project was denominated PW1 and LB1, and the group without participation in the MPPCS project was denominated PW2 and LB2. These groups were followed from beginning until the end of pregnancy. Were selected 5391 pregnant women (1781 of the PW1 and 3610 of the PW2), and 4044 LB (1376 of the LB1 and 2668 of the LB2). The statistical analyses were done by Chi-square test of Pearson with a 5% significance level.

Results The results showed that VT rates of syphilis were lower in the group where the partners have adhered to the MPPCS. The VT rate found were: 0.7% in LB1% and 1.5% in LB2 (p=0.04). The syphilis rate found in the partners participating in the MPPCS was 1.3%. In the pregnant women, there was no association between the occurrence of syphilis between PW1 (1.6%) and PW2 (2.0%), with p=0.20. The main variable that have influenced partner`s adherence rate in the MPPCS project was the commitment of the health care team, with some units presenting 98% of partner's adhesion and others with less than 20%.

Conclusions The adherence of partners in the MPPCS was very important in the identification and treatment of male-pregnant women with syphilis, and significantly reduced the TV rate of syphilis. The commitment of the health care team is the most important variable in the adherence of the partner to the MPPCS.

Oral Presentation Session 5

Neisseria gonorrhoeae

O05.1 AN ANALYSIS OF THE EFFICACY OF CLINICALLY RELEVANT NEW DUAL DRUG COMBINATIONS FOR TREATMENT OF MULTI- AND EXTENSIVELY-DRUG RESISTANT *NEISSERIA GONORRHOEAE*

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10.1136/sextrans-2017-053264.24

Introduction With the emerging potential crisis of untreatable gonorrhoea CDC and WHO have issued a call for new therapeutics options. Hence, this study was conducted to evaluate the *in vitro* efficacy of 21 dual antibiotic combinations of currently recommended as well as not in-use antibiotics, for treatment of multidrug resistant (MDR) and extensively drug resistant (XDR) *Neisseria gonorrhoeae* strains.

Methods Minimum inhibitory concentration (MIC) of 83 n. *gonorrhoeae* strains including 67 MDR and one XDR strain was determined by Etest for cefixime(IX), ceftriaxone(CRO), spectinomycin (SC), azithromycin (AZ), gentamicin (GM), moxifloxacin (MX) and ertapenem (ETP) alone and as 21 antimicrobial combinations by E-test fixed ratio method. Fractional inhibitory concentration index (FICI) was calculated for each combination and geometric means were determined. A FICI value of:≤0.5,>0.5 to≤1.0,>1.0 to≤4.0 and>4.0 denotes synergistic, additive, indifferent and antagonistic effects respectively. Statistical significance was determined by Mann-Whitney's *U*-test.

Results The synergy/additive effect without any antagonism was observed in antimicrobial combinations of GM+ETP (34.9%/38.6%), MX+ETP (32.5%/36.2%), AZ+MX (20.5%/25.3%), IX+AZ (9.6%/13.3%) and CRO+AZ (4.8%/30.1%). Geometric mean of FICI for these combinations was 0.57, 0.76, 0.91, 1.0 and 1.15 respectively. Mean MICs of GM +ETP, MX+ETP and AZ+MX was significantly (p value<0.0001) less than that of the individual drugs. The combinations of SC+AZ, GM+MX, TX+GM and AZ+GM revealed 14.4%, 9.5%, 7.2% and 7.2% of antagonism with 0%, 8.4%, 15.7%, and 13.3% of synergistic effect respectively. No significant effects were observed with IX+SC, IX+MX, IX+ETP TX+SC, TX+MX, TX+ETP, SC+GM, SC+MX, SC +ETP and AZ+ETP.

Conclusion The study highlights the higher efficacy of GM +ETP, MX+ETP and AZ+MX combinations for MDR and XDR strains than currently recommended CRO+AZ and IX +AZ combinations. In the context of no new classes of antibiotics available, this presents a glimmer of hope to clinical management of the superbug *N. gonorrhoeae*.

