carry out appraisals and guide the career development and training programme of research staff.
**Conclusion** The Global Health Network has created a flexible method and set of tools (PDS) to support researchers and teams to document their professional career and core competencies. It enables individuals and groups to easily identify and track capacity development; an essential requirement for conducting effective health research.

## PO 8392 SPUTUM *MYCOBACTERIUM* LOAD AND CYTOKINES BIOMARKER OF STIMULATED WHOLE BLOOD CELLS IN SPUTUM SMEAR-NEGATIVE PULMONARY TUBERCULOSIS SUDANESE PATIENTS

Mona Omer. *Institute of Endemic Diseases, University of Khartoum, Sudan*

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**Background** Improvement of the diagnosis of smear-negative pulmonary tuberculosis (PTB) patients and identification of possible immune factors associated with the negative result of sputum will enable early and accurate diagnosis of smear-negative PTB. This study aimed to measure the *Mycobacterium* load in sputum samples of smear-negative patients and identify cytokines markers associated with smear-negative active pulmonary tuberculosis.
**Methods** Sputum and heparinised blood samples were collected from 40 smear-negative, 40 smear-positive PTB patients and 21 healthy controls. All sputum samples were analysed by direct ZN stain and conventional PCR to confirm the infection and characterise the bacteria. The load of bacteria in sputum samples was measured using real-time PCR. Blood samples were stimulated with sonicated MTB H37Rv. TH1 (TNF-α, IFN-γ, IL- 1β) and TH2 (IL-10) cytokines were measured using ELISA technique.
**Results** Eight patients were grade 3+, 23 were grade 2+, 9 were grade 1+ and 40 were negative on smear. 87.5% of smear-negative patients were positive by PCR. Smear-negative PTB patients produced high concentration of IFN-γ compared with smear-positive. IL-10 and TNF-α concentration were significantly lower in smear-negative compared with smear-positive. IL-1β was not significantly different between smear-negatives and smear-positives. Both smear-negative and smear-positive samples produced significantly high IL-10 and TNF-α cytokine compared with the healthy controls, while IFN-γ production was significantly lower in MTB patients. A highly significant correlation between MTB load and cytokines was detected. The mean concentration of IFN-γ was higher in stimulated blood samples of patients with lower bacterial load. In contrast, IL-10 and TNF-α concentration were higher in patients with high bacterial load. The TNF-α and IL-1β were good biomarkers for diagnosis of smear-negatives.
**Conclusion** Smear-negative PTB produced high TH1 cytokine and low regulatory cytokine compared to smear-positive.

## PO 8394 SOUTH-SOUTH AND NORTH-SOUTH CAPACITY STRENGTHENING WITHIN THE SCREENTB CONSORTIUM: WHAT HAVE WE LEARNT?

[1]Hazel Dockrell*, [2]Claudia Schacht, [3]Gerhard Walzl. *[1]London School of Hygiene and Tropical Medicine, UK; [2]LINQ management GmbH, Berlin, Germany; [3]Stellenbosch University, South Africa*

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**Background** Most research consortia and multicentre trials include capacity strengthening as one of their objectives. Activities are included in annual reports but the overall success or otherwise of these is hard to evaluate.
**Methods** The training and capacity building work package in the EDCTP2-funded ScreenTB Consortium includes support for the individual career development of young researchers. We have made mentoring the central activity, building on what we had learnt in the previous AE-TBC Consortium. We carried out formal training sessions and provided dedicated time-slots for meetings of mentee and mentor during annual meetings. We also introduced the concept of personal development plans through presentations and small group work.
**Results** Formal timetabled presentations and mentoring sessions have helped make capacity strengthening work. Challenges and solutions have been identified in group sessions and will be presented. This has enabled us to evaluate what works well and what is more challenging, when including capacity strengthening activities within a consortium with 5 African and 3 European partners.
**Conclusion** Dedicated time and commitment are required to make capacity strengthening work, but when it does, mentoring and personal development planning can provide both African and European researchers with an impartial opportunity to find solutions to their current challenges and to discuss their longer-term goals.

