

Testing Done (n = 2,274)

Chlamydia	2,269 (99.7%)
Gonorrhea	2,267(99.6%)
Syphilis	33 (1.4%)
HIV	1 (<0.1%)

Disclosures. All authors: No reported disclosures.

1493. Effect of HIV Status on Early Syphilis Treatment Response in the Era of Combination Antiretroviral Therapy

Helen King, MD¹; Winston Tilghman, MD²; Katya Prakash, MD¹; Aaron Kofman, MD¹; Theodoros Katsivas, MD MAS¹; Feng He, MS¹; Sonia Jain, PhD¹ and Charles Hicks, MD¹; ¹University of California, San Diego, La Jolla, California, ²Infectious Hepatitis and STDs, San Diego County Department of Public Health, San Diego, California

Session: 149. Sexually Transmitted Infections

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Background. Rates of incident early syphilis are increasing and HIV-coinfection is common. Syphilis treatment for HIV-positive individuals does not differ from that of the general population, although data published prior to combination antiretroviral therapy (cART) suggest that HIV-infected persons may be less likely to achieve expected serologic responses to treatment (SRT).

Methods. We conducted a cohort study of early syphilis diagnosed in a large HIV clinic and a public sexually transmitted diseases (STD) clinic in San Diego. SRT was defined as a fourfold or greater decline in rapid plasma reagin (RPR) titer following syphilis treatment. We compared SRT at 6 and 12 months post-treatment between HIV-infected and HIV-uninfected persons.

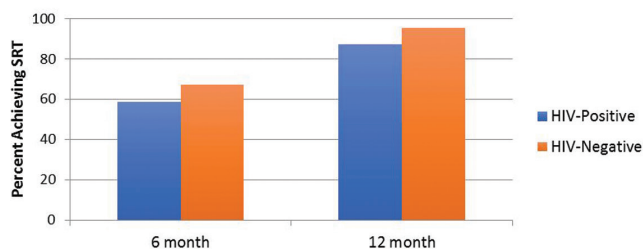
Results. Of 1,239 early syphilis cases reviewed, 742 (61%) were included in the analysis. Reasons for exclusion included lack of follow-up RPR (n = 454), nonreactive RPR at syphilis diagnosis (n = 33), and incomplete data (n = 10). Of those analyzed, 533 (72%) were HIV-positive; 168 (23%) HIV-negative; HIV status was unknown for 41 (5%). Overall, 449 (60%) and 657 (89%) of analyzed cases achieved SRT 6 and 12 months after treatment, respectively. HIV-positive cases were less likely to achieve SRT at 12 months than HIV-negative cases (464/533 [87%] vs. 160/168 [95%], P = 0.003, Figure 1), as were early latent syphilis cases (285/348 [82%]) vs. primary (102/117 [92%]) and secondary syphilis (264/277 [94%]) (Table 1).

Conclusion. In this cohort of early syphilis cases, most achieved SRT within 12 months of treatment, but only 60% achieved SRT within 6 months. Significantly lower 12-month SRT responses were seen in HIV-positive compared with HIV-negative persons and in early latent compared with primary and secondary syphilis. The impact of cART use, viral suppression, and treatment choice on outcomes is being analyzed.

Table 1. Serologic Response to Treatment by Syphilis Clinical Stage

RPR Titer Response	Syphilis Stage			P-Value
	Primary N = 117	Secondary N = 277	Early Latent N = 348	
6 months post-treatment				
≥4-fold decline	70 (60%)	177 (64%)	202 (58%)	0.323
<4-fold decline	47 (40%)	100 (36%)	146 (42%)	
12 months post-treatment				
≥4-fold decline	108 (92%)	264 (95%)	285 (82%)	<0.001
<4-fold decline	9 (8%)	13 (5%)	63 (18%)	

Serologic Response to Syphilis Treatment (SRT) by HIV Status



Disclosures. All authors: No reported disclosures.