O05.2 PHARYNGEAL GONOCOCCAL INFECTION: SPONTANEOUS CLEARANCE AND PERSISTENCE AFTER TREATMENT

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10.1136/sextrans-2017-053264.25

Introduction Infection of *Neisseria gonorrhoeae* in the pharynx (pharyngeal Ng) is associated with gonococcal transmission and development of antimicrobial resistance. We aimed to assess determinants for: (1) spontaneous clearance and (2) persistence after treatment of pharyngeal Ng.

Methods At the sexually transmitted infections clinic Amsterdam, females-at-risk and men who have sex with men are routinely screened for pharyngeal Ng using an RNA-based nucleic acid amplification test (NAAT; Aptima Combo 2). A test-of-cure (TOC) 7 days after treatment is suggested for positive cases.We retrospectively examined medical records of pharyngeal Ng patients (January 2012-August 2015). To evaluate spontaneous clearance (sub-study 1), we included patients who had follow-up NAAT result prior to antibiotic treatment. To evaluate persistence after treatment (sub-study 2), we included patients who received 500 mg ceftriaxone intramuscular injection and returned for a TOC 7–28 days after treatment.

Results In sub-study 1, 1266 cases (median time between first consultation and follow-up of 10 days [interquartile range/IQR 7–14]) were included; spontaneous clearance was found in 139 (11.0%) and was associated with age >45 years (vs 16–24 years) (aOR=1.96 [95% CI 1.06–3.60]), and with time from first consultation to follow-up (aOR=1.08 [1.06–1.10], per extra day). In sub-study 2, 781 cases (median time between first treatment and TOC of 8 days [IQR 7–12]) were included; persistence after treatment was found in 36 (4.6%), and was less likely among patients who received ceftriaxone in combination with other antibiotics (vs monotherapy) (aOR=0.36 [0.12–1.04]), and with longer time from treatment to TOC (aOR=0.74 [0.60–0.90], per extra day). In TOC 15–28 days after treatment, only 1/105 cases (1.0%) persisted.

Conclusion Spontaneous clearance of pharyngeal Ng is associated with later time of follow-up and higher age. Combining

ceftriaxone with other antibiotics leads to faster clearance. TOC for pharyngeal Ng 7 days after treatment may be too soon.

Support: *This study was funded by Excellence Scholarship Program (Beasiswa Unggulan), Ministry of Research, Technology and Higher Education, Republic of Indonesia and Public Health Service of Amsterdam, the Netherlands*

O05.3 A PHASE II, RANDOMISED, STUDY IN ADULT SUBJECTS EVALUATING THE EFFICACY, SAFETY, AND TOLERABILITY OF SINGLE DOSES OF GEPOTIDACIN (GSK2140944) FOR TREATMENT OF UNCOMPLICATED UROGENITAL GONORRHOEA

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10.1136/sextrans-2017-053264.26

Introduction Gonorrhoea is currently the second most common bacterial sexually transmitted infection and represents a serious public health threat. The increasing antimicrobial resistance in *Neisseria gonorrhoeae* (GC) to currently available therapies is driving an urgent need for new novel agents. Gepotidacin (GEP) is a novel, first in class triazaacenaphthylene antibacterial which inhibits bacterial DNA replication. This multicenter (11 US and 1 UK) trial evaluated GEP as a single oral dose in men and women.

Methods Patients with signs and symptoms of urogenital gonorrhoea, a prior culture or nucleic acid amplification test (NAAT) positive for GC, a urethral Gram stain with intracellular diplococci, or who had sexual contact with an individual diagnosed with gonorrhoea in the past 14 days were eligible for enrollment. Participants were randomised 1:1 to receive either 1.5g or 3g GEP orally. The primary efficacy endpoint was culture confirmed microbiological eradication at test-of-cure (TOC) visit 3–7 days post dose.

