

(73%) accepted referral and 15 (45%) initiated PrEP. Rates of STI decreased from 60% (n=9) at baseline/6 months prior to 13% in the 6 months after PrEP (p=0.02).

Conclusions Few sexually active youth in this setting were aware of PrEP. Coupling HIV testing/FP with an assessment of interest in PrEP and referral to PrEP services may be one access point in increasing knowledge and use of PrEP.

009.7 KNOWLEDGE, ATTITUDES, AND BELIEFS ABOUT HIV PRE-EXPOSURE PROPHYLAXIS AMONG U.S. ARMY HEALTH CARE PROVIDERS

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Introduction Pre-exposure prophylaxis (PrEP) has become a promising modality in the global fight against HIV. No data is available about the current utilisation, knowledge, or attitudes about PrEP provision in the US Army. Recent analysis of HIV-infected Army personnel indicates men who have sex with men are most at risk. We conducted a survey to characterise the level of PrEP awareness and adoption and examine PrEP-related knowledge, attitudes, and beliefs associated with PrEP adoption.

Methods In October 2016 we initiated an online survey to eligible US Army healthcare providers in the fields of infectious disease, public health, internal medicine, family medicine, and flight medicine. Demographic and clinical practice data was collected as well as questions about PrEP knowledge, attitudes, and program implementation within the Army. Provider knowledge and attitudes were assessed in univariate and bivariate analysis.

Results 754 providers responded, largely from family medicine (58%) and internal medicine (18%) specialties. While a large proportion (31%) had been questioned by patients about PrEP, only 12% reported having prescribed it. Current experience with PrEP was highest (83%) among infectious disease providers. Concerns for widespread use included medication adverse effects (61%), compliance (56%), and a need for "more clear evidence" (54%), among others. While most (91%) endorsed the use of PrEP, and favoured the implementation of PrEP programs for service members at high risk, over half (54%) reported their knowledge of PrEP as 'poor'. Self-reported PrEP knowledge was associated with prior use of HIV antiretrovirals (p<0.0001). Almost half (43%) of providers surveyed felt that they had patients who would benefit from PrEP and a majority (83%) thought PrEP should be offered.

Conclusion There is widespread support and interest in US Army PrEP programs, however, self-reported knowledge is low. Successful PrEP implementation will require education and training of the healthcare provider workforce to improve knowledge and mitigate concerns about PrEP.

Oral Presentation Session 10

Novel Technologies for Molecular Analysis and Diagnosis

010.1 HIGH AMOUNTS OF VIABLE *CHLAMYDIA TRACHOMATIS* IN ANORECTAL POSITIVE WOMEN REVEALED BY VIABILITY-PCR

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Introduction In prior studies it is demonstrated that, in women, the prevalence of anorectal infections with *Chlamydia trachomatis* (CT) is comparable to genital CT. Yet, the clinical relevance and the role in overall transmission of anorectal CT in women is still under debate. The assessment of CT viability will gain new insight in current knowledge gaps. Recently, we validated the viability-PCR (V-PCR) method to assess CT viability in genital CT positive samples. In this study, V-PCR was utilised to assess CT viability in anorectal samples from CT positive women.

Methods COBAS 4800 CT/NG routine testing was used for CT diagnosis. Women positive for genital and/or anorectal CT (n=66), collected self-taken vaginal and anal swabs at our outpatient STI clinic (South Limburg Public Health Service) prior to treatment at the initial screening and at treatment consultation. V-PCR and culture were used to assess CT viability.

Results V-PCR results showed that in up to 31% (8/26) of anorectal positive samples less than 1% of the detected CT DNA originated from viable bacteria. However, in 62% (16/26) of anorectal positive samples more than 10% of the detected CT DNA originated from viable CT. In this category, routine COBAS results also showed a stable bacterial load between initial screening and treatment consultation, further supporting the presence of large amounts of viable CT. Finally, culture results confirmed results of V-PCR and showed a direct relation to the proportion of viable CT in clinical samples.

Conclusion Although the cohort was relatively small, results in this study showed that a substantial amount of anorectal CT positive samples contained viable CT. Overall, these results provide further evidence that anorectal CT infections in women are clinically relevant. In a currently ongoing larger cohort study, clinical samples from CT positive women (n=400) will be assessed for viability before and after treatment (FemCure Study).

010.2 A PERFORMANCE EVALUATION OF THE ATLAS GENETICS LTD IO® SYSTEM: A NOVEL AND RAPID POINT-OF-CARE IN VITRO DIAGNOSTIC TEST FOR *CHLAMYDIA TRACHOMATIS*

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Introduction Rapid Point-Of-Care Tests (POCTs) for *Chlamydia trachomatis* (CT) may reduce onward transmission and reproductive sexual health (RSH) sequelae by reducing turnaround times between diagnosis and treatment. The io single module system (Atlas Genetics Ltd) runs clinical samples through a microfluidic CT cartridge, delivering results in 30 min. We evaluated its performance in four RSH clinics.

Methods 757 females aged >16 provided additional-to-routine self-collected vulvovaginal swab (VVS). Samples were tested fresh on io within 7 days of collection or were frozen at -80°C for later testing. The io CT-assay performance was compared against clinic BD Viper™ Nucleic Acid Amplification Test (NAAT), with discrepant results resolved on the Artus CT/NG assay. The gold standard for discrepant results required agreement from 2/3 tests. Factors associated with CT infection were analysed using logistic regression.

