Data from 428 women, were included in this secondary data analysis. All women were asymptomatic for BV at baseline and tested for BV every two months. Persistent cases of BV were positive for BV at month two, four and six. Women who were negative for BV at month two, four and six were classified as no BV. All other cases were defined as episodic BV. Incident STI was defined as any new case of CT or NG at month eight. Factors associated with STI acquisition were assessed using Binary Logistic Regression. The final model was adjusted for age, education, women who have sex with women and BV status.

Most women were ≤ 21 years (55.8%) and completed some post high school/GED education (50.9%). There were 179 (41.8%) women with persistent BV, 204 (47.7%) women with episodic BV and 45 (10.5%) women with no BV. At month eight 8.6% of women tested positive for an STI. Bivariate analysis demonstrated a significant association between women with no BV and STI acquisition ($p=0.02$). Women with no BV did not acquire an STI, 7.3% of women with persistent BV acquired an STI and 11.7% of women with episodic BV acquired an STI. Women with high school or more than high school education compared to women with less than high school education had decreased odds of developing an STI (Adjusted Odds Ratio (adjOR): 0.38; 95% CI: 0.15–0.92; and adjOR: 0.31; 95%CI: 0.13–0.73).

At least a high school education was associated with increased odds of STI acquisition compared to less than high school education. STI acquisition was only observed among women with BV.

P418 CORRELATES OF IMMUNE PROTECTION IN THE RABBIT MODEL OF SYPHILIS VACCINATION

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Background An effective syphilis vaccine will be integral to efforts to eradicate this disease. Promising vaccine candidates are surface antigens of the syphilis spirochete, *Treponema pallidum* subsp. *pallidum* (T. pallidum). These antigens can be targeted by vaccination-induced opsonic antibodies and mediate pathogen immune clearance. Defining correlates of protection will aid in the identification of the best vaccine candidates. Here, we sought to investigate whether immunization with variants of the T. pallidum Repeat C (TprC) protein and the conserved NH2-terminus of the TprK induced protection and whether splenocyte proliferation and IFN- γ production correlated with protection.

Methods Rabbits were immunized with either a cocktail of three recombinant, full-length TprC variants, or the NH2-terminus of the TprK protein with a RIBI-like adjuvant. Animals were challenged with T. pallidum intradermally (10 sites; 10^5 bacteria/site). Treponemal burden and progression to ulceration were monitored. To assess for immunogen-specific splenocytes, pools of synthetic peptides corresponding to each immunogen were used to stimulate splenocytes collected ex vivo in proliferation assays. Supernatants from stimulated splenocytes were used to quantify IFN- γ responses by ELISA.

Results Immunizations protected animals significantly albeit not completely. At day 35 post-challenge only 14.1% and 15.5% of lesions ulcerated in immunized rabbits compared to the

95% of lesions in unimmunized rabbits. At day 21, there was a 99.3% and 98.7% reduction in treponemal burden averaged across all challenge sites in TprC- and TprK-immunized rabbits compared to unimmunized animals, respectively. Lymphocyte proliferation and IFN- γ production correlated to reduction in both percent of ulcerated lesions and treponemal burden.

Conclusions Lymphocyte proliferation and IFN- γ release assays may serve as surrogates to assess for antigen-specific T-cell responses. TprK and TprC immunizations are able to stimulate cellular immunity in a TH2 environment, which is key to development of an effective syphilis vaccine.

P420 RHEIN INHIBITS CHLAMYDIA TRACHOMATIS INFECTION BY REGULATING PATHOGEN-HOST CELL INTERACTIONS

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Background The global incidence of genital Chlamydia trachomatis (C. trachomatis) infection increased rapidly as the primary available treatment of C. trachomatis infection being the use of antibiotics; however, the development of antibiotics resistant strains and other treatment failures are often observed in patients. Consequently, novel therapeutics are urgently required. Rhein is a monomer derivative of anthraquinone compounds with an anti-infection activity. This study investigated the effects of rhein on treating C. trachomatis infection.

Methods The cytotoxicity of rhein was examined by Cell Counting Kit (CCK) 8 assay. Rhein's inhibitory effect on C. trachomatis infection was detected by immunofluorescent staining, electron microscopy, and progeny infection titer assay. The protein levels of p-RSK, p-ERK, RSK, ERK, cHSP60 were detected by immunoblotting assays. Lastly, C. trachomatis infected mouse model was used to determine the in vivo anti-infection effect of rhein.

Results Rhein showed significant inhibitory effects on the growth of C. trachomatis in multiple serovars of C. trachomatis, including D, E, F, and L1, and in various host cells, including HeLa, McCoy, and Vero. Rhein could not directly inactivate C. trachomatis but could inhibit the growth of C. trachomatis by regulating pathogen-host cell interactions. Host p-ERK and p-RSK were both down-regulated in the presence of rhein at 36 h and 48h post-infection. Combined with azithromycin, the inhibitory effect of rhein was synergistic both in vitro and in vivo.

Conclusion We found rhein inhibited C. trachomatis infection regulating pathogen-host cell interactions. Together these findings suggest that rhein could be developed for the treatment of C. trachomatis infections.

