only. Median ages at diagnosis for AIS, AIS+CIN, and CIN3 were 37, 32, and 31 years, respectively. HPV typing results were available for 89 AIS, 99 AIS+CIN, and 2,923 CIN3 cases; HPV was detected in nearly all specimens (99% AIS, 100% AIS+CIN, 98% CIN3), and 21% of positive specimens had >1 HPV type identified. HPV16 (AIS: 51%, AIS+CIN: 64%, CIN3: 59%; $p \leq 0.001$) and HPV18 (AIS: 39%, AIS+CIN: 31%, CIN3: 5%; $P \leq 0.001$) were most common. Additional 9vHPV types (AIS: 3%, AIS+CIN: 12%, CIN3: 26%; $P \leq 0.001$), and HR non-vaccine types (AIS: 6%, AIS+CIN2+: 2%, CIN3+: 9%; $P \leq 0.001$) were detected less frequently.

Conclusion. HPV types differed by histology, with AIS having a greater proportion of HPV 18 and a lower proportion of additional 9vHPV and HR non-vaccine types. This report on the largest sample of genotyped AIS cases to date provides data for vaccine impact monitoring, and suggests a high opportunity for vaccine prevention of AIS.

Disclosures. **M. R. Griffin**, MedImmune: Grant Investigator, Grant recipient

2499. Trends in *Neisseria Gonorrheae* Antimicrobial Susceptibility in California, 2005–2016

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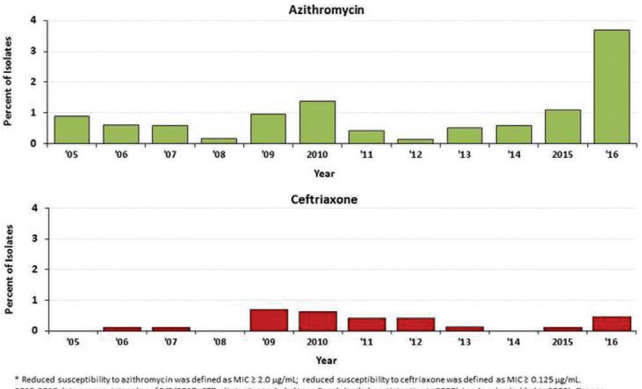
Background. Resistant *Neisseria gonorrheae* (NG) is a growing concern in California, nationally, and globally. Since 1987, California has participated in the Gonococcal Isolate Surveillance Project (GISP), a Centers for Disease Control and Prevention-funded project to monitor trends in antimicrobial susceptibility in sentinel STD clinic sites throughout the United States. We sought to describe trends in California NG susceptibility to ceftriaxone (CRO) and azithromycin (AZI), recommended therapy for NG, for 2005–2016.

Methods. Per GISP protocol, cultures are collected from the first 25 men presenting with NG urethritis each month at GISP clinic sites in California, and antimicrobial susceptibility testing (AST) is performed via agar dilution at GISP regional laboratories. Reduced susceptibility (RS) to CRO was defined as minimum inhibitory concentration (MIC) ≥0.125 µg/ml and AZI MIC ≥2 µg/ml. Demographics and MIC trends over time were examined.

Results. Between 2005 and 2016, there were 9,692 NG isolates submitted in California GISP clinics. There were 24 (0.25%) isolates with RS to CRO and 92 (0.96%) isolates with RS to AZI. There was a higher proportion of isolates from men who have sex with men with RS to AZI (but not CRO) compared with men who have sex with women (chi-squared *P*-values: AZI = 0.0015; CRO = 0.70). In 2016, the percent of isolates demonstrating RS to AZI increased to 3.69% ($n = 32$), compared with 0.69% of isolates with RS to AZI in 2005–2015 (chi-squared *P*-value < .0001); there was no significant difference in the percent of isolates with RS to CRO in 2016 compared with prior years (Figure 1). Figures 2 and 3 demonstrate the distribution of AZI MICs and CRO MICs, respectively, from 2005–2016. There have been no isolates to date in California GISP with RS to both ceftriaxone and azithromycin.

