the early months of the pandemic to later months of 2020, more participants are resuming in-person sex, and willingness to have sex with new partners also rose.

P212 STANDARDISING PHARYNGEAL SAMPLING FOR CLINICIAN-TAKEN GONORRHOEA CULTURE SPECIMENS

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Introduction The pharynx is an important site with respect to transmission and development of antimicrobial resistance (AMR) to gonorrhoea particularly in men who have sex with men. Maintaining culture-based sensitivity testing is important as part of wider efforts to prevent transmission of high level AMR strains of gonorrhoea. The sensitivity of gonorrhoea culture at the pharynx is low and is dependent on several factors including sampling technique by clinicians. There is no consensus on the length of time taken to sample the pharynx for culture. We aimed to explore knowledge of pharyngeal sampling among sexual health clinicians to gain a consensus on optimal time for pharyngeal sampling for gonorrhoea culture specimens.

Method An online anonymous survey was sent to clinicians in our local sexual health network. We included pictorial diagrams of the pharynx and asked clinicians which sites in the pharynx they sample and to estimate how long for when taking gonorrhoea culture specimens.

Result 110 clinicians responded to the survey of whom 98 regularly take pharyngeal gonorrhoea cultures specimens: 54 (55%) had more than 10-years of experience in sexual health. 82(84%) sample the tonsils, 75(77%) sample the posterior pharyngeal wall and 94(96%) sample either the tonsils or the posterior pharyngeal wall. 30(31%) always attempt to elicit the gag reflex and 52(53%) do not. The average time taken sampling the pharynx was 4.63(SD±2.04) seconds. There was no significant difference in time taken to sample the pharynx according to years of experience (4.7(SD±2.02)v4.6(SD±2.3), p=0.45).

Conclusion Experienced sexual health clinicians are mostly appropriately sampling the tonsils and posterior pharyngeal wall for gonorrhoea culture specimens, and the median time taken to sample the pharynx was 4.63 seconds. Standardisation of pharyngeal sampling for the pharynx for gonorrhoea culture specimens could improve the sensitivity of culture and educational tools for clinic staff to support this are needed.

P213 IDENTIFICATION OF TRICHOMONAS VAGINALIS 5-NITROIMIDAZOLE RESISTANCE TARGETS TO INFORM FUTURE DRUG DEVELOPMENT

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Background *Trichomonas vaginalis* is the most common non-viral sexually transmitted infection. 5-nitroimidazoles (i.e.,

metronidazole [MTZ] and tinidazole) are the only FDA-approved medications. Resistance to 5-nitroimidazoles has been observed in 5–10% of cases, but may be rising. MTZ was first introduced in the early 1960s to treat *T. vaginalis* infections, and resistance to MTZ developed rapidly within a couple of years. This observation suggests that the potential for MTZ resistance is likely encoded in the genome of *T. vaginalis*. We aimed to analyze gene-expression patterns of MTZ-resistant and MTZ-sensitive *T. vaginalis* isolates to gain insight into resistance mechanisms.

Methods *T. vaginalis* isolates (4 MTZ-resistant [minimal lethal concentration; MLC > 50µg/ml] and 4 MTZ-sensitive [MLC < 25µg/ml]) were grown in triplicate in Diamond's TYM medium. MTZ susceptibility testing confirmed MTZ MLCs of *T. vaginalis* isolates. RNA sequencing (RNAseq) and bioinformatics analyses were used to identify differentially expressed genes (DEGs) in MTZ-resistant vs. sensitive isolates. Subsequent qPCR was used to confirm and extend RNAseq data and gene targets related to 5-nitroimidazole resistance.

Results RNAseq identified DEGs in MTZ-resistant vs. sensitive isolates. DEGs from MTZ-resistant isolates included those involved in metabolic pathways relevant to 5-nitroimidazole resistance such as energy production, drug activation, and oxygen-scavenging. Other DEGs included those encoding transcription factors, ribosomal proteins, and other metabolic enzymes. RT-qPCR experiments confirmed reduced expression of genes encoding ferredoxin (Fdx) and flavin reductase 1 (FR1) in MTZ-resistant *T. vaginalis* isolates as compared to MTZ-sensitive isolates.

Conclusion In this study, we identified several DEGs in *T. vaginalis* isolates resistant to MTZ. Further studies with large number of isolates representing a broad range of MTZ-susceptibility patterns are needed to identify genes that may represent new targets for future drug development.

P215 EFFECTIVENESS OF COMMUNITY-BASED HEALTH PROMOTION CAMPAIGN METHODS ON CHLAMYDIA SCREENING UPTAKE IN YOUNG PEOPLE: A MIXED-METHODS SYSTEMATIC REVIEW

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Background The UK National Chlamydia Screening Programme uses an opportunistic approach. Many programmes use campaigns to raise awareness of chlamydia screening in young people. This review aimed to assess the effectiveness of campaigns on uptake of chlamydia screening in young people.

Methods We conducted a mixed-methods systematic review of articles assessing the outcomes of community-based health-promotion campaigns to increase chlamydia screening in young people, their experiences of the campaigns and other facilitators and barriers to the conduct of the campaigns. We searched 4 databases for quantitative and qualitative studies with no language restrictions.

