the target districts.

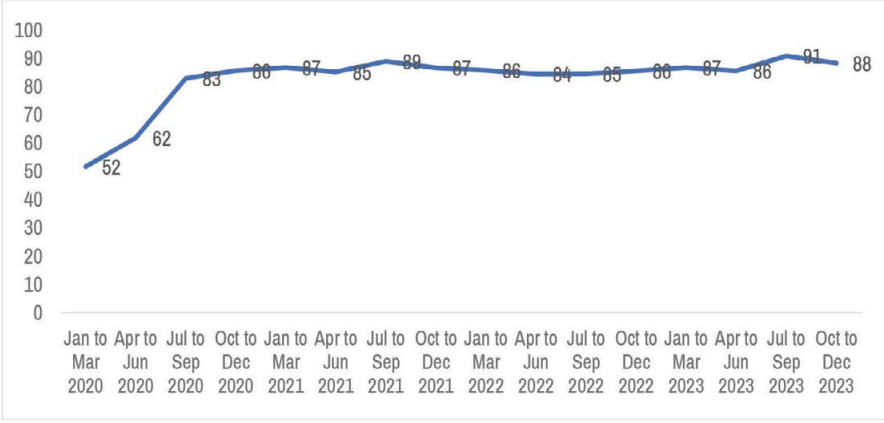

Figure 1: Trend of the combined TB TSR in the 5 districts (Data source: DHIS2)

LESSON LEARNED: Engaging Village Health Teams (VHTs) improves Treatment Success Rate (TSR) and reduces Lost to Follow-Up (LTFU) rates in TB care.

CONCLUSION: Community structures, such as VHTs, remain effective in TB prevention and care, but their engagement must be meaningful to yield positive outcomes.

250A6: Utilisation of private for–profit facilities to surge TB screening, diagnosis, and treatment among urban population within Nakawa Division

Magomu Muniru, Namale Gertrude, Kazooba Patrick, Brian Mikka, Tumuhirwe Douglas, Ankunda Shanita, Lyness Bitira

Reach out Mbuya Community Initiative with support from PEPFAR/CDC

BACKGROUND

1. With the migration of HIV/TB services from PFPs, a gap arose for which there was suboptimal utilisation and uptake of TB/HIV services by clients in PFPs.
2. PFPs serve a large section of the urban population.
3. Analysis of data from PFPs shows high rates of HIV testing however with suboptimal linkage of the positive cases thus a precursor for Advanced HIV Disease. It also showed high rates of respiratory tract infections managed predominantly by antibiotics without ruling out TB disease.
4. In view of that, on boarding PFPs to increase HTS, TB screening and diagnosis will translate into increased TB case detection.

METHODOLOGY

- PFPs are attached to a public health facility as CDDPs and capacity built through mentorships and trainings

- Provision of IEC material to create awareness.
- Monthly visits to monitor and evaluate the program.
- Support with necessary commodities for HTS, TB screening, testing and diagnosis
- Real time sharing of newly identified or transferred in clients for generation of facility identification numbers
- Periodic stock taking and accountability to ensure proper utilisation of commodities.
- Linkage to the hub transportation system for commodity movement
- Establishing designated clinic days for enrolled clients

RESULTS

- Between October 2022 to December 2023, 35 TB cases were notified. 31 were PBCs, 2 PCD, 3 EPTB. All had a documented TB HIV status and were initiated on treatment
- TSR was 76% with a lost to follow up rate of 5% and death rate of 18%

LESSONS AND CONCLUSION

- There is high incidence of TB in middle- and high-income level sub population
- PFPs have the capacity to increase coverage of provision of HIV/TB services
- It provides an opportunity for increasing HTS and prevention services to eligible clients
- Its limited by stock outs, inadequate human resource, high staff turn over

ACKNOWLEDGEMENTS

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- UMC Victoria Hospital

Advances in swab–based molecular testing for TB diagnosis

Alfred Andama*, Amy Steadman, Job Mukwatamundu, Lucy Asege, Alice Bukirwa, John Baptist Kato, David Katumba, Esther Kisakye, Wilson Mangeni, Sandra Mwebe, Martha Nakaye, Irene Nassuna, Justine Nyawere, Annet Nakaweesa, Talemwa Nalugwa, Fred Collins Semitala, William Worodria and Adithya Cattamanchi.

