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Background Recent data suggest sexual transmission of hepatitis C virus (HCV). However, data on the association between HCV and sexually transmitted disease (STD) prevalence are limited.

Methods This was a retrospective cohort study of treatment-naïve HIV-infected adults ≥ 18 years first engaging at Washington University HIV Clinic from 2001 to 2009, who had routine STD and HCV antibody testing done. Gonorrhoea, chlamydia, syphilis, and HCV cases were defined by positive urine nucleic acid amplification test for *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, reactive serum rapid plasma reagin, and positive HCV antibody, respectively. Associations with HCV and STD using χ^2 , Student's *t*, and Wilcoxon tests were determined.

Discussion Of 926 subjects (median age 32 years, 70% African American, 44% heterosexual, 42% men-who-have-sex-with-men [MSM], 4% injection drug users [IDU]), 8% had HCV (range 5–11%/year). Baseline STD was prevalent in 27% (18–34%/year). The prevalence of gonorrhoea, chlamydia and syphilis were 12% (7–21%/year), 12% (6–17%/year) and 10% (5–16%/year), respectively. Subjects with HCV were older (42 years, interquartile range [IQR 38–48] versus 31 years, [IQR 24–40]) ($p < 0.001$) and more likely to report past IDU (30% versus 2%) ($p < 0.001$) than those without. Male subjects with HCV were less likely to be MSM (28% vs 66%) ($p < 0.001$) and 36% of subjects with HCV were heterosexuals without past IDU. Subjects with HCV were less likely to have STD (17% vs 28%, $p = 0.06$), although this finding did not reach statistical significance. Furthermore, the number and type of STDs at presentation were not associated with prevalent HCV.

Conclusion Hepatitis C was prevalent in approximately 1 in 10 persons engaging in HIV outpatient care over nine years. A high prevalence of HCV among heterosexuals without past IDU suggests a possible role for sexual transmission of HCV not reflected by STD prevalence. Continued universal HCV screening among HIV-infected adults is imperative.

P3.241 EPIDEMIOLOGY OF SEXUALLY TRANSMITTED INFECTIONS IN EUROPE 1990–2011

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Background STI are a significant cause of morbidity in Europe, particularly among young adults and men who have sex with men (MSM). Monitoring the spread of STI across key populations allows development of targeted prevention interventions.

Methods Surveillance for chlamydia, gonorrhoea and syphilis in the European Union (EU/EEA) is coordinated by the European Centre for Disease Prevention and Control since 2009. Data reported by Member States covering the period 1990–2011 were analysed.

Results In 2011, 346911 cases of chlamydia (rate: 175 per 100000 population) were reported compared to 39179 cases of gonorrhoea (12.6/100000) and 19798 cases of syphilis (4.9/100000). Chlamydia was more frequently reported among women (male-to-female ratio: 0.7) in contrast to gonorrhoea and syphilis (male-to-female ratios: 2.7 and 3.9 respectively). The highest age and gender-specific rates were observed among 15–19 year old females for chlamydia (1748); 20–24 year-old males for gonorrhoea (71) and 25–24 year-old males for syphilis (16.1). Young adults (15–24 years) accounted for 73% of chlamydia, 42% of gonorrhoea and 16% of syphilis cases. Transmission among MSM was more frequently reported for syphilis (42%) and gonorrhoea (33%) cases than for chlamydia (5%). HIV co-infection was reported among 11% of gonorrhoea and 28% of syphilis

cases. Rates of chlamydia have increased by 133% between 2000 and 2011 among countries reporting consistently. Gonorrhoea rates have increased by 27% since 2008 and syphilis rates increased by 10% in 2011.

Conclusion Surveillance data shows diversity in reported rates and trends across the EU/EEA. Increasing rates of chlamydia reflect strengthened case detection and improved diagnostics. Young adults constitute a large proportion of cases of chlamydia and gonorrhoea. Transmission among MSM accounts for the majority of syphilis and, increasingly, gonorrhoea spread. Both key populations need to be better targeted through specific prevention and control measures.

