T. pallidum PCR and syphilis serology was simultaneously performed. Serology was interpreted positive when seroconversion was detected or when RPR significantly increased in those with a history of treated syphilis. Serology was interpreted as negative when the screening was negative or when no significant rise in RPR was detected in those with a history of syphilis.

Results In total 191 PCR – serology combined results were analysed. In total 70/191 (37%) PCRs were positive. In 24/70 (34%) samples the positive PCR result added to diagnosing primary syphilis, either because the serology was negative (n=5, 7.1%) and the diagnosis would have been missed or the positive PCR result added in staging syphilis (n=19, 27.0%) affecting the treatment regimen. Moreover in 11/76 (14%) serology positive patients the PCR was negative. Six of these patients were clinically diagnosed as primary syphilis, 3 as syphilis latens recens and 2 as syphilis stage unknown.

Conclusion In our setting, the *T. pallidum* PCR is of added value in the diagnosis of primary syphilis as without PCR one in 10 early syphilis would have been missed and about one in 5 would have been possibly overtreated. Importantly, the PCR supports the low-threshold testing policy since patients can present within the window period of serology optimizing public health efforts to minimize transmission.

Disclosure No significant relationships.

P766 SLINGS AND ARROWS OF SYPHILIS SURVEILLANCE: THE DEPARTMENT OF DEFENSE EXPERIENCE WITH ADMINISTRATIVE CASE FINDING

[1]Eric Larsen*, [2]Tony Kim, [3]Shauna Stahlman, [4]Anuradha Ganesan, [5]Eric Garges. *[1]USUHS, Preventive Medicine and Biostatistics, Bethesda, USA; [2]USUHS, Bethesda, USA; [3]Defense Health Agency, Armed Forces Health Surveillance Branch, Silver Spring, USA; [4]Henry M. Jackson Foundation, Bethesda, USA; [5]Infectious Disease Clinical Research Program, Department of Preventive Medicine and Biostatistics, Bethesda, USA*

10.1136/sextrans-2019-sti.824

Background Routine surveillance of Military Health System (MHS) data provides actionable information on STI rates. National increases in syphilis rates led to the publication of a 2015 MHS syphilis analysis demonstrating a significant rise in military syphilis cases between 2010 and 2015. The current study had two objectives 1) validate the current syphilis estimates under the DoD surveillance case definition and 2) evaluate the validity of clinical staging of syphilis cases within the surveillance period.

Methods Of the initial 2976 incident cases identified in the 2015 surveillance review, we sampled 500 cases. We developed and applied a standardized review algorithm for case determination and expert chart review to provide evidence of clinical stage of disease at the time of surveillance case capture.

Results Out of 500 total cases evaluated, 181 (36%) were determined to not be cases of syphilis. Surveillance cases identified through Reportable Medical Events (RME) had a positive predictive value (PPV) of 0.82 compared to those cases identified through administratively available (ICD9-coded) data with a PPV of 0.42. Similarly, surveillance classification of clinical staging of infection was grossly inaccurate with respect to Latent, Primary or Secondary (P&S), or Late infection with accuracy dependent on use of RME (PPV 0.49) vs ICD-9 codes (PPV 0.30) for case identification.

Conclusion A full one third of DoD surveillance case identified cases of syphilis in the Military Health system are not true cases of syphilis. The predominate cause of this misclassification was the reliance on appropriate use of ICDs by providers. The use of administrative data (ICD codes) for incidence and disease stage surveillance should be done with caution due to inappropriate use of coding, misinterpretation of labs, and overly inclusive case definitions. RMEs provide better accuracy (PPV) for correctly identifying incident cases but are still inaccurate with respect to clinical stage.

Disclosure No significant relationships.

P767 SEX, DRUGS AND THE INTERNET – THE PERFECT STORM FOR SYPHILIS TRANSMISSION AMONG BLACK GAY AND BISEXUAL MEN (BMSM)

[1]Jacky Jennings*, [1]Carla Tilchin, [2]Christina Schumacher, [3]Matthew Hamill, [4]Carl Latkin, [5]Anne Rompalo, [6]Sebastian Ruhs, [7]Sarah Rives, [5]Errol Fields, [7]Adena Greenbaum, [8]Khalil Ghanem. *[1]Johns Hopkins University School of Medicine, Center for Child and Community Health Research (CCHR), Baltimore, USA; [2]Johns Hopkins School of Medicine, Center for Child and Community Health Research, Baltimore, USA; [3]Johns Hopkins University, School of Medicine, Baltimore, USA; [4]Johns Hopkins Bloomberg School of Public Health, Department of Health, Behavior and Society, Baltimore, USA; [5]Johns Hopkins School of Medicine, Baltimore, USA; [6]Chase Brexton, Baltimore, USA; [7]Baltimore City Health Department, Baltimore, USA; [8]Johns Hopkins Univ MD, USA*

