O11.4 CLINICIAN-TAKEN EXTRA-GENITAL SAMPLES FOR GONORRHOEA AND CHLAMYDIA IN WOMEN AND MSM COMPARED WITH SELF-TAKEN SAMPLES ANALYSED SEPARATELY AND SELF-TAKEN POOLED SAMPLES

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Introduction Extra-genital tests for gonorrhoea (NG) and chlamydia (CT) are important in MSM and increasingly in women as vulvovaginal swabs (VVS) alone can miss infections but rectum, pharynx and urogenital swabs treble the diagnostic cost. Self-sampling is frequently used despite no robust RCT assessing its efficacy. We compared clinician-taken extra-genital samples with self-taken samples analysed both separately and as pooled samples for diagnostic accuracy.

Methods Women and MSM attending a sexual health clinic were recruited. Clinician and two self-samples (analysed separately and pooled) from the pharynx and rectum (plus VVS or FCU in MSM) tested for NG and CT using Aptima Combo 2. Sampling order was randomised. Patient infected status was defined as at least two positive confirmed samples.

Results 1795 (1284 women, 509 MSM) recruited. Overall prevalence: NG 9.0%, VVS/FCU 4.2% (75), rectum 4.6% (83), pharynx 4.0% (72); 9.4% females and 66.7% MSM were VVS/FCU negative. CT 15.4%, VVS/FCU 12.1% (217), rectum 13.9% (249), pharynx 3.5% (63); 13.1% females and 71.8% MSM were VVS/FCU negative. Sensitiviities, specificities, PPVs and NPVs:NG Rectum Clinician: 93.98, 99.94, 98.73, 99.71 NG Rectum Self: 96.39, 99.77, 95.24, 99.82 NG Pharynx Clinician: 93.06, 99.94, 98.53, 99.71 NG Pharynx Self: 95.83, 99.94, 98.57, 99.83 NG Self Pooled: 98.25, 99.94, 99.12, 99.88CT Rectum Clinician: 95.95, 99.87, 99.16, 99.35CT Rectum Self: 97.17, 99.81, 98.77, 99.55 CT Pharynx Clinician: 92.06, 99.94, 98.31, 99.71CT Pharynx Self: 93.65, 99.83, 95.16, 99.77 CT Self Pooled: 96.01, 99.60, 97.79, 99.28. There was no difference between clinician and self-taken extra-genital samples or between self-taken analysed separately or pooled by McNemar test.

Conclusion This is the first RCT showing self-taken extra-genital samples are comparable to clinician-taken and can be analysed accurately as a pooled sample. High levels of infections are missed with just VVS/FCU. Trebling diagnostic costs would be unaffordable for many health systems but a pooled sample has the same cost as the current VVS/FCU.

O11.6 EXPRESS TESTING IN URBAN STD CLINICS HAS NO IMPACT ON GONORRHOEA TREATMENT COMPLETION RATES COMPARED TO CLINICAL EXAMINATION AND TESTING AMONG PATIENTS NOT RECEIVING PRESUMPTIVE TREATMENT

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Introduction The impact of testing asymptomatic patients for sexually transmitted infections without a clinical examination (CE), i.e., Express Testing (ET), on treatment completion has varied, in part due to differences in presumptive treatment practices. Our objective was to determine whether patients diagnosed with gonorrhoea (GC) through ET were as likely to return for treatment within 30 days compared to those who had a CE but were not presumptively treated for GC at the date of visit in two publically funded U.S. urban STD clinics.

Methods We analysed STD clinic records of patients diagnosed with GC and who did not receive presumptive GC treatment at the initial visit from January 2014-July 2016. Treatment completion was defined as receiving dual therapy regimen (ceftriaxone plus azithromycin or doxycycline) within 30 days of being tested for GC. We used logistic binomial regression to compare treatment completion rates by visit type (ET vs. CE).