## PO 8397 VIRAL SUPPRESSION AMONG CAMEROONIAN ADULTS, ADOLESCENTS AND CHILDREN RECEIVING ANTIRETROVIRAL THERAPY IN THE 'TEST & TREAT' ERA

[1]Joseph Fokam*, [1]Samuel M Sosso, [2]Rina E Djubgang Mbadie, [1]Yagai Bouba, [1]Rachel Kamgaing Simo, [2]Serge V Edimo, [1]Alex D Nka, [1]Tiga A Fokam, [1]Junie F Yimga, [1]Désiré A Takou Komego, [1]Sylvie Moudourou, [2]Marinette Ngo Nemb, [2]Serge C Billong, [2]Jean-Bosco Nfetam Elat, [3]Vittorio Colizzi, [1]Alexis Ndjolo. *[1]CIRCB: Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management, Yaounde, Cameroon; [2]Central Technical Group, National AIDS Control Committee, Yaounde, Cameroon; [3]UNESCO BOARD of Biotechnology, University of Rome Tor Vergata, Rome, Italy*

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**Background** Global efforts in meeting the 90–90–90 targets reveal that 70% of infected people know their HIV status, 77% of these are receiving antiretroviral therapy (ART) and 82% of treated patients have viral suppression. Since launching the 'test and treat' strategy and wider access to drugs that bring down the viral load (VL), evaluating viral suppression would help to identify those requiring interventions and to make progress towards meeting the targets in Cameroon.
**Methods** A study was conducted from October 2015 to August 2017 amongst adults (≥20 years), adolescents (10–19) and children (0–9) at 12, 24, 36 and ≥48 months on ART, monitored at the Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management (CIRCB) in Yaoundé, Cameroon. VL was established using Abbott m2000RT-PCR. VS was defined as VL <1000 copies/ml; with p<0,05 considered significant.
**Results** A total of 1979 patients (70% female) were enrolled (1825 adults, 112 adolescents, 42 children); 1865 were on first-line (NNRTI-based, duration: 48 [IQR 24–48] months) vs. 114 on second-line (PI/r-based, duration: 48 [IQR 36–48] months); with 19%(368) at Month2, 14%(274) at Month24, 10%(207) at Month36% and 54% (1130) at ≥Month48.

Overall, viral suppression was 79.4%, and 64.3% had controlled viral replication (VL <40). On first-line, viral suppression was 79.7% (1487) vs. 72.2%(83) on second-line (p=0,076). By ART duration, viral suppression was 83.4% (Month12), 85.8%(Month24), 74.9%(Month36) and 77.3% (≥Month48); p=0,0011. By age-range, viral suppression was 76.2% in children, 54.5% in adolescents, and 80.9% in adults (p<0,0001). By age and ART-regimen, viral suppression on first vs. second line was: children 76.5% vs. 60%; adolescents 51.7% vs. 65.2%; and adults 81.2% vs. 74.7%.

**Conclusion** About 80% of Cameroonian patients might be experiencing viral suppression, with a declining performance at adolescence and by 3 years of ART experience. Thus, meeting the viral suppression target by 2020 requires a closer VL monitoring strategy and an adapted adherence support mechanism for adolescents living with HIV in resource-limited settings sharing similar challenges.

## PO 8408 DETECTION OF EXTENSIVELY DRUG-RESISTANT TUBERCULOSIS AMONG MULTIDRUG-RESISTANT *MYCOBACTERIUM TUBERCULOSIS* CLINICAL ISOLATES IN BOTSWANA

[1,2]Tuelo Mogashoa*, [1,2]Lucy Mupfumi, [2,3]Thato Iketleng, [2]Pinkie Melamu, [2]Nametso Kelentse, [4]Nicola Zetola, [5]Margaret Mokomane, [5]Letsibogo Letsibogo, [6]Elizabeth M Streicher, [6]Serej Ley, [1]Ishmael Kasvosve, [1,2,7]Sikhulile Moyo, [6]Robin Warren, [2,7]Simani Gaseitsiwe. [1]*Department of Medical Laboratory Sciences, University of Botswana, Gaborone, Botswana*; [2]*Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana*; [3]*College of Health Sciences, School of Laboratory Medicine and Medical Sciences, University of KwaZulu-Natal, Durban, South Africa*; [4]*Botswana Upenn Partnership, Gaborone Botswana*; [5]*National Tuberculosis Reference Laboratory, Ministry of Health and Wellness, Gaborone, Botswana*; [6]*DST/NRF Centre of Excellence in Biomedical Tuberculosis Research/ South African Medical Research Council Centre for Tuberculosis Research, Division of Molecular Biology and Human Genetics, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa*; [7]*Harvard T.H. Chan School of Public Health, Boston, Massachusetts, USA*

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**Background** The emergence and transmission of multidrug-resistant (MDR) and extensively drug-resistant (XDR) *Mycobacterium tuberculosis* (Mtb) strains is a serious threat to tuberculosis control in Botswana. Early detection of drug-resistant isolates is critical to ensure optimal treatment and thereby improve treatment outcomes. The objective of this study was to determine the extent of second-line drug resistance among drug-resistant Mtb-isolates from Botswana.

