antigens using immunoblot and immunoprecipitation experiments.
Results Although vaccination with WT dOMVs significantly enhanced gonococcal clearance relative to adjuvant-only controls, vaccination with ΔABR dOMVs resulted in clearance of a higher percentage of mice relative to WT dOMV-vaccinated mice one week post-immunization. Higher levels of clearance in ΔABR dOMV-immunized mice correlated with significantly increased vaginal IgA titers and enhanced immunogenicity of unique meningococcal protein antigens.
Conclusion Immunization with meningococcal dOMVs deleted for PorA, PorB, and RmpM promotes gonococcal clearance in a murine model. Deletion of the major porins likely enhances immunogenicity of proteins that are less abundant on the meningococcal surface but exhibit a high degree of homology with corresponding gonococcal proteins, suggesting the potential utility of these dOMVs as a broadly cross-protective *Neisseria* vaccine.
Disclosure No significant relationships.

O02 – EXTRAGENITAL BACTERIAL STIS: EPIDEMIOLOGY, NATURAL HISTORY, TESTING AND ANTIMICROBIAL RESISTANCE

Monday, July 15, 2019
10:45 AM – 12:15 PM

O02.1 WHAT IS THE OPTIMAL TESTING STRATEGY FOR OROPHARYNGEAL *NEISSERIA GONORRHOEAE* IN WOMEN VISITING STI CLINICS?

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10.1136/sextrans-2019-sti.110

Background Oropharyngeal *Neisseria gonorrhoeae* (*N. gonorrhoeae*) is not routinely tested for in women visiting Dutch STI clinics. It is hypothesized that many oropharyngeal *N. gonorrhoeae* infections remain undetected due to its asymptomatic nature, creating a reservoir for ongoing transmission and drug resistance. It is yet unknown what the optimal testing policy is for women, as data on universal screening are missing.
Methods Surveillance data 2008–2017 from all Dutch STI clinics were used (n=546,246 consultations). Oropharyngeal testing policy was defined as (1) universal screening, that is >85% of consultations included oropharyngeal testing per clinic per year, (2) selective testing (<85% tested) or (3) incidental testing (0.1–5% tested). The proportion infections missed using selective testing was calculated by extrapolating *N. gonorrhoeae* positivity found by routine universal screening. Independent risk factors for oropharyngeal *N. gonorrhoeae* were assessed among women routinely universally screened between 2016–2017 using backward multivariable logistic regression analyses.
Results Routine universal screening was used in 11% (n=57,359) of consultations, selective testing in 81% (n=444,283) and incidental testing in 8% (n=44,108). Oropharyngeal *N. gonorrhoeae* positivity was comparable between universal and selective; 1.4%(95%CI 1.3–1.5,n=703), 1.4% (95%CI 1.3–1.3,n=1858,P=0.68), and higher in incidental 2.8%(95%CI 1.9–3.9,n=30, P<0.01). Selective testing missed 89% (n=5,517) of oropharyngeal infections (95%CI 88%-90%). The proportion oropharyngeal-only was 47% in routine universal screening and 52% in selective testing. Independent risk factors were being notified for any STI (OR1.3,95% CI1.03–1.5), concurrent urogenital *N. gonorrhoeae* (OR80.0,95%CI59.0–108.4) and commercial sex work (OR4.1,95%CI2.8–5.9). When using the risk factors except urogenital *N. gonorrhoeae* as testing indicators, 27.8% (n=5,418) of all women would be tested, finding 55.6% (n=119) of infections.
Conclusion Selective testing potentially misses almost 90% of oropharyngeal *N. gonorrhoeae* in women, of which almost half were oropharyngeal-only infections. Using two risk factors as testing indicators, half of all oropharyngeal *N. gonorrhoeae* infections would be detected by testing almost one-third of women. This seems like a valid and minimal testing strategy for women, as is advocated in the Dutch STI-guidelines.
Disclosure No significant relationships.

O02.2 OROPHARYNGEAL AND GENITAL GONORRHOEA AMONG HETEROSEXUALS WHO REPORT SEXUAL CONTACT WITH PARTNERS WITH GONORRHOEA

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10.1136/sextrans-2019-sti.111

Background Recent evidence has shown that the oropharynx may be the primary driver for gonorrhoea transmission among men who have sex with men, but there have been very limited studies on heterosexuals due to lack of routine screening of oropharyngeal gonorrhoea. The aim of this study was to examine oropharyngeal gonorrhoea positivity among heterosexuals reporting contact with sexual partners with gonorrhoea.
Methods At the Melbourne Sexual Health Centre, all heterosexual individuals reporting contact with sexual partners with gonorrhoea are tested for genital gonorrhoea. In May-2017, MSHC also included screening for oropharyngeal gonorrhoea in heterosexuals reporting sexual contact with partners with gonorrhoea. All contacts of gonorrhoea cases among heterosexuals between May-2017 and November-2018 were

reviewed. Site-specific gonorrhoea positivity was also calculated.

Results 191 heterosexual contacts (102 males and 89 females) were reviewed. The median age was 28 [IQR=24–33] years. The gonorrhoea positivity in male was significantly higher at the oropharynx compared to urethra (17.6% [95% CI: 10.8–26.4%] versus 2.0% [0.2–6.9%]; $p<0.001$); and higher at the oropharynx in female compared to cervicovaginal site (46.1% [35.4–57.0%] versus 36.0% [26.1–46.8%]; $p=0.056$). Of the 100 males who did not have genital gonorrhoea, 17 (17.0% [10.2–25.8%]) tested positive at the oropharynx. Of the 55 females who did not have genital gonorrhoea, 21 (23.6% [15.2–33.8%]) tested positive at the oropharynx. Infection at both the oropharynx and genital sites was not associated with sex worker status in females. Overall, 89.5% and 39.6% of gonorrhoea in males and females were detected only in the oropharynx, respectively.

