Methods. We examined data from two different sources: (1) the NYC Health Department sexually transmitted infections (STI) surveillance registry (January 2006–October 2017) in which OGI cases were defined as laboratory-confirmed infection of the eye or ear appendages; and (2) a hospital discharge database (inpatient and emergency room) for NYC residents admitted to any New York State hospital (inpatient or emergency room discharges, January 2006–December 2016) in which cases of OGI were identified using diagnostic codes corresponding to OGI. We characterized de-duplicated OGI cases identified across these data sources for 2006–2017 and calculated the OGI rate/100,000 reported gonorrhea cases.

Results. Thirty-six OGI cases were identified in STI surveillance data and 55 additional cases in the hospital discharge database. Out of the total of 91 OGI cases, 20 (22%) were ≤1 year (11 males, 9 females), 3 (3.3%) were 2–14 years (all males), and 68 (74.7%) were ≥15 years old. Among the 68 adolescent/adult case-patients, the mean age was 29.0 ± 13.4 years. The majority were males (69.1%, 47/68), and African American (42.6%, 29/68). The OGI rate in adolescents/adults was 39.9/100,000 gonorrhea cases (females, 35.76; males, 42.31); the rate remained almost constant since 2006 despite the increases in gonorrhea over the past decade. Conjunctivitis was the most common presentation (90.1% of all cases; 82/91), followed by eye appendage infections (2.2%, 2/91). The STI surveillance data revealed the diagnosis of OGI was made mainly by ocular culture (86.1%; 31/36), followed by nucleic acid amplification test (NAAT) (8.3%), or both culture and NAAT (5.6%).

Conclusions. OGI occurred among adolescents and adults, likely due to mandated newborn prophylaxis.

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430. Impact of a Pharmacist-Managed Sexually Transmitted Disease (STD) Test Result Review Service at a Veterans Affairs Medical Center

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Background. The CDC recommends annual STD screenings in all sexually active women ≤25 year old and men who have sex with men. Given the increased incidence of STDs and the need to improve their management, in September 2018 infectious diseases clinical pharmacists implemented a pharmacist-managed STD quality improvement project (QI) that reviewed positive STD test results with feedback to providers. We present the results of this QI project below.

Methods. The QI project consisted of prospective, daily reviews of all positive chlamydia, gonorrhea or syphilis tests (post-implementation period: 9/2/2018 to 2/2/2019). Patient electronic medical records were reviewed and assessed for the need for additional laboratory tests and to determine whether appropriate treatment was received, with feedback provided to the primary provider. In addition, risk factors were assessed to determine the appropriateness of human immunodeficiency virus (HIV) Pre-Exposure Prophylaxis (PrEP). A retrospective review of positive STD results from 9/2017 to 2/2018 was also conducted (pre-implementation period) for comparison. The purpose of this project was to evaluate the impact of pharmacist test result review on the appropriate testing, review appropriateness of prescribed treatments of patients diagnosed with any STD according to accepted clinical guidelines, and to inform the need for and the areas of focus for educating providers in the emergency room and primary clinical care management of STD cases. Descriptive statistics, chi square, and Fisher’s exact tests were used to analyze the outcomes of the project.

Results. A total of 144 patients were included in the project (pre-implementation, n = 47; post-implementation n = 77). Please refer to the table for other results.

Conclusions. The implementation of a pharmacist-managed STD test review service decreased time from treatment and to STD test result review. More patients in the post-implementation period received appropriate therapy compared with patients in the pre-intervention period. These findings indicate that there is a role for a pharmacist-managed STD test review service in assisting providers with quickly and appropriately connecting patients to care.

Table 1: Primary and Secondary Outcomes

| Variables                                      | Total          | Stroke+ | Stroke+ | Uniivariate Analysis | Multivariate analysis |
|------------------------------------------------|----------------|---------|---------|---------------------|----------------------|
|                                             | (n=95)         | (n=20)  | (n=75)  |                     |                      |
| Male sex                                     | 68             | 10 (50) | 58 (75) | N.S.                |                      |
| Median age                                   | 88.5           | 86      |         |                     |                      |
| TPHA+ / RPR+                                 | 43 (20) (31 (40) |         |         | 3.39 (1.17–9.78)    |                      |
| Hypertension                                 | 44             | 9 (45)  | 35 (85) | N.S.                |                      |
| Hypothyroidia                                | 17             | 3 (15)  | 14 (85) | N.S.                |                      |
| Diabetes mellitus                            | 12             | 2 (10)  | 10 (83) | N.S.                |                      |
| Cholestrol                                   | 44             | 9 (45)  | 35 (85) | N.S.                |                      |
| Alcohol intake                               | 15             | 4 (20)  | 11 (73) | N.S.                |                      |
| Smoking history                              | 25             | 5 (20)  | 20 (80) | N.S.                |                      |
| TPHA: Treponema pallidum haemagglutination assay; RPR: rapid plasma reagent |
| OR: odds ratio; 95% CI: 95% confidence interval; N.S.: not significant |
| + Macro-thymus 12 test, ** p < 0.05 |

