CST-III. These two CSTs are known to be associated with rapidly fluctuating dysbiotic states. When comparing the population structure of all urine and vaginal samples, no statistical differences were observed (PERMANOVA: $F_{1,148}=1.0815$, $p=0.31$).

Conclusion Vaginal and random catch urine samples from the same participant showed substantial agreement on bacterial composition. Random catch urine samples could present another sampling option to assess the vaginal and urogenital microbiota.

O10.5 TESTING OF BD MAX™ VAGINAL PANEL RESIDUAL SPECIMENS USING THE BD MAX™ CT/GC/TV ASSAY

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Introduction Vaginitis is a common problem in women's health globally. Sexually Transmitted Infections (STI) are also highly prevalent and often have symptoms similar to vaginitis. *Trichomonas vaginalis* (TV) is a causative agent of vaginitis that is exclusively sexually transmitted and thus falls into both of these diagnostic categories. To better understand co-infection rates for STI and vaginitis, we used the BD MAX- CT/GC/TV (MCGT) assay for detection of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (GC) and TV on samples previously tested with BD MAX- Vaginal Panel (MVP).

Methods Women who reported vaginitis symptoms were enrolled in a study that evaluated the performance of MVP. A subset of the vaginal swabs collected and frozen was tested using MCGT. The presence of CT, GC or TV was assessed in women with Bacterial Vaginosis (BV) only, *Candida spp*. only (Ca), BV+Ca, or negative for vaginitis as determined by the MVP. This last category included women with all negative results as well as women with TV only, since for this analysis TV was classified as an STI.

Results Self-collected samples gave reportable results for 528 women to date. 210 (39.8%), 62 (11.7%), 95 (18.0%) and 161 (30.5%) were diagnosed with BV, Ca, BV+Ca or no vaginitis, respectively. TV, CT and GC were present in samples from 62 (11.7%), 32 (6.1%) and 8 (1.5%), respectively. STI positivity rates among those with BV, Ca, BV+Ca and vaginitis negative women were 23.3, 9.7, 25.3% and 8.7%. Of the 62 TV results obtained with MCGT, 61 were detected with MVP, with an overall agreement of 99.8% (527/528).

Conclusion STI rates were high among women seeking care for vaginitis and co-infection was common. While treatment for vaginitis may include appropriate management for TV, CT and GC management requires appropriate diagnostics in order to prescribe the appropriate treatment. Testing of the same vaginal specimen on the BD MAX instrument for both vaginitis and STI diagnostics is an efficient solution which maximises the number of results available to effectively guide patient management.

O10.6 CLEARANCE OF *MYCOPLASMA GENITALIUM* AND *TRICHOMONAS VAGINALIS* AMONG ADOLESCENTS AND YOUNG ADULTS WITH PELVIC INFLAMMATORY DISEASE: RESULTS FROM THE TECH-N STUDY

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Introduction While the broad-spectrum antibiotics recommended for treatment of pelvic inflammatory disease (PID) effectively treats *Neisseria gonorrhoeae* (GC) and *Chlamydia trachomatis* (CT), coverage may be inadequate for Mycoplasma *genitalium* (MG) and *Trichomonas vaginalis* (TV). Untreated MG and TV may result in vaginal dysbiosis, increasing the risk for recurrent STIs and HIV. The objective of this study is to evaluate longitudinal MG and TV outcomes compared with GC/CT outcomes over the 90 day following treatment.

Methods 259 Female AYA aged 13–25 years with mild-moderate PID enrolled in a randomised trial of a technology enhanced community health nursing study designed to prevent STIs after PID. Participants completed audio computer-assisted self-interviews and provided vaginal specimens at baseline, 30 days and 90 days and were notified and referred for treatment for positive results. Generalised estimating equations were used to measure changes in the prevalence of MG and TV compared with GC/CT over time.

Results At baseline, 29% were positive for CT or GC at baseline (25% CT and 8% GC), 19% for MG, and 16% for TV. Ninety-four percent of the effective sample was retained at 90 days and 44% reported completing all medication doses. At 30 days, 17 (8%) of women were positive for CT or GC, while 36 (17%) were MG positive, and 22 (10%) were positive for TV. At 90 days, 13 (6%) were positive for CT or GC, 39 (18%) for MG, and 30 (14%) for TV. GC/CT infection was declining on average over time (odds ratio 0.48, 95% CI 0.36 to 0.63 per additional month). MG was not significantly changing over time (odds ratio 0.94, 95% CI 0.84 to 1.05), at a different rate than GC/CT ($p<0.001$). TV was also consistent over time (odds ratio 0.92, 95% CI 0.78 to 1.09), also at a different rate than GC/CT ($p<0.001$).

Conclusion Youth treated with the recommended syndromic management protocols clear infection with GC/CT, but often have recurrent, persistent, and/or new MG/TV infections during the 90 day post-PID follow-up period.

