

laser capture microdissection and compared with pre-vaccine era data.

**Results** In sub-study A, 1095 participants were recruited (18% were virginal so no swab was collected) and 774 (77%) completed all study requirements. Vaccine-targeted HPV genotypes were detected in only 13 samples (1.7%); 11 HPV16 and two HPV6: none were in participants vaccinated prior to sexual debut. In sub-study B, 333 women (62.9%) had a HPV16/18 positive CIN3 detected. The pre-vaccine era population included 98 women aged 18–25, and 115 women aged 26–32, recruited between 2001 and 2005. Compared to the pre-vaccine cohort, the proportion of HPV16/18 positive CIN3 was significantly lower in the post-vaccine 18–25 year old group (71.4% vs 54.9%,  $p=0.009$ ), but was not significantly different in the 26–32 year old age group (61.7% vs 65.9%,  $p=0.409$ ).

**Conclusion** The VACCINE study demonstrates that vaccine-related HPV genotype prevalence is remarkably low amongst vaccine-eligible Victorian women, and also demonstrates a reduction in the proportion of CIN3 caused by vaccine preventable HPV types in younger, vaccine-eligible women.

**Support:** I Professor Suzanne Garland, have received Grants to my institution from Commonwealth Department of Health for HPV genoprevalance surveillance post vaccination, Merck and GSK (GlaxoSmithKline) to perform phase 3 clinical vaccine trials; Merck to evaluate HPV in RRP post vaccination programme, CSL for HPV in cervical cancer study, and VCA (Victoria Cancer Agency) for a study on effectiveness of public health HPV vaccine study plus a study on associations of early onset cancers. I have received speaking fees from MSD and SPMSD for work performed in my personal time. Merck paid for travel and accommodation to present at HPV Advisory board meetings.

### P3.217 HUMAN IMMUNODEFICIENCY VIRUS (HIV) SERODISCORDANCE AND ASSOCIATED FACTORS AMONG HIV POSITIVE CLIENTS ACCESSING ANTI-RETROVIRAL THERAPY IN NIGERIA

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10.1136/sextrans-2017-053264.452

**Introduction** In Africa, there is increasing evidence that a large proportion of new HIV infections occur in cohabitating couples, many of whom are unaware of both partners' serostatus. Sub-Saharan Africa has the highest prevalence and incidence of HIV infection worldwide, mostly attributable to heterosexual transmission. In Nigeria, the bulk of the new infections occur in persons who are not engaging in high risk sex, a sub-population that includes cohabiting or married sexual partners. This study was undertaken to determine the prevalence and assess factors associated with HIV serodiscordance status among HIV positive patients accessing ART in secondary health facilities in Ogun State, South West Nigeria.

**Methods** This is a descriptive cross-sectional study conducted in four secondary health facilities offering HIV services in Ogun State over a six months period. Sample size of 650 was determined using the Cochran formula and the respondents were consecutively recruited into the study. Data was collected using a structured interviewer administered questionnaire and

analysis was done using the statistical package for social sciences (SPSS) version 17.0. Results was presented using frequency tables, tests of associations was done using the Chi-square test and multiple Logistic regression with level of significance set at 0.05.

**Results** A total of 637 questionnaires was retrieved (response rate 98%). Two hundred and Seventy eight (43.6%) of the respondents did not know their spouse HIV status while 359 knew partners status. Of the 359, 166 clients are serodiscordant (46.2%) while 193 (53.8%) were seroconcordant. 50.7% were aged 30–39 years, the mean age was  $35.8 \pm 9.1$  years. Significantly more females (74.7%) than males (25.3%) had serodiscordant partners ( $p$ -value=0.002). Clients who did not consume alcohol were significantly more likely to have serodiscordant partners compared with clients who consumed alcohol ( $p$ -value=0.001). Serodiscordant partners were significantly more among clients with infrequent sexual activities compared with clients with frequent sexual activities ( $p$ -value=0.001). Predictors of serodiscordance status among partners were clients who were <35 years old (odd ratio (OR)=1.727, confidence interval (CI)=1.107–2.693) and did not consumed alcohol (OR=2.204, CI=1.070–4.542), with partners whose occupation were skilled (OR=7.159, CI=1.440–35.604) and semi-skilled (OR=6.189, CI=1.216–31.503) and clients with infrequent sexual activities (OR=3.182, CI=1.437–7.046).