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432. Qualitative Differentiation of Genital Ulcer Disease Etiology via Nucleic Acid Amplification Testing (NAAT)

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Background. Genital ulcers (GU) remain a common reason that both men and women seek treatment at US sexual health clinics. Presumptive diagnosis based solely on the macroscopic lesion characteristics is insensitive for differentiating between the common etiologies of GU, which include HSV1/2, VZV, and syphilis. Given the ongoing and rapidly expanding Syphilis epidemic, more accurate and timely identification of GU etiology would facilitate accurate therapeutic decision making, promote antibiotic stewardship, and have positive impacts on public health. The current study describes diagnostic workflows that allow for sequential/reflex or parallel GU testing, relying on a combination of FDA-cleared and published NAAT-based solutions, performed on the cobas® 4800 and/or cobas® 6800 Systems, to detect HSV1/2, VZV, and T. pallidum from a single specimen.

Methods. Commercially available control material for HSV1, HSV2, VZV, and T. pallidum were spiked into MSwab® and cobas PCR medium at varying concentrations. The spiked medium was either aliquoted directly to cobas® PCR Media Secondary Tubes (for testing on the cobas® 6800 System) or MSwabs were dipped directly into the spiked specimen vials and transferred to their respective collection tubes (cobas® 4800 System). GU testing on the cobas® 4800 System was sequential: performing the cobas® HSV1 and 2 Test first, followed by VZV and T. pallidum detection using residual DNA eluates and the User Defined Workflow (UDF) software. Testing on the cobas® 6800 System allowed for parallel processing and simultaneous detection of the 4 targets utilizing the cobas ommi Utility Channel, which supports a complete, automated Lab Developed Test workflow.

Results. Qualitative detection of HSV1, HSV2, VZV and T. pallidum was demonstrated on both systems.
Conclusions. Novel solutions that aim to reduce empiric therapy, or shorten the interval to treatment success, are critical for both diagnostic and antibiotic stewardship. Through parallel or sequential testing algorithms, panel testing schematics offer a more efficient and accurate approach to patient management. Continued surveillance of multi-site infections could help understand resistance development and inform patient management.

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433. Implementation of an Emergency Department Syphilis Screening Program<br>Author: Tasleem Chechi, MPhil; Allyson C. Sage, RN, MPH, CCRP; Nam Tran, PhD; Sarah Waldman, MD1 and Larissa S. May, MD, MSPH, MSHS; UC Davis Medical Center - Emergency Medicine, Sacramento, California; UC Davis Health, Sacramento, California; University of California Davis, Sacramento, California

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Background. Syphilis incidence across all regions of California increased by 22% compared with 2016 cases; with the largest number of chlamydia, gonorrhea, syphilis, and congenital syphilis cases among all states (CDCC 2017). The USPSTF recommends targeted syphilis screening in patients at increased risk. However, in emergency department (ED) settings, targeted syphilis screening is not routinely performed even when patients present for concerns of a sexually transmitted infection (STI). The purpose of this program was to implement routine syphilis screening among ED patients being tested for chlamydia and gonorrhea (CT/GC) through the use of an EHR enhancement to maximize the number of new syphilis diagnoses.

Methods. From November 27, 2018 to March 31, 2019, EHR-based syphilis screening was implemented in a quaternary care ED in Northern California serving urban and rural populations. EMR best practice alerts (BPA) were developed and populated on patients requiring STI testing. Syphilis testing was added to the reverse screening algorithm, which is suggested for high prevalence settings and provides rapid round-the-clock turnaround time. Patients were excluded if they opted out of testing. We determined the proportion of all CT/GC tested patients who underwent syphilis screening and the prevalence of syphilis among this group.

Results. During a four-month period, 649 ED patients with suspected STI received a BPA to screen for syphilis. Of those, 425 patients (65.5%) were screened for syphilis, and 22 had a reactive IgG/IgM and RPR, while 5 patients had a reactive IgG/IgM and a nonreactive RPR which required a TPPA test to detect their infection. Fourteen of the 22 patients with a reactive RPR had titers of 1:32 or higher. Nine (32%) of those with a positive CT/GC test tested positive for syphilis.

Conclusion. Implementation of a syphilis screening program in patients undergoing testing for other STIs yielded 28 new diagnoses compared with those tested prior to this intervention. EDs are encouraged to consider implementing an automated EHR-based syphilis screening program as an effective method to maximize syphilis screening in all ED patients seeking treatment for STIs. The screening data suggest that the majority of patients undergoing STI testing in our ED are not screened for syphilis, yet the prevalence of infection in those screened is substantial.