1494. Vaginal pH: Associations with *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, and *Trichomonas vaginalis*

Stephanie McLaughlin, MD MPH¹; Khalil G. Ghanem, MD, PhD, FIDSA²; Kathleen Page, MD³; John Mcleod Griffiss, MD³ and Susan Tuddenham, MD, MPH⁴; ¹Internal Medicine, New York University, New York, New York, ²Johns Hopkins University School of Medicine, Baltimore, Maryland, ³Laboratory Medicine,

University of California San Francisco, San Francisco, California, ⁴Infectious Diseases, Johns Hopkins University, Baltimore, Maryland

Session: 149. Sexually Transmitted Infections

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Background. Bacterial vaginosis (BV), a low-*Lactobacillus* state characterized by elevated vaginal pH, has been associated with incident sexually transmitted infections (STIs). Elevated pH may also be associated with certain *Lactobacillus* species (*L. iners*). Increased pH may serve as a cheap, easily accessible biomarker for underlying STI, vaginal dysbiosis and risk of STI acquisition. In this study we examine the relationship between vaginal pH and infection with *Neisseria gonorrhoeae* (GC), *Chlamydia trachomatis* (CT) and *Trichomonas vaginalis* (TV).

Methods. This study used data from women attending Baltimore City STI clinics from 2005 to 2016. Those with a vaginal pH determination and testing for GC, CT or TV were included. Most GC and CT testing was conducted using nucleic acid amplification tests, while TV was diagnosed via microscopy. Generalized estimating equations with a logit link were utilized to explore relationships between vaginal pH and STI, accounting for confounders and repeated within patient measures.

Results. A total of 28,333 individual women contributed 63,032 visits. Mean age was 28.9 (SD 9.8), 4.5% were Caucasian and 91.5% were Black. 42.5% had BV via Amsel's criteria. Of 11,577 total STI cases 2056 (17.8%) had a pH <4.5. 22.2% of GC cases, 28.2% of CT cases, and 7.4% of TV cases had a pH <4.5. After adjustment for age, race, number of sexual partners in the past 6 months, and HIV sero-status, a pH ≥4.5 was associated an increased odds of GC (OR: 1.86 (CI 1.66–2.09)), CT (OR: 1.44 (CI 1.34–1.53)), and TV (OR: 6.50 (CI 5.98–7.16)) infection as compared with a pH of <4.5. These relationships remained significant in subjects without symptomatic BV and when each analysis was restricted, separately, to those who reported exposure to a partner with GC, CT or nongonococcal urethritis, or TV.

Conclusion. Elevated vaginal pH is associated with urogenital STI and may serve as a useful biomarker for underlying infection. This analysis was not able to assess causality, though pH remained predictive when restricted to those reporting STI exposure, perhaps suggesting that high pH increases risk of STI acquisition. Further prospective studies are required to confirm these findings and to mechanistically define relationships between vaginal pH, resident microbiota, and STI.

Disclosures. All authors: No reported disclosures.

1495. Incidence of Sexually Transmitted Infections (STIs) in Patients on Pre-exposure Prophylaxis (PrEP)

Almutase Hamed, MD¹; Christopher Saling, MD¹; Melinda S. Brown, MD²; Maria Elaine Szabela, MD²; Rajasingam Jayasingam, MD^{1,2}; Arthur Siegal, MD¹ and Jihad Slim, MD²; ¹Internal Medicine, St. Michael's Medical Center, Newark, New Jersey, ²Infectious Disease, St. Michael's Medical Center, Newark, New Jersey

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Background. Pre-exposure prophylaxis (PrEP) is a highly effective method for preventing HIV transmission among at-risk patients. There is limited and conflicting data regarding the risk of other STIs following PrEP initiation. The objective of this study was to compare the incidence of STIs before and during PrEP therapy.

Methods. A retrospective observational study of patients seeking PrEP therapy at an inner-city clinic in Newark, New Jersey, between May 1, 2016 and March 30, 2018. Patients who were MSM, intravenous drug users, or heterosexual with multiple or HIV-positive partners were considered at risk for HIV and offered PrEP. Patients were initially screened and tested every 3 months for HIV, *Chlamydia trachomatis*, *Neisseria gonorrhoea*, syphilis, hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis A virus (HAV), herpes simplex virus (HSV), medication adherence and continued high-risk behavior. Patients were also counseled on risk-reduction behaviors. STI incidence before and during PrEP was compared.