Results Insufficient volume (n=3), missing clinic NAAT data (n=21), and 'invalid' (n=24), where io failed to give a result on two successive runs, meant final analyses were conducted on 709 women (94.3%). CT prevalence was 7.2% (51/709). Sensitivity, specificity, positive (PPV) and negative (NPV) predictive values were respectively: 96.1% (95% Confidence Interval (CI): 86.5–99.5), 97.7% (95% CI: 96.3–98.7), 76.6% (95% CI: 64.3–86.2) and 99.7% (95% CI: 98.9–100). There was no significant difference in performance between fresh and frozen samples, or between symptomatic and asymptomatic patients. Risk factors associated with CT infection were sexual contact CT only.

Conclusion The io CT-assay is the only 30 min, fully automated, high-performing NAAT currently CE-marked for CT diagnosis in women, making it a highly promising diagnostic, to enable specific treatment, initiation of partner notification and appropriately intensive health promotion at the point of care.

010.3 PROSPECTIVE CLINICAL EVALUATION OF THE APTIMA MYCOPLASMA GENITALIUM ASSAY (CE-IVD) IN VARIOUS SPECIMENS FROM SYMPTOMATIC AND ASYMPTOMATIC PATIENTS IN FRANCE

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Introduction The aim of the study was to evaluate the clinical performances of the Aptima *Mycoplasma genitalium* CE-IVD assay (AMG, Hologic) for the detection of *M. genitalium* in clinical male and female samples in comparison with the in-house real-time PCR (qPCR) assay routinely used in our laboratory. The Aptima assay uses target capture, transcription-mediated amplification (TMA), and hybridization protection to detect the *M. genitalium* 16S rRNA.

Methods A total of 1431 clinical specimens obtained from 1235 patients were prospectively enrolled from February to June 2016 at the Bacteriology Department of Bordeaux University Hospital (France). For the AMG assay, various specimens collected in the appropriate APTIMA medium were processed according to the manufacturer's instructions on the Panther system (Hologic). DNA extracts were obtained using the MagNA Pure 96 DNA and viral NA small Volume Kit on the MagNA Pure 96™ instrument (Roche Diagnostics). The

in-house *M. genitalium* qPCR assay targeting the MgPa adhesin gene was performed on the cobas z480 analyzer (Roche Diagnostics). Additional RUO *M. genitalium* TMA assays, MGAlt1 and MGAlt2, and the CE-marked SpeedX Resistance-Plus™ MG assay were performed on the blinded discordant specimens to determine a definitive *M. genitalium* infection status. All the confirmed *M. genitalium*-positive specimens were tested for macrolide resistance using three comparative assays: the in-house FRET qPCR assay, the SpeedX Resistance-Plus™ MG assay and the nested reverse-transcription PCR sequencing assay.

Results The comparison of the AMG assay with the in-house qPCR result showed a moderate correlation, with a kappa value of 0.69. The TMA assay had a very good clinical sensitivity (100%) and specificity (99.33%) for *M. genitalium* detection across all specimen types tested. Its sensitivity was significantly higher than that of the in-house qPCR, 100% versus 61.33%. The prevalence of *M. genitalium* infection was 5.90% (72/1220 patients) and the prevalence of macrolide resistance-associated mutation was 5.47% (4/73).

Conclusion The Aptima *Mycoplasma genitalium* assay performed on the fully automated Panther system is a very sensitive and specific method for detection of *M. genitalium* in clinical specimens. On the Panther platform this assay can be easily combined with the assay for chlamydia and gonorrhoea detection from the same sample.

010.4 CONCORDANCE BETWEEN RANDOM CATCH URINE AND MID-VAGINAL MICROBIOTA

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Introduction The vaginal microbiota is thought to play a protective role against STIs. While urine has long been used for detection of genital STIs, there have been few studies evaluating the use of urine samples in vaginal microbiome studies. We hypothesise that urine samples could serve as a surrogate for vaginal swab collection. We sought to compare mid-vaginal swabs and random catch urine samples.

Methods Mid-vaginal swabs and random catch urine samples were collected in one sitting from 75 reproductive-age women. Microbiota composition was characterised by sequencing the V3-V4 regions of the 16S rRNA gene on the Illumina platform. Vaginal microbiota were targeted for classification using PECAN, a rapid and accurate taxonomic classifier designed for the vaginal environment. Hierarchical clustering was used to assign community state type (CST) to each sample. CST-I, -II, -III, and -V are dominated by *L. crispatus*, *L. gasseri*, *L. iners* and *L. jensenii*, respectively, while CSTs IV-A and IV-B represent low-Lactobacillus states with an array of strict and facultative anaerobes. Kappa statistics and Jensen-Shannon distances were used to evaluate the concordance of urine and vaginal samples.

Results A 77% concordance and a 0.70 kappa value were observed for CST assignments, indicating substantial agreement in microbiota structure and composition between vaginal and urine samples within a woman. Out of 17 discordant pairs, 10 pairs had one sample assigned to CST-IV and the other to