P3.242 WITHDRAWN BY AUTHOR

P3.243 INFLUENCE OF SCALE AND ZONE ON SYPHILIS TREND INTERPRETATION

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Background We investigated spatial clustering of primary and secondary syphilis rates in North Carolina (2003–2010) using multiple scales and geographical boundaries. We examined the influence of changes in scale and boundary on identification of spatial clusters using two cluster detection methods, local Moran's *I* and Kulldorff's space scan statistic.

Methods We used two cluster detection methods: (1) local Moran's *I* with empirical Bayes (EB) standardised rate statistic and (2) Kulldorff's space scan statistic using a variable size moving circular window. We evaluated three geographic zones with decreasing boundary area, North Carolina, Piedmont region, and Mecklenburg County, at two spatial scales (census tract, census block group). We report results for Mecklenburg County.

Results Using local Moran's *I*, block group clusters were in the same location as tract clusters, but were more concentrated. Median rates were higher among block group clusters compared with tract clusters. As boundary areas decreased, some clusters in peripheral tracts and block groups were lost. High rate block groups were more likely to persist, while some high rate peripheral tracts were lost.

With Kulldorff's scan statistic, block group clusters were more concentrated than clusters in census tracts. Reducing boundary areas had little effect on census tract clusters detected using Kulldorff's scan statistic. Cluster size decreased significantly when the boundary was restricted to Mecklenburg County. The reduction in cluster size reflected loss of a few high rate block groups peripherally and many block groups with a rate of zero.

Clusters detected using local Moran's *I* and Kulldorff's scan statistic overlapped, but Kulldorff's scan clusters were much larger with a high proportion of zero rate tracts/block groups.

Conclusion In efforts to understand STI epidemiology spatially, investigators must carefully consider the spatial scale, geographical area of interest, and cluster detection approach.

P3.244 PREVALENCE OF SEXUALLY TRANSMITTED INFECTIONS IN MULTIPLE SAMPLE TYPES COLLECTED FROM HIV-1 POSITIVE MEN

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Background Detection of sexually transmitted infections (STIs) in HIV-1 positive (+) men is essential to ensure appropriate treatment and to reduce HIV and STI transmission. We evaluated the baseline prevalences of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Trichomonas vaginalis* (TV), *Mycoplasma genitalium* (MG) and high risk human papillomavirus (HR-HPV) infections in HIV-1+ men.

Methods HIV-1(+) men from three southern California (CA) sites (n = 179) and from one New York (NY) site (n = 254) were screened using APTIMA TMA assays (Hologic/Gen-Probe Inc.) for CT, NG, TV, MG, HR-HPV (with HR-HPV genotyping for HPV-16 and HPV-18/45). Specimen types tested (1–3 per subject) were collected between 11/2010 and 9/2012 and included urine for CT (n = 356), NG (n = 357), TV (n = 357), MG (n = 357), throat for CT (n = 86), NG (n = 178), TV (n = 172), MG (n = 179), HR-HPV (n = 172) and rectal for CT (n = 263), NG (n = 263), TV (n = 255), MG (n = 263), HR-HPV (n = 251). Prevalences were calculated by patient and by specimen types.

Results Overall, 218/433 (50.4%) of the subjects were positive for an STI; 6.2% having > 1 STI; 4.9% had 2 STIs (HPV/MG, HPV/CT, HPV/NG, MG/CT, MG/NG, CT/NG), and 1.4% had 3 STIs (HPV/MG/CT, HPV/MG/NG, MG/CT/NG). Pathogen prevalence by specimen site and patient are listed below:

Abstract P3.244 Table 1

By Specimen	Pathogen Prevalence (%)					Any STI
	CT	NG	TV	MG	HPV	
Rectal	4.6	3.8	0.0	7.6	55.8	14.1
Urine	0.8	0.3	0.0	4.5	Not tested	1.4
Throat	3.5	2.8	0.6	1.7	4.7	2.3
By Patient	4.2	3.5	0.2	8.8	55.7	50.4

Genotyping of 127 HR-HPV+ specimens determined that 25.2% contained HPV-16; 10.2% HPV-18/45, 6.3% HPV-16 and HPV-18/45, and 58.3% were negative for HPV-16, 18 or 45.

Conclusions The overall high prevalence of STIs, often multiple STIs per individual, suggests the need to expand screening for multiple STIs in all anatomic sites. Rectal specimens demonstrated the most STIs, especially HPV. Mycoplasma, a pathogen that is not usually tested for, was the most common bacterial STI.

