infection for testing antibiotics that utilize free time above MIC as the pharmacokinetic (PK) driver to predict efficacy. We further established the mouse model for antibiotic testing by defining the *in vivo* efficacy of ciprofloxacin (CIP), an antibiotic that uses the free area under the curve over MIC (*f*AUC/MIC).

Methods Lower genital tract infection with *Ng* strain FA1090 was established in female mice using published methods for two days, after which increasing oral doses of CIP (or controls) were administered (n = 10–20 mice/group) and infection was quantified for 8 days. Plasma drug levels from uninfected mice were measured after administration of similar doses of CIP, and PK parameters (modeled using WinNonlin software) were correlated with observed efficacy.

Results Single oral doses ranging from 5 to 60 mg/kg CIP showed significant activity against strain FA1090, with the highest doses (15, 30, and 60 mg/kg) clearing 100% of infections within 8 days; these correspond to predicted *f*AUC/MICs of 66–264. The 60 mg/kg dose cleared infection in all mice within 48 h, which we defined previously as the endpoint in the model that best correlates with *in vivo* exposures required for successful CRO/CFX treatment regimens.

Conclusion The gonorrhea mouse model shows a dose-dependent response for CIP against a CIP^S strain with a dose of 60 mg/kg required to clear infection in 48 hrs. PK modeling suggests that achieving exposures necessary for effective treatment of CIPR strains (mic ≥1 μg/ml) would be challenging. These data that establish PK/PD correlations for CIP - with a *f*AUC/MIC driver- further strengthens the usefulness of this mouse model to test novel antimicrobial compounds against gonorrhea.

Disclosure No significant relationships.

P691 WIDESPREAD USE OF HIGH-DOSE CEFTRIAXONE THERAPY FOR UNCOMPLICATED GONORRHEA WITHOUT REPORTED CEFTRIAXONE TREATMENT FAILURE

[1]Yan Han*, [2]Yueping Yin, [2]Shaochun Chen, [3]Xiang-Sheng Chen, [4]Jun Liu. *[1]National Center for STD Control, Chinese Center for Disease Control and Prevention, Institute of Dermatology, Chinese Academy of Medical Sciences and Peking Union Medical College, Reference Laboratory, Nanjing, China; [2]National Center for STD Control, China CDC Institute of Dermatology Chinese Academy of Medical Sciences and Peking Union Medical College, Reference Lab, Nanjing, China; [3]National Center for STD Control, Chinese Center for Disease Control and Prevention, Nanjing, China; [4]Massachusetts General Hospital, Harvard Medical School, Cambridge, USA*

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Background Antimicrobial resistance (AMR) to *N. gonorrhoeae* has emerged for each of the antibiotics following their introduction into clinical practice recommended as first-line therapies. To improve rational and effective clinical antibiotic treatment, we analyzed the prescription patterns of antibiotics and its therapeutic effect in the treatment of uncomplicated gonorrhea in China.

Methods We obtained data from a follow-up multicenter-surveillance program. Multinomial logistic regression analyses were conducted to explore the associations between demographic/clinical variables with the levels of sensitivity to ceftriaxone and prescription of high-dose ceftriaxone.

Results In this study, 1686 patients infected with *N. gonorrhoeae* were recruited in a surveillance network during the period of 1 January 2013 through 31 December 2017 in 7 hospitals distributed in 5 provinces. The prevalence of isolates with decreased susceptibility to ceftriaxone was 9.8% (131/1333), fluctuating between 5.6%~12.1%. Injectable ceftriaxone was chosen as the first-line treatment among 83.1% patients, and most of them (72.7%,1018/1401) received more than 1000 mg dosage. Patients who were infected with gonorrhea or infected with other STDs before (AOR 1.611 95%CI [1.103–2.352]; AOR 2.329 95%CI [1.553–3.494]) or who used already antibiotics for this infection (AOR 1.597, 95%CI [1.04–2.452]) were associated with higher prescribed ceftriaxone dosage prescribed. All of the patients recruited in this study were cured regardless of the isolates' susceptibility to ceftriaxone or the dosage of ceftriaxone they received.

Conclusion No ceftriaxone failure treatment for uncomplicated gonorrhea were reported in China, however, high-dose ceftriaxone were widely used in China, its impacts needs further studies.

Disclosure No significant relationships.