Results 106 patients (101 men and 5 women) were randomised and 105 received treatment. Baseline GC isolates were identified in 69 (65%) urogenital, 3 (3%) pharyngeal, and 4 (4%) rectal specimens. Microbiological success was achieved by 97% and 95% of subjects with urogenital GC in the 1.5g and 3g treatment groups, respectively. Isolates from 2 subjects developed resistance to GEP between baseline and TOC. The most common GEP-related AEs were gastrointestinal (diarrhoea, flatulence, abdominal pain and nausea) with the majority being mild or moderate in intensity. Treatment-related AEs of moderate intensity occurred with a higher incidence in the 3g treatment group than the 1.5g treatment group (15% and 10%, respectively). There were no AEs that led to study withdrawal and no SAEs were reported.

Conclusions Both the GEP 1.5g and 3g single doses eradicated urogenital GC with microbiological success rates of 29/30 (97%) and 37/39 (95%), respectively. The data support further development of GEP in this indication.

Support: *This study was supported by GSK (BTZ116576; NCT02294682). This project was funded in whole or in part with Federal funds from the Office of the Assistant Secretary for Preparedness and Response, Biomedical Advanced. Research and Development Authority (BARDA), under agreement # HHSO100201300011C*

O05.4 DOES HIGH-LEVEL AZITHROMYCIN RESISTANCE EMERGE FROM LOW-LEVEL RESISTANCE IN *NEISSERIA GONORRHOEAE*?

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10.1136/sextrans-2017-053264.27

Introduction High-level azithromycin (Azi) resistance (HL-AziR) threatens gonorrhoea dual therapy (ceftriaxone 500 mg and Azi 1g) as it renders Azi ineffective. Between November 2014–2016, 58 cases of HL-AziR (MIC >256 mg/L) *N. gonorrhoeae* (NG) were detected in England. Whole genome sequencing (WGS) revealed that most HL-AziR isolates were from a single clade (NG-MAST ST9768) with an A2059G mutation in 3/4 or all 4 alleles of the 23S rRNA gene. Lower-level AziR (MICs 1.0–32 mg/L) is commonly associated with a C2611T 23S rRNA gene mutation and *mtrR* promoter mutations. We performed WGS of ST9768 isolates with Azi susceptibility (MICs).

Methods WGS was performed on 7 non-HL-AziR ST9768 isolates from Scotland isolated in 2014. A phylogeny was constructed using the maximum likelihood algorithm based on whole genome variants. Genetic resistance determinants were analysed by mapping the WGS short reads to the 23S rRNA gene.

Results All ST9768 isolates with Azi MICs of 0.12–1.0 mg/L were part of the same WGS clade as the ST9768 HL-AziR isolates. One susceptible isolate (MIC 0.12 mg/L) had 0/4 mutated (A2059G) 23S rRNA alleles, five susceptible isolates (MICs 0.25 mg/L) had 1/4 mutated alleles and one low-level resistant isolate (MIC 1.0 mg/L) had 2/4 mutated alleles. No isolates carried the C2611T mutation.

Conclusion This is the first report of the A2059G mutation in NG isolates with Azi MICs of 0.25–1.0 mg/L. The phylogeny suggested that the HL-AziR ST9768 isolates are descendants of the low-level AziR isolates, which are in turn, descendants of the susceptible isolates. We hypothesise that azithromycin exposure provided selection pressure for one or two mutated copies of the 23S rRNA gene to recombine with wild-type copies, leading to 3 to 4 mutated copies in HL-AziR isolates. Greater understanding of the prevalent mechanisms of lower level AziR is required as HL-AziR could emerge in isolates with A2059 mutations and eliminate the effectiveness of dual therapy.

O05.5 WHAT ROLE DOES IMPORTATION PLAY IN THE SPREAD OF ANTIMICROBIAL RESISTANT *NEISSERIA GONORRHOEAE* IN THE UK? ASSOCIATIONS BETWEEN ANTIMICROBIAL RESISTANT STRAINS AND RECENT SEX ABROAD

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10.1136/sextrans-2017-053264.28

Introduction People living in Britain who have sex abroad are more likely to report sexual behaviour that puts them at greater risk of acquiring STIs, including *Neisseria gonorrhoeae*