**Methods** A total of 60 drug-resistant Mtb isolates received at Botswana National Tuberculosis Reference Laboratory between 2012 and 2013 were analysed. DNA was extracted from BD Mycobacterial Growth Indicator Tubes (MGIT) using GenoLyse DNA isolation kit (Hain Lifescience). Spoligotyping was done using a commercially available spoligotyping kit (Isogen Life Science). The spoligotype patterns were compared with existing patterns in the SITVIT2 Web database. GenoType MTBDRs assay (Hain Lifescience) was used for second-line drug susceptibility testing. Fisher's exact test was used to test for association between drug resistance patterns and HIV status, lineage and geographical location.

**Results** Seventeen distinct spoligotype patterns were detected amongst the 60 drug-resistant isolates. The most predominant lineages were Euro-American (58.3%), East Asian (25%) and Indo-Oceanic (15%). Fifty (83.3%) were MDR, 7 (11.7%) were resistant to fluoroquinolones (Pre-XDR) whereas 3 (5%) were resistant to both fluoroquinolones and second-line injectable drugs (XDR). Drug resistance profiles were significantly associated with Mtb lineage (p<0.001). There was no association between drug resistance profile and HIV status (p=0.057) and geographical location (p=0.372).

**Conclusion** This study highlights the importance of including second-line drug susceptibility testing in a testing algorithm in Botswana. The detection of XDR isolates among MDR-TB isolates highlights the ongoing evolution of resistance and the need for strengthened treatment regimens to improve treatment outcomes and to prevent the spread of these highly resistant strains. Second-line testing will be essential if the 9 month MDR regimen is used in Botswana.

## PO 8409 SERUM HYALURONIC ACID: A POTENTIAL DIAGNOSTIC MARKER FOR SCHISTOSOMAL PERIPORTAL FIBROSIS IN *SCHISTOSOMA MANSONI*-ENDEMIC AREAS

[1]Filimon M Haile*, [2]Elsa Hagos, [1]Nega Berhe, [3]Bjørn Myrvang, [4]Svein G Gunderse. [1]*Aklilu Lemma Institute of Pathobiology, Addis Ababa University, Addis Ababa, Ethiopia*; [2]*Semera University, Semera, Ethiopia*; [3]*Institute for International Health, University of Oslo, Oslo, Norway*; [4]*Sorlandet Hospital HF and Agder University College, Kristiansand, Norway*

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**Background** *Schistosoma mansoni*-induced infection is one of the most prevalent infections worldwide with serious public health and economic impact. Morbidity and mortality associated with *S. mansoni* is mainly the result of periportal fibrosis (PPF) which can be diagnosed using ultrasonography. As ultrasound equipment is not readily available in *S. mansoni*-endemic areas, serum markers like hyaluronic acid (HA) have been used as an alternative means of diagnosing PPF.

**Methods** A cross-sectional study was conducted with the aim of determining the importance of serum HA as a marker for schistosomal PPF in in 55 patients found in *S. mansoni*-endemic areas in northeastern Ethiopia and 20 non-endemic controls. PPF was determined using portable ultrasound equipment and graded according to the 'Niamey protocol'. Serum HA concentration was determined using commercially available ELISA kit.

**Results** The mean concentration of HA in the sera of the cases was significantly higher than the controls (p<0.001). The concentration of HA also increased significantly as the pattern of PPF became severe while serum HA concentration positively correlated with PPF scores ($\rho$=0.6438, p<0.001). HA concentration of 27.9 µg/liter of serum differentiated moderate cases of PPF from advanced cases with a sensitivity, specificity, positive predictive value and negative predictive value of 85.71%, 75.61%, 60.5%, 93.9%, respectively (p<0.001). In conclusion, serum HA concentrations could be used as a potential marker for schistosomal PPF and to assess its severity in patients found in *S. mansoni*-endemic areas.

**Conclusion** Based on our results, serum HA concentrations could be used as an alternative, non-invasive potential marker for schistosomal PPF and to assess its severity in patients found in *S. mansoni*-endemic areas.