Conclusion. Gonococcal surveillance data demonstrate an increase in the proportion of isolates with decreased susceptibility to azithromycin in 2016 in California compared with prior years. Although there has never been a documented treatment failure to the recommended therapy of CRO and AZI in California, clinicians should remain vigilant for treatment failures given these concerning increases.

Figure 1. Gonococcal Isolate Surveillance Project (GISP), Percent of *Neisseria gonorrhoeae* Isolates with Reduced Susceptibility to Azithromycin and Ceftriaxone, in California GISP STD Clinic Sites, 2005–2016*



* Reduced susceptibility to azithromycin was defined as MIC ≥ 2.0 µg/mL; reduced susceptibility to ceftriaxone was defined as MIC ≥ 0.125 µg/mL. 2015-2016 data are provisional as of 5/5/2017. STD clinic sites included Long Beach (ended participation in 2007), Los Angeles (added in 2003), Orange County, San Diego, and San Francisco. Figure prepared by California Department of Public Health.

Figure 2. Distribution of Azithromycin MICs (µg/mL) among GISP Isolates in California, 2005-2016

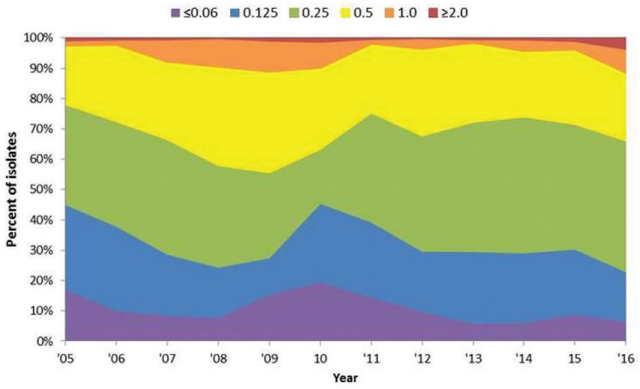


Figure prepared by California Department of Public Health.

Figure 3. Distribution of Ceftriaxone MICs (µg/mL) among GISP Isolates in California, 2005-2016

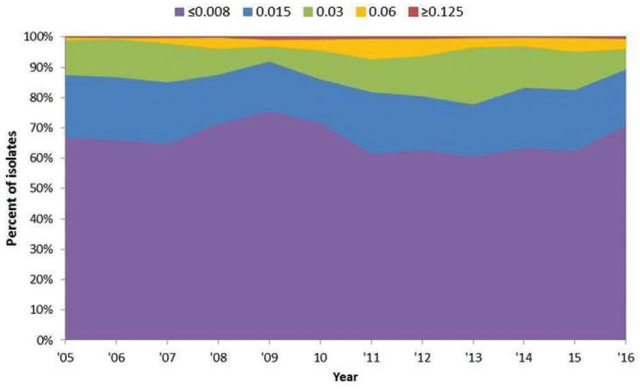


Figure prepared by California Department of Public Health.

Disclosures. **All authors:** No reported disclosures.

2500. Asymptomatic Lymphogranuloma Venereum among Nigerian Men who have Sex with Men

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Background. Among men who have sex with men (MSM), lymphogranuloma venereum (LGV) has been associated with proctocolitis that can lead to chronic complications and requires a longer course of antibiotic therapy than is recommended for infections due to other serovars of *Chlamydia trachomatis* (CT). We describe the prevalence and clinical features of LGV among Nigerian MSM diagnosed with anorectal CT.

Methods. MSM were recruited into the ongoing RV368 cohort in Lagos, Nigeria, using respondent-driven sampling. Participants were screened for HIV and bacterial sexually transmitted infections (STIs) every three months for up to 18 months. HIV was diagnosed using a parallel algorithm of rapid tests on fingerstick blood samples. PCR testing for *Neisseria gonorrheae* and CTwas performed on voided urine, oropharyngeal swab, and rectal swab specimens. For this analysis, prevalent and incident cases

of rectal CT infection underwent additional testing to identify LGV serovars utilizing novel real-time PCR assays specific for the L serovars of CT *Chlamydia trachomatis*.

