PO 7167 IMPROVING USE OF LONG-LASTING INSECTICIDAL NETS IN KAYANGE COMMUNITY OF NORTH-WESTERN BURUNDI: A QUALITY IMPROVEMENT STUDY

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Background The use of long-lasting insecticidal nets (LLINs) for malaria prevention is a cost-effective intervention. WHO recommends universal coverage and use of LLINs. In lower- and middle-income countries, LLINs are provided free of charge but are either not used or misused. Our study sought to improve LLIN use in Kayange community of north-western Burundi by using a model for improvement (MFI).

Methods A one-group, pre/post-test study was conducted. LLIN weekly use was assessed for four weeks before intervention and for another four weeks after intervention. The study was conducted in 96 households. The intervention consisted of testing four different weekly small change actions by using the MFI.

Results Of the 96 households, 83 households (87%) owned at least one LLIN. However, only 40 households (42%) owned at least one LLIN for every two people. After intervention, the number of LLINs used increased from 32 to 75 per cent (134% increase) and the number of persons (general population) sleeping under LLIN from 35 to 73 per cent (108% increase). The number of children under 5 years old sleeping under LLIN increased from 31 to 76 per cent (145% increase) and the number of pregnant women who slept under LLIN from 43 to 73 per cent (69% increase). Also, the averages of the number of nights in each week that the general population slept under LLIN increased from 2.13 to 5.11 (140% increase), children under 5 years old slept under LLIN from 1.68 to 4.78 (184% increase) and pregnant women slept under LLIN from 1.56 to 4.47 (186% increase).

Conclusion Our intervention led to significant increase in all outcome indicators. This increase is the result of a combination of an enabling context and an effective implementation of an evidence-based quality improvement intervention. Small tests of change at the community level have the potential for achieving improved outcomes.

PO 8168 CLINICAL UTILITY OF XPERT MTB/RIF ASSAY FOR THE DIAGNOSIS OF EXTRAPULMONARY TUBERCULOSIS IN ETHIOPIA

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Background The diagnosis of extrapulmonary tuberculosis (EPTB) is often made on clinical suspicion alone, and many people receive the wrong diagnosis leading to unnecessary TB treatment or poor outcomes from untreated EPTB. In this study, we evaluated the clinical utility of the Xpert MTB/RIF assay on routinely collected extra-pulmonary specimens in Ethiopia.

Methods This study was carried out at Jimma University Specialized Hospital, Southwest Ethiopia from September 2015 to June 2017. Extra-pulmonary specimens were collected from 572 patients clinically suspected of suffering from EPTB. All specimens were tested for TB by smear-microscopy, culture and Xpert MTB/RIF. The diagnostic accuracy of Xpert MTB/RIF was calculated compared to a composite reference standard (CRS), composed of liquid culture and anti-TB treatment response.

Results In total, 572 extra-pulmonary specimens (279 lymph node, 159 pleural, 80 peritoneal, 45 cerebrospinal and 9 pericardial fluids) were tested. The pooled sensitivity and specificity of Xpert MTB/RIF were calculated to be 91% and 90.6% respectively when compared to culture. The pooled sensitivity of Xpert MTB/RIF was decreased to 75% and the specificity was improved to 98% when Xpert MTB/RIF was compared to the CRS. The sensitivities among the specimen types differed markedly. The highest sensitivity was documented for lymph node (90%), moderate sensitivity for cerebrospinal (53%), while the sensitivity was lowest for pleural (30%) and peritoneal (32%) fluids. Xpert MTB/RIF, in addition, detected rifampicin resistance in 13 patients in perfect agreement with line probe assay.

Conclusion Our study showed that Xpert MTB/RIF is likely to be of greatest utility when testing lymph node specimens. A negative Xpert MTB/RIF result on fluid specimens does not exclude the diagnosis of EPTB and patients with a high clinical probability of EPTB should be started on anti-TB treatment.

PO 8171 PREDICTORS OF LOSS TO FOLLOW-UP IN ART-COMMENCED PATIENTS IN NIGERIA: A 13-YEAR REVIEW (2004–2017)

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Background Expanded access to antiretroviral therapy (ART) has improved HIV outcomes in Nigeria. However, increasing rates of patients lost to follow-up (LTFU) is threatening the achievement of the UNAIDS treatment targets to treat 90% of HIV-diagnosed patients and attain 90% viral suppression amongst those on treatment. Therefore, this retrospective cross-sectional study is aimed at identifying correlates and predictors of loss to follow-up in ART-commenced patients in a large HIV programme in Nigeria.

Methods Records of all patients who started ART from 2004 to 2017 of 432 PEPFAR-supported facilities across 10 states in Nigeria were used for this study. Univariate, bivariate and multivariate analysis using frequencies, percentages, chi-square and logistic regression was conducted using STATA version 14 to determine occurrence, correlates and predictors of LTFU.

Results Among all 2 45 257 ever-enrolled-on-ART patients within the review period, 1 50 191 patients (61.2%) remained on treatment while 75 041 (30.6%) were LTFU. Patients were significantly more likely to be LTFU when non-pregnant female (OR: 4.55,$p<0.001$); on $\geq$3 monthly ARV refills (OR: 1.32, $p<0.001$); with unsuppressed viral loads on ART (OR: 4.52, $p<0.001$); adult on second-line regimen (OR: 1.23 $p<0.001$); paediatric on first-line regimen (OR: 1.70, $p<0.001$); 10–14 years (OR: 2.99, $p<0.001$); and $\geq$65 years (OR: 1622.84, $p<0.001$).