P3.245 SEXUALLY TRANSMITTED INFECTIONS (STI) IN HIV-POSITIVE PATIENTS IN THE AUSTRALIAN HIV OBSERVATIONAL DATABASE (AHOD)- A PROSPECTIVE COHORT STUDY - RATIONALE AND RESULTS AT BASELINE

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Background STI may be markers of at-risk sexual behaviours, and in persons with HIV probably also increase infectiousness and risk of HIV transmission, even with viral suppression by antiretroviral drugs (ARV). However, estimates of STI in this group have proved problematic, and there are few longitudinal studies able to accurately measure incidence.

Methods In 2010, we established a cohort of individuals from ten sexual health clinics that were already enrolled in AHOD. We calculated diagnosis rates for four STI (Chlamydia, gonorrhoea, infectious syphilis, anogenital warts) from 2005–2010, and true incidence rates from 2010–2011.

Results At baseline (2010), the cohort (n = 520) did not differ markedly from the rest of AHOD (n = 1668). There was a gradual increase in chlamydial infections, from 3.4/100person-years(py) (95% CI 1.9–5.7) in 2005, to 6.7/100py (95% CI 4.5–9.5) in 2011, with a substantial peak in 2010, 8.1/100py (95% CI 5.6–11.2). The cases were evenly distributed between urethral (49%) and rectal (51%) infections. Similarly, gonococcal infections increased, with a peak in 2010 (4.7/100py, 95% CI 5.6–11.2), but rectal (63%) out-numbered urethral (37%) infections. Infectious syphilis showed several peaks, the largest in 2008 (5.3/100py, 95% CI 3.3–8.0). The incidence of genital warts declined from 7.5/100py in 2005 (95% CI 4.8–11.3) to 2.4/100py in 2011 (95% CI 1.1–4.5).

Conclusions The incidence of chlamydial and gonococcal infections, and infectious syphilis was higher than previous estimates in Australia. The incidence of genital warts was lower. Ongoing incidence data will assess relationships between STI, HIV-viral load, immunodeficiency, ARV and STI treatment, and patient characteristics.

P3.246 PREVALENCE OF STI/HIV AND ASSESSMENT OF RISKY BEHAVIOURS AMONG SEX WORKERS

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Background HIV biological and behavioural surveillance has been conducted repeatedly in Armenia starting from the year of 2002. The most recent STI/HIV integrated biological and behavioural surveillance (IBBS) was conducted in Armenia in 2012. Populations for conducting the surveillance were defined depending on the epidemiological situation, and current data on HIV prevalence in different populations. Sex workers (SWs) were involved in this surveillance.

Methods IBBS among SWs was conducted in three biggest cities of Armenia, respondent driven sampling (RDS) was used. The sample size in Yerevan, capital was 300 with mean age of 35.5.

Results HIV prevalence among SWs in Yerevan was 1.3%, syphilis - 4.3%, trichomoniasis - 22.5%, gonorrhoea - 6.6%.

The indicator of knowledge about HIV prevention was 35.4% (34% in 2010). Condom use with non-commercial partners was low. Only 40% of SWs (30.1% in 2010) used condoms at last sex with non-commercial partners, and 27.4% (30.8% in 2010) used condoms consistently. 90% of SWs (92.9% in 2010) used condoms at last sex with clients and 80% (88.5% in 2010) used condoms consistently.

67.8% of SWs had sex with non-commercial partners in the past 1 year. On average, one SW has 4.8 clients per week, 18 clients per month.

The percentage of SWs tested for HIV in the past 12 months was only 37.5%. Percentage of SWs exposed to HIV prevention programmes made 49.2%.

Conclusion Condom use with non-commercial partners was rather low among SWs, which creates a risk of further spread of HIV infection not only within this group, but also outside it. Though HIV prevalence among SWs was comparatively low, STI prevalence among them was high, which proves their risky behaviour. As appears from the above, the services on HIV prevention and STI management for SWs should be expanded and optimised.

P3.247 SYNDROMIC APPROACH OF STI CASE MANAGEMENT AND TREATMENT STRENGTHENING THE NATIONAL STI PROGRAMME AND HIV PREVENTION EFFORTS IN KSA

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