

### P3.231 *TREPONEMA PALLIDUM* MACROLIDE RESISTANCE SURVEILLANCE IN SOUTH AFRICA: 2008–2016

<sup>1</sup>JME Venter, <sup>1</sup>EE Müller, <sup>1</sup>DV Maseko, <sup>1</sup>T Kufa-Chakezha, <sup>1,2</sup>Kularatne SR. <sup>1</sup>Centre for HIV and STI, National Institute for Communicable Diseases, National Health Laboratory Service, Johannesburg, South Africa; <sup>2</sup>Department of Clinical Microbiology and Infectious Diseases, Faculty of Health Sciences University of the Witwatersrand, Johannesburg, South Africa

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**Introduction** Penicillin is the treatment of choice for syphilis worldwide. Macrolides (e.g. azithromycin [AZM]) have been used as a convenient oral and cost-effective alternative for syphilis treatment in many countries globally. High prevalence macrolide resistance, resulting in treatment failure for primary syphilis in USA, Europe and China has been attributed to an adenine (A) to guanine (G) transition in the 2058 or 2059 position of the *Treponema pallidum* 23S rRNA gene, resulting in target site alteration due to methylation. In 2014, AZM was added to the syndromic management guidelines for genital discharge in South Africa (SA). Individuals exposed to macrolides are twice as likely to have a resistant strain of *T. pallidum* within the next year. We sought to ascertain the prevalence of macrolide resistance-associated *T. pallidum* in genital ulcer disease (GUD) specimens from patients, presenting to nine primary health care facilities (PHCs) (one PHC per province) in SA, between 2008 and 2016.

**Methods** Swab samples from genital ulcers were collected from 2238 adult patients (>18 years of age) presenting to PHCs throughout SA. Macrolide resistance testing was done using established polymerase chain reaction (PCR) and restriction digest assays described by Lukehart *et al.*, (2004) and Matejkova *et al.*, (2009) on the G-Storm platforms (Vacutec). The resultant 628 base-pair (bp) fragment of the 23S rRNA gene was submitted to digestion with *BsaI*- and *MboII*-restriction enzymes to screen for the A2059G and A2058G mutations respectively. Amplicons with A2058G and A2059G mutations resulted in 2 distinct band sizes for each mutation. The SS14 strain (A2058G mutation), the A2059G (+) strain, and the wild-type Nichols strain were included as controls.

**Results:** *T. pallidum* was detected in 105/2,238 (4.7%) GUD specimens collected over a nine-year surveillance period. The A2058G mutation was detected in 4/105 (3.8%) specimens. The A2059G mutation was not identified. All specimens having macrolide resistance-associated mutations in *T. pallidum* were obtained in the years 2013 to 2016.

**Conclusion** This is the first report of macrolide resistance-associated mutations detected among *T. pallidum* in SA. Ongoing surveillance for AZM resistance is essential to inform future management guidelines.

### P3.232 PROFILE OF PATIENTS FROM A SEXUALLY TRANSMITTED INFECTIONS UNIVERSITY AMBULATORY IN SÃO PAULO, BRAZIL: A SIXTEEN-YEAR RETROSPECTIVE

Victor Cabelho Passarelli, Fernanda Kesselring Tso, Ávila Machado Modesto Arthur de, Sato Ito Marília Emi, Gardiman Arruda Patrícia, Galliano Stefano. Universidade Federal de São Paulo – Escola Paulista de Medicina, São Paulo – SP, Brazil

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**Introduction** There is scarce data concerning epidemiology and demography of Sexually Transmitted Infections (STIs) in Brazil, in spite of their high prevalence. Moreover, there are only

a few specialised centres for diagnosis and treatment. The Sexually Transmitted Diseases Combat Service (SCDST) was founded 30 years ago by medical students from UNIFESP-EPM and has maintained ever since an ambulatory specialised in diagnostics, treatment and follow-up for roughly thirty patients every week. In this scenario, it is relevant to quantify and classify patients seen at this service.

