Background The prevalence of pharyngeal CT is low but its incidence and duration are unknown. A high incidence and/or duration may support the role of pharyngeal CT in sustaining CT transmission among MSM.

Methods From March 2016 to December 2018 we enrolled MSM in a 48-week natural history cohort study in Seattle, Washington. Participants self-collected pharyngeal specimens weekly. We tested specimens using nucleic acid amplification testing (Aptima Combo-2) at the conclusion of the study. In primary analyses, we defined incident pharyngeal CT as ≥ 2 consecutive weeks with a CT-positive pharyngeal specimen. In sensitivity analyses, we defined incident pharyngeal CT as ≥ 1 week of a CT-positive specimen. We used Kaplan Meier methods to estimate the duration of pharyngeal CT, censoring at loss to follow-up, receipt of antibiotics, or end of study. We tested for differences in duration with the log-rank test.

Results 140 participants contributed 70.5 person-years (PY) of follow-up. The mean age was 37, 51% were living with HIV, and 34% had CT in the past year. Two (1.4%) MSM had pharyngeal CT at enrollment and 16 (11.4%) tested positive for pharyngeal CT during ≥ 1 week of follow-up. In primary analyses, there were 8 pharyngeal CT cases among 6 MSM (incidence=11.4 per 100 PY; 95% CI=6.0–21.9). In sensitivity analysis, there were 19 cases among 16 MSM (incidence=27.1 per 100 PY; 95% CI=18.5–39.8). Median duration of pharyngeal CT was 6.0 weeks in primary analyses and 2.0 weeks in sensitivity analysis. In primary analysis, median duration was significantly shorter for those with a history of CT (3.6 weeks) vs. no history of CT (8.7 weeks), and significantly shorter for those living with HIV.

Conclusion Incident pharyngeal CT was relatively common but the duration of infection was short, supporting the theory that pharyngeal CT likely contributes little to sustained population-transmission of CT.

010.5 REPEATED, LOW DOSE CHLAMYDIA INFECTIONS TRIGGER ABERRANT IMMUNE RESPONSES AND ENHANCED TISSUE PATHOLOGY

M Surette*, M Tillman, A Mayavannan, J Wang. *Dalhousie University, Halifax, Canada*

10.1136/sextrans-2021-sti.108

Introduction Chlamydia trachomatis (Ct) infections severely impact women's health due to pelvic inflammatory disease (PID), and, for unclear reasons, repeated infections are correlated with severity. Contributions from animal studies, using a single inoculation, have imparted valuable findings, but utilizing a repeated infection model could expand the understanding of Ct driven tissue damage. We hypothesize that, compared to single infections, repeated Chlamydia infection dysregulates the immune response, and results in more severe pathology.

Methods We inoculated mice with *C. muridarum* (Cm) using the conventional, single dose (1 dose of 6×10^5 IFU; 1X), or repeated, low dose infections with the same cumulative number of bacteria (5 doses of 1.2×10^5 IFU; 5X), and assessed the cellular, molecular, and pathology indicators of

their immune response on days 10, 23, and 30 post-initial infection.

Results Following 5X infection, pathology severity, indicated by oviduct cyst diameter, was significantly increased compared to the 1X group. This increase was associated with significantly elevated neutrophilic influx and pro-inflammatory cytokine concentrations in the genital tracts of 5X, but not 1X, infected animals, denoting differential host responses. IgG1 levels were markedly higher in the 5X group, while IgG2a levels were significantly higher in the 1X group, suggesting a skewed Th2 response in the 5X group, indicating a potential mechanism of pathology development following repeated infections. Variances in bacterial burden did not account for these differences, as both groups had similar levels of bacterial shedding.

Conclusions Repeated Cm exposure induces a distinct molecular response, triggering maladaptive neutrophil recruitment, leading to a pathogenic modulation of T helper responses that promote tissue damage. These findings demonstrate the potential of repeated infection models to provide insight into the immune and pathology states in humans, and may be of value in elucidating, and targeting interventions to, host mediators of tissue damage during Ct infection.

010.6 THE ROLE OF SALIVA AS A LUBRICANT FOR MASTURBATION FOR TRANSMITTING CHLAMYDIA TRACHOMATIS IN MEN WHO HAVE SEX WITH MEN

^{1,2,3}Xu*, ^{2,3,4}E Chow, ^{1,2,3}C Fairley, ^{1,2,3,5}L Zhang. ¹China Australia Joint Research Center for Infectious Diseases, School of Public Health, Xi'an Jiaotong University Health Science Centre, Xi'an, People's Republic of China; ²Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia; ³Central Clinical School, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia; ⁴Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia; ⁵Department of Epidemiology and Biostatistics, College of Public Health, Zhengzhou University, Zhengzhou, People's Republic of China

10.1136/sextrans-2021-sti.109

Background Masturbation is a common sexual practice and saliva is often used as a lubricant. To date, research into the role of oropharynx and saliva in the transmission of Chlamydia trachomatis is limited. We developed three deterministic, population-level, susceptible-infected-susceptible compartmental models to explore the role saliva as a lubricant for both solo and partnered masturbation plays in the transmission of Chlamydia trachomatis at multiple anatomical sites among men who have sex with men (MSM).

