Jarisch–Herzheimer reaction was positively associated with treatment regimen prognosis ($p<0.05$).

Conclusion Our serological data demonstrate that this ceftriaxone regimen is more effective than the currently recommended benzathine penicillin regimen for early syphilis in non-pregnant, immunocompetent patients, especially for secondary syphilis.

LB1 – Late Breakers Oral Sesssion

LB1.1 INSIGHTS INTO THE EVOLUTION OF SYPHILIS SPIROCHETES WITHIN AT-RISK POPULATIONS: SEQUENCE VARIATION OF OUTER MEMBRANE PROTEIN β-BARREL DOMAINS IN CLINICAL SAMPLES

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Introduction Outer membrane proteins (OMPs) play critical roles in disease pathogenesis and are vaccinogens. Topologic characterisation of surface-exposed β-barrels of *Treponema pallidum* (*Tp*) Nichols rare OMPs enabled a novel strategy to assess sequence diversity and evolution of *Tp* in geographically diverse locations.

Methods Through early 2017, sequences encoding TprC (TP0117), TprD (TP0131), and BamA (TP0326) β-barrels were amplified from secondary syphilis patients from Cali (n=16) and swabs from patients in San Francisco (SF, n=6) and Czech Republic (CZ, n=9). Strains were assigned to the Nichols or SS14 clade based on *tp0548* and/or *tp0558* sequences.

Results 23 assignable CZ and Cali strains belonged to either the SS14 or Nichols clade (SS14 predominant), while all 6 SF strains belong to the SS14 clade. Sequence diversity at the three OMP loci was greatest in Cali, with evidence of recombination within *tprC* and *bamA* alleles, as well as between strains and clades at all 3 genetic loci. SF strains contained nearly identical sequences at all 3 genetic loci. The SS14 and Mexico A reference strains, both belonging to the SS14 clade, have identical *tprDs* (*tprD2*) but different *tprC* and *bamA* alleles. Mexico A *tpr*Cs were common at all three geographic locations, including Nichols clade strains from Cali. Mexico A *bamA*s were prevalent in Cali and SF, while CZ SS14 clades contained only SS14 *bamA*s. OMP sequences were obtained from all three loci in 7 of 8 Nichols clade strains. Of these 7, only 1 matched the Nichols reference strain, while the other 6 contained Mexico A alleles in at least 1 OMP locus. Of the 21 SS14 clade strains, 10 contained Mexico A alleles at all 3 loci; 2 contained Mexico A *trpCs* and Nichols *bamAs*; and 9 contained Mexico A *tprCs* and SS14 *bamAs*.

Conclusion OMP loci are evolving independently within *Tp*. Recombination of OMP sequences appears to be occurring between *Tp* strains and clades within patients. Mexico A OMP alleles are circulating widely among *Tp* strains. These findings have major ramifications for syphilis vaccine development.

LB1.2 WHAT IS THE STRENGTH OF EVIDENCE FOR HIV AND HPV INTERACTIONS? RESULTS FROM SYSTEMATIC REVIEWS AND META-ANALYSES OF LONGITUDINAL STUDIES

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Introduction We conducted two systematic reviews. Review 1 (R1) summarised evidence for the influence of HIV on HPV acquisition and clearance. Review 2 (R2) summarised the evidence for the influence of HPV on HIV acquisition. R1 is the first meta-analytic review to quantify the impact of HIV on HPV infection. R2 updates two earlier meta-analyses.

Methods Both reviews were conducted according to PRISMA and MOOSE guidelines. We searched PubMed and Embase up to January 2017 for longitudinal studies of HPV incidence and clearance rate by HIV status and of HIV incidence by HPV status. We derived pooled relative risk (RR) estimates using a random effect model and performed subgroup analyses to understand main sources of heterogeneity, examined dose-response relationship and produced funnel plots.

Results In R1, 37 publications comprising 25 independent study populations were included. The incidence of HPV (pooled crude RR [cRR]=1.55, 95% CI 1.29–1.88) and of high-risk (HR) HPV (pooled cRR=2.20, 95% CI 1.90–2.54) was doubled whereas HPV clearance rate (pooled cRR=0.53, 95% CI 0.42–0.67) and HR-HPV clearance (pooled cRR=0.69, 95% CI 0.57–0.83) was nearly halved among people living with HIV (PLHIV). HPV incidence when CD4 count ≤200 cells/μL among PLHIV was higher, but not statistically significant, than for CD4 >200 cells/μL (pooled cRR=6.65, 95% CI 2.98–14.85 vs 3.20, 95% CI 2.48–4.13). In R2, 14 publications comprising 11 independent study populations were included. HIV incidence was almost doubled in the presence of prevalent HPV infection (pooled cRR=1.91, 95% CI 1.38–2.65) and for HR-HPV (pooled cRR=1.63, 95% CI 1.26–2·09). Risk of HIV acquisition increased with the number of HPV types. Crude and adjusted pooled estimates were similar in both reviews. There was more evidence of publication bias in R2 than R1.

Conclusions The findings met most Bradford-Hill criteria for causation. Our results have clinical and public health relevance: HPV vaccination may benefit PLHIV and indirectly help to reduce HIV transmission. HIV prevention may also reduce HPV transmission.

LB1.3 ANTICIPATING RESISTANCE OF *MYCOPLASMA GENITALIUM* TO QUINOLONES AND MACROLIDES: NANJING, CHINA

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Introduction For treatment of *Mycoplasma genitalium* (Mg) infection, azithromycin is first line initial treatment but