**Methods** This retrospective study was developed in the SCDST ambulatory at EPM-UNIFESP in São Paulo, Brazil. Data was collected from medical records of 1908 patients seen at the service from 1999 to 2015, including sociodemographic, sexual and medical history.

**Results** Most of the 1908 patients were men (1413–74%), with age between 19 and 23 years (20,8%). 792 of were single (56%) and 622 had studied up until secondary school (44%). The majority had sexual relations with women only (84,6%), while 215 (15,2%) were men who have sex with men (MSM). Sexual activities began between the age of 14 and 16 years for 620 of them (43,8%) and 885 had only one partner in the previous month (62,6%). Use of condom in every sexual activity was seen in 319 of them (22,5%), while 532 (37,6%) denied its use. The most common diagnosis among men and women was condyloma acuminatum (40,7% and 29,2%, respectively). 108 out of 120 cases of HIV seen at the service were men (90%) and 68 were MSM (63%). The vast majority of the HIV positive also presented with another STI (94,1%). Lost of follow-up was seen in 1039 patients (54,45%).

**Conclusion** The majority of patients were single, young men who did not practice safe sex. The most common diagnosis was condyloma acuminatum for both genders, and most of them did not receive medical discharge. HIV was more common in MSM. It is important to develop strategies to bring awareness about safe sex and the most common STIs, and improving care for these patients.

### P3.233 OCCUPATIONAL ACCIDENT WITH BIOLOGICAL MATERIAL IN THE STATE OF SÃO PAULO 2007–2016

AP Volpato, AL Monteiro, MA Silva, MC Gianna, Mariza Vono Tancredi. Centro de Referência e Treinamento Em DST/AIDS, São Paulo – SP – BRAZIL

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**Introduction** Occupational accidents with biological material are an injury which can largely be prevented. This study describes the notified occupational accidents in the State of São Paulo.

**Methods** Descriptive data analysis of the accidents with biological material notified by SINAN in the State of São Paulo, in the period from 2007 to June 2016.

**Results** During this period 1 25 060 accidents were reported with biological material. 77.5% occurred in female health professionals and most frequently in the 20 and 39 years age group, in nurses and lab technicians (53.1%) followed by physicians (10.7%). Regarding the accident circumstances, 17.1% occurred during the administration of medication, inappropriate disposal of syringes and needles (15.5%) and surgical and dental procedures (15.1%). The proportions of accidents by inappropriate disposal over time remained unchanged. The accidents in procedures of realisation of capillary blood glucose test and recapping needles had a proportional decrease of two times. It was observed that 30.2% of

professionals who were injured were not using gloves when administering medication, and 15.3% and 14.7%, respectively, did not do so in the procedures of blood collection and laboratory collection. Glove use during accident in surgical and dental procedures occurred in 96.7% and 95.3%, respectively. The outpatient discharge of the injured professionals occurred in 39.6% (49,557) after confirming a negative source for hepatitis B, C and HIV (human immunodeficiency virus), in 22.1% (27,674) after six months of follow-up without serological conversion and in 11.6% due to abandonment of follow-up. In this period there were no cases of conversion to HIV.

**Conclusion** Reporting accidents with biological material is a great monitoring tool. Inadequate disposal of needles is an important cause of accidents, and their frequency remains unchanged over the years. The accidents in procedures of realisation of blood test and recapping needles had a decrease. Much more can be done to prevent accidents and improve the follow-up of accidents.