**Conclusion** The study indicates that HIV positive clients could have serodiscordant partners if they could modify their life-style, have infrequent sexual activities (Not more than twice in a month) with partners that are gainfully engaged. It is therefore recommended that for early identification of at risk partners, couple HIV counselling and testing needs to be scaled up in addition to group-based interventions in order to pick serodiscordant partners early and provided all the necessary behavioural change support required to remain serodiscordant.

### P3.218 DEMOGRAPHIC AND CLINICAL PROFILES OF WOMEN WITH BACTERIAL VAGINOSIS AND SEXUALLY TRANSMITTED INFECTIONS: IMPLICATIONS FOR THE MANAGEMENT OF VAGINAL DISCHARGE SYNDROME IN SOUTH AFRICA

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10.1136/sextrans-2017-053264.453

**Introduction** Current South African syndromic management guidelines for vaginal discharge syndrome (VDS), recommend only metronidazole and clotrimazole therapy for women 35 years or older, whose partners have no urethral discharge. This guidance assumes the older women have bacterial vaginosis or candidiasis without STIs and that their partners are not asymptomatic. We describe demographic, behavioural and clinical characteristics of women with VDS comparing those with BV and candida to those infected with STI pathogens.

**Methods** Cross sectional study, in which women  $\geq 18$  years presenting with VDS to five primary healthcare centres between January 2015 - September 2016 were enrolled. Demographic and clinical data were collected using a nurse-administered questionnaire. Vaginal smears, endocervical swabd and venous blood specimens were collected for laboratory testing. Presence

of BV in the genital specimens was assessed using Gram stain smear and Nugent scoring while that of *Candida* was assessed using microscopy. In-house multiplex PCR was used to detect the following STI pathogens – *Neisseria gonorrhoeae* (NG), *Chlamydia trachomatis* (CT), *Trichomonas vaginalis* (CT) and *Mycoplasma genitalium* (MG). HIV positivity was determined using commercial rapid tests. Data was captured into a Microsoft Access 2010 database and exported into Stata 14 for analysis using descriptive statistics, comparing four groups: Group 1 – women with BV or *Candida* infection only, Group 2 – women with BV or *Candida* with an STI, Group 3 – women with an STI infection only and Group 4 – women with no pathogens detected in the laboratory.

**Results** A total of 771 women – median age 27 years [interquartile range (IQR) 23–32 years], 140 (19.5%)  $\geq 35$  years and 326 (45.4%) HIV positive – were enrolled. Of these: 253 (35.3%) were in Group 1, 238 (33.2%) in Group 2, 99 (13.8%) in Group 3, and 127 (17.7%) in Group 4. The proportions of women who were 35 years or older were 20.2%, 13.9%, 19.2% and 29.1% in Groups 1, 2, 3 and 4 respectively ( $p=0.006$ ) while the HIV positivity was 43.1%, 55.9%, 43.4% and 32.3% in the groups ( $p<0.001$ ). Condom use at last sexual encounter was 24.6%, 16.6%, 19.4% and 16.8% in Groups 1, 2, 3 and 4 respectively. The groups were similar in other respects although women in Group 2 had significantly higher rates of CT compared to Group 3.

**Conclusion** There were smaller but significant proportions of women 35 years or older had STIs with or without BV or *Candida*. The use of this age-specific threshold to guide syndromic treatment should be reconsidered, and HIV/STI integration promoted for women with VDS.

**Support:** The Centre for HIV and STIs at National Institute of Communicable Diseases in South Africa is funded by the South Africa's National Department of Health. No pharmaceutical grants were received in the development of this study.

### P3.219 EVOLUTION OF *NEISSERIA GONORRHOEAE* RESISTANCE TO ANTIMICROBIALS IN A HISTORICAL SERIES OF ISOLATES FROM SÃO PAULO/BRAZIL

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10.1136/sextrans-2017-053264.454

**Introduction:** *Neisseria gonorrhoeae* (NG) was originally highly susceptible to antimicrobials. The ongoing selective pressure allied to the bacterium's ability to develop and retain resistance factors has been indicating the possibility of NG to evolve into untreatable forms. Therefore, constant monitoring of antimicrobial resistance and updates of treatment guidelines are mandatory. The aim of this study was to evaluate the evolution of NG antimicrobial resistance in a historical series of isolates from São Paulo/Brazil.

