Background The prevalence of Non-communicable Diseases (NCDs) in countries where Tuberculosis (TB) and HIV/AIDS are still major challenges rises concerns for public health. Mozambique faces an epidemiological transition and the overlap of TB, HIV and NCDs may have implications for the control of the three diseases.

The objectives of this study were to determine the prevalence of diabetes, obesity and arterial hypertension and the associated risk factors in patients with pulmonary tuberculosis in the city and province of Maputo, south Mozambique.

Methods A cross-sectional study was conducted in four Health Centers from March 2021 to July 2022. All new cases of pulmonary tuberculosis confirmed by bacilloscopy (BK) or GenExpert, and with or without HIV, were recruited and tested for diabetes by measuring glycosylated haemoglobin (Hb1Ac). The arterial blood pressure and body mass index (BMI) were measured, and socio-demographic variables were collected through a questionnaire. The data were entered into the REDcap platform and analysed using the SPSS version 20.

Results Of the 402 patients TB subjects, 62.2% were male, with a mean age of 38 years. The prevalence of Diabetes (HbA1c > 6.5%) was 12.7%. Regarding hypertension, systolic hypertension (SBP>140 mm Hg) was 16.9%, and diastolic hypertension (DBP >110mm Hg) was 29, 9%. The Obesity (BMI > 25) was 13.7%. In overall subjects, HIV was positive in 41.3%. Regarding the risk factors for chronic diseases, 11.7% had a family history of Diabetes, 50.7% had alcohol habits, 19.9% had smoking habits and 74.6% did not practice physical activity.

Of the HIV positive patients, 30.7% had systolic hypertension and 19.3% diastolic hypertension, 16.3% diabetes and 14.5% obesity.

Conclusion The prevalence of diabetes and arterial hypertension in TB patient is high compared to other African countries. Thus, is recommended to establish an integrative screening service for NCDs screening in patients with Pulmonary Tuberculosis.

PA-527 BETA-CELL FUNCTION AND INSULIN RESISTANCE IN ADULTS WITH DIFFERENT PATTERNS OF DIET: A CROSS-SECTIONAL STUDY IN NORTHWESTERN TANZANIA

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Background The diabetes burden in sub-Saharan Africa is high, but data on the relative importance of insulin resistance and beta-cell dysfunction there is scarce. We investigated the association between dietary patterns with insulin resistance and beta-cell dysfunction among HIV-infected and HIV-uninfected adults in Mwanza, Tanzania.

Methods In a cross-sectional study, insulin resistance and beta-cell function were measured from plasma insulin and glucose during an oral glucose tolerance test. Diet data were collected using a validated food frequency questionnaire, and dietary patterns were derived by principal component analysis and reduced rank regression. Socio-demographics, smoking, alcohol taking, and physical inactivity data were collected using structured questionnaires. Logistic regression analysis was used to assess the association between insulin resistance, and beta-cell dysfunction with dietary patterns adjusting for potential confounders.

Results Of 462 participants, the mean age was 42 (±12) years, 58% were females, and 60% were HIV-infected. The proportion with insulin resistance was 43% and 35% by the Matsuda index and HOMA-IR, respectively. Beta-cell dysfunction was present in 37%, 43%, and 43.3% by the insulinogenic index, HOMA-β, and oral disposition index, respectively. Higher adherence to a carbohydrates-dense diet pattern was associated with more insulin resistance by HOMA-IR (aOR 3.7, 95% CI 2.2; 6.3) and Matsuda index (aOR 6.2 3.4; 11.2), and less beta-cell dysfunction by HOMA-β (aOR 0.4 0.2; 0.6) and insulinogenic index (aOR 0.5 0.3; 0.9). Higher adherence to the vegetable-rich pattern was associated with insulin resistance by the Matsuda index (aOR 2.2 1.3; 3.7). **Conclusion** Carbohydrate-dense pattern increases the risk of insulin resistance but decreases beta-cell dysfunction. Higher adherence to a vegetable-rich pattern increases the risk of insulin resistance. Further studies to look at glucose metabolism and why a vegetable-rich pattern has an odd effect in sub-Saharan Africa are warranted.

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PA-528 INVESTIGATION ON RHEUMATIC DISEASES IN CHILDREN RECIPIENTS OF TWO LIVE ATTENUATED VIRAL VACCINES: A PHASE 2 TRIAL

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Background Rheumatic diseases, including juvenile idiopathic arthritis, are chronic inflammatory conditions affecting children. There have been concerns regarding the potential role of live attenuated viral vaccines in triggering rheumatic diseases. This phase 2 trial aimed to investigate the association between two live attenuated viral vaccines and the development of rheumatic diseases in children.

Methods A randomized, controlled open-label trial was conducted involving children aged 1–12 years who were eligible to receive live attenuated viral vaccines for heterologous rVSV-ZEBOV-GP Ebola or varicella. Participants were randomly assigned to receive the vaccine. A muscle-skeleton examination, FBCs, ESR, CRP, HLA-B27, lgM, RF, and ANA were accessed on Days 0,1,2/3, 7, 14, 21, 28, 58, 180, and 365 routinely. The primary outcome was the development of rheumatic diseases, within the follow-up period.