10.1136/sextrans-2019-sti.825

Background Use of the internet to meet sex partners has increased over time among MSM, and an outbreak of syphilis has been linked to seeking sex partners through an online chatroom. Other studies have shown associations between methamphetamine use(MU), sexual risk behaviors and STIs including syphilis. The objective was to determine the association between syphilis positivity, MU, sexual risk behaviors and sex partner meeting spaces and separately, MU, sexual risk behaviors and sex partner meeting spaces among Black MSM (BMSM) in one mid-Atlantic U.S. city without a known history of these associations.

Methods Data came from an ongoing longitudinal cohort study, the Understanding Sexual Health in Networks Study (USHINE) including MSM 18–45 years of age in Baltimore City. Information on MU and sex partners and meeting spaces in the past 3 months was obtained via an egocentric sexual network survey. Summary statistics, chi-squared tests and t-tests were used for hypothesis testing.

Results 147 MSM were enrolled and 75.5% (111) were BMSM. The mean age of participants was 29.7 years (SD 5.60); 33.3%(34) were syphilis positive. Syphilis positivity was associated with MU (57.1% vs 29.6%, p-value=0.042) and meeting sex partners on Jack'd (42.3% vs 23.4%, p-value=0.046) and Facebook (52% vs 27%, p-value=0.022). MU (vs no use) was associated with anonymous sex (69.2% vs 19.3%, p-value <0.000), higher numbers of sex partners (≥3 in past 3 months 76.9% vs 25.7%, p-value <0.001), and meeting sex partners on Jack'd (84.6% vs 47.7%, p-value=0.012), Grindr (69.2% vs 25.7%, p-value <0.001), and Adam4Adam (53.9% vs 15.6%, p-value <0.001).

Conclusion Among BMSM, syphilis infection was associated with MU and specific sex partner meeting spaces, and MU was associated with sexual risk behaviors and specific sex partner meeting spaces. The relationships have not been identified before in this setting and suggest specific meeting spaces may

be important access points for syphilis and drug use prevention.
Disclosure No significant relationships.

P768 THE EVOLUTION OF AN INFECTIOUS SYPHILIS EPIDEMIC IN A CANADIAN URBAN SETTING

Souradet Shaw*, Alicia Lapple, Joss Reimer, Craig Ross, Debbie Nowicki, Lawrence Elliott, Pierre Plourde. *Winnipeg Regional Health Authority, Winnipeg, Canada*

10.1136/sextrans-2019-sti.826

Background Reflecting worldwide trends, an outbreak of infectious syphilis was declared in Winnipeg, Canada in 2012. Initially exclusively an outbreak amongst men who have sex with men (MSM), increases among women were observed in 2014/15. This study compared the characteristics of more recent heterosexual cases of syphilis to those at the start of the heterosexual outbreak.
Methods Data were from infectious syphilis investigations (September 1st, 2011 to August 31st, 2018) from Winnipeg, Canada. Age-standardized rates (2006 Canadian population standard) and 95% confidence intervals (95%CI) are reported. Bivariate analyses (χ^2 tests) and multivariable logistic regression models compared heterosexual cases from 2011/12-2014/15 to 2015/16-2017/18 cases on socio-demographic characteristics and risk factors. Adjusted odds ratios (AOR) and 95%CI are reported.
Results A total of 770 infectious syphilis cases were reported to public health. Rates increased 25-fold, from 1.6/100,000 persons (95%CI:0.8–2.9) to 40.5/100,000 persons (95%CI: 36.1–45.3), between 2011/12 and 2017/18. The proportion of women increased from 8% to 47%; correspondingly, the ratio between male and female rates decreased from 4.5 to 1.3. Amongst men, the heterosexual proportion increased from 9% in 2011/12 to 75% in 2017/18. In bivariate analyses, more recent heterosexual cases were younger ($p<0.001$); more likely to report crystal methamphetamine (CM) use (30% vs 3%, $p<0.001$); gonorrhea (21% vs 3%, $p<0.001$) and chlamydia co-infection (23% vs 10%, $p=0.004$); history of incarceration (36% vs 14%, $p<0.001$); and having no fixed address (15% vs 2%, $p<0.001$). In multivariable models, CM use (AOR: 7.9; 95%CI:2.4–26.7), gonorrhea co-infection (AOR: 7.1; 95%CI: 2.1–24.1), and history of incarceration (AOR: 1.8; 95%CI: 1.1–3.5) remained statistically significant.
Conclusion At least two parallel epidemics of syphilis are occurring in Winnipeg. Although MSM cases have declined, control of the heterosexual outbreak remains elusive. Populations with multiple vulnerabilities, including CM use and history of incarceration bear the greatest burden. Public health surveillance should remain vigilant for congenital syphilis.
Disclosure No significant relationships.

