

Prevalence of MG was 18%. Of MG-positive FSW, 18% were coinfecting with chlamydia or trichomonas respectively, 9% with gonorrhoea. Diagnosis of MG was associated with younger age (aOR = 0.97; 95 CI = 0.95–0.99, per year increasing), being born in Bulgaria (aOR = 2.9; 95 CI = 1.2–7.2) or Romania (aOR = 3.4; 95 CI = 1.4–8.3; reference Germany), having no German skills (aOR = 3.1; 95 CI = 1.2–8.0), having no health insurance (aOR = 1.8; 95 CI = 1.0–3.2), and an interaction term of German skills and health insurance status.

Conclusion Prevalences of MG and STI-coinfections were high in the tested population, especially in younger, migrated FSW, without German skills and health insurance. Tests for MG, and if tested positive, for chlamydia, trichomonas and gonorrhoea, should be offered for FSW, combined with cultural mediation.

Disclosure of interest statement The testkits and reagents used in the scope of the study were distributed free of cost by Hologic.

P09.07 PREVALENCE OF *MYCOPLASMA GENITALIUM* IN PATIENTS VISITING HIV COUNSELLING INSTITUTIONS IN NORTH-RHINE-WESTPHALIA, GERMANY (STI-HIT STUDY)

^{1,2}A Lallemand, ¹V Bremer, ¹K Jansen*, ¹S Nielsen, ³D Münstermann, ³A Lucht, ³C Tiemann. ¹Robert Koch Institute, Berlin, Germany; ²European Programme for Intervention Epidemiology Training (EPIET), ECDC, Stockholm, Sweden; ³Labor Krone, Bad Salzufflen, Germany

10.1136/sextrans-2015-052270.391

Introduction Patients asking for a free anonymous HIV test may have other STI such as *Mycoplasma genitalium* (Mg), yet Mg prevalence in that population is unknown. Among other STI, we measured Mg prevalence in patients seeking HIV testing at local public health authorities (LPHA) to inform decision making regarding Mg screening in HIV counselling institutions.

Methods LPHA in North Rhine-Westphalia screened patients for Mg infection on the basis of self-collected vaginal swabs and urine samples (men) which were analysed by transcription-mediated amplification assays (APTIMA® *Mycoplasma genitalium*). LPHA staff collected information on socio-demographic characteristics, sexual and HIV testing behaviours, previous STI history and clinical symptoms. We assessed overall and group-specific Mg prevalences and their 95% confidence intervals (CI). Using binomial regression, we calculated prevalence ratios adjusted for age and level of education.

Results Eighteen LPHA collected 3204 samples, of which seventeen could not be analysed. Of the remaining 3187 samples, LPHA recruited 1751 men, 1430 women and 6 transgenders. The median age was 30 years [25–38]. Overall prevalence of Mg was 3.42% (109/3187; 95% CI: 2.8–4.1%), 72.5% of those who tested positive were asymptomatic. Mg prevalence was 1.4% (16/1174; 95% CI: 0.8–2.2%) in heterosexual men, 2.0% (11/549; 95% CI: 1.0–3.6%) in MSM, 13.6% (39/286; 95% CI: 9.9–18.2%) in female sex workers (FSW) and 3.6% (41/1144; 95% CI: 2.6–4.8%) in other women. After adjusting for age and level of education, Mg infection was 7.4 times [95% CI: 4.0–13] and 2.8 times [95% CI: 1.5–5.0] more prevalent in FSW and in other women, respectively, as compared to heterosexual men.

Conclusion The prevalence of Mg was higher in women, especially among FSW. Use of vaginal swabs in women as compared to urine samples in men may have provided more sensitive detection of Mg among women. Increased attention should be paid to Mg screening in patients seeking HIV testing at LPHA, particularly among FSW.

Disclosure of interest statement Diagnostic tests were funded by Hologic®.

P09.08 STRONG AND ONGOING INCREASE OF SYPHILIS IN MSM IN GERMANY

K Jansen*, V Bremer. HIV and STI Unit, Robert Koch-Institute, Berlin, Germany

10.1136/sextrans-2015-052270.392

Background In Germany, the number of syphilis cases doubled 2001–04 to over 3,000/year and remained mainly stable until 2009. Between 2010 and 2013, the number increased between 11% and 22%. We analysed syphilis surveillance data to assess characteristics of this rise and whether it is continuing.