Results. Between May 1, 2016 to March 30, 2018, 125 patients were considered at risk. Fifty-one (41%) patients were lost to follow-up after the initial visit and were excluded. Seventy-four (59%) patients completed screening and were included in the study. The mean age was 35.0 ± 11.6 years. The majority of the patients were males 74% (54). 29 (40%) were MSM, and 33 (45%) had HIV-positive partners. The mean duration of PrEP was 386 ± 183 days. Upon initial screening 14 (19%) patients were positive for at least one STI; 3 (21%) patients had HCV, 3 (21%) had *chlamydia*, 2 (14.3%) had HBV, 2 (14.3%) had *gonorrhoea*, 2(14.3%) had syphilis, one had HSV II and one was found to have HIV. Two patients acquired a new STI on PrEP. One tested positive for chlamydia and gonorrhoea 1 month after initiating prep and another contracted syphilis after 6 months. No patient had recurrent STIs nor acquired HIV while on PrEP therapy.

Conclusion. The use of PrEP not only reduces the transmission of HIV but also appears to reduce the incidence of other STIs. Frequent STI screenings and behavioral counseling on risk reduction likely contributed toward lower STI incidence. Larger studies examining similar data over longer durations are needed to confirm these findings.

Disclosures. All authors: No reported disclosures.

1496. Anorectal *Mycoplasma genitalium* Is Common Among Nigerian MSM and Associated with HIV

Trevor A. Crowell, MD, PhD^{1,2}; John Lawlor, MS^{1,2}; Kara Lombardi, MS^{1,2}; Rebecca Nowak, PhD³; Justin Hardick, MS⁴; Sunday Odeyemi, MSc, AIMLS^{1,5}; Afoke Kokogho, MB, BS^{1,5}; Jennifer Malia, MS¹; Catherine Stewart, BS,

MLS(ASCP)^{1,2}; Stefan Baral, PhD⁶; Sylvia Adebajo, MD, PhD⁷; Manhattan Charurat, PhD³; Julie Ake, MD, MSc¹; Sheila Peel, MSPH, PhD, DAC¹ and Charlotte Gaydos, DrPH, FIDSA⁴; ¹US Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, Maryland, ²Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, Maryland, ³Institute of Human Virology, University of Maryland, Baltimore, Maryland, ⁴Division of Infectious Diseases, Department of Medicine, Johns Hopkins University, Baltimore, Maryland, ⁵Henry M. Jackson Medical Research International, Abuja, Nigeria, ⁶Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, ⁷Population Council Nigeria, Abuja, Nigeria

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Background. *Mycoplasma genitalium* (MG) is a cause of nongonococcal, non-chlamydial urethritis and may cause subclinical infection of the anorectum, thereby potentiating HIV transmission among men who have sex with men (MSM). We describe the prevalence and incidence of MG among Nigerian MSM.

Methods. Adult MSM were recruited in Lagos, Nigeria, and screened for HIV and bacterial sexually transmitted infections (STIs) every 3 months for up to 18 months. HIV infection was diagnosed using a parallel algorithm of rapid tests. PCR testing for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* was performed on voided urine and rectal swab specimens. Nucleic acid amplification testing for qualitative detection of MG ribosomal RNA was performed on first and last available specimens. Wald and exact 95% confidence intervals (95% CIs) were calculated for prevalence and incidence, respectively, by anatomic site. Chi-squared test was used to compare proportions across groups of interest.

Results. From May 13, 2014–July 25, 2016, 413 MSM were tested for MG with median age 23 (interquartile range 20–26) years and HIV prevalence 67.5% (278/413). Anorectal MG prevalence was 36.8% (150/408, 95% CI 32.1–41.4%) and urogenital prevalence was 12.4% (51/410, 95% CI 9.2–16.0%), including 6.0% (25/413) of participants who were infected at both sites. Among prevalent anorectal MG cases, co-infection with gonorrhea was observed in 25.3% (38/150) and chlamydia in 19.3% (29/150). Among prevalent urogenital MG cases, gonorrhea was observed in 0% and chlamydia was observed in 15.7% (8/51). There was a trend toward more MG among participants with anorectal gonorrhea (46.8% vs. 35.0%, $P = 0.07$). Thirty-one new anorectal infections were observed over 272 person-years (11.4/100 person-years, 95% CI 7.7–16.2/100 person-years) and 10 incident urogenital infections over 282 person-years (3.5/100 person-years, 95% CI 1.7–6.5/100 person-years). Prevalent or incident MG at any site was more common among HIV-infected participants compared with HIV-uninfected (55.4% vs. 38.8%, $P = 0.0016$).

