

cases in the Netherlands occur in men who have sex with men (MSM). Not all infections result in clinical symptoms and not all persons with clinical symptoms are diagnosed. We performed a study among MSM visiting the STI clinic in Amsterdam to assess the prevalence of Shigella.

**Methods** From March to June, 2020, Anal swab samples taken from MSM routinely visiting the STI clinic to detect Chlamydia trachomatis and Neisseria gonorrhoeae were additionally tested pseudonymously for the presence of Shigella by PCR on the ipaH gene. Consecutive samples from MSM who reported no diarrhea, or diarrhea during last month, or diarrhea at visit of clinic were included. Predefined minimal numbers of inclusion of these groups were 150, 100 and 50, respectively. During the same months the frequency of Shigella as assessed by PCR in routinely tested samples sent by general physicians was assessed.

**Results** We included samples from 214 MSM without diarrhea, 109 MSM who recently had diarrhea and 68 MSM who reported diarrhea at visit of the clinic. The total number of samples positive for Shigella was 13/389 (3.3%), of whom 6/212 (2.8%) had no diarrhea, 4/107 (3.7%) recently had diarrhea and 3/68 (4.4%) had diarrhea at clinic visit. Positive samples were more frequently found in persons using or recently having used PREP (10/152), compared to no PREP (2/163) or being HIV-positive (1/74) ( $p=0.02$ , chi square test). In comparison, only 11/774 (1.4%) routinely tested fecal samples sent by general physicians during the study period were positive for Shigella.

**Conclusion** Shigella infections without symptoms or with minor symptoms are relatively common in MSM. More detailed studies should focus on the risk of transmission from these persons to others, leading to symptomatic infections.

#### P319 PHARMACODYNAMICS OF CEFTRIAXONE, ERTAPENEM, FOSFOMYCIN AND GENTAMICIN IN NEISSERIA GONORRHOEA

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10.1136/sextrans-2021-sti.374

**Introduction** Due to ceftriaxone-resistance in Neisseria gonorrhoeae, the use of other antibiotics might become necessary for treatment. In the recently performed NABOGO trial, efficacy of ertapenem, gentamicin and phosphomycin was compared with ceftriaxone. In this in vitro study, the pharmacodynamics of these antibiotics were studied.

**Methods** The ceftriaxone-susceptible N. gonorrhoeae strain WHO-F, the ceftriaxone-resistant strain WHO-X and the clinical strain CS03307 were used. Standard MICs for study antibiotics were measured by e-tests. Using time-kill assays for each antibiotic and strain, time-kill curves were constructed by measuring bacterial growth rates at doubling antimicrobial concentrations. Maximal growth in the absence of antibiotics ( $\psi_{max}$ ), minimal (negative) growth in the presence of antibiotics ( $\psi_{min}$ ), and concentration of antibiotic resulting in stationary amounts of CFU/ml (zMIC) were calculated.

**Results**  $\psi_{max}$  values were between 0.5 and 0.85 and did not vary between strains.  $\psi_{min}$  values for ceftriaxone were -2.7 for the highly susceptible WHO-F strain (MIC= <0.002 mg/

l), but only -0.9 for CS03307 (MIC=0.012 mg/l), and -0.8 for the resistant WHO-X strain (MIC=1.5 mg/l).  $\psi_{min}$  values for ertapenem were -1.1 for WHO F (MIC≤0.002 mg/l), -0.9 for CS03307 (MIC=0.006 mg/l), and -0.5 for WHO-X (MIC=0.032 mg/l), reflecting slower bacterial killing than ceftriaxone. All strains were rapidly killed by gentamicin as shown by  $\psi_{min}$  values of -5 to -7 (range of MIC=1.5–3 mg/l). Phosphomycin  $\psi_{min}$  values were -1.7 for WHO-F (MIC=24 mg/l) and CS03307 (MIC=4 mg/l), but only -0.5 for WHO-X (MIC=12 mg/l). For ceftriaxone, zMICs were three- to sixfold lower than MICs, but for other antibiotics, zMICs were comparable to MICs.

