PO 8592 WHY, WHEN AND WHERE DO NEWBORNS NOT ONLY GET SICK BUT ALSO DIE IN SÃO TOMÉ AND PRÍNCIPE? A CASE-CONTROL STUDY

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Background Neonatal deaths in São Tomé and Príncipe account for about 43% of all under-5 deaths, but there are major gaps in understanding this. The objective of this study was to identify ante-, intra-, and post-partum risk factors and to analyse characteristics of neonatal morbimortality.

Methods Stillbirths and sick newborns (NB) with ≥ 32 week's gestation or ≥ 1500 g were eligible cases, while controls were healthy newborns ≥ 28 days. The study is still underway, and more data will become available. Results presented here are from a questionnaire applied by the investigator, and from medical records of mothers and newborns. Point-of-care tests were used to screen for syphilis, HIV and Hepatitis B. The SPSS 23 statistical programme was used for data analysis. Informed consent was obtained from every mother included in the study.

Results Out of 675 mothers, 132 were enrolled corresponding to 134 newborns (2 twins), while 35 cases and 41 newborn controls were followed up. Pregnant women's medium age was 26 years, 23% being adolescents and 23% without antenatal care. Primary education was attended by 57%, secondary by 63%, 7% never attended school. Syphilis – 1/96 reactive test; HIV or malaria not detected; 3 infected with HBV. Newborn morbimortality: 10 preterm, 12 birth asphyxia, 30 with risk of neonatal and 8 with invasive infections, 8 foetal growth restriction, 5 microcephaly, 4 minor congenital anomalies and 1 death in the first 24 hours of life (congenital lung anomaly). Low birth weight (< 2500 g), meconium and caesarean section were statistically significant with respect to morbidity ($p < 0.05$). No deaths were verified in the 76 babies followed up.

Conclusion In this study, newborn morbidity was high (59%). More conclusions will be drawn when a higher number of participants is included and analysed. As a result, at the completion of this study, we hope to be able to design an intervention algorithm in order to achieve peri-neonatal morbimortality reduction.

PO 8594 VALIDATION OF A VERBAL AUTOPSY QUESTIONNAIRE APPLIED TO A CASE-CONTROL STUDY OF CEREBRAL MALARIA IN BANDIAGARA AND BAMAKO, MALI

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Background Malaria remains a leading cause of child mortality in sub-Saharan Africa. Severe malaria is the main pathway to death caused by malaria. A study of factors associated with protection against severe malaria is best achieved using a case-control design. However, these studies are affected by the

quality and appropriateness of the choice of controls that may introduce important bias in study design and definitively alter the conclusions from the studies. It is of paramount importance that the presence or absence of an episode of severe malaria in the history of the controls is ascertained. In settings with reliable medical data this is easily tracked back from hospital records. In settings like Bandiagara, with weak health care systems, a dedicated approach is needed to track history of severe malaria. We used an adapted verbal autopsy questionnaire to identify presence of cerebral malaria in the history of controls in a case-control study of severe malaria in Bandiagara.

We have assessed the sensitivity, specificity and predictive positive and negative values of the questionnaire.

Methods From January through August 2018 we enrolled 450 children with or without known confirmed cerebral malaria selected at health care centers in Bandiagara and Bamako, with archived medical records. Parents of enrolled children were identified, located and interviewed using the adapted verbal autopsy questionnaire. Interviewers were not aware of children's diagnosis. We compared the diagnosis derived from the verbal autopsy questionnaire to the confirmed biological diagnosis from the medical records.

Results We will present full results on the sensitivity, specificity, the predictive positive and negative values of the verbal questionnaire, and the Kappa coefficient of agreement.

Conclusion A good verbal questionnaire will enhance the quality of the choice of controls in case-control studies of severe malaria and overall will improve the quality and relevance of inferences from such studies.

PO 8595 FACTORS ASSOCIATED WITH VIROLOGIC FAILURE AMONG WOMEN WITH PRIOR EXPOSURE TO ANTIRETROVIRAL DRUGS FOR PMTCT, KISUMU, KENYA

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Background Use of antiretroviral drugs (ARVs) for a discrete period for Preventing Mother-to-Child HIV transmission (PMTCT) only may be compared to Structured Treatment Interruption, which has been associated with virologic failure (VF). We sought to determine factors associated with VF among women on Antiretroviral Therapy (ART) but with prior exposure to short-term ARVs for PMTCT.

Methods HIV-infected women presenting for ART initiation in three HIV care clinics in Kisumu County, Kenya were enrolled in the KiBS follow-up study (2010–2013) if they had previously received triple ARVs for PMTCT (Group 1) or short-course ARVs for PMTCT (Group 2) or were ARVs-naïve (Group 3). First-line ART was provided as per 2010 WHO treatment guidelines and viral load (VL) tests were conducted every six months for 24 months. VF was defined as any confirmed VL value ≥ 400 copies/ml after 6 months of ART initiation. Frequencies and proportions were used in the descriptive analysis while Pearson's Chi-square/Fisher's exact test was used to determine the association between VF and eight independent variables. Univariate and Multivariate Cox-proportional regression model was fitted to investigate factors associated with VF.

Results Out of 284 participants data for 245 were analysed (Group 1: 27; Group 2: 107; Group 3: 111). Majority were aged 25–29 years and over 60% had primary/lesser education. There were 39 (Group 1: 5; Group 2: 16; Group 3: 18) VFs with a total VF incidence of 8.12 [95% CI (5.96, 11.17)] per 1000 Person months of observation (PMOs). Group 2 had the lowest VF incidence. Baseline CD4 <349 cells/mm³ and initiation/use of TDF/3TC/EFV were associated with virologic failure (VF).

