

**PA-583** **REVOLUTIONISING TUBERCULOSIS TREATMENT RESPONSE MONITORING AND DEVELOPING RESEARCH CAPACITY IN AFRICA: PROGRESS AND POTENTIAL OF THE TUBERCULOSIS MOLECULAR BACTERIAL LOAD ASSAY**

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**Background** Tuberculosis (TB) treatment is long and complex. Here we summarise data from EDCTP-funded studies of the Tuberculosis Molecular Bacterial Load Assay (TB-MBLA) as a TB treatment monitoring tool.

**Methods** Treatment naïve participants from four Sub-Saharan African countries were assessed for TB diagnosis and treatment response using TB-MBLA compared to liquid culture (MGIT) and other standard-of-care tests.

**Results** Diagnostic accuracy assessment using MGIT as gold standard showed TB-MBLA sensitivity, specificity, positive-and-negative-predictive values were 99%, 91%, 92% and 99% respectively among presumptive TB cases. TB-MBLA turn-around-time (clinic-laboratory-clinic) was <24h compared to 5–42 days of MGIT culture. 450 participants were assessed for treatment response across four studies. The pre-treatment bacillary load across cohorts was  $5.33 + 1.33\log_{10}\text{eCFU/mL}$  which was cleared to zero in over 95% of the participants by month-6 of treatment. TB-MBLA revealed early bacillary load clearance in 7% (32/450) participants who achieved a stable negative TB-MBLA result by week-2 of treatment and was faster than MGIT to identify participants at a risk of disease relapse. High pre-treatment bacillary load  $\geq 6\log_{10}\text{eCFU/mL}$ , was associated with failure to convert to negative by month-2 of treatment. Resolution of TB-MBLA-measured sputum bacillary load mirrored cough resolution, reduction of C-reactive protein levels in blood and correlated with MGIT culture time-to-positivity (Spearman's  $r = -0.5$ ,  $p < 0.0001$ ) during treatment. Like MGIT, TB-MBLA demonstrated that regimens containing rifampicin-35mg/kg and rifampicin-20mg/kg-400mg-moxifloxacin cleared TB bacteria significantly faster than the standard-of-care regimen by month-2 of treatment,  $p = 0.049$  and  $p = 0.008$  respectively in DS-TB, and highlighted efficacy of bedaquiline-containing all oral regimen for DR-TB treatment. This work produced 5 African PhD graduates plus >500 clinical/laboratory scientists trained in principles of molecular diagnostic development and implementation globally.

**Conclusion** The data shows that TB-MBLA is a robust assay for TB treatment response monitoring and anti-TB drug development. It has contributed to research capacity building across Africa and beyond.

**PA-585** **ACUTE FLACCID PARALYSIS SURVEILLANCE DATA ANALYSIS, WESTERN REGION ONE, THE GAMBIA: 2018–2022**

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**Background** Acute flaccid paralysis (AFP) is a sudden onset of paralysis or weakness in any part of the body in a child <15 years of age. It is caused by both infectious and non-infectious agents. The Wild Poliovirus is the most common infectious cause of AFP in children <5 years of age. There is no known medical treatment other than vaccination for prevention. The epidemiology of non-polio enteroviruses (NPEVs) remains largely unexplored in West Africa including the Gambia. This study aims to describe the characteristics of patients reported with AFP in Western Region One of the Gambia, between 2018 and 2022 and evaluate the AFP surveillance using the WHO-recommended indicators.

**Methods** The study employed a retrospective records review of the AFP surveillance data of Western Region One from 2018 to 2022 recorded in the national AFP surveillance database. Data were analysed using SPSS version 20.

**Results** A total of 35 cases of AFP were reported within Western Region One from 2018 to 2022. 64% (23/35) were males and 43% (15/35) were below 5 years of age. The non-polio AFP reporting target (1/100,000 population aged <15 years per year) was achieved throughout the five years. All AFP cases had adequate stool samples. 8 confirmed cases of (NPEVs) were reported and 56% (20/35) of the cases had up to five doses of the Oral Polio Vaccine. The lowest (14%) number of cases was reported in 2020, during which no case was reported between February and August.

**Conclusion** The AFP surveillance system is sensitive. All reported cases were investigated, and two stool samples were collected from each case, at least 24 hours between stool collection and within 14 days after the onset of paralysis. Active AFP searches should be strengthened to improve case detection in the region and health workers should be trained on AFP surveillance indicators.

**PA-586** **PREVENTION OF TUBERCULOSIS IN PEOPLE LIVING WITH DIABETES MELLITUS – THE PROTID PROJECT**

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**Background** Diabetes mellitus (DM) increases the risk of tuberculosis (TB) and will hamper global TB control due to the dramatic rise in type 2 DM in TB-endemic settings. Current guidelines don't recommend TB preventive therapy (TPT) for people with DM due to an absence of evidence.