**Conclusion** Compared to ceftriaxone, bacterial killing of ertapenem is less rapid and is affected in WHO-X despite low MIC. Given the differences observed between zMIC and MIC, ceftriaxone might not be completely ineffective in ceftriaxone-resistant strains, especially if given in higher and repeated dosages.

#### P320 SEXUAL BEHAVIOURS AND HERPES SIMPLEX VIRUS TYPE-2 INCIDENCE AND PREVALENCE AMONG ADOLESCENT GIRLS AND YOUNG WOMEN IN KWAZULU-NATAL, SOUTH AFRICA

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10.1136/sextrans-2021-sti.375

**Background** Adolescent girls and young women (AGYW) in rural KwaZulu-Natal, South Africa are disproportionately affected by herpes simplex virus type 2 (HSV-2) and HIV. As HSV-2 infection enhances the acquisition and transmission of HIV and other STIs, broader STI control requires understanding of HSV-2 predictors. We therefore assessed how HSV-2 incidence and prevalence were associated with sexual behaviours among AGYW in this region.

**Methods** We analysed data from a two-year (2017–2019) prospective cohort study among a random sample of 2184 AGYW aged 13–22 which was representative of the study population. Data were collected at baseline, 12 months and 24 months. We calculated HSV-2 prevalence at any study visit and incidence among those HSV-2 negative at baseline. We ran Poisson and logistic regressions to assess the association of sexual behaviours with both HSV-2 incidence and prevalence.

**Results** HSV-2 prevalence was 26.2% among the study population, and was strongly associated with having sexual debut before the age of 16 (adjusted odds ratio (aOR) 1.52, 95% confidence interval (CI) 1.06–2.17) and having two or more sexual partners in the past 12 months (aOR 3.64, 95% CI 1.39–9.50). 307 of 1,433 baseline HSV-2 seronegative AGYW seroconverted during follow-up (incidence rate 16.5/100 person years at risk, 95% CI 14.7–18.4). Self-reported lower age of sexual debut, one or more sexual partners and inconsistent condom use were bivariately associated with HSV-2 incidence. None of these self-reported sexual behaviour measures

remained associated with incident HSV-2 after adjusting for socio-demographic, social and biological variables.

**Conclusion** The high HSV-2 rates among AGYW particularly those engaging in high-risk sexual behaviours underscores the need for HSV-2 control interventions to slow its spread and other STIs in KwaZulu-Natal. However, further research is required for more targeted interventions due to the lack of association between sexual behaviours and HSV-2 incidence.

### P321 A REVIEW OF TYPE 2 DIABETES AND TRADITIONAL RISK FACTORS IN A LARGE HIV+ COHORT

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10.1136/sextrans-2021-sti.376

**Introduction** As antiretroviral therapy (ART) has become more effective, life expectancy of HIV+ patients has increased to normal levels. Therefore, there is an increased risk of developing other age-associated chronic illnesses, including type 2 diabetes (T2DM). Some older ARTs and protease inhibitors may increase the risk of developing insulin resistance and diabetes. This study aimed to measure prevalence of diabetes within a large HIV+ cohort and describe potential risk factors for developing diabetes and factors predictive of a poor outcome.

**Methods** A case note review of a 2390-person HIV+ cohort was conducted and people with diabetes were identified. Data on demographics, HIV duration, ART exposure, diabetic risk factors, and comorbidities were collected.

**Results** 77 patients within the HIV+ cohort had T2DM. 63 were male (81.8%) and the median age was 59.0 (Interquartile range 54–67). Median time between HIV and DM diagnosis was 16.3 years (IQR 12.4–24.0). The median ART duration was 16.3 years, with a median of 14.5 years from antiretroviral commencement until diabetes diagnosis (IQR 9.8–21.9). 50 (64.9%) had been exposed to protease inhibitors. 17 (22.1%) had a nadir CD4 <200. Many had risk factors for diabetes, 34/74 (45.9%) had BMI >30 and 22 (28.6%) were from minority ethnic groups. Factors associated with diabetic complications included 27 (35.1%) had hyperlipidaemia and 33 (42.9%) had hypertension.