Results. From 28 April 2014–19 July 2016, 420 men underwent screening for rectal STIs, including 66 (15.7%) who had prevalent rectal infection with CT. An additional 68 participants developed incident infections during 208 person-years of follow-up. Of 134 eligible rectal swab specimens, 128 underwent further testing for LGV serovars. Seven (5.5%) of the tested samples were identified as LGV serovars of CT. None of the seven participants with LGV reported any symptoms such as fever or rectal pain. Two of the participants with LGV were simultaneously co-infected with rectal gonorrhea. HIV co-infection was common among participants with both LGV and non-LGV serovars of CT (71% and 77%, respectively, $P = 0.74$).

Conclusion. LGV was uncommon but present among Nigerian MSM in this study. LGV needs to be considered even in asymptomatic cases, particularly if anorectal CT infection fails to respond to the usual course of therapy. Consistent screening for L serovars of CT, or empiric treatment for LGV in cases with a high suspicion for this diagnosis, could potentially improve patient outcomes and decrease transmission.

Disclosures. **All authors:** No reported disclosures.

2501. Real-Time PCR Targeting Mosaic *penA* XXXIV for Prediction of Extended-Spectrum Cephalosporins Susceptibility in Clinical *Neisseria Gonorrheae* Isolates

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Background. Antimicrobial-resistant *Neisseria gonorrheae* (NG) is a global public health problem, resulting in limited empirical treatment options. Due to increasing minimum inhibitory concentrations (MICs) of ESCs against NG in the US, it is critical that susceptibility to ESCs be monitored. Since few laboratories routinely perform culture and susceptibility testing for NG, there is a need for a rapid test to predict susceptibility to ESCs. More than 98% of isolates with decreased susceptibility to cefixime (CFM) in the US carry mosaic *penA* XXXIV. In this study, we developed a multiplex real-time PCR for mosaic *penA* XXXIV and previously validated *gyrA* to predict ESCs MICs and ciprofloxacin (CIP) susceptibility.

Methods. 150 NG isolates with known cefpodoxime (CPD), CFM, ceftriaxone (CRO) and CIP MICs were obtained from Neisseria Reference Laboratory at University of Washington and CDC Antimicrobial Resistance Bank. DNA extracted from culture was used in multiplex HybProbe real-time PCR on Lightcycler 480. *gyrA* was genotyped by melt curve and served as internal control, while presence of mosaic *penA* XXXIV was detected by selective amplification.

Results. All 32 (100%) CIP-susceptible and 118 (100%) CIP-resistant isolates, as determined by Clinical and Laboratory Standards Institute breakpoints, demonstrated wild-type and Ser91 mutant *gyrA* genotype, respectively. Melt curve genotyping demonstrated mosaic *penA* XXXIV melt patterns in 66/68 (97%) isolates with at least one ESC MIC above alert value set forth by the CDC (CPD and CFM MICs ≥0.25 µg/ml; CRO MIC ≥0.125), while all 82 (100%) isolates with ESC MICs under alert values did not amplify. The first of the 2 false-negative isolates had MICs above alert values for all ESCs tested and harbored IX mosaic type, while the second one had CRO MIC above alert value and harbored XII mosaic type. Both of these mosaic types did not share homology with mosaic *penA* XXXIV in the region targeted by the assay.

Conclusion. The mosaic *penA* XXXIV assay demonstrated 97% sensitivity and 100% specificity in predicting alert ESCs MIC values among clinical isolates tested, and was successfully multiplexed with *gyrA* assay. Clinical utility of this assay may be limited due to false negativity in isolates with non-XXXIV mosaic types, but it could serve as a useful surveillance tool for XXXIV mosaic.