Conclusion Multiple sites of gonococcal infection are more common in female contacts than in male contacts. Approximately 90% and 40% oropharyngeal infections would have been missed in males and females, respectively, by genital-only screening among heterosexuals reporting contact with sexual partners with gonorrhoea. Oropharyngeal gonorrhoea screening among heterosexual contacts of gonorrhoea is important to prevent ongoing transmission.

Disclosure No significant relationships.

O02.3 ANTIMICROBIAL RESISTANCE IN PHARYNGEAL *NEISSERIA GONORRHOEAE* INFECTION: A CROSS-SECTIONAL STUDY IN MEN WHO HAVE SEX WITH MEN

[1]Hester Allen*, [2]Katy Town, [2]Chinelo Obi, [2]Rachel Pitt, [2]Zdravko Ivanov, [2]Hamish Mohammed, [2]Gwenda Hughes, [2]Michelle Cole, [2]Helen Fifer. *[1]Public Health England, Hiv/sti Department, London, UK; [2]Public Health England, National Infection Service, London, UK*

10.1136/sextrans-2019-sti.112

Background Pharyngeal *Neisseria gonorrhoeae* (NG) infections are common among men who report sex with men (MSM). The pharynx is an important anatomic reservoir for the development of antimicrobial resistance due to the potential for exchange of genetic material between NG and other commensals of this niche, including other *Neisseria* species. We investigated whether there was an association between pharyngeal infection and reduced susceptibility (RS) or resistance to antimicrobials used to treat NG compared to genital and rectal infection.

Methods Logistic regression of odds ratios (OR) was used to model the association between the anatomical site of infection and RS or resistance to azithromycin, ceftriaxone, cefixime and ciprofloxacin using isolates from MSM in England and Wales collected within the Gonococcal Resistance to Antimicrobials Surveillance Programme (GRASP), 2012–2017.

Results Among 5,448 isolates from MSM, 729 (13.4%) were pharyngeal, 2,365 (43.4%) were rectal and 2,354 (43.2%) were genital samples. Pharyngeal infections were more likely to be associated with azithromycin resistance (minimum inhibitory concentration (MIC) >0.5 mg/L (adjusted OR (aOR) 1.62, 95%CI:1.13–2.31, P<0.001) and RS to ceftriaxone (MIC ≥0.015 mg/L) (aOR 1.25, 95%CI:1.03–1.52, P=0.023) compared to genital infections. Pharyngeal infections were also more likely to be associated with azithromycin resistance (aOR 1.49, 95%CI:1.06–2.11, P<0.001) and RS to ceftriaxone (aOR 1.21, 95%CI:1.00–1.47, P=0.045) compared to rectal infections. No significant association was found between site of infection and cefixime or ciprofloxacin resistance.

Conclusion Pharyngeal NG infection among MSM are more likely to be RS to ceftriaxone and resistant to azithromycin compared to rectal and genital infections. Poor pharyngeal tissue drug penetration may lead to persistent infections, which would provide more time for exchange of genetic material that confer AMR. This highlights the importance of extra-genital testing and antimicrobial susceptibility testing in this population, to reduce the risk of treatment failure and onward transmission of resistant strains.

Disclosure No significant relationships.

O02.4 INCIDENCE AND DURATION OF PHARYNGEAL AND RECTAL GONORRHEA AND CHLAMYDIA AMONG HIGH-RISK MEN WHO HAVE SEX WITH MEN (MSM)

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10.1136/sextrans-2019-sti.113

Background The duration of untreated extragenital gonococcal (GC) and chlamydial infection (CT) infection is not well defined.

Methods From March 2016 to December 2018, we enrolled 140 MSM in a 12-month cohort study. Men ≥18 years were eligible if they reported receptive anal intercourse and had ≥1 following risks in ≤12 months: 1) diagnosis of GC, CT or syphilis; 2) methamphetamine or poppers use; or 3) >2 sex partners in ≤2 months or >5 in ≤12 months. Enrolled men either tested negative for GC/CT at enrollment, or, tested positive, were treated and waited 2–3 weeks prior to data collection. Each week, men self-collected pharyngeal and rectal specimens and completed an electronic diary. Specimens were tested after study completion (Aptima, Hologic Inc). We defined incident infections as two consecutively positive tests and clearance as ≥2 consecutively negative tests. We used Kaplan Meier curves to estimate duration of infection censoring subjects for receipt of pathogen-specific antibiotic, positive swab in final week of study, or loss-to-follow-up.

Results Forty-eight men were observed for 1,687 weeks and contributed 3,579 tested specimens. Twenty-four (50%) MSM had ≥1 incident GC/CT infection; 13 (27%) had >1 infection. Overall extragenital GC/CT incidence was 129 (95%CI: 94–172) infections per 100 person-years. Pharyngeal GC, and rectal GC and CT incidence were 35 (95%CI: 20–61), 37 (95%CI: 22–64) and 59 (95%CI: 38–91) per 100 person-years, respectively. 46% (6/13) pharyngeal GC, 43% (6/14) rectal GC, 81% (17/21) rectal CT were censored. The estimated median duration of pharyngeal GC, rectal GC and rectal CT were 15 (95%CI 3 – undefined), 12 (95%CI 2 – undefined) and >20 (95% CI 12 – undefined) weeks.

Conclusion Among high-risk MSM, incident extragenital GC/CT occur frequently: >1 infection per person per year. Untreated, these infections persist for a median of 3 to 5 months.

Disclosure No significant relationships.