**Methods** A total of 173 NG isolates obtained between 2003 and 2016 from the STD/AIDS Reference and Training Centre of São Paulo were analysed. The bacterial species identification was confirmed by MALDI-TOF and the minimum inhibitory

concentration (MIC) for penicillin (PEN), tetracycline (TET), ciprofloxacin (CIP), azithromycin (AZT), ceftriaxone (CRO) and cefixime (CFX) was determined by agar dilution.

**Results** The isolates were divided into two periods, from 2003 to 2010 and 2011 to 2016. The susceptibility profile for PEN did not differ between the two periods, 77.8% of the isolates had intermediate (I) and 19% resistant (R) from 2003 to 2010, while 74.5% I and 25.5% R from 2011 to 2016. The susceptibility profile for TET showed a different behaviour with more intermediates in the second period (59.6% I and 31.9% R) compared to the first period (29.4% I and 60.3% R). For AZT, there was an increase in the number of resistant isolates over the years: 0.8% I and 1.6% R (2003 to 2010), and 10.6% I and 12.8% R (2011 to 2016). CIP was the drug that presented the major difference between the periods with 86.5% of isolates being sensitive, 1.6% I and 11.9% R in the first period and 46.8% R in the second period. The isolates were 100% sensitive to cefixime and ceftriaxone.

**Conclusion** The study showed an increase in resistance to azithromycin and especially to ciprofloxacin. Ceftriaxone and cefixime isolates, both rarely used in clinic in Brazil, did not present resistance.

### P3.220 HUMAN PAPILLOMAVIRUS INFECTION IN ORAL AND ANOGENITAL SITES: PREVALENCE AND RATES OF CONCORDANCE

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10.1136/sextrans-2017-053264.455

**Introduction** HPV infection causes cancer at several anatomical sites. However, the natural history of the infection in non-cervical sites have been understudied, especially at the oral epithelium.

**Methods** In our study, we investigated 351 samples from three different sites of 117 patients, searching for HPV. By generic and specific PCR and Microarray, and related risk factors.

**Results** HPV DNA prevalence was 89.5% (105/117) in the genital lesions, 53.8% (63/117) in oral samples and 59% (69/117) in anal samples. Regarding the risk factors associated with HPV in the genital lesions, we found statistically significant rates for oral ( $p=0.039$ ) and anal sex practices ( $p=0.0000012$ ). For oral samples, we observed a relevant correlation concerning oral contraceptive use ( $p=0.039$ ), tobacco smoking ( $p=0.036$ ) and alcohol use ( $p=0.0075$ ) while in anal samples, we found higher risk for HPV infection in patients relating non-exclusive sexual partners ( $p=0.013$ ). The presence of viral DNA in all the three sites was observed in 36.8% of the cases (43/117). Among them, 18% (21/117) presented concordant HPV genotypes, diverging from the literature, corroborating that there is still much to learn about HPV natural history, since different biological behaviours are expected within different populations.

**Conclusion** In our study we also evaluated if the detection of oral HPV would suggest an infection in the anogenital tract. Nevertheless, our results showed only 36.8% of correlation pointing out that it is not suitable as an auxiliary biomarker for HPV anogenital infections.

**P3.221 HIGH LEVELS OF SUSCEPTIBILITY IN *NEISSERIA GONORRHOEAE* ISOLATES FROM SASKATCHEWAN CANADA (2003–2015) TO NEW AND OLDER ANTIBIOTICS USED FOR TREATMENT**

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10.1136/sextrans-2017-053264.456

**Introduction** Antibiotics should have an efficacy of at least 95% for treating infections caused by *Neisseria gonorrhoeae* (Ng). When more than 5% of Ng isolates are resistant to an antibiotic, treatment guidelines must be changed to a more effective antibiotic. Trends in the antimicrobial susceptibility (AMS) of Ng isolates from Saskatchewan, Canada were ascertained (2003 – 2015) to ascertain whether older antimicrobials might be effective.

**Methods** The susceptibility of 685 Ng isolates to 7 antibiotics was determined by the agar dilution method.  $\beta$ -lactamase production was determined using nitrocefin.