Disclosure. **R. Humphries**, Roche: Consultant, Consulting fee

2502. Electronic Reminder Notifications Improve Uptake of Targeted Ciprofloxacin Therapy for *Neisseria gonorrheae* Infections at the University of California, Los Angeles Health System

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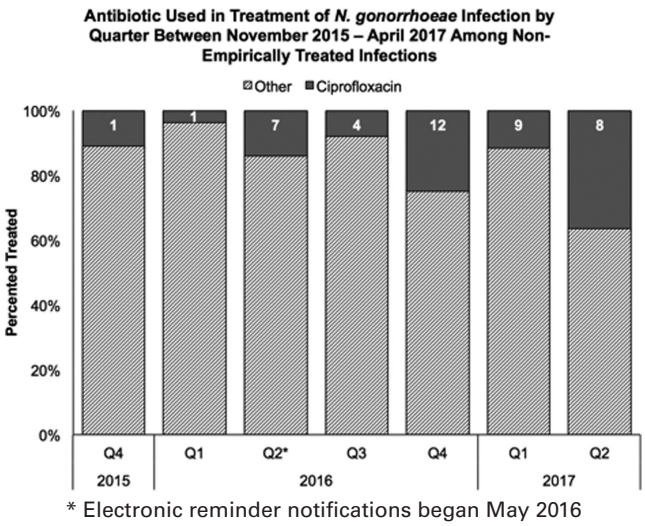
Background. A wild-type gyrase A (*gyr*A) genotype of *N. gonorrheae* reliably predicts susceptibility to ciprofloxacin, which can reduce selection pressure for ceftriaxone-resistant infections, an urgent public health threat. In November 2015, UCLA Health began *gyr*A genotyping all *N. gonorrheae* positive specimens. In May 2016, we began sending reminder notifications of treatment recommendations to providers of patients with wild-type infections.

Methods. We reviewed records for all laboratory confirmed *N. gonorrheae* cases from November 1, 2015–April 30, 2017. Infections in different anatomic sites were considered unique infections, while unique infections in a single patient on the same date were considered a case. Empiric therapy was defined as treatment within 1 day of specimen collection. We also collected test-of-cure data among patients with wild-type infections treated with ciprofloxacin.

Results. Among 423 patients (23% HIV infected) there were 460 cases and 514 anatomic site-specific *N. gonorrheae* infections. Of infections, 218 (43%) had a wild-type *gyr*A genotype, 138 (27%) mutant, 153 (30%) indeterminate, 4 were not attempted, and 1 had missing data. There were 255 (55%) cases and 283 (55%) infections treated non-empirically. The median time-to-treatment among those cases was 4 days (interquartile range 3–6 days). Ciprofloxacin was used in 2 (3%) of 66 nonempirically treated infections prior to the start of reminder notifications, compared with 40 (18%) of 217 nonempirically treated infections after notifications began ($P = 0.002$). Of the 55 providers who received an email on or before the day of treatment for non-empirically treated patients, 32 (58%) used ciprofloxacin. There was no ciprofloxacin use prior to assay implementation. The trend in treatment by quarter among non-empirically treated infections is shown the Figure.

Among 30 patients treated with ciprofloxacin, 6 had a test of cure at one week, and all (100%; 95% CI 61%–100%) of those tests were negative for *N. gonorrheae*; 5 were from urethral specimens, and 1 was from the pharynx.

Conclusion. Electronic provider notifications augmented targeted ciprofloxacin therapy for *N. gonorrheae* infections. Preliminary test-of-cure data are promising.



Disclosures. **All authors:** No reported disclosures.

2503. Gonorrhea (GC) and Chlamydia (CT) Infection in a Large, Well-Characterized Military Cohort: Prevalence, Incidence, Site of Infection, and Patient Characteristics

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Background. In the US military, routine extra-genital (EG) GC/CT testing in persons living with HIV was implemented in 2012. This study examines the prevalence/incidence and risk factors associated with genital (GU) and EG GC/CT