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BACKGROUND: Tuberculosis was responsible for nearly 1.6 million deaths in 2021, with disruptions to diagnosis and treatment caused by the COVID-19 pandemic. TB is curable and preventable, but diagnosis remains the largest gap in the care cascade with the number of new notifications already falling 18% from 2019 to 2020, and missed diagnosis for an additional 4.2 million people during the pandemic, highlighting the urgent need for improved access to diagnostic services.

RATIONALE: Reliance on sputum-based testing is a key barrier to increasing access to molecular diagnostics for tuberculosis (TB). Many people with TB are unable to produce adequate sputum, and sputum processing increases the complexity and cost of molecular assays. Tongue swabs are emerging as an alternative to sputum, but performance limits are uncertain.

The importance of Tongue swab testing: Tongue swabs are a promising alternative to sputum-based molecular testing for TB, especially among populations unable to produce adequate sputum (e.g., children and PLHIV).

ABOUT MY TALK: This talk will describe the latest learnings on optimal tongue swab collection and processing methods, describe initial results from validation studies on existing diagnostic platforms (GeneXpert [Cepheid] and Truenat [Molbio]), and discuss how advances in COVID-19 diagnostics are being leveraged to further advance tongue swab-based molecular testing for TB.

Programme

MINISTRY OF HEALTH

National TB and Leprosy Science Summit, 2024

THEME: Harnessing Local Research and Innovation on TB and Leprosy to shape National Policy and Practice to END TB & Leprosy in Uganda

Day 1: 18th March 2024

Time	Activity	Responsibility
07:50-8.00	Arrival and Registration	MLI/USTP/USAID LPHS-TBA
08:00-9:30	**Capacity Building Workshop:** Integration of impact evaluation into routine programming	Prof. Bruce Kirenga
09:30-09.45	• Supporting, Mobilizing, and Accelerating Research for Tuberculosis Elimination (SMART4TB) • Re-Imagining TB Care	Prof. Joloba Dr. Achilles Katamba
09:45-10.00	Objectives of the summit Feedback/Abstract selection	Chair Organizing Committee Chair Science Committee
10.00-10.30	Health Break/tea	Hotel
Officiation **Chair:** Chair Organising Committee **Co-Chair:** Secretary Organising Committee		
10:30-10:40	Remarks: Academia	AC NTLD
10:40-10:50	Remarks: Global Fund CCM Chair	AC NTLD
10:50-11:00	Remarks: USAID Director for HIV and Health	AC NTLD
11:00-11:10	Remarks: WHO - Country Representative	AC NTLD
11:10-11:20	Remarks: Hon. Minister for Health (Guest of Honor)	AC NTLD
Session 1: TB Epidemiology, surveys, burden **Chair:** Prof. Noah Kiwanuka **Co-Chair**: Dr. Luzze Henry		
11OA1	Spatial Distribution and Temporal Trends of Tuberculosis Case Notifications, Uganda: A Ten-year Retrospective Analysis (2013-2022)	Freda Loy Aceng (MUSPH)
11OA2	Pulmonary tuberculosis screening among travellers and migrants in Uganda at Points of Entry: analysis of surveillance data 2022-2023.	Harriet Mayinja (MoH)
11OA3	Characterizing and understanding TB transmission dynamics in a high burden pastoralist region (Karamoja).	Geofrey Amanya (MoH/ NTLP LPHS IDI)
11OA4	Death after cure: mortality among tuberculosis survivors in rural Uganda	Joseph Baruch Baluku (KNRH/MLI)
11OA5	Prevalence of electrocardiographic abnormalities at TB cure: Preliminary results from a prospective cohort in southwestern Uganda	Timothy Kintu (Mbarara)
11OA6	Chronic Pulmonary Aspergillosis in Uganda: burden, diagnostic challenges, and implications on TB care.	Richard Kwizera (IDI)
Session Q&A		

