lab diagnosed) and were treated with multi-dose Mtz, 96% reported taking all their medicine. While 36% of these women reported condomless sex during follow-up, there was no association between sexual exposure and BV status at TOC. Of these 46 women, 42.9% remained BV+ at TOC and 19.4% reported BV-related symptoms. BV status at TOC was not associated with TV cure rates (p>0.56).

Conclusion A high rate of BV co-infection (49.8%) was found among women with TV, much of which was asymptomatic. The rate of BV persistence post multi-dose Mtz was also high both microbiologically (42.9%) and clinically (19.4%) and did not appear to be influenced by TV treatment status. Additional research and development of novel therapeutics (i.e. biofilm disruptors) are urgently needed for women with BV, particularly among TV+ women where BV rates are high.

P2.34 DOES ORAL SEX CAUSE FEMALE INFERTILITY?

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Introduction We present the following tri-factorial hypothesis:

1. All members of the *Chlamydiaceae* have evolved primarily as commensals of the digestive tract of their host(s) with fecal-oral transmission (FOT) as the principal route of dissemination to new hosts. In communities where fecal-oral transmission is reduced (e.g., via global sanitation), the occurrence of chlamydiae in the digestive tract of their host is reduced.2. *Chlamydia trachomatis* is a commensal microorganism of the human gastro-intestinal (GI) tract, and an opportunistic pathogen in the genital and respiratory tracts, and the conjunctiva. Under conditions of reduced FOT, direct contact (e.g., sexual) is the primary mode of transmission.

3. *C. trachomatis* is efficiently transmitted to the GI tract of new hosts via oral sex. The practice of oral sex has 'reintroduced' *C. trachomatis* to the human GI tract in communities where FOT was previously reduced.

Methods Circumstantial, historical and recent evidence from humans and animals that support the hypothesis is reviewed. Imaging of mCherry expressing *Chlamydia muridarum* in the murine GI tract was obtained.

Results and Conclusion: Tenets 1 and 2 imply a paradigm shift to reflect a revision of the status of *C. trachomatis* from that of a principal pathogen to that of a commensal organism that causes opportunistic infection at mucosal epithelia other than its preferred GI site. High frequency on/off switching of the expression of autotransported polymorphic membrane proteins, the unique properties of peptidoglycan and lipo-oligosaccharide, and observed extruded inclusions in the GI tract of *C. muridarum*-infected mice may facilitate chlamydial survival and colonisation of the GI tract.Tenet 3 implies that orally inoculated chlamydiae that survive in and colonise the GI tract, may reach the rectum and chronically, or episodically, infect the female genital tract eventually causing/contributing to tubal pathology and infertility. The global hypothesis therefore raises the provocative question: does oral sex cause or contribute to female infertility?

P2.35 NEUROSYPHILIS: STILL THE SHADOW ON EARTH

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Treponema pallidum subsp. *pallidum* (*T. pallidum*), the etiologic agent of syphilis, can disseminate into virtually any organ including the central nervoussystem (CNS). Among those infected organs, the diagnosis and treatment of central nervous system (CNS) infection is recognised to be the most challenging. If left untreated, neuroinvasion with *T. pallidum* might lead to asymptomatic meningitis and develop severe even irreversible symptomatic neurosyphilis (NS). In the early 20th century, about 10% of the population of the United States and Europe were infected with syphilis. A century has passed, syphilis still remains a global public health problem, especially in developing countries, such as China, where an estimated 400 thousand people were infected annually in recent ten years.Despite a major health consequence that can cause undue physical, psychological harm and suffering for patients, neurosyphilis has not yet been a priority and remains a medical and public-health problem in many countries. The reasons that the surveillance data of neurosyphilis are limited at global level may because of the following: 1. the Tp invades the CNS in most patients with early syphilis, who may have no symptom at all, which is difficult to determine which patient requires lumbar puncture (LP); 2. the diagnosis of neurosyphilis relies on CSF findings and the laboratory test criteria for diagnosis of neurosyphilis is neither sensitive nor specific; 3.symtomatic neurosyphilis is a "great imitator" and lack of specific clinical manifestations, which may result in misdiagnosis and leaves the disease without treatment for years. Here we reviewed the neurosyphilis in Shanghai Skin Disease hospital, China main land and investigated more than 6000 syphilis patients in Shanghai Skin Disease Hospital. We reinstate the need for LP among syphilis patients, particularly in the settings where syphilis is prevalent among key populations. As the incidence of syphilis continues to increase, further work is needed to better understand neurosyphilis.

P2.36 SEXUALLY TRANSMITTED CO-INFECTIONS AND THE EFFECT OF DRUG USE ON RISK OF VIROLOGIC FAILURE AMONG HIV-POSITIVE MEN ON ANTIRETROVIRAL THERAPY

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Introduction Incidence of syphilis, chlamydia and gonorrhoea continue to rise among HIV-positive men who have sex with men (MSM) in Ontario. We previously observed an elevated risk of sexually transmitted infections (STI) among recreational drug users. Our aim was to determine the effect of a new STI diagnosis and recreational drug use on virologic failure (VF) among MSM successfully treated with antiretroviral

therapy (ART). Our hypothesis is that any association between STIs and VF would be confounded by drug use.

Methods The OHTN Cohort Study follows people receiving HIV care in Ontario. STI results and viral load (VL) data were retrieved via linkage with the provincial laboratory. We restricted analyses to 2610 MSM who completed>=1 annual questionnaire in 2008–2014 and had two consecutive VL<50 within a six-month period on ART. VF was defined as a single VL>=1000 or two consecutive VLs>=200. Periods of STI exposure were set around the diagnosis dates for each STI. We modelled STI diagnosis exposures and drug use as time-varying covariates on risk of VF using Cox regression adjusting for age, region and income as confounders. Our model allowed for repeat STI exposures and repeated VF events using the marginal means/rates model.