**Results** From 2006–2012, penicillin resistance was below 5% (0%–4.0%) of Ng isolates tested. Penicillin resistance above 5% occurred in 2003 (6.7%), 2004 (6.8%), 2005 (11.5%), 2013 (27.5%) and 2014 (13.5%). Tetracycline resistance remained above 5% (11.8% to 89.1%) of Ng tested throughout the study. Ciprofloxacin resistance ranged between 0% and 1.9% of isolates tested up to 2009 but was over 5% thereafter. All isolates were susceptible to spectinomycin. Over 95% of Ng isolates tested were susceptible to azithromycin except in 2010 (27.6% resistant; 8/29) and 2013 (7.2% resistant; 5/69). Twelve (1.8%) isolates over the period showed reduced susceptibility to cefixime (2006 - 1/55; 2012 - 2/50; 2013 - 4/69; 2014 - 2/89; 2015 - 1/63) and/or ceftriaxone (2012 - 2/50). One isolate was resistant to both azithromycin and cefixime.

**Conclusions** Cases of gonorrhoea in Saskatchewan (>95%) are diagnosed by nucleic acid testing with no AMS testing. Our research showed that many no-longer recommended antibiotics (penicillin, ciprofloxacin) were still effective over many years. Even with the recent higher percentages of Ng isolates resistant to penicillin and ciprofloxacin, ~87% of Ng in the province remains susceptible to these antibiotics. The development of NAATs to test for AMS would enhance knowledge of true levels of resistance and allow discretion as to whether older but still effective antibiotics could be used in individual patient care.

**P3.222 FACTORS ASSOCIATED WITH MATERNAL-CHILD TRANSMISSION OF HIV-1 IN SOUTHEASTERN BRAZIL: A RETROSPECTIVE STUDY**

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10.1136/sextrans-2017-053264.457

**Introduction** Mother-to-child transmission (MTCT) is the main mode of acquisition of HIV-1 among young children worldwide. In Brazil, the southeast region is the geographical area that reports the majority of MTCT cases. The goals of this

study were to estimate the rate of HIV MTCT and to identify factors associated with MTCT in Espírito Santo State, in southeast Brazil.

**Methods** This study was a review of the data from the Brazilian National Information on Reportable Diseases System (SINAN) for HIV-infected pregnant women and for AIDS among children under 13 years old. The study population was comprised of all HIV-infected pregnant women reported to SINAN in the State of Espírito Santo, Brazil between January 1, 2007 and December 31, 2012.

**Results** A total of 470 women were included in the study. The proportion of MTCT during this period was 14.0% (95% CI 10.9–17.0). In a multivariable logistic regression model incorporating the significant covariates identified in bivariate analyses, women who had less than primary school education had increased odds of MTCT (OR=2.64; 95% CI 1.34–5.22) compared to women with more than primary school education. Emergency caesarean delivery was associated with increased odds of MTCT (OR=4.40; 95% CI 1.12–17.08) compared to vaginal delivery. In addition, pregnant women who did not receive ART during prenatal care had higher odds of MTCT (OR=2.21; 95% CI 1.10–4.47) compared to pregnant women who received ART during prenatal care.

**Conclusion** Health information systems can provide the basis for monitoring and analysing the health situation in municipalities and states, with a view towards health planning and management. This study identified a high rate of HIV MTCT in Espírito Santo State and effort should be made to encourage health care workers and pregnant women to use MTCT prevention services.

**Support:** University of California, San Francisco's International Traineeships in AIDS Prevention Studies (ITAPS), U.S. NIMH, R25MH064712

**P3.223 ANTIMICROBIAL SUSCEPTIBILITY PROFILE OF *NEISSERIA GONORRHOEAE* DETECTED IN A PUBLIC HOSPITAL IN BUENOS AIRES, ARGENTINA**

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10.1136/sextrans-2017-053264.458

**Introduction** Gonococcal disease is one of the most common bacterial sexually transmitted infections in the world. The emergence of antimicrobial resistance of *Neisseria gonorrhoeae* (Ng) to the first-line antimicrobial agents already compromise treatment effectiveness and control of Ng infections. The aim of this study was to know the susceptibility profiles of Ng isolates and clinical features of the patients treated at a public hospital located in the suburbs of Buenos Aires.

**Methods** We studied 40 isolates of Ng recovered between 2014 and 2015 by the laboratory of bacteriology, from patients attending to the STD office of Eva Perón Hospital. Minimum inhibitory concentrations (MICs) were determined for penicillin (PEN), tetracycline (TET), ciprofloxacin (CIP), azithromycin (AZI), cefixime (CFX) and ceftriaxone (CRO) by agar dilution method (CLSI). B-lactamase was performed by chromogenic cephalosporin method (Nitrocefin).