P769 A SYSTEMATIC REVIEW ON ALTERNATIVE TREATMENTS FOR MATERNAL SYPHILIS

Aishwarya Raich*, Chelsea Roberts, Chrysovalantis Stafylis, Jeffrey Klausner. *UCLA David Geffen School of Medicine, Infectious Diseases, Los Angeles, USA*

10.1136/sextrans-2019-sti.827

Background Maternal syphilis leads to preventable adverse fetal health outcomes. The recommended treatment is benzathine penicillin, which is challenging due to shortages, drug allergies and inability to administer the injection. We conducted a literature review to identify potential treatment options for maternal syphilis.
Methods We searched PubMed, Embase, and Scopus from January 1, 1970 to December 31, 2018. The search terms "*syphilis*" AND ("*maternal*" OR "*pregnancy*" OR "*congenital*"), AND "*treatment*" NOT ("*screening*") were used. Additional articles were identified from the references. We included studies in English, with full text, on humans and women. Successful treatment was defined as maternal RPR titer decline and congenital syphilis prevention.
Results Of the 70 articles, 8 case series were included. 11 pregnant women were successfully treated with intramuscular ceftriaxone 250 mg: 7-day course for primary syphilis or 10-day course for secondary syphilis, repeated at 28-weeks gestation. One patient was successfully treated with amoxicillin 6g and probenecid 1g daily for 14 days, and another was successfully treated with a 6-day course of amoxicillin followed by ceftriaxone 2g intravenously for 8 days. In response to ampicillin 2g intravenously intrapartum, one mother and one neonate developed the Jarish-Herxheimer reaction in cases of undiagnosed syphilis. Macrolides failed to prevent congenital syphilis: 5 patients treated with azithromycin 1g orally for 1–10 days, one case report of erythromycin 750 mg orally QID for 12 days and one case report of two failed 15-day courses of oral erythromycin 750–800 mg QID until penicillin desensitization was initiated. One case of clindamycin decreased maternal RPR titers, but failed to prevent congenital syphilis.
Conclusion Overall, 23 patients were treated with penicillin alternatives (15 with beta-lactam antibiotics, 7 with macrolide antibiotics, 1 with clindamycin), and 13 were treated successfully. Clinical research should evaluate amoxicillin and cephalosporins. Our review does not support the use of macrolide antibiotics.
Disclosure No significant relationships.

P770 JARISCH-HERXHEIMER REACTION IN CENTRAL NERVOUS SYSTEM AMONG NEUROSYPHILIS PATIENTS: DISCONTINUATION OF THERAPY OR NOT?

Rui-Rui Peng*, Juan Wu, Wei Zhao, Lin Zhu, Sheng Lu, Xin Gu, Zhi-Fang Guan, Pingyu Zhou. *Sexually Transmitted Disease Institute, Shanghai Skin Disease Hospital, Shanghai, China*

10.1136/sextrans-2019-sti.828

Background Syphilis has returned to china with a vengeance since the 21st century, and the epidemiology of neurosyphilis has largely paralleled that of active syphilis. Prompt therapy with high-dose intravenous benzylpenicillin is critical to alleviate clinical symptoms of neurosyphilis patients. However, patients may experience an exacerbation of mental and/or neurological symptoms following the initiation of treatment due to a severe Jarisch-Herxheimer reaction (JHR) in central nervous system (CNS). We retrospectively analyzed the incidence, risk factors and prognosis for JHR in CNS in Shanghai Skin Disease Hospital, China.
Methods From July 1, 2017 to December 31, 2018 at our sexually transmitted disease ward, 574 neurosyphilis patients received the high-dose intravenous benzylpenicillin. Patient factors were recorded, including age, gender, neurosyphilis type, serum and cerebrospinal fluid-venereal disease research laboratory test (CSF-VDRL) titer, white blood cell count and protein