### P3.234 **CHLAMYDIA TRACHOMATIS: GEOGRAPHICAL VARIATION IN TEST PRACTICES OF GENERAL PRACTITIONERS, 2011–2015**

<sup>1,2</sup>JAP Wijers, <sup>1,2</sup>GAFS van Liere, <sup>1,2</sup>CJPA Hoebe, <sup>1,2</sup>NHTM Dukers-Muijers. <sup>1</sup>Department of Sexual Health, Infectious Diseases and Environment, Public Health Service South Limburg, Geleen, South Limburg, The Netherlands; <sup>2</sup>Department of Medical Microbiology, Care and Public Health Research Institute (CAPRI), Maastricht University Medical Centre (MUMC+), Maastricht, South Limburg, The Netherlands

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**Introduction** Retesting *Chlamydia trachomatis* (CT) treated people after 3–12 months is recommended as it can yield substantial numbers of reinfections. A test-of-cure (TOC) shortly after treatment (within 3 months) is not advisable due to the likelihood of false positive findings leading to overtreatment. Spatial analyses are useful to detect geographical areas of low guideline adherence to inform local testing policies and targeted interventions. The aim was to assess geographical variation in test practices of general practitioners (GPs) in The Netherlands.

**Methods** Retrospective laboratory data containing CT tests of 48 GPs in 4 municipalities were obtained (2011–2015) from the public laboratory in the south western part of the Netherlands (183 thousand residents). First recorded urogenital positive CT tests of men ( $n=249$ ; 39.2%) and women ( $n=386$ ; 60.8%)  $\geq 16$  years between January 2011 and July 2015 were included in the analyses and TOC and retests were outcomes. Logistic regression was used for analyses.

**Results** Overall, 8,275 CT tests were performed (positivity 8.4%;  $n=691$ ); only 0.4% ( $n=43$ ) from extra genital sites. On a GP level, the number of CT tests varied geographically from 1 to 2421 ( $p<0.001$ ). A TOC was performed in 19.1% of the CT cases ( $n=123$ ; 13.8% positive). TOC was more often performed in south Maastricht in comparison with the centre of Maastricht ( $p=0.02$ , OR 3.0, 95% CI 1.23–7.33). A retest was performed in 23% of the CT cases ( $n=146$ ; 10.3% positive). The rate of retests non-significantly varied geographically between 6.3% and 30.2%  $p=0.33$ . Patients with a TOC were more likely to have a retest in comparison with cases without a TOC ( $p=0.02$ ).

**Conclusion** Testing at extra genital sites and the overall proportion of retests was low at GP practices. Almost one out of

five CT cases returned within three months, and many (re-) infections were probably missed. Moreover, it seems that there are geographical variations in test practices of GPs. Thus, targeted interventions at the local level are needed to increase CT testing and retesting practices of GPs.

### P3.235 **PARENTAL ACCEPTANCE OF HPV VACCINE IS HIGH AND BASED ON POOR KNOWLEDGE**

<sup>1</sup>WM Lobão, <sup>1</sup>CAST Santos, <sup>1</sup>GAC Santos, <sup>1</sup>MCC Almeida, <sup>1,2</sup>ED Moreira Jr. <sup>1</sup>Gonçalo Moniz Institute, Oswaldo Cruz Foundation, Brazil; <sup>2</sup>Clinical Research Centre, Associação Obras Sociais Irmã Dulce, Brazil

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**Introduction** Vaccination coverage levels of the National Immunisation Program (PNI) in Brazil ranges from 80% to 95%, suggesting that parental acceptance of these vaccines is high. In 2014, HPV vaccine was introduced in the PNI. We conducted a survey to estimate parental acceptance of HPV vaccine and its determinants.

**Methods** This was a random digit calling telephone survey performed in seven large cities from all five regions in Brazil. Eligible parents had to have one or more child less than 18 years old. We selected at least 100 subjects in each city. A standardised questionnaire was used to collect sociodemographic information and data on knowledge, attitudes and practices related to HPV vaccine, cervical cancer and HPV. Trained personnel conducted the interviews that lasted on average 20 min.

**Results** Overall 826 parents were included in the survey (73% response rate). Parental acceptance for vaccinating against HPV was similarly high for female or male children, 92.8% and 91.7%, respectively. It did not change significantly among the cities studied (range 86.3%–95.5%). Parents' main reasons to give the HPV vaccine to their children were: "Vaccines are good/important" (85.6%), "Prevents cervical cancer" (6.6%), and "Vaccine is in the PNI" (3.3%). Only 0.7% reported "Prevents genital warts". Among parents with girls eligible for HPV vaccination (10–14 years old) under the PNI ( $n=291$ ), 71.4% had their daughters vaccinated.

