persistent NGU caused by Mg may not respond to repeat azithromycin treatment; quinolones, in particular moxifloxcin, have been shown to be effective. The molecular epidemiology of mutations in macrolide- and quinolone-resistance determining regions (RDRs) of 23S rRNA, parC and gyrA genes remains unclear in China.

Methods From April 2011 to August 2015, male subjects with clinical and microscopic evidence of urethritis provided a first-voided urine specimen and the mgpA gene was partially amplified and sequenced to diagnose Mg infection. RDRs of the 23s rRNA, parC and gyrA genes were sequenced.

Results Among 1816 male-patients, the overall prevalence of *M. genitalium* was 19.7% (358/1816). *N. gonorrhoeae* prevalence was 46.6% (847/1816). Among 969 NGU-cases, prevalence of: *C. trachomatis* was 42.3% (409/968), *M. genitalium* 27.9% (271/969), *U. urealyticum* 21.3% (182/856), *T. vaginalis*1.8% (17/969) and *M. hominis* 0.7% (6/855). Based on data available from partial (5.4%) sequencing of the MgPa gene (mgpA) an evolutionary tree was constructed that divided the 358 *Mg* mgpA sequences into five major clusters. Among 358 *Mg* positive samples, successful sequencing was accomplished for: the 23s rRNA gene (341 specimens), the parC gene (344 specimens) and the gyrA gene (339 specimens). 88.9% (303/341) had mutations in 23s rRNA, 89.5% (308/344) had sense mutations in parC, and 12.4% (42/339) had sense mutations in gyrA.The most common single base pair mutation in the 23s rRNA gene was A2059G (211/303; 69.6%) followed by A2058G (60/303; 19.8%) and A2059T (30/303; 9.9%). The most common mutation in the parC gene was G248T (289/344; 84%) and in the gyrA gene G285A (22/339, 6.5%).

Conclusion The high mutation rate in 23s rRNA and parC in Mg strains in Nanjing are a harbinger of resistance to macrolides and quinolones that may follow. Molecular surveillance of indigenous strains of Mg is warranted to anticipate the development of antimicrobial resistance.

LB1.4 IMPROVED OUTCOMES FOLLOWING RESISTANCE-GUIDED TREATMENT OF *MYCOPLASMA GENITALIUM* INFECTION

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Introduction Resistance to 1 st (azithromycin) and 2nd line (moxifloxacin) therapy in *Mycoplasma genitalium* (MG) now exceeds 50% and 15%, respectively, in the Asia-Pacific region. New approaches to achieve high levels of cure and minimise resistance are urgently needed. We evaluated a novel strategy of switching from azithromycin to doxycycline for MG-associated syndromes and using resistance-guided therapy, with sitafloxacin for macrolide-resistant infections.

Methods From July 2016 Melbourne Sexual Health Centre switched from azithromycin to doxycycline 100 mg twice daily 7 days for non-gonococcal urethritis/cervicitis/proctitis. Cases were tested for MG and macrolide-resistance mutations (MRM) by PCR (ResistancePlus MG test, SpeeDx Pty Ltd). After doxycycline, MG-positive cases without MRM received 2.5g azithromycin (1g then 500 mg daily for 3 days) and MRM-positive cases received sitafloxacin 100 mg twice daily for 7 days. Retest for microbiologic cure and standardised assessment of adherence, side-effects and post-diagnosis sexual contact occurred 14–90 days after the second antibiotic. Those reporting condomless sex or sex with an incompletely treated partner were excluded.

Results Of 162 evaluable MG infections (35 women, 42 heterosexual men, 85 homosexual men, median age 29) diagnosed to 9 March 2017, MRM were detected in 116 [71.6% (95% confidence interval (CI) 64.0–78.4). Microbiologic cure occurred in: 44 of 46 infections without MRM, treated with doxycycline then azithromcyin [95.7% (95%CI 85.2–99.5)] and in 107 of 116 infections with MRM treated with doxycycline then sitafloxacin [92.2% (95%CI 85.8–96.4)]. Mean fall in $\log_{10}$ bacterial load (on doxycycline prior to the 2nd antibiotic, n=17) was 2.9, p<0.01. Sitafloxacin was associated with diarrhoea (8.6%) and tendon/joint pain (6.0%). Five (3.1%) patients missed >20% of doses of any antibiotic.

Conclusion Switching from azithromycin to doxycycline for presumptive treatment of STI syndromes, and use of resistance-guided therapy cured >92% of MG infections in the context of high levels of antimicrobial resistance.

LB1.5 THE EFFICACY AND SAFETY OF GENTAMICIN FOR THE TREATMENT OF GENITAL, PHARYNGEAL AND RECTAL GONORRHOEA: A RANDOMISED CONTROLLED TRIAL

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Introduction Gentamicin is effective against *N. gonorrhoeae in vitro* and systematic reviews have reported cure rates of 62%–98% but the quality of studies was low and there are few data on pharyngeal or rectal infections. A recent large non comparative trial reported a cure rate of 100% when gentamicin was combined with 2g oral azithromycin, but a high incidence of gastrointestinal adverse effects limited tolerability and few extra-genital infections were included. The aim of this study was to evaluate the efficacy and safety of gentamicin versus ceftriaxone, each combined with 1g of azithromycin, for the treatment of gonorrhoea.