11PA1	Incidence and risk factors for tuberculosis at a rural HIV clinic in Uganda; a retrospective cohort study	Ibrahim Sendagire (RHSP)
11PA2	Geospatial distribution and socio-demographic predictors of Pulmonary Tuberculosis in a pastoralist community in Eastern Uganda	Stephen Ssempijja (BUSITEMA UNIVERISTY
11PA3	Deaths and Notification trends for Post TB lung diseases among TB survivors, Quarterly trend (2020-2023)	Geofrey Amanya (MoH/ NTLP LPHS IDI)
11PA4	Predictors of Treatment Interruptions among patients initiated on Tuberculosis Treatment at Reach Out Mbuya:	Kazooba Patrick (ROM-Mbuya)
Session 2: TB Preventive Treatment		
Chair: Dr. Prossy Namuwenge	**Co-Chair:** Dr. Evelyne Tibananuka	
12OA1	Application of social network theory in TB transmission research	Prof. Noah Kiwanuka (MaKCHS)
12OA2	The TB preventive therapy cascade-of-care among people with HIV undergoing systematic TB screening in Uganda	Semitala Fred (MaKCHS)
12OA3	Incidence of TB among PLHIV on ART who initiated IPT: a multicentre retrospective cohort study	Dr. Andrew Kazibwe (TASO)
12OA4	Leveraging the EXPAND TPT campaign to optimize TB case detection rates.	Chrispus Mbaha (Iganga Hospital)
12OA5	Improving TPT Uptake among child contacts >5 years through intensified health worker led community initiation of TPT	Leus Tweenatwine (USAID LPHS)
12OA6	Adverse reactions to 3HP during programmatic roll out of TPT in Uganda.	Dr. Irene Mbabazi (IDI)
12OA7	The CHASE-TB Study: A cluster-randomized trial of clinic-based versus hotspot-focused ACF and Linkage to TPT	Dr. Achilles Katamba
Session Q&A		
12PA1	Characteristics of PLHIV who contract TB disease after completion of TB Preventive Therapy at a large ART facility in Kampala, Uganda	Lynness Bitira (ROM)
12PA2	Integrating community contact tracing with TPT screening eligibility improves uptake of TPT.	Jennifer Kadondi (Buwenge HC IV)
12PA3	Trends and spatial distribution of Tuberculosis Preventive Therapy uptake and completion among People on Antiretroviral Therapy in Uganda, 2020 – 2023	Innocent Ssemanda (UNIPH)
12PA4	Preferences for TPT regimens among PLHIV in Uganda_ a discrete choice experiment	Dr. Allan Musinguzi (MJAP)
13:30 -14:30	Lunch Break and Poster Viewing	Dr. Stella (IDI) & Dr. Jasper (MLI)

