Background In a recent PID treatment trial, MG was recovered significantly less from women treated with a regimen that included metronidazole. Our objective was to determine if cervical MG at randomization and following treatment correlated with vaginal dysbiosis.

Methods This is a secondary analysis of the ACE Trial, a randomized trial comparing single dose ceftriaxone and two weeks of doxycycline, with either metronidazole 500 mg PO BID or placebo for 2 weeks. At enrollment and at 30 days following treatment, vaginal samples were evaluated for BV by Nugent criteria, and quantitative PCR was performed for anaerobic organisms. Endocervical swabs were tested for MG by NAAT.

Results At randomization, MG infection was detected in 41/233 (18%) women, but detection at follow-up differed for those who received metronidazole [4/94 (4%)] vs placebo [14/99 (14%), $p < 0.05$]. Women having MG at baseline had higher concentrations of four microbes (*Gardnerella vaginalis*, *Atopobium vaginae*, *Megasphaera lornae*, *Prevotella timonensis*) compared to women without cervical MG ($P < 0.05$ for each), and each of these microorganisms was associated with cervical MG after treatment ($P < 0.05$ for each). Although BV by Nugent criteria was not significantly associated with MG at randomization, women without BV following PID treatment were less likely to have MG infection than women with BV (4% vs 18%, $p < 0.01$).

Conclusion MG infection following PID is uncommon among women treated with metronidazole along with ceftriaxone and doxycycline, despite limited activity of this regimen against MG. MG infection was associated with vaginal dysbiosis, as defined by higher densities of BV-associated bacteria. These results suggest that a PID regimen with oral metronidazole and eradication of BV pathogens might be key to eliminating MG in women. Whether women diagnosed with PID should be tested for MG and treated with targeted therapy if positive remains uncertain.

003.6 VAGINAL WASHING BEHAVIOR AND FECUNDABILITY IN KENYAN WOMEN PLANNING PREGNANCIES

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Background Vaginal washing is associated with acquisition of HIV, sexually transmitted infections, and bacterial vaginosis (BV). One study of US women found that vaginal washing was associated with a 30% reduction in fecundability, the perimenstrual cycle probability of pregnancy. We examined the association between vaginal washing and fecundability among Kenyan women.

Methods HIV-negative Kenyan women who were trying to conceive and reported no history of infertility care-seeking were followed prospectively for incident pregnancy for up to six months. At monthly visits, participants reported the first day of last menstrual period, sexual behavior, vaginal washing

behavior, underwent pregnancy testing, and provided vaginal swabs for detection of BV by Gram stain (Nugent score ≥ 7). Discrete time proportional probabilities models were used to estimate fecundability ratios (FR) and 95% confidence intervals (CI) comparing menstrual cycles when women reported vaginal washing to menstrual cycles when no vaginal washing was reported.

Results 458 women contributed 1,376 menstrual cycles and 255 pregnancies. At enrollment, 7.5% ($n=34/454$) women had Chlamydia trachomatis detected, 0.7% ($n=3/454$) had Neisseria gonorrhoeae, 0.9% ($n=4/453$) had Trichomonas vaginalis, 35.8% ($n=164/458$) had BV, and 10% ($n=46/458$) reported abnormal vaginal discharge. A third (35.4%, $n=162/458$) of participants reported vaginal washing at enrollment with the majority using water only (72.8%, 118/162). After adjustment for age, frequency of condomless sex, and study site, vaginal washing in the prior four weeks was associated with a significant 29% lower fecundability (adjusted FR (aFR) 0.71, 95%CI 0.53–0.94), which did not change after further adjustment for BV at the visit prior to each pregnancy test (aFR 0.71, 95% CI 0.54–0.97).

Conclusions Periconceptual vaginal washing may reduce fecundability. Potential mechanisms include vaginal washing-associated changes in the vaginal microbiota, inflammation, disruption of cervical mucus, and effects on sperm function. Vaginal washing has no known health benefits, and cessation may improve women's likelihood of conceiving.

COVID – epidemiology & health services impacts

004.1 THE IMPACT OF THE CORONAVIRUS DISEASE (COVID-19) ON THE HEALTH AND SOCIAL NEEDS OF SEX WORKERS IN SINGAPORE

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Background We evaluated the impact of the Coronavirus Disease (COVID-19) on the sex work industry, and assessed how it has impacted the health and social conditions of sex workers in Singapore.

Methods We conducted a sequential exploratory mixed methods study amidst the COVID-19 pandemic from April to October 2020, including in-depth interviews with 24 stakeholders from the sex work industry and surveyor-administered structured surveys in the field with 171 sex workers. The in-depth interviews allowed the team to qualitatively explore and generate themes around how COVID-19 had impacted sex workers in Singapore, and informed the design of the quantitative surveyor-administered survey questionnaire. Qualitative data were analyzed through framework analysis while survey data were analyzed through descriptive statistics, and multi-variable Poisson regression models.