P692 GENTAMICIN SUSCEPTIBILITY TO *NEISSERIA GONORRHOEAE* IN MALAWI AFTER TWENTY-FIVE YEARS OF SUSTAINED USE

[1]Jane Chen*, [2]Mitch Matoga, [2]Cecilia Massa, [2]Beatrice Ndalama, [2]Edward Jere, [3]Robert Krysiak, [4]Tarsizio Chikaonda, [5]Marcia Hobbs, [3]Myron Cohen, [3]Irving Hoffman. *[1]University of North Carolina at Chapel Hill, Epidemiology, Chapel Hill, USA; [2]UNC Project Malawi, Lilongwe, Malawi; [3]University of North Carolina at Chapel Hill, Division of Infectious Diseases, Chapel Hill, USA; [4]UNC Project Lilongwe, Laboratory, Lilongwe, Malawi; [5]University of North Carolina at Chapel Hill, Microbiology and Immunology, Chapel Hill, USA*

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Background Gentamicin has been used exclusively for the treatment of *Neisseria gonorrhoeae* (GC) in Malawi, since 1993. Previous gentamicin susceptibility testing in 1993, 1996 and 2007, showed ≥95% susceptibility by both agar dilution and E-test. However, clinical cure rates 1–2 weeks following treatment, have been in the 90% range. We are in the process of repeating this assessment to inform treatment guidelines.

Methods We are enrolling HIV-infected men presenting with acute urethritis at the sexually transmitted infections (STI) clinic at Bwaila District Hospital in Lilongwe, Malawi. All participants provide urethral swabs for STI etiologic testing, and are treated syndromically per Malawian standard of care, with gentamicin 240 mg IM, doxycycline 100 mg, BID for 7 days, and metronidazole 2g single dose. Patients are seen one week post-treatment for repeat clinical exam and GC culture. All specimens with a positive GC culture are tested locally for gentamicin susceptibility via E-test. E-test inhibition with ranges from 0-4, 4-16, and ≥16 are categorized as high, moderate, and low susceptibility, respectively. Clinical cure is determined by genital examination.

Results 42 men with gonococcal urethritis have been enrolled to date. Baseline gentamicin E-test results: high susceptibility: 0-1: 21%; 1-2: 60%; 2-4: 19%; moderate or low susceptibility ≥4: 0%. 37/42 men (88%) returned for follow-up. 4/37 (11%) were culture positive for GC, including 2 (5%) symptomatic men. 3/4 (75%) of the week one E-test results were in the high susceptibility range, and 1/4 (25%) was in the low susceptibility range (≥16).

Conclusion Based on our E-test results, all of the baseline GC isolates appear to be susceptible to gentamicin. However, at one-week follow-up, ~11% continued to be infected with GC. Determining if these are treatment failures, re-infections or new infections is a challenge. Laboratory comparisons of matched isolates are planned to help categorize these concerning results. Study enrollment continues.
Disclosure No significant relationships.

P693 *NEISSERIA GONORRHOEAE* IN-VITRO SUSCEPTIBILITIES TO CEFTRIAXONE, CEFIXIME AND AZITHROMYCIN IN GISP ISOLATES, 1987–2017

[1]Ellen Kersh*, [2]Jospeh Kang, [2]Tandin Dorji, [3]Cau Pham, [2]Karen Schlanger, [3]Sancta St Cyr. *[1]Centers for Disease Control and Prevention, Atlanta, USA; [2]CDC, DSTDP, Atlanta, USA; [3]US Centers for Disease Control and Prevention, Division of STD Prevention, Atlanta, USA*