Results Between January 2014-July 2016, 1893 persons were diagnosed with GC, 74% of whom were presumptively treated at the initial visit. Among the 395 men and 234 women not presumptively treated, 54% and 68% completed treatment within 30 days, respectively. Among women, CE vs. ET was not associated with treatment completion [Adjusted relative risk (aRR): 1.14, 95% CI:(0.95–1.37)], adjusting for year, clinic, age, and presumptive azithromycin treatment. Men diagnosed through CE vs. ET were 24% less likely to complete treatment [aRR:0.76, (0.65–0.91)], adjusting for the same factors. Men presumptively treated with azithromycin treatment alone were 46% less likely to complete treatment [aRR:0.54, (0.41–0.70)].

Conclusion Among patients who did not receive presumptive treatment at the initial visit, ET vs. CE had no effect on GC treatment completion among women and increased treatment completion among men. Men presumptively treated with azithromycin were significantly less likely to return for recommended GC treatment, suggesting that ET may reduce incorrect presumptive diagnoses leading to under-treatment of GC patients.

Oral Presentation Session 12 Antimicrobial Resistance

O12.1 ESTABLISHING A DEPARTMENT OF DEFENSE (DOD) GONOCOCCAL RESISTANCE SURVEILLANCE EFFORT, REFERENCE LABORATORY AND REPOSITORY FROM A POPULATION OF AT-RISK UNITED STATES DOD BENEFICIARIES

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Introduction Gonorrhoea (GC) has been identified as an urgent antimicrobial resistance treat, yet its prevalence is not well characterised in all risk groups. We were interested in establishing an ongoing surveillance effort to identify the prevalence of GC resistance and associated factors in at-risk U.S. DoD benefiaries.

Methods We identified DoD military treatment facilities (MTFs) where sexually tranmitted infections are diagnosed that had both high rates of GC and a local champion. Upon assessment, culture testing capacity was low and not standard of care. The study protocol required a sample for culture and a confidential, self-administered questionnaire. Standard

processes for GC collection, culture, sensitivity testing were implemented.

Results Six MTF clinics were included with geographic representation (Colorado, California (CA), North Carolina, Texas, Virginia, Washington) and project expanded to include a GC reference laboratory and respository. Study participants (n=253): 73% male, 31% white, 48% black, 18% married, 21% had STI diagnosis within the last year. At last sexual encounter, 70% was with a civilian partner, 29% met on the internet, and 66% did not use a condom. 90 plates had growth, 29 tested positive for GC. Sensitivity of GC culture testing from urine was 66%, 82.8% of isolates had resistant or decreased susceptibility profiles. Reduced susceptibility to Cefixime and Azithromycin was indentified in CA. Ceftriaxone MICs remain within susceptible ranges, but the have begun to rise. Slightly elevated MICs to Ceftriaxone have been identified at Navy sites. 3/5 (60%) of these isolates also have reduced susceptibility to Azithromycin. 10 new NG-Multi Antigen Sequence Typing types were identified.

Conclusion We successfully established a U.S. DoD GC resistance surveillance and repository. Urine culture testing for GC may be acceptable for identifying population level resistance. While U.S. dual therapy is currently effective, the slow rise in MICs highlights the need for novel therapeutics and continued surveillance.

O12.2 CO-INFECTION AND MACROLIDE ANTIMICROBIAL RESISTANCE (AMR) OF *MYCOPLASMA GENITALIUM* WITH *NEISSERIA GONORRHOEAE* AND *CHLAMYDIA TRACHOMATIS*, IN FEMALES, HETEROSEXUAL MALES, AND MEN-WHO-HAVE-SEX-WITH-MEN

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Introduction Population-based prevalence estimates of *Mycoplasma genitalium* (MG), *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) in men and women in England are: 1.2% and 1.3%; 1.1% and 1.5%; and <0.1%, respectively. In sexual health clinics (SHCs), NG and CT are routinely tested for, whereas MG is not. Undiagnosed MG co-infection threatens and complicates empirical therapy of CT and NG, where azithromycin use may aid further spread of macrolide antimicrobial resistance (AMR). We assessed co-infection and macrolide AMR prevalence in symptomatic patients accessing three London SHCs.