**Conclusion** This study shows a prevalence of 3.2% of T2DM within a large HIV+ cohort, similar to the prevalence in the UK adult population. Traditional risk factors were common, and it seems a long duration of HIV infection and long exposure to ARV therapy, particularly protease inhibitors may increase risk. Factors associated with a poor prognosis were frequent, suggesting more aggressive management may be required in HIV+ patients with T2DM. Further research into the outcomes of such patients is needed.

### P323 STI PREVENTION IN BLACK MEN WHO HAVE SEX WITH MEN TAKING PREP: CONCERNS, COGNIZANCE, CONDOM NORMS AND MORE

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10.1136/sextrans-2021-sti.377

**Introduction** Profound sexual health disparities exist for Black men who have sex with men (MSM) in the US South,

including high prevalence of sexually transmitted infections (STIs). STI prevention strategies beyond condoms are needed for Black MSM taking PrEP.

**Methods** We conducted in-depth interviews with Black MSM taking PrEP. Informed by the Health Belief Model, we asked about participants' STI knowledge; perceived susceptibility, severity, and concerns; and perceived benefits of STI prevention. We also asked about support systems, condom use norms, and various STI prevention strategies, particularly peer support via an mHealth application. Interviews were audio-recorded and analyzed using directed content analysis.

**Results** We interviewed 20 Black MSM ages 18–35. Eight had an STI diagnosis within 12 months; most (n=15) had been taking PrEP for more than one year; 15 identified as gay, 4 as bisexual, and 1 as queer; and 17 had insurance. Participants felt well-informed about STI symptoms, transmission, and treatment. Most had concern about an STI diagnosis, noting shame or disappointment. Potential long-term effects were described as concerning but not frequently considered. Almost all reported strong social support from family or friends. Participants described being less likely to use condoms with routine partners or those on PrEP, noting the norm 'had switched from condoms to PrEP.' Most were willing to test for STIs more frequently (e.g. monthly), but desired convenience. Most said they would deliver partner therapy and some desired STI education. Although some did not use social media, most felt app-based social support would be helpful.

**Conclusion** Black MSM on PrEP voiced concern about STIs but many noted condom use was no longer the norm. They were willing to engage in methods focused on preventing STIs on an individual- or population-level. Most had sources of social support but still desired app-based peer support from other MSM.

### P324 IMPLEMENTATION OF ROUTINE HPV TESTING IN MEN

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10.1136/sextrans-2021-sti.378

**Objective** Rising awareness of human papillomavirus (HPV) infection in both genders leads to an increasing demand for HPV testing in men. In a previous study, two different collection devices were compared according to their performance and failure rate (CerviBrush and FLOQSwabs®). Since the quality of the specimens was significantly better when taken with FLOQSwabs® (COPAN), all samples in this study were collected with FLOQSwabs® only. Aim of this study was to further evaluate the performance of FLOQSwabs® in a larger cohort to confirm the results already generated.

**Methods** In total 632 samples collected using the FLOQSwabs® from the penile, perigenital, pharyngeal and anorectal area were tested for HPV at the Outpatient's Centre for Diagnosis of STIs by using the Greiner Bio-One PapilloCheck® genotyping assay.

**Results** HPV prevalence was 49.7%. The most frequent HPV hr types were 16, 53, 51, 66, 39, 59 and 31. The highest prevalence of HPV hr types was detected in penis (41.5%), urethral orifice and glans penis (39.5%), followed by mons pubis (31.25%). The most prevalent HPV lr types were 6 (16.8%) and 42 (6.6%). The highest prevalence of HPV lr 6 was detected on the scrotum (60%) and the penis shaft (54.5%).