Conclusion. MG was highly prevalent among MSM in this study, including over half of HIV-infected participants. MG should be considered among cases of urethritis that fail to respond to conventional therapies, particularly in populations with a high burden of HIV, STIs, and frequent drug exposures that promote emergence of drug-resistant MG.

Disclosures. J. Malia, Hologic: Research Contractor, Research support. S. Peel, Hologic: Research Contractor, Research support. C. Gaydos, BioFire: consultant, consulting fee; Cepheid: Speaker's Bureau, speaker honorarium; Becton Dickinson: Speaker's Bureau, Speaker honorarium.

1497. Evidence-Based Care for Sexually Transmitted Infections: Missed Opportunities in an Academic Medical Center

Thomas Filardo, MD¹; Abir Hussein, MD¹; Bruce Mccollister, MD²; Katherine Frasca, MD² and Nancy Madinger, MD²; ¹Internal Medicine Residency, University of Colorado, Denver, Colorado, ²Infectious Diseases, University of Colorado, Denver, Colorado

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Background. Colorado has had rising rates of gonorrhea and syphilis. Guidelines for those diagnosed with sexually transmitted infections (STIs) stipulate that patients should receive screening for other STIs, including syphilis and HIV. We aimed to study how often patients received guideline-based evaluation and hypothesized that providers adequately treat STIs but fail to provide comprehensive screening.

Methods. We retrospectively reviewed 868 patients diagnosed with chlamydia, gonorrhea, and trichomonas within the University of Colorado Health System. We defined "comprehensive screening" as testing for both syphilis and HIV and "re-screening" as testing again for the originally detected pathogen. Statistical analysis was performed with chi-square analysis.

Results. Eight hundred one (92.2%) of 868 patients received treatment, 98.3% of which was guideline-based. At time of diagnosis, 16 (3.0%) of 550 patients seen in the emergency department, urgent care, or obstetrical triage received comprehensive screening compared with 183 (57.5%) of 318 patients seen in clinics. Comprehensive screening at diagnosis was more common in infectious disease (ID, 84.2%) and obstetrics (OB, 70.8%) clinics than in gynecology (GYN, 29.1%), family medicine (FM, 45.2%), or internal medicine (IM, 41.3%) clinics ($P < 0.01$). 62 (43.1%) of 144 patients without prior comprehensive screening received screening at time of follow-up, more commonly in ID (68.4%) and OB (57.1%) clinics than in FM (24.1%) and GYN (22.9%) clinics ($P < 0.01$). Two hundred (84.7%) of 236 patients seen in follow-up received re-screening. Only 96 patients (11.1%) received extra-genital testing at any point; of these 93 (96.9%) were men and 79 (82.2%) were tested in ID clinic.

Conclusion. Guideline-based treatment and re-screening were routinely performed for those diagnosed with STIs. However, rates of comprehensive screening were below standard of care. Additionally, extra-genital testing was not routinely performed in any setting outside of ID clinic. Providers in ID and OB clinics, where screening is either routine or protocolized, were more likely to perform comprehensive screening. Protocolization of STI screening within the University of Colorado Health System may improve guideline adherence and improve identification of comorbid STIs in high-risk populations.

Disclosures. All authors: No reported disclosures.