Methods Our first model did not include masturbation but included the basic transmission routes (anal sex, oral-penile sex, rimming, kissing and sequential sexual practices) we have previously validated in a published transmission model (Model 1). In model 2, we considered masturbation as a transmission route in addition to Model 1. We used data from five different local and international studies to calibrate the model. We evaluated the model 1 and 2 using the Root Mean Squared Error (RMSE) and then evaluated the magnitude of the effect using Cohen's d statistic.

Results Model 2 had significantly higher RMSE values than model 1 (p-value <0.01) for all five datasets, and in four datasets the effect size was large (Cohen's d > 0.8). Using the five data sets, model 2 generated an incidence of chlamydia

caused by masturbation from 3.9% (95%CI 2.0 to 6.8) to 7.8% (95%CI 4.3 to 15.6) which was primarily due to solo masturbation (estimates of 3.5% (95%CI 1.7 to 6.1) to 7.1% (95%CI 4.0 to 13.1)) with little contribution from partnered masturbation (estimates of 0.3% (95%CI 0.0 to 1.5) to 0.7% (95%CI 0.1 to 4.0)).

Conclusions Our model suggests that saliva use as a lubricant for solo/partnered masturbation plays a negligible role in chlamydia transmission in MSM.

STI treatment

011.1 TOLERABILITY OF TOPICAL IMIQUIMOD AGAINST HIGH-RISK HUMAN PAPILLOMAVIRUS INFECTION IN MEN-WHO-HAVE-SEX-WITH-MEN LIVING WITH HIV

^{1,2}D Durukan*, ^{1,2}T Phillips, ^{3,4}G Murray, ^{1,2}J Ong, ⁵A Grulich, ⁵M Poynten, ⁵F Jin, ^{1,2}C Bradshaw, ²I Aguirre, ²J Silvers, ²H Kent, ^{3,4}S Atchison, ⁴P Balgovind, ^{3,4,6}A Cornell, ^{1,2}M Chen, ^{1,2,7}E Chow, ^{1,2}C Fairley. ¹Central Clinical School, Monash University, Melbourne, Australia; ²Melbourne Sexual Health Centre, Alfred Health, Carlton, Australia; ³Murdoch Children's Research Institute, Parkville, Australia; ⁴Centre for Women's Infectious Diseases, The Royal Women's Hospital, Parkville; ⁵The Kirby Institute, UNSW, Sydney, Australia; ⁶Department of Obstetrics and Gynaecology, University of Melbourne, Parkville, Australia; ⁷Melbourne School of Population and Global Health, The University of Melbourne, Parkville, Australia

10.1136/sextrans-2021-sti.110

Background Men-who-have-sex-with-men (MSM) living with HIV have a high prevalence of high-risk human papillomavirus (hrHPV) in the anus, and a high incidence of anal cancer. We conducted an open-label, single-arm pilot study to assess the utility of imiquimod cream against hrHPV among MSM living with HIV.[ACTRN12617001355369]

Methods The study was conducted at Melbourne Sexual Health Centre between April 2018 and June 2020. MSM aged ≥18 years, living with HIV, who tested positive for any anal hrHPV on clinician-collected swabs were eligible. We instructed men to apply 5% imiquimod cream (6.25 mg) intra-anally and peri-anally 3 doses per-week for 16-weeks (Phase 1), followed by a maintenance period of 1 dose per-week for 48-weeks (Phase 2). We collected adverse events (AE) using text messages and questionnaires.

Results Thirty MSM were enrolled to phase 1 and 27 completed the week 16 follow-up (median age 50). Twenty-four MSM (86%) applied at least 50% of imiquimod doses. All men reported AE, with 39.5% reporting grade 1, 39.5% grade 2, and 21% grade 3 AEs. Eighteen MSM (67%) required treatment interruption. The reasons for interruption were haemorrhoids (n=3), herpes genitalis reactivation (n=2), and grade 2–3 AEs (n=11) such as irritation, itching and tenderness. 60% of MSM with grade 2 (n=6) and 33% with grade 3 AEs (n=2) opted to continue to phase 2. Eighteen MSM were enrolled to phase 2 and 13 completed the week 48 follow-up. All MSM took at least 50% of doses. No treatment-limiting AEs were reported. 10 MSM in phase 1 (37%) and none in phase 2 reported their sex life was negatively impacted from imiquimod use.