Results 120 children were enrolled in the trial, with 80 in the rVSV-ZEBOV-GP group and 40 in the varicella group. The mean age at enrolment was 6.46 years, and the study population consisted of an equal distribution of gender. The follow-up period, days 1, 2/3, 7, 14, 21, 28, 58, 180, and 365 showed no significant differences in the incidence of rheumatic diseases between the two vaccines clinically. Some participants complained of arthralgia (1.9%), however, it was associated with plasmodium falciparum. For the rest of the

inflammatory markers, analysis has been completed and will be available timely.

Conclusion In this phase 2 trial, there was no evidence to suggest that administering two live attenuated rVSV-ZEBOV Ebola and Varicella, was associated with a risk of rheumatic diseases in children. The noted pseudo-signs of rheumatic diseases like arthralgia and body ache were strongly linked to Malaria infection. These findings provide reassurance regarding the safety profile of rVSV-ZEBOV-GP Ebola and varicella concerning rheumatic diseases in children.

PA-539 DEVELOPING HANDS-ON SKILLS ON TUBERCULOSIS SPONSOR RESPONSIBILITIES AND CLINICAL TRIAL MANAGEMENT FOR END-TB IN SUB-SAHARAN

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Background The END TB strategy recommends scaling up of research training and capacity by growing the workforce of scientists in tuberculosis (TB) endemic settings skilled in "development and rapid uptake of new TB tools and "interventions" and "research to optimise implementation and impact". The SimpliciTB consortium aimed to develop the skills, confidence and international competitiveness of African research leaders engaging in TB while extending network of African sites capable of performing high quality clinical trials in TB.

Methods Through co-leadership and partnership with St Andrews University, University College London from United Kingdom; Radboud University Medical Center-The Netherlands and TB Alliance-United States mentorship was provided to the senior clinical research fellow and clinical research & development fellow based at Kibong'oto Infectious Diseases Hospital in Tanzania to execute sponsor and trial management responsibilities for a new clinical trial of anti-TB therapy to be delivered in four African countries: Gabon, Malawi, Mozambique and Tanzania.

Results From January 2022- April 2023, achievement in capacity development include design of the potential regimen for a phase III TB clinical trial, and development of the protocol titled: "A pragmatic trial with optimized dose of rifampicin and moxifloxacin for the treatment of drug susceptible pulmonary tuberculosis (OptiRiMoxTB)". The Operational team meeting was successfully formulated comprising of two categories i) sponsor category with international principal investigators as co-chairs, trial manager and associated core groups including biostatistics and data management, pharmacy and drug management, microbiology and biomarkers, finance and administration and ii) Trial sites each bringing at least the site PI, and site coordinators. Trial-governance including the data safety monitoring and steering committees are set. All sites have submitted ethical and regulatory clearance to their respective bodies and authorities.

Conclusion Despite challenges, the preparatory phase has completed and enrolment of participants expects to start in the second quarter of 2023.

PA-543 EVALUATION OF HOST SERUM BIOMARKERS FROM SUCCESSFULLY TREATED TB PATIENTS PRESENTING WITH OR WITHOUT PERSISTING LUNG INFLAMMATION – PRELIMINARY FINDINGS OF STATINTB TRIAL

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Background Despite the availability of anti-TB treatment, successfully treated TB patients remain with persisting lung inflammation regardless of HIV status. Lung inflammation has been linked with robust or imbalanced host immune responses which exacerbate tissue necrosis. Soluble host biomarkers have been shown to correlate with the development of lung inflammation at different stages of anti-TB treatment which further affect sputum conversion in these patients.

In our ongoing StatinTB trial (RIA2017T-2004; NCT04147286), we evaluate safety and efficacy of 40 mg atorvastatin to reduce persistent lung inflammation after TB treatment in HIV-/HIV+ adults measured by 18F-FDG-PET/CT. Here we aim to explore the expression profile of host serum biomarkers from successfully treated TB patients with or without persisting lung inflammation.

Methods Study participants were screened for sputum conversion at month-4 and month-6 of anti-TB treatment. Enrolled participants were subjected to PET/CT scan, where Arm A=TLG<50SUVbw*ml (minimal lung inflammation) and Arm B=TLG≥50SUVbw*ml (persisting lung inflammation). A total of 71 participants (Arm A=42, Arm B=29) were evaluated in this study. Serum samples were collected after 1-week washout period following completion of anti-TB treatment. A panel of 48 biomarkers were evaluated using Luminex multiplex platform (Bioplex200).

Results Twenty soluble biomarkers were differentially expressed between Arm A (TLG<50SUVbw*ml) and B (TLG≥50SUVbw*ml). These included 9 pro-inflammatory biomarkers,1 anti-inflammatory cytokine, 5 growth factors, 2 pleiotropic mediators and 3 chemokines. Using ROC curve, 14 biomarkers were identified as potential individual candidates to distinguish between Arm A and Arm B with AUC ranging between 0.702–0.833 where sensitivity ranged between 58.6–69.0% and specificity ranged between 71.4–81.0% at specific cut-off values.

Conclusion This study highlights that successfully treated TB patients remain with persisting lung inflammation. These patients further present with different soluble biomarker profiles which may be driven by lung inflammation.