1498. Sexually Transmitted Infections Among Persons Living with HIV Infection and Receiving Care in the District of Columbia: Time with Viral Load Above 1,500 as Proxy for Risk of Transmission

Alessandra Secco, MD¹; Hana Akseelrod, MD, MPH¹; Jose Lucar, MD²; Nabil Rayeed, MPH³; Nicolas Leighton, BS⁴; David Parenti, MD, FIDSA¹ and Debra Benator, MD⁵; ¹Infectious Diseases, George Washington University Medical Center, Washington, DC, ²Infectious Diseases, George Washington University, Washington, DC, ³Cerner Corporation, Kansas City, Missouri, ⁴The George Washington University Hospital, Washington, DC, ⁵Medical Service, Infectious Diseases Section, Washington DC Veterans Affairs Medical Center and The George Washington University Medical Center, Washington, DC

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Background. The District of Columbia (DC) has one of the highest HIV infection rates among metropolitan areas in the United States, as well as recent increases in the incidence of sexually transmitted infections (STI), particularly among men who have sex with men (MSM). A previous study of the DCCohort, (a longitudinal observational cohort of HIV-infected persons receiving care in DC, identified a disconcertingly high incidence of detectable HIV viral load (VL) close to the time of STI occurrence. Studies have identified time spent with HIV VL above 1,500 copies/mL as a proxy measure for risk of sexual transmission of HIV. The present study examines percentage of time with VL above 1,500 among persons living with HIV infection (PLWH) with incident STI.

Methods. We conducted a retrospective cohort analysis measuring STI incidence (including syphilis, gonorrhea, chlamydia) among all individuals enrolled in the DC Cohort from 2011 to 2015. We conducted descriptive analysis to estimate the number of days with HIV VL >1,500 copies/mL, relative to the total number of days of observation, among those with an incident STI during the same observation period.

Results. We analyzed data for 5,033 DC Cohort enrollees for whom STI data and at least two VL observations were available. During a median observation of 32.8 months, 4,610 individuals had no STI and 423 (8%) individuals had any incident STI; 293 had one and 130 had two or more. Of the 423 participants with an incident STI, 67.8% did not spend any time with a VL >1,500; 10.7% had VL >1,500 during > 0 to < 25% of the time; 7.3% had VL >1,500 during 25 to < 50% of the time; 5.0% had VL >1,500 during 50 to < 75% of the time; and 9.2% of participants with any incident STI had VL >1,500 during 75–100% of the time. Among participants with two or more STIs over the observation period, 17.7% spent greater than 50% of the time with a viral load >1,500.

Conclusion. Among PLWH with incident STIs, as many as one-third spent considerable time with a VL >1,500 copies/mL, placing them at increased risk of transmitting HIV to others. Public health interventions need to focus on mitigating the risk of HIV transmission in the highest-risk populations, while also seeking to reduce overall incidence of other STIs.

Disclosures. All authors: No reported disclosures.

1499. Gonorrhea and Chlamydia Infections in the Department of Veterans Affairs (VA), 2013–2017

Patricia Schirmer, MD¹; Cynthia Lucero-Obusan, MD¹; Gina Oda, MS¹ and Mark Holodniy, MD, FIDSA, FSHEA^{1,2}; ¹Public Health Surveillance and Research, Department of Veterans Affairs, Palo Alto, California, ²Stanford University, Stanford, California

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Background. Gonorrhea (GC) and Chlamydia (CT) infections caused by *Neisseria gonorrhoeae* and *Chlamydia trachomatis*, respectively, are an ongoing public health issue. CDC guidelines suggest repeat testing 3–12 months after a positive test result (Workowski *et al.* MMWR 2010 and 2015). We investigated national trends and repeat testing practices for patients with GC and CT infection in VA.

Methods. GC and CT cases were identified from January 1, 2013–December 31, 2017 using molecular laboratory testing results from VA data sources. Patients were reviewed for positive results, repeat testing and demographic characteristics.

Results. 10,587 of 641,535 (1.7%) GC results were positive; 27,306 of 648,320 (4.2%) CT results were positive. Coinfection (GC+CT) was documented in 1,935 tests (1,804 unique patients). Repeat testing after a positive result ranged from 26 to 31% for GC, CT and GC+CT, respectively (table). Number of positive cases and tests performed for GC and CT increased over the last 5 years, however percent positive has been stable for CT but increasing for GC (figure). States with the highest total number of positive GC tests were California (1,363), Texas (1,219), and Florida (815), while for CT were Illinois (4,509), California (3,370), and Texas (2,805).