Main Results From screening 10,329 records, 100 full text articles assessed in detail leading to 20 studies included in the review; 14 quantitative, 2 qualitative and 3 mixed-methods. All studies with quantitative outcomes were before-after study designs or interrupted time series. Relative change

(RC) in test counts increased (RC 1.22; 95% CI 1.14 to 1.30) after campaigns, but no significant increase was seen for number of positive tests (RC 1.10; 95% CI 0.93 to 1.30) nor for test positivity rate (RC 0.93; 95% CI 0.81 to 1.07). Heterogeneity between studies was very high for all analyses. It was not possible to explore outcomes by type of campaign components. Seven major qualitative themes were identified: targeting of campaigns; quality of materials and message; language; anonymity; use of technology; relevance; and variety of testing options.

Conclusions Health promotion campaigns aiming to increase chlamydia testing in those aged 15–24 may show some effectiveness in increasing overall numbers of tests, however numbers of positive tests do not follow the same trend.

P216 UMBRELLA COMBINED SEXUAL HEALTH SERVICES, CHLAMYDIA SCREENING AND DEPRIVATION: ARE WE ACHIEVING CONTINUED SCREENING OF HIGH-RISK POPULATIONS?

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Introduction Combined sexual health services have been provided in Birmingham and Solihull by ‘Umbrella’ since 2015. The local population is younger and more deprived than the average English sexual health service population. We investigated if the 2015 Umbrella redesign, and subsequent health promotion campaigns, affected uptake of chlamydia screening in those aged 15–24 in the most deprived groups compared to the total population.

Methods Weekly aggregated data for gender, socioeconomic status (IMD-5) and chlamydia test status with test result were obtained from Public Health England’s STI and HIV Surveillance Team for the period 2012 – 2018. Overall percent positivity and yearly moving averages for tests, positive tests and percent positivity, by gender, were calculated by the study team for total population, and the most deprived. Number of positive tests and percent positivity were graphically represented and mapped against dates of service redesign and subsequent campaigns. Data analysis was completed using Microsoft Excel.

Results Positive tests in all females decreased gradually between late 2014 and early 2016 before recovering partially in 2017: this effect was not replicated for all other groups, and neither Umbrella redesign nor health promotion campaigns showed any effect on absolute numbers. In females, percent positivity increased steadily during the study period, from 10% to 12% per week in the most deprived females and 8% to 10% per week in all females. Percent positivity showed a clear link with service redesign in males: in the year following redesign, rates in all males rose from 8% to 15% per week, and from 10% to 18% per week in the most deprived males.

Conclusion Umbrella redesign had a significant effect on detection of chlamydia cases in males; this effect is less obvious in females, and appears not to relate to the promotional campaigns. Deprived populations appear well served by Umbrella.

P217 THE IMPACT OF UREAPLASMA INFECTIONS ON PREGNANCY COMPLICATIONS

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The aim of this study was to assess if ureaplasmas are associated with pregnancy complications and diseases in newborns. Pregnant women with complaints and threatening signs of preterm delivery were included. A sample, taken from the endocervical canal and from the surface of the cervical portion, was sent to the local microbiology laboratory for DNA detection of seven pathogens: *Chlamydia trachomatis*, *Mycoplasma hominis*, *Mycoplasma genitalium*, *Ureaplasma parvum*, *Ureaplasma urealyticum*, *Neisseria gonorrhoeae*, and *Trichomonas vaginalis*. The Pearson Chi-Square test was used to determine the difference in unpaired categorical data. A two-sided *p* value <0.05 was considered to be statistically significant. In all, 50 pregnant women with complaints and threatening signs of preterm delivery were included. Premature rupture of uterine membranes was found in 23 (46%) of the patients and 38 women (76%) had preterm delivery. *Ureaplasma* infections were associated with a premature rupture of membranes (*p* < 0.004), the placental inflammation (*p* < 0.025), a newborn respiratory distress syndrome (*p* < 0.019). *Ureaplasmas* could have affected the preterm leakage of fetal amniotic fluid and are associated with the placental inflammation and a newborn respiratory distress syndrome.

P218 MYCOPLASMA GENITALIUM: THE MOST PREVALENT STI IN SASKATCHEWAN, CANADA, HAS A HIGH PREVALENCE OF RESISTANCE TO MACROLIDES AND FLUOROQUINOLONES

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Objectives *Mycoplasma genitalium*, a sexually transmitted infection (STI), is one of the most common causes of non-gonococcal urethritis worldwide. An increase in resistance to antibiotics (i.e., azithromycin and moxifloxacin), recommended for treating *M. genitalium* infections has been observed. We describe the prevalence of *M. genitalium* and its antimicrobial resistance (AMR) in Saskatchewan (SK), Canada.

Methods *M. genitalium* was identified using the Aptima *Mycoplasma genitalium* Assay (MG-TMA) on 1977 specimens collected (January and March/April 2019) for the diagnosis of *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. Mutations implicated in AMR were ascertained using PCR and DNA sequencing of 23S rRNA (azithromycin) and *parC* (moxifloxacin) from MG-TMA positive specimens.

Results The prevalence of *M. genitalium* in SK was 9.6% (189/1977) and was higher than the prevalence of *N. gonorrhoeae* (3.09%) and *C. trachomatis* (6.85%) during the same time. Mutations mediating macrolide resistance (positions 2058/2059 in 23S rRNA) were observed in 63.6% (70/110)