Methods A multi-centre, blinded, randomised controlled trial in participants with genital, pharyngeal or rectal gonorrhoea who received either gentamicin 240 mg or ceftriaxone 500 mg (each as a single intramuscular injection). The diagnosis of gonorrhoea was based on a positive nucleic acid amplification test (NAAT) or gram stained smear on microscopy. The primary endpoint was microbiological cure based on NAAT two weeks after treatment. The trial had 90% power to detect non-inferiority with a lower CI for an absolute risk difference of 5%. Data collection was completed in March 2017.

Results 720 patients from 14 sexual health clinics in England were randomised to receive ceftriaxone (n=362) or gentamicin (n=358). Baseline characteristics of the two groups were well balanced. 306 participants randomised to ceftriaxone (85%) and 292 randomised to gentamicin (82%) had primary outcome data available. 98% (299/306) and 91% (267/292) of participants randomised respectively had clearance of

gonorrhoea at 2 weeks – adjusted risk difference −6.4% (95% CI −10.4%, −2.4%). Pre-specified sensitivity analyses supported this result. Clearance at the genital site was 98% and 94%, at pharynx 96% and 80% and at rectum 98% and 90%. The frequency of side effects was similar between treatment groups.

Conclusion Gentamicin is not non-inferior to ceftriaxone for the treatment of gonorrhoea.

LB1.6 *NEISSERIA MENINGITIDIS* CARRIAGE AMONG MEN WHO HAVE SEX WITH MEN – NEW YORK CITY, 2016–2017

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Introduction There have been recent U.S. outbreaks of *N. meningitidis* (Nm) serogroup C among men who have sex with men (MSM). From 1/2012-6/2015, 1/3 of U.S. cases in MSM were from New York City (NYC); 65% were HIV+. Little is known about Nm carriage among MSM and potential sexual transmission of Nm.

Methods We conducted a carriage study among a sample of MSM and transgender female patients at 2 NYC sexual health clinics (6/2016-2/2017). Clinicians collected oropharyngeal (OP), rectal, and urethral specimens for Nm culture and STD testing. We matched test results with patient self-administered questionnaire data on antibiotic use, meningococcal vaccine history, and sexual risk behaviours (past 30 days), and data extracted from clinic medical records and the NYC STD registry (past 3 months). We calculated carriage prevalence by serogroup (slide agglutination) and anatomic site; examined Nm-gonorrhoea (GC) co-infection; and assessed associations between patient characteristics and carriage at any site using logistic regression.

Results Of 636 study patients, 146 (23%; 95% CI 20%–26%) were Nm carriers. Serogroup distribution of OP carriage (22.4%; 142/633) was: 59% non-groupable, 37% B, 1.4% C, 0.7% W, 1.4% Y. Of OP Nm carriers, 20 (14%) were OP GC-positive. Urethral (0.5%; 3/626) and anal (1%; 6/626) carriage prevalence were low. Any-site carriage was associated with: kissing (OR 3.2; 95% CI 1.1–9.3), performing oral sex (OR 2.0; 95% CI 1.1–3.6), attending bars/clubs (OR 1.6; 95% CI 1.1–2.6), and antibiotic use (OR 0.2; 95% CI 0.1–0.5); and not associated with HIV status, STD history, or vaccine status. In multivariable analyses, only antibiotic use was associated with carriage.

Conclusion Nm carriage in our large patient sample did not match Nm outbreak patterns (e.g., paucity of serogroup C, no link with HIV). The OP carriage rate was similar to that in prior studies, but with higher serogroup B. Low prevalence of urethral and rectal Nm carriage and lack of association with STD risk factors suggests that sexual transmission of Nm might be uncommon in this population.

LB1.7 AUSTRALIAN NATIONAL SURVEILLANCE OF JUVENILE ONSET RECURRENT RESPIRATORY PAPILLOMATOSIS: DECLINING INCIDENCE POST QUADRIVALENT HPV VACCINATION

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Introduction To estimate and monitor national incidence of Juvenile onset Recurrent Respiratory Papillomatosis (JoRRP) in Australia following the extensive quadrivalent HPV vaccine catch up program (females aged 12–26 years in 2007–2009, which included women of child bearing age) and to assess demographics and risk factors of incident cases.

Methods The Australian Paediatric Surveillance Unit (APSU) undertakes surveillance of rare paediatric diseases by contacting practitioners monthly to report cases. We utilised this well established methodology to undertake prospective population based surveillance of JoRRP by enrolment in APSU of paediatric ENT surgeons, designing a JoRRP case reporting form, and offering clinicians HPV typing of incident cases. Surveillance commenced Oct 2011 and we report here findings for the five-year period to end 2016.

Results Using Australian Bureau of Statistics population estimates for children 0–15 years, the average annual incidence rate over the period was 0.12 per 1 00 000. The largest number of cases was reported in the first year, with a decreasing frequency each year thereafter. The rate declined from 0.3 per 1 00 000 in 2012 to 0.04 per 1 00 000 in 2016. Among incident cases, no mothers had been vaccinated prior to pregnancy, 20% had a past history of genital warts, 60% of cases were male, and 60% were first born. The majority were born by vaginal delivery. Four incident cases were genotyped; all were positive for HPV6 (n=1) or HPV11 (n=3).

Conclusion To our knowledge this is the first report internationally documenting a decline in JoRRP incidence in a population of children following the introduction of a quadrivalent HPV vaccination program.

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