Methods Since 2001, laboratories are required to notify syphilis diagnoses anonymously, physicians complement clinical information. Potential double notifications are identified. We described syphilis cases by year of diagnosis, age, sex, area of residence and transmission category.

Results Overall, 5,722 cases were reported in 2014, corresponding to a 14% rise compared to 2013. The overall incidence was 7.1 per 100,000 inhabitants, with highest incidences in large cities such Berlin (31.0), Cologne (31.9) and Munich (27.2), especially in Berlin inner city areas (61.3–86.2/100,000 inhabitants). Notified cases increased in 13/16 federal states in 2014, and increase in Germany in a linear manner by 669 cases/year since 2010 ($R^2 = 0.9994$).

Men accounted for 94% of cases in 2014. The likely mode of transmission was available for 74% of cases; of these, 84% were men who have sex with men (MSM), in 16% heterosexual transmission was reported. The proportion of MSM aged 40 years or above was stable since 2008 with 49%. Stage of infection was reported in 74% of cases in 2014. Of these, 35% were diagnosed as primary, 27% as secondary and 35% as latent syphilis, similar to previous years.

Conclusion Syphilis cases continue to increase strongly since 2010, mainly attributable to MSM in large German cities, also in higher age groups. Berlin as a centre of sex tourism for MSM worldwide is heavily affected. Against the background of high proportions of cases diagnosed in later stages, early diagnosis and treatment, but also consistent condom use, are important to minimise the risk of syphilis and subsequently potential HIV-transmission.

Disclosure of interest statement The authors have nothing to disclose.

P09.09 EXPLORING THE RELATIONSHIP BETWEEN IMPORTATION FREQUENCY AND THE PERSISTENCE OF GONORRHOEA STRAINS IN AN MSM POPULATION: A MODELLING STUDY

¹B Hui*, ²D Whaley, ^{1,3}B Donovan, ¹D Regan, on behalf of GRAND Study Investigators. ¹The Kirby Institute; ²QPID Laboratory, QCMRI, The University of Queensland; ³Sydney Sexual Health Centre

10.1136/sextrans-2015-052270.393

Introduction Molecular typing of fluoroquinolone resistant isolates from the US suggests that the importation of new strains, rather than mutation within existing strains, is the main source of *Neisseria gonorrhoeae* (NG) antimicrobial resistance (AMR) emerging within a properly treated population. In Australia,

ciprofloxacin resistance was first observed in the 1990s, rose sharply to more than 50% of isolates by 2008, and has stabilised at 30–40% highlighting the ability of imported strains to become established. With recent sporadic cases of ceftriaxone-resistant gonorrhoea reported in Australia and elsewhere, we sought to model the potential for imported NG strains to persist in the men who have sex with men (MSM) population in Australia.

Methods An individual-based model was developed to represent the transmission of NG in an urban MSM population in Australia. We assume a new NG strain is imported repetitively over the course of one year into a population where NG is already endemic and examined the likelihood that an imported strain will persist for a range of importation frequencies. In doing so, we assumed that all NG strains are of similar fitness.

Results The chance that an imported strain will persist for more than 20 years is predicted to be 4% if the importation frequency is once every six months, and increases to 24% if the importation frequency is once every month. If an anatomical site can only be infected by one NG strain at a time, the model predicts that there is a <3% chance that an imported strain will persist even if the importation frequency is once every month.

Conclusion Increasing the importation frequency increases the probability of an imported strain persisting in the population. If importation events are rare, then an imported strain is unlikely to persist unless it can coexist with local NG strains at the same anatomical site.

Disclosure of interest statement This work was supported by National Health and Medical Research Council Project Grant (APP1025517) and Program Grant (APP1071269). The Kirby Institute is funded by the Australian Government Department of Health and Ageing and is affiliated with the Faculty of Medicine, UNSW Australia. The views expressed in this publication do not necessarily represent the position of the Australian Government.

P09.10 THE POTENTIAL IMPACT OF VACCINATION ON THE PREVALENCE OF GONORRHOEA

¹KL Seib*, ²AP Craig, ³RT Gray, ³JL Edwards, ⁴MA Apicella, ¹MP Jennings, ²DP Wilson. ¹Institute for Glycomics, Griffith University; ²The Kirby Institute, UNSW; ³Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital Ohio; ⁴Department of Microbiology, University of Iowa

10.1136/sextrans-2015-052270.394

Introduction Gonorrhoea, one of the most common sexually transmitted infections worldwide, can lead to serious sequelae, including infertility and increased HIV transmission. Recently, untreatable, multidrug-resistant *Neisseria gonorrhoeae* strains have been reported. In the absence of new antibiotics, and given the speed with which resistance has emerged to all previously used antibiotics, development of a vaccine would be the ideal solution to this public health emergency. Understanding the desired characteristics, target population, and expected impact of an anti-gonococcal vaccine is essential to facilitate vaccine design, assessment, and implementation. The modelling presented herein aims to fill these conceptual gaps and inform future gonococcal vaccine development.