**Conclusion** Parental acceptance of HPV vaccine is high (92% %), but a lower percentage results in actual vaccination. Moreover, the main reason to vaccinate is based on a vague assumption ("vaccines are good/important"). Only few parents reported that HPV vaccination prevents cervical cancer. Parents whose vaccine acceptance is ill founded and based on poor knowledge are more vulnerable to change their mind when challenged by stress related mass reactions to HPV vaccine reported by the media or when facing false arguments against vaccination by anti-vax reports.

### P3.236 **STUDY OF GENITAL CANCER AETIOLOGY: ASSOCIATION OF HUMAN PAPILOMAVIRUS (HPV) AND MERKEL CELL POLYOMAVIRUS (MCPVY)**

<sup>1</sup>Rocha WM, <sup>2</sup>CF Baez, <sup>1</sup>LA Afonso, <sup>1</sup>FN Carestiatto, <sup>1</sup>RB Varella, <sup>1</sup>SMB Cavalcanti. <sup>1</sup>Universidade Federal Fluminense – Instituto Biomédico – Laboratório de Diagnóstico Viroológico, Brazil; <sup>2</sup>Universidade Federal do Rio de Janeiro – Departamento de Medicina Preventiva, Brazil

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**Introduction** The genital infection by the HPV is among the most frequent sexually transmitted diseases (STD) worldwide, and it may result in lesions that can lead to the carcinogenesis of the genital tract. However, other factors may be associated with the onset or progression of the tissue malignancy process, such as the MCPyV, which may present oncogenic profile in the epithelial tissue. This study aims to investigate the presence of MCPyV and HPV in malignant lesions of the male and female genital tract, in order to contribute to the elucidation of the role of these viruses in the cellular malignancy process and to the epidemiological knowledge regarding the prevalence of both viruses in neoplastic lesions.

**Methods** This is a cross-sectional study evaluating the prevalence of HPV and MCPyV infection in samples of cervical carcinoma and penile cancer. To date, we have obtained 112 samples of penile carcinoma and 31 samples of cervical carcinoma. So, we aim to detect the presence of HPV DNA by the polymerase chain reaction (PCR) technique using the generic primers MY09/MY11; to genotype HPVs by specific PCR to the E6 gene; to detect and quantify DNA of the MCPyV by the Nested PCR technique and real-time PCR; to investigate the presence of truncation mutations in the major T antigen of MCPyV.

**Results** Results are partial. To date, all the male samples were analysed. We verified the presence of HPV in 54 (48.2%) of these samples, in which the most prevalent type was the HPV16 (66%). The cervical carcinoma samples are still under analysis.

**Conclusion** The collection of cervical neoplasia samples is still being performed. In 2015, our research group found a case of multiple infection by HPV, MCPyV and Epstein-Barr virus in a case of squamous cell carcinoma of the penis in Rio de Janeiro. This was the first report of the presence of MCPyV in this type of penile lesion. Thus, we look forward to find results that contribute to the presence of MCPyV in genital malignant lesions and to elucidate its role in the oncogenic pathway of malignant lesions.