Session 3: TB and Co-morbidities (Mental Health, PTLD, HIV, DM, under nutrition etc.)		
Chair: Dr. Nuwagaba Edwin	**Co-Chair:** Dr. Semitala Fred	
13OA1	Cardiovascular risk factors among people with DR-TB in Uganda	Joseph Baluku
13OA2	Baseline cytomegalovirus viraemia is associated with long-term increased incident TB disease and mortality: a prospective cohort of 497 Ugandan adults.	Lillian Tugume (IDI)
13OA3	Yield and operational challenges of including urine LAM testing in intensified tb case-finding among outpatients with HIV: experience from the tb-script trial	Shafic Makumbi (IDRC)
13OA4	Assessing the Influence of Coexisting Health Conditions on Tuberculosis Treatment Results at the Uganda Cares ART Clinic – Gombe General Hospital: A Cohort study.	Semuwemba Haruna (Gombe Hosp)
13OA5	Turning Advocacy into Action: Integrating Mental Health into TB Treatment and Care	Yves Miel Zuniga – United for Global Mental Health UK
Session Q&A		
13PA1	Incidence of acute kidney injury and associated mortality among individuals with drug-susceptible tuberculosis in Uganda	Grace Kansiime – MUST Mbarara
13PA2	Mitigating the Burden of Substance Abuse on Tuberculosis Control in Urban Slums	Mayambala Dauda – AIDS Information Centre Kampala
13PA3	Enhancing screening for tuberculosis among clients with advanced HIV disease through urine lipoarabinomannan (LAM) testing at mother Francisca lechner HCIV- Rushooka	Muhwezi Aaron – UPMB Rushooka
13PA4	Unfavourable TB treatment outcomes and associated factors among TB/HIV co-infected patients in Eastern Uganda, 2015–2021	Patrick King (MUSPH)
Session 4: Policies and programmatic implementation (policies, civil society, human rights)		
Chair: Ms. Getrude Namayanja (OPM)	**Co-Chair:** Dr. Mary Mudiope	
14OA1	Lessons from (CAST+) for primary prevention, control and treatment of Tuberculosis, HIV, Maternal and Child Health, Alebtong district	Geoffrey Kabaale (JCRC)
14OA2	A user-centered implementation strategy for tuberculosis contact investigation in Uganda. A stepped-wedge, cluster-randomised trial	Dr. Achilles Katamba
14OA3	Evaluating a Tracking Tool for TB Screening: A Co-designed Health Systems Implementation Research Study to Improve Service Coverage and Quality	Jasper Nidoi (MLI/LIGHT)
14OA4	Assessing the burden of TB among school going children in Kampala, Mukono and Wakiso	Mary Mudiope (USAID LPHS TB)

14OA5	Policy brief to enhance community active case finding and prevention strategies for TB, to reduce the burden of tuberculosis in Uganda.	Aldomoro Burua (NTLP/ LPHS-IDI)
14OA6	Using root cause analysis approaches to improve TB Treatment success rates (TSR) among adults with tuberculosis in Ankole Region.	Alphonse Kwizeera (LPHS-Ankole)
14OA7	Lessons learnt from improved HMIS 106 TB reporting rates and timelines from Mbale hospital	Namuche Zowena (Mbale Hospital)
Session Q & A		
14PA1	Gender differences of Drug Resistant TB (DR-TB) case notification at Mbale Regional Referral Hospital, Eastern Uganda	Damalie Waiswa (NTLP/ Mbale)
14PA2	Improving Bacteriological Diagnosis Coverage among all incident Tuberculosis patients in Lango sub region, Northern Uganda	Geoffrey Kabaale (JCRC)
14PA3	Extended TB contact tracing through engaging VHTs: An adaptation from the CAST TB campaign.	Tadeo Nsubuga (IDI)
14PA4	Improving TB treatment success rates at a tertiary health facility: Lessons from Matany Hospital, Napak District, Karamoja region.	Victor Lomonyang (PACT-Karamoja)
17.00-18:00	Health Break/tea	Hotel

MINISTRY OF HEALTH

National TB and Leprosy Science Summit, 2024

THEME: Harnessing Local Research and Innovation on TB and Leprosy to shape National Policy and Practice to END TB & Leprosy in Uganda

Day 2: 19th March 2024

Time	Activity	Responsibility
07:50-8.00	Arrival and Registration	MLI/IDI
08:00-10:00	**Capacity Building Workshop:** Economic Evaluation of Health Care/TB programs	Elly Nuwamanya (IDI)
10.00-10:30	Break fast	Hotel
Session 1: TB Vaccines, Immunology and PTLD **Chair:** Prof. William Worodria **Co-Chair:** Dr. Julie Mwanga		
21OA1	The current landscape of TB vaccine development	Dr. Anne Wajja (MRC)
21OA2	Population differences in vaccine responses (POPVAC): results of three linked, randomized controlled trials	Ludoviko Zirimenya (MRC
21OA3	Babies born to mothers with Active Tuberculosis have reduced BCG, Tetanus, and Diphtheria IgG responses, in addition to heightened IL-17 responses	Diana Sitenda (MRC)
21OA4	Diagnostic accuracy of plasma LAM antibodies in combination with urine LAM detection in high TB burden settings.	Martha Nakaye (IDRC)