Results COVID-19 had a substantial impact on sex workers' income, while the illegality of sex work, stigma, and the lack

of work documentation were cited as exclusionary factors for access to alternative jobs or government relief. Sex workers had experienced an increase in food insecurity (57.3%), housing insecurity (32.8%), and sexual violence and compromise (8.2%), as well as a decrease in access to medical services (16.4%). Being transgender female was positively associated with increased food insecurity (aPR=1.23, 95%CI [1.08, 1.41]), housing insecurity (aPR=1.28, 95%CI [1.03, 1.60]) and decreased access to medical services (aPR=1.74, 95%CI [1.23, 2.46]), being a venue-based sex worker was positively associated with increased food insecurity (aPR=1.46, 95%CI [1.00, 2.13]), and being a non-Singaporean citizen or permanent resident was positively associated with increased housing insecurity (aPR=2.59, 95%CI [1.73, 3.85]).

Conclusions Our findings suggest that COVID-19 has led to a loss of income for sex workers, leading to a worsening of social and health conditions for sex workers. A lack of access to government relief among sex workers exacerbated such conditions.

004.2 THE IMPACT OF COVID-19 AND ASSOCIATED RESPONSE MEASURES ON STI TRANSMISSION AMONG MSM: A MATHEMATICAL MODELLING STUDY

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Background Fear of COVID-19 infection and the response measures have affected sexual behaviours of men who have sex with men (MSM) and access to care for sexually transmitted infections (STI). We investigated whether these changes resulted in increased or decreased STI transmission among MSM.

Methods We developed a mathematical transmission model for chlamydia and gonorrhoea among MSM. We accounted for 15–35% reduction in the number of casual partners and 50–80% reduction in STI testing during lockdowns (March–May 2020; October 2020 to February 2021); these reductions were 0–10% and 20–35%, respectively, in periods with less restrictive COVID-19 measures (June–September 2020, March–August 2021). Reductions until August 2020 were estimated from Dutch data; other reductions were based on expert opinion. We assumed no changes after August 2021. Two scenarios were examined: with home-testing (in 25% of cases not tested at healthcare facilities) and without home-testing. We calculated the percentage change in prevalence due to COVID-19 associated changes, compared to prevalence in the same year without changes due to COVID-19.

Results From the model, we estimated an increase of 8.4% (interquartile range (IQR), 7.6–9.4%) in chlamydia prevalence and an increase of 7.5% (IQR, 6.0–8.9%) in gonorrhoea

prevalence at the end of 2020 without home-testing, compared to the prevalence without COVID-19 associated changes. The increase subsided in 2021, but chlamydia and gonorrhoea prevalence remained higher than without COVID-19 until 2025. With home-testing, the percentage increase in 2020, compared to the scenario without COVID-19, was 5.3% (IQR, 4.6–5.9%) for chlamydia and 3.5% (IQR, 2.6–4.4%) for gonorrhoea prevalence.

Conclusion The COVID-19 pandemic may have resulted in an increase in chlamydia and gonorrhoea prevalence in 2020. The increase can be smaller after 2020, if STI testing at healthcare facilities and/or at home increases. The findings emphasize the importance of facilitating STI (self) care in times of crisis.

004.3 THE IMPACT OF THE COVID-19 PANDEMIC ON STI SERVICES IN THE EASTERN CAPE PROVINCE OF SOUTH AFRICA

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Background The coronavirus disease-2019 (COVID-19) pandemic has severely impacted South Africa. Healthcare service provision and utilisation have been affected by socio-economic factors, reduced mobility, and reprioritisation as well as interruption of services. The impact of the COVID-19 pandemic on STI services is unclear.

Methods In this non-randomised study, we used the male urethritis syndrome (MUS) quarterly data from the clinical surveillance sites in the Eastern Cape (EC) province of South Africa. MUS is the main proxy measure of STI services in South Africa. MUS data were compared for a 12-month period before COVID-19 (April 2019–March 2020) and a 9-month period during the COVID-19 epidemic (April–December 2020) in each of the 8 districts. MUS data were related to the magnitude of the COVID-19 epidemic at the end of December 2020 as defined by the number of laboratory-confirmed COVID-19 cases over the population size.

Results The quarterly number of MUS cases dropped by 30% overall in the EC province, from 13072 before COVID-19 to 9142 cases during the COVID-19 epidemic ($p < 0.001$). The reduction in quarterly MUS cases varied between districts, with 11% for the smallest and 45% for the largest reduction. The COVID-19 burden ranged from 0.72% to 4.19% between districts. There was a clear positive association of reduction in reported MUS cases and the burden of COVID-19, with districts with the largest COVID-19 burden showing the largest reductions in MUS cases (R-square 0.83, $F_{30.057}$, $p = 0.002$).

Conclusion These data demonstrate a clear reduction in STI services resulting from the COVID-19 epidemic in the rural Eastern Cape Province of South Africa. Although underreporting may have occurred, taking reports of higher population vulnerability and increased rates of unprotected sex into