Conclusion Despite increasing access to ART, LTFU is still a challenge in the HIV programme in Nigeria with gender, type of regimen, age, unsuppressed viral load, duration of ARV

refill, and duration of ART amongst others as significant predictors of LTFU. Differentiated care is advocated to prevent LTFU and improve retention of people living with HIV on treatment while further research to unravel the gender and social dimensions of LTFU is encouraged.

PO 8179 MEAN LEVELS OF ENDOPLASMIC RETICULUM STRESS CHAPERONE PROTEIN – BINDING IMMUNOGLOBULIN PROTEIN (BIP) DECREASES FOLLOWING SUCCESSFUL TB TREATMENT

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Background *Mycobacterium tuberculosis* (Mtb) infection is one of the leading causes of mortality worldwide. Even though treatment is readily available the emergence of drug resistance amongst Mtb strains highlights the need for new advances in the TB field such as host-directed therapies (HDT). Recent studies have highlighted the importance of BiP in cells, which can become a target in many diagnostic settings as it has been implicated in conditions including arthritis, cancer, bacterial infection and autoimmune diseases. In our studies, we are aiming to identify expression differences of BiP in different Mtb infection stages to help us understand the change of function in immune cells in relation to infection stress.
Method BiP secretion levels were assessed in plasma samples using ELISA technique. This included participants at TB diagnosis (TBDx), TB treatment group (Week 1, Month 2 and Month 6) and healthy (unexposed) participants. BiP concentration results were analysed using GraphPad Prism 7.
Results Secretion of BiP was comparable between newly diagnosed untreated TB cases and healthy unexposed controls, with levels obtained in healthy group (42.64 µg/ml) and in TBDx (40.88 µg/ml). Highest levels of plasma BiP during treated TB was observed by Week 1 (mean 68.57 µg/ml) and declined by Month 2 with 60.92 µg/ml and Month 6 with 51.40 µg/ml.
Conclusion Detection of BiP in plasma samples indicated metabolic change in immune cells due to stress posed onto cells by Mtb burden. This is due to the amount of protein product required by the immune system to mitigate the spread of the pathogen. Even though not significant, we observed a decrease in the mean levels of BiP over the course of TB treatment which correlates with a reduction in the accumulation of unfolded polypeptides in the endoplasmatic reticulum. This observation requires further testing in larger prospective studies.

PO 8182 INVESTIGATING TREATMENT RESPONSE OF PATIENTS WITH CONFIRMED DRUG-RESISTANT TUBERCULOSIS IN AN HIV-1-ENDEMIC POPULATION IN WESTERN KENYA

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Background In 2015, 10.4 million people worldwide had tuberculosis (TB) and 1.4 million deaths occurred, 400 000 of whom were HIV-positive. Sub-Saharan Africa accounted for 81% of these cases. In western Kenya, current data on the distribution of rifampicin (RIF) and isoniazid (INH) mutations is not available. The association of gene mutations with HIV infection and the treatment response of HIV-infected and -uninfected patients with TB are not known. This study determined the proportion of drug-resistant *Mycobacterium tuberculosis* in sputum isolates and investigated the association of RIF and INH gene mutations with HIV status and monitored the treatment response of TB/HIV-co-infected patients.
Methods The present study was longitudinal, and enrolment was done between 2012 and 2014 after the revision of the TB treatment regimen. Patients with confirmed drug-resistant TB were followed up for one year to establish the TB treatment response as confirmed by sputum smear microscopy.
Results A total of 1381 new and 18 previously treated TB patients were enrolled. Sputum samples were cultured on Mycobacteria-growth indicator tubes; drug susceptibility tests and line probe assay were performed to identify drug resistance and specific mutations on the rpo B, kat G and inh A genes. Discordant samples were sequenced. Conversion rate was calculated by finding the percentage of smear-negative and -positive patients at follow-up and initial visit, respectively. Regression analysis showed that RIF resistance was associated with HIV status (p=0.025). Mann-Whitney tests revealed that the conversion time of HIV-infected and -uninfected patients with TB drug mutations was comparable (p=0.180).
Conclusion The study showed that INH mono-resistance was common. Detection of INH mono-resistance in TB-endemic areas should be scaled-up as well as TB contact investigation studies to increase early detection of resistant strains.

PO 8190 RISK FACTORS OF SEVERE HEPATOTOXICITY AMONG HIV-1 PATIENTS INITIATED ON HIGHLY ACTIVE ANTIRETROVIRAL THERAPY IN THE NORTHWEST REGION OF CAMEROON

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Background Hepatotoxicity due to highly active antiretroviral therapy (HAART) has gained prominent attention since it can be affected by many factors. The aim of this study was to determine the prevalence of hepatotoxicity and related risk factors of severe hepatotoxicity following HAART initiation.
Methods A total of 100 newly diagnosed HIV drug-naive patients within the age range of 18–61 years were recruited and followed up for 24 weeks and were placed on either Tenofovir (TDF)+Lamivudine (3TC)+Efavirenz (EFV) or Zidovudine (AZT) +Lamivudine + Nevirapine (NVP) or Zidovudine +Lamivudine + Efavirenz regimen. Sociodemographic data was obtained using pretested questionnaires. Venous blood samples were collected to measure aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP), using colometric enzymatic reaction. Hepatotoxicity was classified based on age and sex. Data was analysed using SPSS.
Results The level of significance was set at 5%. A total of 37 (38%) and 49 (49%) patients presented with hepatotoxicity;