Conclusion Intra-anal and peri-anal imiquimod at 3 doses per-week was poorly tolerated over 16 weeks and most men required treatment interruption due to AEs. In contrast, once-a-week application was well tolerated with no treatment-limiting AEs reported over 48-weeks.

011.2 TREATMENT EFFICACY OF 1G AZITHROMYCIN VERSUS 100MG DOXYCYCLINE BI-DAILY FOR SEVEN DAYS FOR ASYMPTOMATIC RECTAL CHLAMYDIA TRACHOMATIS

¹A Lau*, ¹F Kong, ^{2,3}C Fairley, ⁴D Templeton, ⁵J Amin, ¹S Phillips, ⁶M Law, ^{2,3}M Chen, ^{2,3}C Bradshaw, ⁶B Donovan, ⁷A McNulty, ⁸M Boyd, ⁹P Timms, ^{1,2,3}E Chow, ⁶D Regan, ¹⁰C Khaw, ¹¹D Lewis, ⁶J Kaldor, ¹⁰M Ratnayake, ¹N Carvalho, ¹J Hocking. ¹Melbourne School of Population and Global Health, The University of Melbourne, Carlton, Australia; ²Melbourne Sexual Health Centre, Alfred Health, Carlton, Australia; ³Central Clinical School, Monash University, Carlton, Australia; ⁴RPA Sexual Health, Camperdown, Australia; ⁵Macquarie University, Macquarie Park, Australia; ⁶The Kirby Institute, Kensington, Australia; ⁷Sydney Sexual Health Centre, Sydney, Australia; ⁸Adelaide Medical School, University of Adelaide, Adelaide, Australia; ⁹Genecology Research Centre, University of the Sunshine Coast, Sippy Downs, Australia; ¹⁰Adelaide Sexual Health Centre, Adelaide, Australia; ¹¹Western Sydney Sexual Health Centre, Parramatta, Australia

10.1136/sextrans-2021-sti.111

Background Rectal chlamydia is the most commonly diagnosed bacterial sexually transmissible infection among men who have sex with men (MSM) and there is increasing concern about rectal chlamydia in women.

The absence of randomised controlled trial (RCT) evidence means there is ongoing debate about the most efficacious treatment.

Methods We conducted a double-blind double-dummy RCT to compare the efficacy of azithromycin 1g singledose with 7-days doxycycline 100mg twice daily for the treatment of asymptomatic rectal chlamydia.

MSM diagnosed with asymptomatic rectal chlamydia infection at five sexual health clinics in Australia were randomly assigned to receive either doxycycline or azithromycin. Primary outcome was rectal chlamydia microbiological cure defined as a negative nucleic acid amplification test at four weeks. Logistic regression was used to calculate the difference in microbial cure within a modified intention to treat population that excluded L2 serovar diagnoses post-recruitment.

Results We enrolled 625 men and randomly assigned 314 to doxycycline and 311 to azithromycin between August 2016 and August 2019. Primary outcome data were available for 290 (92%) assigned to doxycycline and 297 (96%) assigned to azithromycin. In the modified intention to treat population, the observed microbiological cure was 281/290 (96.9%; 95% CI: 94.9, 98.9) for doxycycline and 227/297 (76.4%; 95% CI: 73.8, 79.1) for azithromycin, with an adjusted risk difference of 19.9% (95% CI: 14.6, 25.3; p<0.001) in favour of doxycycline. Adverse events including nausea, diarrhoea and vomiting were reported by 33.8% (98/290) receiving doxycycline and 45.1% (134/297) azithromycin (risk difference=-11.3%; 95% CI: -19.5, -3.2). Chlamydial load at baseline was greater for those in the azithromycin arm who failed treatment compared to those who did not.

Conclusions The efficacy of doxycycline was found to be substantially superior to azithromycin in the treatment of asymptomatic rectal chlamydia infection among MSM. Doxycycline must replace azithromycin as firstline treatment for symptomatic rectal chlamydia.

011.3 CLINICAL IMPROVEMENT AFTER TREATMENT FOR URETHRITIS: THE ROLE OF MYCOPLASMA GENITALIUM

¹J Broom*, ^{1,2}A van Dam, ^{1,2}S Bruisten, ¹M van Rooijen, ^{1,2}H de Vries, ^{1,2}M Schim van der Loeff, ^{1,3}C Vergunst. ¹Public Health Service of Amsterdam, Amsterdam, The Netherlands; ²Amsterdam University Medical Center (UMC), Amsterdam, The Netherlands; ³NWZ, Den Helder, The Netherlands

10.1136/sextrans-2021-sti.112