Oral Presentation Session 11

STI Diagnosis and Clinical Observations

O11.1 DECLINE IN GENITAL SHEDDING IN THE YEAR AFTER FIRST CLINICAL EPISODE GENITAL HERPES SIMPLEX VIRUS TYPE 1

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Introduction Herpes simplex virus type 1 (HSV-1) has emerged as the leading cause of first episode genital herpes among adolescents and young adults. The natural history of genital and oral shedding after first episode genital HSV-1 must be described to understand the risk of transmission to sexual partners.
Methods Persons with laboratory documented first clinical episode genital HSV-1 infection obtained daily self-collected genital and oral swabs for two 30 day sessions starting 2 months and 11 months after the first genital HSV-1 outbreak. HSV was detected in swabs using real-time quantitative HSV-1 PCR. Rates of genital and oral shedding were compared during the first and second swabbing sessions using Poisson regression models.
Results Of 52 persons who completed the first swabbing session, 27 (52%) were HSV-1 seronegative (primary infection) at presentation and 25 (48%) were HSV-1 seropositive at initial presentation. Twenty-five persons completed both sessions (11–12 months). Genital HSV-1 shedding was detected in 176 (12.2%) of 1438 swabs from the first shedding session, and declined to 46 (7.1%) of 645 swabs in the second session. The rate of genital lesions was 61 of 1595 (3.8%) days in the first session and 12 of 746 (1.6%) days in the second session. Oral shedding was detected infrequently, with 3.6% of swabs HSV-1 positive in the first session, and 3.3% during the second session. Oral lesions were rare in both sessions.
Conclusions Genital HSV-1 shedding occurs substantially less frequently than genital HSV-2 shedding, and declines in the first year after genital HSV-1 acquisition. These results will inform counselling messages about risk of sexual transmission to persons with first episode genital HSV-1 infection.

O11.2 REPEAT SYPHILIS IS ASSOCIATED WITH AN ALTERED IMMUNE PROFILE

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Introdution There may be a difference in the immune and inflammatory response to repeat as compared to initial syphilis.
Methods Prospective study: We prospectively recruited patients with a new diagnosis of syphilis, described their clinical and demographic characteristics and tested their plasma for IFNa, IFNg, IL-1b, IL-12p40, IL-12p70, IP-10, MCP-1, MIP-1a, MIP-1β, IL-4, IL-5, IL-6, IL-7, IL-8, IL-10, IL-17A (Luminex multiplex assay (EMD Millipore) and their serum with a quantitative Rapid Plasma Reagin (RPR) test (Macrovue, Becton, Dickinson) at baseline pre-treatment and 6 months following therapy. The Mann-Whitney U-test was used to assess if cytokine levels and RPR titres differed between those with initial and repeat syphilis sampled at baseline and 6 month time points. Retrospective study: We compared RPR response kinetics between initial and repeat syphilis in persons attending our HIV/STI clinic.
Results Prospective study: 91 individuals, 36 with initial- and 55 with repeat syphilis, were included in the study. At baseline visit those with initial syphilis were more likely to be symptomatic and had higher levels of IL-8, IL-10 and MIP-1β. By the 6 month visit IL-10 remained higher in those with initial syphilis. Median RPR titres were higher at baseline in the repeat compared to the initial infection groups in those with symptomatic (primary and/or secondary) syphilis (1/128 [IQR 1/64-1/256] vs. 1/64 [IQR 1/16-1/128], p=0.016) but not those with latent syphilis. Retrospective study: Syphilis was diagnosed in 1 027/12 520 individuals tested. Repeaters had higher RPR titres at diagnosis and a stepwise increase in RPR titre with number of previous syphilis episodes. They had a different RPR response kinetic: they were less likely to be serofast and less likely to serorevert than initial syphilis. Not one of those with 4 or more episodes of syphilis seroreverted.
Conclusion Repeat syphilis has a different clinical presentation and immunological response than initial infection. We discuss the implications for clinicians and epidemiologists.

O11.3 EXTREME HETEROGENEITY IN VAGINAL MICROBIAL KINETICS WITHIN AND ACROSS WOMEN

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Introduction Incident bacterial vaginosis (BV) is associated with a shift in the vaginal microbiota from lactobacillus predominant to a diverse community of anaerobic bacteria The kinetics of this shift are poorly described. We sought to identify the dynamics of incident BV.
Methods Twenty women with frequent BV (>3 episodes per year) self-collected vaginal swabs every 8 hours for 60 days. Swabs were analysed with quantitative PCR targeting *Lactobacillus iners*, *Lactobacillus jensenii*, *Lactobacillus crispatus*, *Gardenerella vaginalis*, *Atopobium vaginae*, bacterial vaginosis associated bacterium-2 (BVAB2), and *Megasphaera spp*. We defined bacteria as absent, low (4 DNA copies), moderate (104–108 DNA copies) or high-level (108–1011 DNA copies). Participants kept detailed diaries regarding sexual behaviour, menstruation, antibiotic use and vulvovaginal symptoms.
Results We noted three states of the vaginal microbiota: three women had high-level lactobacilli with intermittent, transient low-level *G. vaginalis* throughout the sampling period (State 1); five women had high-level lactobacilli with persistent, fluctuating low to moderate-level *G. vaginalis* and other BV associated anaerobic species throughout the sampling period (State 2); two women had polymicrobial colonisation with high-level *G. vaginalis* and other BV associated species, and intermittent, transient low-level, or persistent moderate-level *Lactobacillus jensenii* and *crispatus* throughout the sampling period (State 3). Ten women shifted between States 2 and 3 on at least one occasion. Extremely rapid transition from State 2 to 3 over.
Conclusions The vaginal microbiota is extremely dynamic and BV develops over narrow time intervals. Low-levels of BV associated species in the vagina may be a risk factor for rapid, incident BV. Future studies will identify drivers of shifts in the vaginal bacterial biota.

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