### P3.237 DIRECT DETECTION OF MOSAIC *PEN A* IN CLINICAL SAMPLES CONTAINING *NEISSERIA GONORRHOEA*

<sup>1</sup>PFG Wolffs, <sup>1</sup>BMJW van der Veer, <sup>1,2</sup>CJPA Hoebe, <sup>1,2</sup>Dukers-Muijters NHTM, <sup>1</sup>van Alphen LB, <sup>1</sup>IHM van Loo. <sup>1</sup>Maastricht University Medical Centre, Care and Public Health Research Institute (CAPHRI), Maastricht, the Netherlands; <sup>2</sup>Public Health Service South Limburg, Department of Sexual Health, Infectious Diseases and Environmental Health, Geleen, the Netherlands

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**Introduction** Current surveillance of antibiotic resistance in *Neisseria gonorrhoeae* (NG) relies heavily on the culture of NG. However, culture of NG is challenging due to demanding nutritional and growth requirements of this micro-organism. As a result, surveillance data are limited to only cultured strains while of >50% of Dutch NG positive patients no NG is cultured (data from Dutch Gonococcal Surveillance Program). In this study we compared results from direct detection of mosaic *penA* with detection of cultured strains to investigate feasibility of direct molecular resistance surveillance.

**Methods** A convenience sample of 106 NG positive samples of which positive NG culture results were available (46 urine, 9 genital swabs, 35 anorectal swabs and 16 oropharyngeal swabs) were collected between 2013–2015. Presence of mosaic *penA* was determined by real-time PCR. All positive findings

were confirmed with sequencing. MICs on cultured NG were determined using E-tests.

**Results** LOD determinations of the in-house mosaic *penA* PCR in comparison to routine NAAT (using COBAS 4800, Roche Diagnostics) showed that the mosaic *penA* assay was slightly less sensitive than the commercial NAAT. In samples with very low NG loads, mosaic *penA* detection might be false-negative. Of 106 NG positive samples, 11 samples showed the presence of mosaic *penA* (6 urine, 4 oropharyngeal and 1 anorectal swab). Of these 11 samples, NG isolates were re-cultured from 8 samples and all isolates contained the mosaic *penA* gene. MIC values for ceftriaxone varied between 0.016 and 0.094 mg/L and thus no reduced susceptibility was observed. Although cross-detection with mosaic *penA* from *N. meningitidis* is possible, no evidence of this was shown in this study.

**Conclusion** In conclusion, this study indicates that detection of mosaic *penA* directly from clinical samples is feasible and that results match detection of *penA* from clinical isolates obtained from these samples. Direct detection of antibiotic resistance genes would show an insight in resistance surveillance of strains that are not or cannot be cultured.

### P3.238 SYPHILIS INFECTION STATUS AND THE ASSOCIATED FACTORS AMONG PARTNERS OF SYPHILIS-INFECTED PREGNANT WOMEN IN SHENZHEN, CHINA

X Wu, F Yang, L Lan, Y Guan, C Zhang, T Feng. Shenzhen Centre for Chronic Disease Control, Shenzhen, China

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**Introduction** The goal of this study is to investigate syphilis infection status among partners of syphilis-infected pregnant women, and to analyse the associated factors from the perspective of both pregnant women and their partners.

**Methods** This study was based on Shenzhen Program for Prevention of Mother-to-Child Transmission of Syphilis. Follow-up survey and contact tracing were conducted among syphilis-infected pregnant women diagnosed from 2008 to 2015. Both toluidine red unheated serum test (TRUST) and treponema pallidum particle agglutination (TPPA) were applied to partners attending antenatal care clinics. Structural questionnaire was used to collect information. Binary logistic regression model was applied to analyse the factors associated with partners' syphilis infection.

**Results** During the studied years, 6318 pregnant women were identified with syphilis infection and 5351 partners of these women visited the antenatal care clinics and took the serological testing. From the laboratory record and clinical examination results, 1148 partners were diagnosed with syphilis infection. The infection rate decreased from 26.23% in 2008 to 15.07% in 2015. The partners were more likely to have syphilis infection when pregnant women with TRUST titers  $\geq 1$  8 or at the early syphilis stage. The partners had more risk of syphilis infection when they had multiple sex partners.

**Conclusion** Syphilis infection rate among partners of syphilis-infected pregnant women is high. Pregnant women's levels of TRUST titer and disease stage as well as partners' sexual behaviours were important factors associated with partners' syphilis infection. Partner notification and contact tracing is an important way to identify syphilis patients.