Mali, inequalities in the uptake of ≥4 ANC visits (concentration index (CI)=0.0627, standard error (SE)=0.019; p<0.01) were in favor of the wealthier households. In BF, we did not see any statistically significant inequalities in the uptake of ≥4 ANC visits (CI=0.0012, SE=0.0102; p=0.90).
Conclusion Socio-economic inequalities in the uptake of ≥4 ANCs was more evident in Mali than in BF where, unlike Mali, ANC visits are free of charge for the women. These findings highlight the ways to increase equity in access to ANC services.

PA-788 CAN WE ESCAPE ESKAPE BACTERIA: TRENDS OF ANTIMICROBIAL RESISTANCE AND SINGLE NUCLEOTIDE POLYMORPHISMS IN ESKAPE BBACTERIA IN STOOL DURING AND POST TB TREATMENT

[1]Suventha Moodley, [2]Tanner Porter, [1]Charissa Naidoo, [1]Happy Tshivhula, [2]Megan Folkerts, [2]Jolene Bowers, [2]David Engelthaler, [1]Grant Theron. *[1]DSI-NRF Centre of Excellence for Biomedical Tuberculosis Research; South African Medical Research Council Centre for Tuberculosis Research; Faculty of Medicine and Health Sciences, Stellenbosch University, South Africa; [2]Translational Genomics Research Institute, USA*

10.1136/bmjgh-2023-EDC.301

Background TB treatment is prescribed to millions of individuals yearly, and after cure these individuals often develop recurrent post-TB complications. There is little information exists at the intersection of TB and AMR (i.e., resistance in microbes other than M. tuberculosis complex).The ESKAPE group (Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, Enterobacter spp.) are considered key taxa in AMR acquisition. K. pneumoniae is a common isolate from blood stream infections in our setting, South Africa.
Methods We used the Next-Gen Antimicrobial Resistance Detection (N-GARD) assay, a novel, multiplex, sequencing technique to profile AMR associated strains and genes present in stool of drug-susceptible and drug-resistant TB cases longitudinally.
Results In both cohorts, no significant changes were seen in the proportion of ESKAPE or AMR associated strains during treatment, but trends were noted. The drug-susceptible cohort showed trends of longitudinal increases in AMR-related strains; Enterobacter cloacae, Klebsiella pnemoniae, Klebsiella varicola. Significant longitudinal decreases in AMR-related gyrA (Escherichia coli), fluctuations in tetD, strB and trends of increased FosA, qnrD, qnrA, Sul3 and SaM2 were seen in the drug susceptible cohort. The drug-resistant cohort showed significant increase in npmA and trends of longitudinal increases of ermA and sul1. We also noticed trends of single nucleotide polymorphisms.
Conclusion Overall, the drug-resistant cohort had more significant changes in AMR-associated genes compared to drug susceptible cohort. These changes in the resistome during TB treatment require future investigation and future studies will involve more targeted analysis of identified trends.

Funding: This project is part of the EDCTP2 programme supported by the European Union (grant number TMA2019CDF-2738-ESKAPE-TB) and is partly funded by the National Research Foundation.

PA-790 STRENGTHENING KNOWLEDGE TRANSLATION CAPACITIES THROUGH PARTNERSHIPS: THE DATA TO POLICY TRAINING AND MENTORSHIP PROGRAM IN ZAMBIA

Sandra Chilengi-Sakala*, Victor Chalwe, Mambo Nsanzya. *National Health Research Authority, Zambia*