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Background *In-vitro* susceptibility distributions to antibiotics can evolve over time because of emerging resistance determinants. This can affect clinical drug efficacy and interpretation of laboratory susceptibility tests. In January 2019, the Clinical Laboratory Standards Institute (CLSI) analyzed *Neisseria gonorrhoeae* (Ng) susceptibility parameters for ceftriaxone (CRO), cefixime (CFX) and azithromycin (AZI) to review interpretive criteria for laboratory tests.
Methods GISP (Gonococcal Isolate Surveillance Project) is a United States national surveillance project at approximately 25 sentinel STD clinics, collecting about 5,000 yearly urethral isolates from symptomatic men. From 1987–2017, minimal inhibitory drug concentrations (MIC) of 164,506 isolates were determined by agar dilution using CLSI-recommended protocols. Susceptibility parameters were calculated with R software, and included mean MIC, 98.5% MIC indicating end of wild-type distribution, and percent isolates meeting 2019 CLSI susceptibility (S) criteria (CRO, CFX, AZI <= 0.25, 0.25, 1 µg/mL, respectively) or current GISP alert definitions (CRO, CFX, AZI ≥=0.125, 0.25, 2 µg/mL, respectively).
Results Since 1987, only 5 isolates did not meet CRO S criteria. CRO alerts peaked at 1.05% in 1991. Mean MICs were highest in 2016 (0.013 µg/mL; 95% CI: 0.013–0.013), but compared to the mean MIC when GISP began (0.011 µg/mL; 95% CI: 0.010–0.011) the difference was less than a full drug dilution. Isolates not meeting CFX S criteria, 76 since 1987, were at a 0.17% peak in 1992, as were mean MICs. Isolates not meeting AZI S criteria were highest at 3.6% and 4.4% in 2016 and 2017, respectively, as were mean MICs.
Conclusion Ng CRO and CFX *in-vitro* susceptibilities have not uniformly decreased since GISP began, while most indicators suggest declining AZI *in-vitro* susceptibility. CLSI reviewed these data in conjunction with clinical, pharmacokinetic/-dynamic and other international susceptibility data and kept steady (CRO, CFX) or established new (AZI) 2019 laboratory testing susceptibility criteria.
Disclosure No significant relationships.

P694 CASE-BASED ENHANCED GONORRHEA SURVEILLANCE, CHICAGO, IL, 2018

[1]Irina Tabidze*, [2]Sara Stokes, [2]Maham Choudry, [2]Carrie Nacht, [2]Supriya Mehta. *[1]Chicago Department of Public Health, Chicago, USA; [2]University of Illinois at Chicago, Epidemiology and Biostatistics, Chicago, USA*

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Background In 2017, 11,730 gonorrhea (GC) cases were reported to Chicago Department of Public Health (CDPH), a 33% increase from 2015 (8,786 cases). CDPH conducted enhanced GC surveillance to identify factors that may inform interventions.
Methods A 33% random sample was selected for further investigation from lab-confirmed GC cases reported August - December 2018 (N=3,337), through Illinois National Electronic Disease Surveillance System. Enhanced surveillance data came from: (1) case telephone interviews, (2) provider case reports, and (3) web-based provider survey.
Results From October 2018 - February 2019, enhanced surveillance data was obtained from 459 cases (171 interviews, 399 provider reports; 111 with both), representing 68% of 672 cases with attempted contact, and 14% of all GC cases during the period. Survey respondents were representative of all reported cases: 68% male, median age 27 years, 53% Non-Hispanic Black, 22% Non-Hispanic White, 22% Hispanic. Prior GC infection was documented in 30% of cases, and was more prevalent among males (adjusted prevalence rate ratio [aPRR]= 1.90) and HIV infected persons (aPRR = 1.64). Adolescents and young adults (AYA; aged 13–24 years) comprised 47% of all reported GC cases. Compared to adults, AYA were less likely male (47% vs 80%, p<0.01), reported fewer sex partners, and less likely to have had syphilis testing (34% vs 46%, p=0.01), adequate GC treatment (78% vs 85%, p=0.09; 66% for female AYA), or PrEP awareness (52% vs 74%, p=0.02). Half (54%) of male AYA reported same sex partners. Provider case reports documented Expedited Partner Therapy in 2% of cases and 8% with referral to partner notification.
Conclusion Prior GC infection and HIV co-infection were prevalent, without discriminative factors, indicating innovative measures are needed. AYA differ substantially from adults in risk profile, and may have less complete case management. Age-specific and risk-targeted interventions are needed to optimally manage GC and interrupt transmission.
Disclosure No significant relationships.

P695 EPIDEMIOLOGY OF KEY STIS AMONG FEMALE SEX WORKERS IN THE MIDDLE EAST AND NORTH AFRICA: SYSTEMATIC REVIEW AND META-ANALYTICS

[1]Hiam Chemaitelly, [2]Helen Weiss, [1]Alex Smolak, [1]Elzahraa Majed, [1]Laith Abu-Raddad*. *[1]Weill Cornell Medicine-Qatar, Infectious Disease Epidemiology Group, Doha, Qatar; [2]London School of Hygiene and Tropical Medicine, MRC Tropical Epidemiology Group, London, UK*

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Background This study characterizes the epidemiology of *Treponema pallidum* (syphilis), *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, and herpes simplex virus