21OA5	Notification trends of PTLD among TB survivors since 2020.	Geofrey Amanya (MoH/ NTLP LPHS IDI)
21OA6	Post-Tuberculosis Lung Disease: Interval Analysis of Risk Factors and Characteristics in a Ugandan Cohort	Mudarshiru Bbuye
Session 2: Laboratory, Diagnostics, Imaging, **Chair:** Dr. Richard Katuramu. **Co-Chair:** Dr. Willy Sengooba**		
22OA1	The 2023 TB Diagnostics Pipeline. Current status and Future landscape.	Andama Alfred (MaKCHS-MMB)
22OA2	Continuous cough monitoring with an AI-enabled mobile phone app for TB evaluation and treatment response	Lucy Asege - Walimu
22OA3	Advancing TB diagnosis: comparative evaluation of GeneXpert urine, urine LAM, and conventional sputum test	Okot Amos (KCCA/ Kawaala HCIV)
22OA4	Performance evaluation of the Uganda National TB Program algorithm for diagnosis of childhood Tuberculosis	Kitonsa Peter James (U-TIRC)
22OA5	Diagnostic Accuracy of Mycobacterium tuberculosis Stool Ultra in detecting TB among Adult People Living with HIV: A Multicenter Study	Kasule George (MaKCHS-MMB)
22OA6	Outcomes and lessons from programmatic implementation of CXR +CAD technology to improve TB case detection in Uganda.	Aldomoro Burua (NTLP/ LPHS-IDI)
22OA7	15,000 samples in less than seven days! Laboratory experiences and strategies during a CAST campaign in Kampala Metropolitan, Uganda	Mona Muhammad (USADI LPHS-TBA)
Session Q&A		
22PA1	The burden of TB in children. Simple –one-step diagnosis of MTB in stool, an innovative diagnostic approach in Karamoja region, Uganda	Bahati Amon (Karenga DLG)
22PA2	Contrasting of GeneXpert MTB/RIF Ultra results of Stool and Sputum Samples among Presumptive TB patients	Kakanyero John Paul (Yumbe DLG)
22PA3	Improving TB Microscopy EQA participation; lessons from Karamoja region	Alex Ogwang (PACT-Karamoja)
22PA4	Engaging District Tuberculosis and Leprosy Supervisors to Improve the Quality of TB Sample Processing at LDSA Supported PNFP Facilities in Eastern Uganda	Ivan Eriku (LSDA)
Session 3: Leprosy and zoonotic diseases **Chair:** Dr. Musinguzi Patrick **Co-Chair:** Dr. Kawuma Herman**		
23OA1	Talking Neglected Tropical Diseases	Lisa Gerwing (Dahw-Global)
23OA2	Addressing the interrelation between leprosy and zoonotic diseases: a one health approach to Uganda	Dedan Yatesa Gayaza Kampala Private practice