Methods Patients aged ≥16 years with symptoms of an STI provided samples: vulvovaginal swab (females), first void urine (men-who-have-sex-with-women (MSW) and men-who-have-sex-with-men (MSM)), pharyngeal and rectal swabs (MSM). Routine clinic CT/NG results were obtained and FTD Urethritis Plus kit used for MG detection. Resistance was determined using Sanger sequencing.

Results Prevalence of NG only infection in females, MSW and MSM was 0.3% (95%CI 0–1.8), 3.5% (1.6–7.3) and 31.0% (21.4–42.5), respectively. MG only prevalence was 5.3% (3.3–8.4), 14.9% (10.4–21.0) and 11.3% (5.8–20.7), respectively. CT only prevalence was 5.6% (3.5–8.7), 15.5% (10.9–20.6) and 5.6% (2.2–13.6), respectively. MG-NG co-infection was in MSW only (0.6%, 0.1–3.2), representing 2.4% (0.4–12.3) of NG infections. CT-MG co-infection was in females and MSW (1.6%, 0.7–3.8% and 2.3%, 0.9–5.8, respectively), together representing 13.0% (7.0–23.0) of CT infections. CT-NG co-infection was in all groups (females: 0.3%, 0–1.8; MSW: 2.3%, 0.9–5.8; MSM 7.0%, 3.1–15.5). MG-NG-CT infection was found in females (0.7%, 0.2–2.4), representing 16.7% (4.7–44.8) of NG-CT infections. 64.9% (37/57) of MG samples sequenced were macrolide resistant (67.0% (21/31) from MSW).

Conclusion With 13.0% and 2.4% of CT and NG infections respectively being co-infected with MG, and two-thirds MG infections displaying macrolide AMR, use of azithromycin for symptomatic CT/NG treatment in the absence of MG testing should be reconsidered.

O12.3 THE EMERGENCE AND SPREAD OF ANTIMICROBIAL RESISTANT *NEISSERIA GONORRHOEAE* IN HIV POSITIVE MEN WHO HAVE SEX WITH MEN

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Introduction In England, men who have sex with men (MSM) who are HIV-positive are disproportionately affected by STIs, in part probably due to HIV sero-adaptive behaviours. *Neisseria gonorrhoeae* (NG) is of particular concern because treatment is threatened by antimicrobial resistance (AMR). In England, AMR NG has typically spread rapidly within sexual networks of MSM. We investigated whether the emergence and/or spread of AMR NG was associated with HIV-positive status.

Methods The prevalence of NG decreased susceptibility (DS) to ceftriaxone (MIC (mg/L)≥0.015), cefixime (≥0.125), and azithromycin AMR (≥1) from 2004–2015 was plotted by HIV status to investigate the emergence of DS/AMR using data from England and Wales collected within the Gonococcal Resistance to Antimicrobials Surveillance Programme. Differences were assessed using the Kolmogorov-Smirnov (KS) test. Logistic regression was used to model the association between HIV status and susceptibility to these antimicrobials in separate models adjusting for year.

Results Among all 5,630 MSM with NG, 25% of samples had DS/AMR to ceftriaxone, 8% to cefixime and 3% to azithromycin. A third (2024/5630) of MSM were HIV-positive. The distribution of prevalence of NG DS/AMR to ceftriaxone, cefixime and azithromycin was similar in HIV-positive and HIV-negative MSM across 2004–2015 ($p>0.05$ for each antimicrobial). In the logistic regression models, HIV-positive MSM were as likely as HIV-negative MSM to be infected with NG DS to ceftriaxone (DS/AMR prevalence in HIV-positive MSM vs HIV-negative MSM, adjusted odds ratio [95% confidence interval]) 25% vs 25%, 1.0 [0.9–1.1], cefixime 7% vs 8%, 1.1 [0.9–1.4] or azithromycin: 3% vs 3%, 0.9 [0.6–1.2].