0·91 [95%CI:0·32–2·60] (B), 26·0 [95%CI:7·16–94·34] (C), 44·3 [95%CI:14·4–136·2] (D).

Of incident CT, 55% urogenital and 70% anorectal infections persisted (>two weeks).

Conclusion Between 6–12 weeks after initial treatment, the risk for incident urogenital CT in women increased when women had a recent anorectal CT, especially when also sex was reported. Likewise, the risk for incident anorectal CT increased with urogenital CT and sex exposure. Findings may suggest a key role for auto-inoculation in the re-establishment or persistence of urogenital and anorectal chlamydia infections in treated women, especially in case of suboptimal initial treatment or lack of anorectal testing.

O10.2 THE NETHERLANDS CHLAMYDIA COHORT STUDY: ADVERSE PREGNANCY OUTCOMES IN WOMEN WITH AND WITHOUT A PREVIOUS CHLAMYDIA INFECTION

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Background Chlamydia trachomatis infections can cause reproductive tract problems, but it remains unclear to what extent past infections are associated with reproductive outcomes such as miscarriages, preterm birth and stillbirth. We assessed these outcomes in women with and without a previous chlamydia infection in women participating in the Netherlands Chlamydia Cohort Study (NECCST).

Methods NECCST is a cohort of 5,704 women of reproductive age all tested for chlamydia by PCR in a chlamydia screening study between 2008–11. Women were re-invited for NECCST in 2015–16. Chlamydia-status (positive/negative) was defined using results from the screening, CT IgG presence in serum and/or self-reported past chlamydia infections. Data on miscarriages (spontaneous abortion <16 weeks), preterm birth (life birth <37 weeks of pregnancy) and stillbirth (fetal death >15 weeks of pregnancy), was collected via questionnaires in 2019–20. Pregnancy outcomes were compared between chlamydia positive and chlamydia negative women using multivariable logistic regression analyses.

Results Of 3,517 (61.7%) women enrolled in the third NECCST round, 1,011 (28.8%) were chlamydia positive and 2,052 (58.3%) had been pregnant at least once. In preliminary results of those 2,052 women, 585 (28.5%) had a miscarriage once, 153 (7.5%) had a preterm birth and 18 (0.9%) a stillbirth. Miscarriages and stillbirths were similar among chlamydia positive and negative women, 30.7% versus 28.3% p=0.280 and 1.1% versus 0.8% p=0.590. Preterm births were more common among chlamydia positive women compared to chlamydia negatives, 9.7% versus 6.6%, p=0.017. However, in multivariable analysis corrected for age, education level, migration background, body mass index and smoking, the odds of a preterm birth were not significantly higher for chlamydia positive versus chlamydia negative women, OR 1.37 (95%CI 0.95–1.96).

Conclusion In the NECCST study we found no indication that past Chlamydia trachomatis infections are associated with an increased risk for miscarriages, preterm births or stillbirths.

O10.3 COMMUNITY CONTEXT AND INDIVIDUAL BEHAVIOR PATHWAYS TO CHLAMYDIA INFECTION AMONG YOUNG BLACK MEN

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Background Social-ecological models posit complex interactions between individuals and their environment. We examine associations between social and environmental factors, risk behaviors, and chlamydia positivity.

Methods Black men aged 15–24 who have sex with women were enrolled in a community-venue based screening program for Chlamydia trachomatis in New Orleans, LA. Men completed surveys on past experiences, recent behaviors, and perception of neighborhood safety and everyday discrimination.

Results Of 1872 men, 203 (10.8%) were chlamydia positive. Average age was 20.0 years (S.D. 2.5), 24.5% reported multiple recent sex partners, 32.1% substance use (binge drinking or drugs other than marijuana), 55.9% condomless vaginal sex, and 19.2% had spent time in a detention facility. There were positive direct and indirect effects between having spent time in a detention facility and chlamydia positivity. This relationship was positively mediated by increasing substance use, and condomless sex. Having spent time in a detention facility also increased everyday discrimination and perception of unsafe neighborhood. While there was no significant direct effect of higher everyday discrimination on chlamydia, there was a positive indirect effect mediated through increased substance use, condomless sex, and having multiple recent partners. Neighborhood safety had a significant negative direct effect on chlamydia, and while it did not significantly affect any risk behaviors, it was positively associated with increased everyday discrimination. The path model fit was good (SRMR<0.001; RMSEA<0.0001).

Conclusion The relationships between past experiences and perception of discrimination and safety with chlamydia are complex and partly function through effects on risk behaviors. Interventions and policies that address incarceration, discrimination, and neighborhood safety as well as those focused on decreasing risk behaviors could maximize the benefits of efforts to decrease chlamydia in this population.

O10.4 INCIDENCE AND DURATION OF PHARYNGEAL CHLAMYDIA TRACHOMATIS (CT) AMONG A COHORT OF MEN WHO HAVE SEX WITH MEN (MSM)

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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

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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 cyto/chemokine 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

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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