10.1136/bmjgh-2023-EDC.302

Background Knowledge Translation (KT) is "the synthesis, exchange, and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people's health". For over 7 years now, the Data to Policy (D2P) program is one of the approaches Zambia has taken to build capacity for knowledge translation. The initiative is a year-long mentorship program that equips health professionals with skills to develop evidence-based policy briefs on public health priority issues. The D2P utilizes epidemiology with economic analysis and modelling to develop informative policy briefs. The D2P program is supported by the Bloomberg Philanthropies through CDC Foundation, and it is implemented by the National Health Research Authority (NHRA) whose functions among other this is research capacity building and KT.
Methods Through a call for applications, eligible health professionals express their interest to participate in the program stating a public health issue they will work on during the mentorship. The NHRA reviews and admits eligible participants to the program. A curriculum of 21 modules and is delivered by trained mentors who are experts in various and appropriate fields. Four to five trainings, close mentor-mentee check-ins, stakeholder engagements, a policy forum and final presentation of policy briefs to policy makers in the Ministry of Health.
Results The policy briefs quantify the public health issue, bring out the cost and quality implications of interventions and policy options, and recommends the most feasible options. A total of 83 people have been trained under D2P and 43 policy briefs have been developed, disseminated and recommendations from some have been considered for policy for different programs.
Conclusion The partnership plays an important role in strengthening the KT capacity and contributes to informed decision making in Zambia.

PA-802 HIGH DOSE VITAMIN D3 IN VITRO HAS NO IMPACT ON NEUTROPHIL AND MONOCYTE ANTIMICROBIAL FUNCTIONS

[1]Karen Sichibalo*, [2]Christoph Leschczyk, [1]Paul Kelly, [3]Sarah Rowland-Jones, [2]Ulrich Schaible E. *[1]Tropical Gastenterology and Nutrition Group (TROPGAN), University Teaching Hospital, Zambia; [2]Department of Cellular Microbiology, Research Center Borstel, Germany; [3]Nuffield Department of Clinical Medicine, University of Oxford, UK*

10.1136/bmjgh-2023-EDC.303

Background Vitamin D3 (vit.D3) plays an important role in immune responses, and deficiency has been linked to inflammation and higher susceptibility to infections. In vitro studies using pure cell cultures demonstrated vit.D3's contribution to microbial killing capacity of macrophages. However, the effect

on neutrophils is poorly described. We assessed the effect of high dose vit.D3 in vitro on activation and microbial killing capacities of neutrophils and monocytes under near-physiological conditions using fresh whole blood from adult healthy donors.

Methods Whole blood was exposed to Mycobacterium bovis Bacille Calmette-Guérin (BCG) and Lipopolysaccharide (LPS) post treatment with 100 nM vit.D3 for 2hr, 6hr, and 24hr. Cellular phenotyping by flow cytometry was performed to quantify expression of neutrophil (CD16bri14low) and monocyte (CD14bri16low) activation markers (CD11b, CD62L), bacterial phagocytic capacity, and reactive oxygen species (ROS) production. Interleukin 8 (IL-8) and myeloperoxidase serum levels were quantified using ELISA, and correlated with intracellular killing capacities by performing colony forming unit (CFU) analysis.

Results Vit. D3 had no significant direct effect on CD11b/62L expression, phagocytic capacity, ROS production, inflammatory marker expression (IL-8, MPO) and killing efficacy independent of the pre-treatment durations. This may reflect differences in vit.D3 concentrations used and kinetics of vit.D3 mediated response patterns in the cells studied when compared to previous reports. Although these results cannot be extrapolated onto in vivo conditions as vit.D3 effects under physiological conditions can be more complex, the whole blood assay proves a valuable tool to analyse host responses ex vivo in patient cohorts. This assay is employed in our ongoing EDCTP funded 96-week randomized placebo-controlled clinical trial (VITALITY) involving high-dose vit.D3 supplementation (20,000 IU/week) in HIV positive adolescents to assess effects on neutrophil and monocyte antimicrobial responses.

Conclusion An interplay of background effects of HIV and other comorbidities need to be considered as they may influence overall benefits of vit.D3 in this population.