23OA3	Exploring the pathways of leprosy patients from their communities to a diagnosis in the districts of Mayuge, Yumbe and Kasese-Uganda	Rose Kengonzi (NTLP)
23OA4	Capacity building of private health facilities for TB and Leprosy testing in Uganda, A case of Kampala Metropolitan area.	Queen Gyaviira(IDI)
23OA5	Assessing Preparedness of Lower Health Facility Staff in Diagnosis and Management of Leprosy: A Case Study of Bidibidi Refugee Settlement, Yumbe District, West Nile.	Daniel Akuku Amoko International Rescue Committee Yumbe
23OA6	The Economic Burden of Leprosy Diagnosis and Care Linkage: A case report from Buluba Leprosy treatment Centre	Ssemwanga Steven Loudel (Buluba Hospital)
Session Q & A		
23PA1	A Feasibility of integrating Leprosy post-exposure prophylaxis with single-dose rifampicin (LPEP) into routine leprosy control program in Bukedi and Teso Regions in Uganda	Rose Kengonzi (NTLP)
23PA2	Participation of persons with disabilities due to Leprosy and Zoonotic diseases in generic development programmes - West Nile	Kawikazi Moses
Session 4: Policies and programmatic implementation (policies, civil society, human rights) Chair: Dr. Seyoum Co-Chair: Dr. Estella Birabwa		
24OA1	Improving Tuberculosis Diagnosis at Private Not for Profit HIV/TB Health Facilities through Strengthening Collaborations with District Health Teams: Mid Northern Region UPMB supported sites.	Shamim Namponye (UPMB)
24OA2	Using quality improvement initiatives to improve paediatric TB case finding experiences from East Central region of Uganda	Kasakaire Joel (MJAP)
24OA3	Leveraging on innovations to improve TB screening in Intensive Care Unit (ICU) at Kabale RRH	Matende Henry (Kabale RRH)
24OA4	Strategies to resolve the gap in Adolescent Tuberculosis care at four health facilities in Uganda: The TEEN TB Project.	Samson Omongot (MLI)
24OA5	Integration of TB into nutrition: a case study of TB Screening at food distribution points in the Karamoja subregion-North-Eastern Uganda	Albert Musinguzi (PACT-Karamoja)
24OA6	Description of tuberculosis contact follow-up across the care cascade in four selected regional referral hospitals, Uganda, 2022	Gertrude Abbo (UNIPH)
24OA7	Barriers contributing to increased mortality of persons with HIV-associated tuberculous meningitis and proposed solutions in Uganda: the perspective of a community advisory board	Sylvia Namanda (IDI)

Session Q&A		
24PA1	Lost to follow up (LTFU) TB patients are likely to get LTFU again on TB treatment when restarted on anti TBs: findings of a retrospective Study at a large volume clinic in Kampala, Uganda.	Lyness Bitira (Mbuya-ROM)
24PA2	Effect of COVID-19 Period on Tuberculosis Treatment Success; a Mixed Methods Study among Tuberculosis patients at Jinja Regional Referral Hospital.	Higenyi James (Jinja RRH)
24PA3	Utilizing Quality Improvement Approaches to Enhance TB Key Performance Indicators at Baitambogwe HC III	Nabirye Carloine (Baitambogwe HC III)
24PA4	Fixing GeneXpert bottlenecks through a Continuous quality improvement approach to improve tuberculosis case detection	James Tusiime (UPMB)
Session 5: Cost-effectiveness, Costing, and Social Protection Chair: Prof. David Kitara Co-Chair: Dr. Raymond Byaruhanga		
25OA1	Conducting gender-responsive TB research in a gender-unequal world: A critical reflection for research teams	Beate Ringwald (MLI)
25OA2	Incremental costs of a user-centered vs standard strategy for delivery of TB contact investigation in Uganda.	Dr. Patricia Turimumahoro (WALIMU)
25OA3	Beyond Health: Exploring the economic sequel of Tuberculosis in Southwestern Uganda: A Qualitative study	Kihumuro Bernard Raymond (MUST)
25OA4	Cost comparison of delivery strategies of 3HP and 1 HP	Dr. Allan Musinguzi (MJAP)
25OA5	Leveraging on existing community structures (VHTs) for real-time tracking, follow-up and return to care of patients that miss clinic appointments to improve TB treatment outcomes: A case of five Southern Karamoja Districts.	Mary Abuko (CUAMM)
25OA6	Utilisation of private for-profit facilities to surge TB screening, diagnosis, and treatment among urban population within Nakawa Division	Magomu Muniru (Mbuya-ROM)
16:50-17:00	**Closing Remarks**	**TBD**
17.00-18:00	**Health Break/tea**	**Hotel**

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