Methods We searched the medical literature for studies evaluating performance of dual syphilis/HIV RTs against laboratory-based reference tests for syphilis and HIV, and compared performance across studies. For the syphilis component of the RTs, we compared results using laboratory-based treponemal tests (TPPA or TPHA) as the reference and (when available) TPPA+/RPR+ as the reference, considering RPR titers>1:4 to represent active syphilis (vs. previously treated infections).
Results We found 19 studies evaluating dual syphilis/HIV RT performance, of which 7 (37%) were field evaluations studying at least one of three diagnostics: *SD Bioline* HIV/Syphilis Duo Test (n=4); *Chembio* Dual Path Platform HIV-Syphilis Assay (n=2); or *Medmira* Multiplo Rapid TP/HIV Antibody Test (n=1). All used HIV EIA and TPPA or TPHA tests as reference standards; 6 also reported RPR titers. Study populations were pregnant women (n=3), female sex workers (n=1), high-risk men (n=2) and STD clients (n=1), representing a total of 13 915 persons (median study size, 415 participants; range 175 – 9983). Across studies, prevalence of HIV ranged from <1% to 78% (median, 25.3%), and of *T. pallidum* (TP) from <1% to 40.2% (median, 8.2%). RT sensitivity for HIV against EIA ranged from 93.8% to 100% (median, 99.1%), and specificity from 97% to 100% (median, 99.4%). RT sensitivity for TP against TPPA or TPHA ranged from 52.7% to 96.5% (median, 81%), and specificity from 89% to 100% (median, 98.8%), with better performance in study populations with higher TPPA/RPR+ prevalence. Using TPPA+/RPR+>1:4 as the standard, RT sensitivity ranged from 88.5% to 100% (median, 94.3%).
Conclusion In the few published field evaluations of dual syphilis/HIV RTs, performance of the HIV component was high for all tests studied. Sensitivity of the syphilis component against TPPA was poorer, but was more accurate using probable active syphilis infection as the standard.

P1.42 A NEW MAGNETIC PARTICLE-BASED AGGLUTINATION ASSAY FOR ANTI-CARDIOLIPIN ANTIBODY DETECTION IN SYPHILIS

Mayur Shukla, John W Deutsch, Ellen N Kersh, Yetunde F Fakile. *Centres for Disease Control and Prevention, Atlanta, USA*

10.1136/sextrans-2017-053264.150

Introduction A magnetic particle based assay was developed for the detection of nontreponemal anti-cardiolipin antibodies in sera of suspected syphilis cases. The presence of this group of antibodies in combination with a reactive treponemal test indicates active syphilis. In this study, we aimed to overcome technical difficulties with attaching cardiolipin to solid support. The newly developed assay potentially offers advantages of better result interpretation, accuracy, and minimum equipment need compared to traditional nontreponemal tests in diagnosing syphilis.
Methods To develop the nontreponemal magnetic agglutination assay (NT-MAA), cardiolipin antigen was modified first through a chemical oxidation process. The oxidised antigen was later covalently linked to magnetic particles. To test the beads, serum samples were mixed with cardiolipin-magnetic particle complex, and incubated in round bottom well microplates. The test was interpreted as reactive when agglutination was observed. Non-reactive sample demonstrated a "button" in the centre of a microwell. The NT-MAA was evaluated using a panel of previously characterised human sera (n=80) and results were compared to rapid plasma reagin (RPR, ASI) and *Treponema pallidum* particle agglutination tests (TP-PA, Fujirebio). A true positive sample was defined as being reactive for both RPR and TP-PA, while a true negative as both RPR and TP-PA non-reactive.
Results Out of 80 sera tested, 48 were found true positive and 32 true negative with the reference tests. In comparison, the NT-MAA, demonstrated a sensitivity and specificity of 100% and 96.8%, respectively.
Conclusion Magnetic particle-based assays offer high flexibility because they work with different assay formats. This exploratory study, describes technical advances for development of nontreponemal test (NT-MAA), and also demonstrated an encouraging performance with the studied samples. Additional evaluation with syphilis samples from defined clinical stages of syphilis will help further validate test performance.

P1.43 ABSTRACT WITHDRAWN

P1.44 MOLECULAR TYPING AND DETECTION OF MACROLIDE RESISTENCE IN *TREPONEMA PALLIDUM* DNA FROM PATIENTS WITH PRIMARY SYPHILIS IN SÃO PAULO, BRAZIL

[1]Neuza Satomi Sato, [2]Fátima RB Morais, [1]Juliana De Oliveira Polisel, [2]Walter Belda, [2]Luiz Jorge Fagundes. *[1]Centro De Imunologia, Instituto Adolfo Lutz, São Paulo – SP, Brazil; [2]Centro De Saúde Escola Geraldo De Paula Souza, Faculdade De Saúde Pública, USP, São Paulo – SP, Brazil*

10.1136/sextrans-2017-053264.151

Introduction Syphilis is a globally occurring sexually transmitted disease caused by *Treponema pallidum*, a non-cultured *in vitro* bacterium. Molecular typing of *Treponema pallidum* strains isolated from patients are useful for investigating the molecular epidemiologic patterns, diversity of strains and antimicrobial resistance patterns.To date, there was no data on the circulating or prevalent subtype in Brazil. In this study we aimed to determine *T. pallidum* strain diversity and analyse for the mutation associated with macrolide resistance from patients with primary syphilis attended at CSEGPS.
Methods We analysed 24 samples of primary lesion collected from patients attended at CSEGPS between 2013 and 2015. DNA was extracted with DNeasy kit (Qiagen). Standard PCR targeting tpp47 and polA genes was used for screening. Molecular typing was performed by CDC established methods, by determination of the 60 bp repeats within the *arp* gene, and RFLP analysis of *tpr* subfamily II genes (E, G and J). Completed by sequence analysis of a variable region of the tp0548 gene. The 23S rDNA mutation was analysed by DNA sequencing of PCR product.
Results: *T. pallidum* DNA was detected in samples from 15 patients. Among 12 specimes typed, subtype found were 14d/g (6), 14d/d (5) and 12b/d (1). From 10 samples analysed for 23 rDNA mutation, all showed A2058-G, no mutation was detected at A2059. One case presented a different subtype in re-infection. The first was 14d/g and the second was 14d/d.
Conclusion: *T. pallidum* detected in the samples of patients with primary syphilis are of subtypes 14d/g, 14d/d and 12b/d. The macrolide resistance mutation A2058-G was detected in