PA-803 INSTITUTIONALIZATION OF RESEARCH AND KNOWLEDGE TRANSLATION IN ZAMBIA: ADVANCING EVIDENCE-BASED DECISION-MAKING FOR IMPROVED HEALTH OUTCOMES

Nsanzya Maambo*, Sandra Sakala. *National Health Research Authority, Zambia*

10.1136/bmjgh-2023-EDC.304

Background The National Health Research Authority (NHRA) is implementing a program under the name institutionalization of research and knowledge translation (KT) in Zambia as a means to enhance evidence-based decision-making and ultimately improve health outcomes. The institutionalization of research and KT involves the integration of systematic research processes and the effective translation of research findings into policies and practices within the national health system. NHRA recognizes the critical role that research plays in informing health policies, programs, and interventions.

Methods In order to actualize this program, the NHRA utilized a multi-faceted methodology. This involved carrying out a needs assessment of the ten (10) provinces in Zambia to identify the research and knowledge translation gaps for key personnel. Consequently, the NHRA conducted a research priority setting for each of the ten (10) provinces, through stakeholder engagements, to identify and prioritize research topics/areas aligned with Zambia's health needs and policy priorities. NHRA also developed a robust frameworks to assess the impact of research and knowledge translation activities in the provinces.

Results The NHRA has since created Terms of References (TORs) and facilitated the appointment of Research and Knowledge Translation Focal Point Persons (R&KT FPPs) in all the ten (10) provinces to spearhead research and knowledge translation activities within respective provinces. Consequently, with support from CDC foundation, NHRA has engaged the R&KT FPPs in its research and knowledge translation training and KT mentorship programs. The R&KT FPPs have been trained in Research Methods and Scientific Writing, as well as a KT mentorship course dubbed as Data to Policy.

Conclusion With greater funding and partnership, it is hoped that the program will cascade to the lower levels (district, facility and community) within the Ministry of Health for better health outcomes. Undoubtedly, this initiative represents a crucial and timely step towards evidence-based decision-making and improved health outcomes.

PA-806 A COMPOSITE CYTOKINE MODEL TO MONITOR TUBERCULOSIS TREATMENT RESPONSE. A PILOT STUDY

Donald Simon*, Gian van der Spuy, Candice Snyders, Novel Chegou, Stefanus Malherbe, Gerhard Walzl. *Stellenbosch University, South Africa*

10.1136/bmjgh-2023-EDC.305

Background There is an urgent need for biomarkers that predict TB treatment response in clinical practice and research. Despite its poor specificity and sensitivity, sputum microscopy and culture conversion 8 weeks following treatment initiation remains the recommended surrogate for TB treatment response. A blood-based biomarker with the ability to predict TB treatment response will significantly improve research into TB treatment-shortening trials, trials testing new anti-TB therapy and clinical practice where it can potentially aid in early identification of patients at risk of poor treatment outcomes.

Methods We conducted a pilot, nested case-control study to identify potential biomarkers to predict TB treatment response. All participants completed the PredictTB treatment-shortening clinical trial. All available confirmed relapses at the time of this pilot study (17) and one treatment failure participant were included and 54 controls were randomly selected. Multiplex immunoassays were used to measure serum expression of 50 cytokines at baseline, weeks 04, 08 and 16 and 24. In addition, demographic and symptom data, clinical examination parameters and laboratory results were collected.

Results Using baseline and week 8 parameters, we derived a model that discriminated between relapses and controls with an AUC of 0.81, sensitivity of 0.78 and a specificity of 0.85. Parameters that were most useful in discriminating between relapses and controls were changes from baseline to week 8 in TNF-alpha, sIL2R-alpha, IL 12p70, sVEFFR3, sVEGFR1, E-selectin, and MIP-1. In addition to chest pain and diastolic blood pressure; baseline Apo A1, IL-1beta, and Apo C3 also contributed to the model. Our data also validated a previously published treatment response signature.

Conclusion Our results indicate that a multivariable model may be better at predicting TB treatment response compared to current measures. This work is preliminary and will be combined with a larger cohort.