Methods Using an individual-based, epidemiological simulation model, gonococcal prevalence was simulated in a heterosexual population of 100,000 individuals (with a ~1.7% prevalence rate) after the introduction of vaccines with varied efficacy (10–100%) and duration of protection (2.5–20 years).

Results Model simulations predicted that gonococcal prevalence could be reduced by; at least, 90% after 20 years, if all 13-year-

olds were given a vaccine with 50% efficacy that does not wane. A comparable reduction in prevalence could be achieved by a vaccine with 100% efficacy that wanes after 7.5 years. A 40% reduction in prevalence would be achieved with a non-waning vaccine of just 20% efficacy.

Conclusion A vaccine of moderate efficacy and duration could have a substantive impact on gonococcal prevalence and disease sequelae, if coverage is high and protection lasts over the highest risk period (i.e. most sexual partner change) among youths.

Disclosure of interest statement This work was funded by the Australian National Health and Medical Research Council, The Australian Government Department of Health, and the National Institutes of Health USA. No pharmaceutical grants were received in the development of this study.

P09.11 SHOULD WE SCREEN FOR MYCOPLASMA GENITALIUM? EVIDENCE SYNTHESIS USING A TRANSMISSION-DYNAMIC MODEL

^{1,2}R Birger, ^{3,4}J Saunders, ³C Estcourt, ⁵AJ Sutton, ⁶CH Mercer, ⁴T Roberts, ^{1,7,8}PJ White*. ¹MRC Centre for Outbreak Analysis & Modelling, Department of Infectious Disease Epidemiology, School of Public Health, Imperial College London, UK; ²Department of Ecology and Evolutionary Biology, Princeton University; ³Barts and the London School of Medicine & Dentistry, Queen Mary University of London, Barts Sexual Health Centre, UK; ⁴HIV & STI Department, Centre for Infectious Disease Surveillance and Control, Public Health England, London, UK; ⁵University of Birmingham Health Economics Unit, UK; ⁶Research Department of Infection and Population Health, University College London, UK; ⁷NIHR Health Protection Research Unit in Modelling Methodology, Department of Infectious Disease Epidemiology, School of Public Health, Imperial College, London, UK; ⁸Modelling & Economics Unit, Centre for Infectious Disease Surveillance and Control, Public Health England, London, UK

10.1136/sextrans-2015-052270.395

Introduction There is increasing concern about *Mycoplasma genitalium* as a cause of urethritis, cervicitis, PID, infertility and ectopic pregnancy. Currently there is no licensed test specific for *M. genitalium* in the UK, where urethral smear microscopy is recommended in GUM clinics, for symptomatic men only. NAATs testing has been advocated, particularly to detect asymptomatic infection. However, *M. genitalium*'s natural history is poorly-understood, making the impact and cost-effectiveness of screening unclear.

Methods We used a transmission-dynamic model to synthesise evidence from epidemiological and behavioural studies, and surveillance data for Non-Chlamydial, Non-Gonococcal Urethritis (NCNGU), to better-understand the natural history of *M. genitalium*. The model is stratified by sex, and incorporates heterogeneous sexual behaviour, symptomatic and asymptomatic infection; PID; care-seeking due to symptoms and routine screening; and treatment failure. We fitted to national surveillance data, (allowing for uncertainty in studies measuring the amount of NCNGU caused by *M. genitalium*). We examined the effects of implementing NAAT testing for both sexes in GUM and GP settings.

Results Introducing NAAT testing for all men (asymptomatic and symptomatic, in GPs and GUM) detects much more infection in men and treatment reduces transmission to women, whilst testing of women reduces prevalence in women and incidence in men. Introducing NAAT testing for both sexes reduces cumulative PID incidence over 20 years by 13.1%(IQR:9.6%–18.3%). However, there is important uncertainty in *M. genitalium*'s natural history parameters, leading to uncertainty in the absolute reduction in PID and other sequelae. Particularly