Conclusion Women at risk of VF based on the identified risk factors should be identified and targeted with appropriate intervention. Further studies are needed to verify and understand the mechanisms of association between VF and TDF/3TC/EFV which is a WHO-recommended first-line ART regimen.

PO 8596 **ENHANCING LABORATORY DIAGNOSIS OF MYCOBACTERIUM TUBERCULOSIS IN SAMPLES FROM CHILDREN IN THE GAMBIA**

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Background Routine laboratory diagnostic methods for *M. Tuberculosis* complex (MTBC) in induced sputum samples such as smear microscopy, GeneXpert and liquid *Mycobacteria* growth indicator tube (MGIT) culture are often negative due to the paucibacillary nature of childhood tuberculosis. We hypothesise that prolonged incubation beyond routine culture time could potentially improve MTBC detection in specimens. **Methods** Out of over 1000 induced sputum samples collected during our childhood TB contact tracing research programme, we randomly selected 102 MTBC-negative MGIT cultures that had either been reported as contaminated (n=35) or negative (n=67) and further incubated these at 37°C for the duration of one month. Ziehl-Neelsen microscopy, MPT64 Antigen secretion and GeneXpert tests were repeated on all samples to detect MTBC. Bacterial DNA was extracted by CTAB method and genotyped using spoligotyping analysis.

Results Of the 1160 routinely collected induced-sputum samples 12 (1%) were smear-positives; 41 (3.5%) Xpert-positives and 51 (4.4%) MGIT culture MTBC-positives. The remaining MGIT cultures were flagged as contaminated 393 (33.9%) or MTBC-negative 644 (55.5%). After prolonged incubation and retesting of the randomly selected ones, 26/102 (25.5%) were now microscopy-positive, 2/55 (3.63%) were GeneXpert-positive, 8/102 (7.8%) MPT64-Antigen-positive, and 38/102 (37.2%) had readable spoligotyping patterns. The predominant lineages were Mtb-Euro-American 16 (42.1%), Mtb-Indo-Oceanic 11 (28.9%) and *M. africanum* West African type-2 8 (21%).

Conclusion Prolonged incubation of routinely MTBC-negative induced-sputum cultures yielded positive results upon retest, highlighting the low sensitivity of routine diagnosis tools on pauci-bacillary paediatric samples. Spoligotyping was more sensitive to detect MTBC compared to GeneXpert. However, prolonged incubation will cause diagnostic delays and thus better strategies are needed to improve timely childhood TB diagnosis.

PO 8597 **NEUTRALISING AND NON-NEUTRALISING ANTIBODIES RESPONSE IN HIV-1-INFECTED INDIVIDUALS FROM MOZAMBIQUE**

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Background A vaccine that protects against the different HIV subtypes circulating around the world is essential to control and eliminate HIV infection. The immunogens are the key to develop an effective HIV vaccine. In this study, we characterised the antibody response against recombinant C2V3C3 polypeptides from several HIV-1 subtypes and evaluated the neutralising antibody response.

Methods Plasmas from HIV-1-infected individuals under treatment (n=39) and drugs-naïve individuals (n=8) were tested in an ELISA assay to determine the presence of antibodies against polypeptides from HIV-1 subtypes (CRF02_AG, B, C, G and H). The neutralising activity of plasma was evaluated with a panel of six HIV-1 viruses from a reference panel, [one tier 1 (NL4.3), and five tier 2 (PCH119_CRF07, PCE1176_C, TRO11_B, 246 F3_AC and CRF07_BJ0X2000)] in a TZM-bl cells-based assay.

Results Out of 48 plasmas, 44 (89.6%) reacted at least with one polypeptide and four (10.4%) did not react with any polypeptide. Interestingly, 56% of the plasmas recognise ≥3 peptides and 6 reacted with all polypeptides. The polypeptide from virus CRF02_AG was the most antigenic (77%) followed by the polypeptide C (58.3%), G (58.3%), H (50%) and B (35.4%). There was a positive correlation between polypeptides number recognised and binding antibody reactivity (r=0.4895, p=0.0111). All plasmas from drugs-naïve individuals neutralised at least one virus with neutralising activity between 39.3% and 95.7%. Four plasmas showed neutralising activity >50% against five viruses. The virus 249 F3 was the easiest to neutralise (median, 65.7%), whereas PCH119_CRF07 was the most difficult to neutralise (median, 43.6%). Neutralising activity of plasmas from patients under treatment are ongoing.

Conclusion In summary, these polypeptides could be useful in vaccine design once they are very antigenic and we observed a heterologous neutralising antibody response in naïve patients that expressed positive antibody-response anti-peptides.

PO 8607 **DETECTION OF PLASMODIUM FALCIPARUM HISTIDINE-RICH PROTEIN 2/3(PFHRP-2/PFHRP-3) GENES DELETION AND AMINO ACID NUCLEOTIDE SEQUENCE VARIABILITY IN NIGERIA**

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Background Prompt diagnosis and appropriate treatment remain the hallmark needed to reduce malaria-related mortality in areas of high transmission. Rapid diagnostic tests (RDTs) that target the Pfhrp-2 gene, are essential in resource-limited settings where microscopy is not available. However,