P423 TAKING REAL ISSUES TO VIRTUAL CONFERENCES: THE TRAINING OF YKP TO DISCUSS SOCIAL VULNERABILITY MEASURES IN THE COVID-19 CONTEXT

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Background The COVID-19 pandemic persisted for most of 2020 and, although the government initially canceled thousands of events, the need for adaptation forced many of them to go online. Through various digital platforms, people found new ways to deal with social distance and, at the same time, to promote events.

Methods A two-step approach was used for this analysis: 1) creation of a data collection form using Google Forms, and 2) transfer of data from the form to a spreadsheet using Google Spreadsheets.

Results The Ministry of Health of Brazil (MoH Brazil) started hosting webinars and virtual meetings. Between July and December 2020, MoH Brazil held four thematic webinars focusing on the Young Key Populations (YKP). As a result, more than 600 YKP were trained to deal with social vulnerabilities, especially with mental health and behavioral issues.

Conclusion The use of this post-event databank will help governments to identify ways to move forward with the presentation of information and to organize trainings based on YKP interests. These webinars also represent a virtual safe space that engage the youth in a healthy discussion regarding social protection measures that are adapted to the covid-19 context.

P424 RAPIDLY RISING EPIDEMIC OF AFRICAN PLASMID/BLATEM-1 IN PENICILLINASE-PRODUCING NEISSERIA GONORRHOEA FROM GUANGDONG, CHINA

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Background Our previous study showed a recent increase in the incidence of African-type penicillinase-producing *Neisseria gonorrhoeae* (PPNG) in Guangdong, China. The aim of this study was to investigate the prevalence and molecular epidemiology of African plasmid in PPNG isolates in Guangdong in two time frames, 2013–2015 and 2018–2019.

Methods A total of 864 isolates were collected in two cities in Guangdong. Minimum inhibitory concentrations (MICs) of seven antimicrobials were determined by the agar dilution method. The molecular epidemiological characteristics were determined by PPNG and tetracycline-resistant *N. gonorrhoeae* (TRNG) plasmids typing, Sanger sequencing of TEM β -lactamase (*bla*TEM) genes, *NG_porB* gene and *N. gonorrhoeae* multiantigen sequence typing (NG-MAST).

Results Investigation by PCR showed that 31.02% (268/864) of the isolates were PPNG, of which 53.36% (143/268) contained the TRNG plasmid. The *bla*TEM genes of PPNG isolates were carried by African increased (18.42% to 66.67%), Asian decreased (81.58% to 28.89%), and Toronto/Rio increased (0 to 4%) plasmids. Further plasmid typing showed that PPNG isolates consisted of three major clusters, namely African plasmid/*bla*TEM-1 (128/268, 47.76%), Asian plasmid/*bla*TEM-135? (59/268, 22.01%), and Asian plasmid/*bla*TEM-1 (57/268, 21.27%). The percentage of isolates with the *bla*TEM-1-carrying African plasmid as predominant plasmid increased significantly from 13.16% (5/38) in 2013 to 66.67% (60/90) in 2019. Among the isolates carrying the African plasmid possessing *bla*TEM-1, NG-MAST sequence type (ST) 5061, ST1927, ST17748 and *NG_porB* type 8, 13, 11, 12 were found to be the predominant STs in both periods, respectively, but which showed differences in two cities in two periods.

Conclusions The proportion of African plasmid/*bla*TEM-1 PPNG has continuously increased since 2013, in association with clonal spread, which might contribute to the rising gonorrhoea epidemic in Guangdong. The possibility that African plasmid/*bla*TEM-1 was acquired requires careful follow-up and continuous monitoring of African plasmid/*bla*TEM-1 to ascertain whether it constitutes a step towards evolutionary change.

P425 PREVALENCE OF NEISSERIA GONORRHOEA IN INDIA: A SYSTEMATIC LITERATURE REVIEW

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Background This paper provides an update the current state of knowledge on the status of *C. trachomatis* (CT) in India. CT is one of the most common Sexually Transmitted Infections (STIs) in the world, yet evidence on the burden in developing countries, as India is scarce.

Results This paper includes all the studies containing *C. trachomatis* testing that were identified in the literature search for the literature review on gonorrhea in India. The papers were included from PubMed, EMBASE and Google Scholar. The studies that contained data on CT were considered for further inclusion. Studies were included in this review if they contained *C. trachomatis* testing data

Results This paper provides 31 new studies that were not featured in the previous review. Prevalence of CT in the included studies ranges from 0.4% to 29%. The studies are classified in four patient categories namely: OPD and STI clinic attendees, Commercial sex workers and their clients, Men who have sex with men and Trans genders and population groups. The most commonly reported testing method was PCR. This paper helps to provide a broader picture regarding *C. trachomatis* in India by providing prevalence levels for some groups of high relevance for STIs, like Commercial Sex Workers (CSW) and Men who have Sex with Men (MSM). This review provides more ample background in the CT burden in India among the most vulnerable and fringe groups. This paper also raises the issue of referencing of research papers on STIs in India to facilitate review and research on the matter

P426 BURDEN OF C. TRACHOMATIS IN INDIA, AN UPDATE ON EVIDENCE FROM THE LITERATURE

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Background This paper provides an update the current state of knowledge on the status of *C. trachomatis* (CT) in India. CT is one of the most common Sexually Transmitted Infections (STIs) in the world, yet evidence on the burden in developing countries, as India is scarce.

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