Results There were 472 VFs with a 24 month cumulative incidence of 12.1% (95%CI 11.1, 13.1). VFs at time of a new chlamydia or gonorrhoea infection were close to nil. We did not observe an increased risk of VF at the time of a new syphilis infection (HR=1.2 95% CI 0.8, 2.0; aHR=1.1 95% CI 0.7, 1.7). Risk was higher among drug users (non-injection aHR=1.4 95% CI 1.1, 1.8; injection aHR=1.8 95% CI 1.1, 2.6). There was no significant interaction but some evidence of positive confounding between syphilis and VF by drug use.

Conclusion Regardless of drug use, we did not find an association between a new STI diagnosis and increased risk of VF among men on suppressive ART. Our data are limited by possible misclassification of STI exposures, because not all men were tested, and among those diagnosed, exact dates of acquisition were unknown.

P2.37 PRESENCE OF GENITAL *CHLAMYDIA TRACHOMATIS* SEROTYPE L2 INFECTION IN SOUTH AFRICAN WOMEN

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Introduction: *Chlamydia trachomatis* serotype-L, lymphogranuloma venereum (LGV), is a well-recognised infection among men who have sex with men in developed nations. In Africa, LGV is an uncommon but recognised cause of genital ulcer disease in men and women. The presence of genital infection in African women is unknown.

Methods In this pilot study we evaluated the presence of *C. trachomatis* serotype-L in 55 vaginal specimens that tested positive for *C. trachomatis*. These specimens were obtained in several studies over the period 2012–2016 that recruited women visiting a mobile health clinic in rural Mopani District (n=25) and in various settings in Pretoria: a tertiary obstetrics and gynaecology clinic (n=14), an antiretroviral treatment (ART) clinic (n=10) and a sexually transmitted infections (STI) clinic (n=6). Presence of serovar type-L of *C. trachomatis* was assessed using a targeted PCR assay and confirmed by whole-genome sequencing (WGS) of DNA from the clinical specimen.

Results We identified serotype-L *C. trachomatis* infection by targeted PCR in 8 cases. All of these women had presented with vaginal discharge at either the ART (n=5) or STI (n=3) clinic. Two women had co-infection with *Neisseria gonorrhoeae*, two with *Mycoplasma genitalium* and two with *Trichomonas vaginalis*. WGS of 5 specimens confirmed the presence of the L2 serovar. Also, one mixed infection of serovars L2 and E (minority) was observed.

Conclusion This pilot study demonstrates the presence of symptomatic cervical infection by *C. trachomatis* of serotype-L2 in African women. This confirms one report of (chronic) genital infection in African women from more than two decades ago. The significance of this observation is to be determined with regards to virulence, morbidity, distribution across the population and clinical management in the current context of the syndromic approach

P2.38 MICROBIOLOGICAL ANALYSIS FROM A PHASE II STUDY IN ADULTS EVALUATING SINGLE DOSES OF GEPOTIDACIN (GSK2140944) IN THE TREATMENT OF UNCOMPLICATED UROGENITAL GONORRHOEA CAUSED BY *NEISSERIA GONORRHOEAE*

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Introduction Gepotidacin (GEP), a novel triazaacenaphthylene antibacterial, inhibits bacterial DNA replication. A Phase 2 study evaluated GEP as a single oral dose (1.5 or 3g) in subjects with urogenital gonorrhoea.

Methods Pre-dose specimens were obtained for culture and susceptibility testing by agar dilution. Microbiological success (MS), was culture confirmed eradication of *N. gonorrhoeae* (GC) at test-of-cure (TOC), 3–7 days post dose, in the microbiological evaluable (ME) population which consisted of all randomised subjects with culture confirmed urogenital gonorrhoea at baseline, who received any dose of GEP and returned for TOC.

Results Against 69 GC isolates recovered from baseline urogenital specimens in the ME population, GEP minimum inhibitory concentration [MIC (μg/mL)] range was ≤0.06–1 and MIC90 was 0.5. Resistance (R) to comparators were 33%, 28%, 20%, 0%, 0% and 0% for ciprofloxacin (CIP), penicillin, tetracycline, ceftriaxone, cefixime and spectinomycin, respectively. 2 isolates had elevated azithromycin MICs (MICs=2). Overall MS was 96% (66/69) in the ME population. PK/PD analysis showed 100% (61/61) MS when the free area under the curve/MIC ratio (*f*AUC/MIC) was ≥48. MS decreased to 63% (5/8) at *f*AUC/MICs ≤24. All isolates from the 3 urogenital failures were CIP-R, had a baseline GEP MIC=1 and a pre-existing D86N mutation in ParC, a critical residue in GEP binding. 2 were treated with a 3g GEP dose (*f*AUC/MICs=24) and 1 was treated with a 1.5g GEP dose (*f*AUC/MIC=12). 5 additional isolates with D86N were MS (2 at GEP MIC=1, 3 at GEP MIC ≤0.25). Isolates from 2 failed subjects (3g GEP dose) demonstrated R emergence to GEP (MICs increased ≥32 fold) and had an additional mutation (A92T) in GyrA, also located in GEP binding pocket.

Conclusion Subjects with *f*AUC/MICs ≥48 were MS, including 3 with D86N (*f*AUC/MICs ≥96). Further study of GEP, in the treatment of gonorrhoea is warranted, including demonstration that higher exposures suppress R in key isolate subsets.