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434. Concurrent Gonococcal Infections with Differing Susceptibility Results from the Enhanced Gonococcal Isolate Surveillance Project (eGISP)<br>Author: Sancta St. Cey, MD, MPH, Laura Quilter, MD, MPH, Cau D. Pharm, PhD; Elizabeth Terrence, MD, MPH, PST, HD, Hilliard; MD, MPH, Centers for Disease Control and Prevention, Atlanta, Georgia

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Background. Concurrent gonococcal infections could impact treatment success in cases of anatomic site-specific strains with different antimicrobial susceptibilities; however, little is known about same-patient differences in susceptibility among patients. The Enhanced Gonococcal Isolate Surveillance Project (eGISP) was created to track the prevalence and patterns of antimicrobial resistance among gonococcal isolates. The aim of this study was to evaluate the frequency of concurrent gonococcal infections with differing antimicrobial susceptibility results and to assess the impact of these infections on antibiotic treatment success.

Methods. In August 2017, the enhanced Gonococcal Isolate Surveillance Project (eGISP) began collecting male and female genital and extragenital gonococcal isolates from patients in 12 STD clinics. Minimum Inhibitory Concentrations (MICs) for penicillin, tetracycline, ciprofloxacin, gentamicin, cefixime, ceftriaxone and azithromycin were determined for all isolates. We identified patients with isolates from multiple anatomic sites of infection collected during the same clinic visit. Isolate sets were categorized as one for each anatomic site; differential susceptibility was determined by the difference in susceptibility of the two strains. All isolates in a set were tested in the same batch run by the same laboratory.

Results. From August 2017-February 2019, 280 isolates were collected from 135 patients, representing 136 isolate sets (128 pairs and 8 triplets); one patient contributed 2 isolate sets. Of the 136 isolate sets, the majority (72, 53%) were grouped as genital and pharyngeal isolates (Table 1). Overall, 33 isolate sets (24%) had differing MICs for 21 antibiotic and 21 sets (15%) for 22 antibiotics. Across all anatomic site combinations, differing MICs were most common for ciprofloxacin (10.3%), penicillin (9.6%) and azithromycin (9.6%). Only 18 isolate sets (13%) demonstrated differing MICs where an isolate was considered susceptible and another was considered resistant or reduced-susceptible.

Conclusion. Among persons with concurrent gonococcal infections, MICs can vary by 22 dilutions between sites and may change susceptibility interpretation. Variation by the anatomic site can result from initial infection with multiple strains or differential development of resistance after infection. Continued surveillance of multi-site infections could help understand resistance development and inform patient management.

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435. Iliopsoas Abscess in Egyptian Patients Presenting to Cairo University Hospitals<br>Author: Sarah Chechi1, MD; Reham Abdel Maged, MD; Maha Hassaballah, MD; Cairo University, Cairo, Al Qahirah, Egypt

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Background. The incidence of iliopsoas abscess (IPA) is rare but the frequency of this diagnosis has increased with the use of ultrasonography and computed tomography (CT). The vague presentation leads to delays in diagnosis and increases morbidity. Managing iliopsoas abscess is still forming a therapeutic challenge. The aim of this research was to study the features of iliopsoas abscess cases including the etiology and clinical presentation.

Methods. Patients and Methods. All patients presented to the orthopedic outpatient clinic (Cairo university hospitals) by back pain were screened by plain X-ray and later was by ultrasonography and CT scan. The confirmed patients were diagnosed as having posas or iliopsoas collection and subjected to: full history taking, full laboratory workup, screening for tuberculosis, radiological studies and ultrasound-guided needle aspiration of the abscess. The aspirate samples were microbiologically tested by culture (aerobic, anaerobic and MGC) and PCR technique. Follow-up US was done within 7 days from the first aspiration.

Results. The outpatient clinic received 40 thousand back pain cases during a one-year study. Only 14 patients were diagnosed as IPA. The age ranged 19–65 years (mean 37 years) and 57% were male. 44.4% patients had primary IPA while 55.5% patients had secondary IPA. All patients had limping and flank pain, backache or both. Fever was common 90% of patients. Leukocytosis was found in 55.5% of patients, ESR was elevated and CRP was positive in all patients. Z.N stain for AFB was negative in all patients. Culture of aspirated fluid revealed S.aureus as the commonest organism (44% of cultures), then E.coli in (22% of cultures), Mycobacterial tuberculosis in 7% by MGC culture and PCR. Other cultures were negative. All patients were treated by drainage and appropriate antibiotics. Surgical intervention was needed in 22% patients. Recurrence occurred in only 1 patient with tuberculous iliopsoas abscess.

Conclusion. Although IPA is rare, the appropriate diagnosis by US is needed. S.aureus is the commonest pathogen but Mycobacterial tuberculosis could be a cause for recurrence.

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436. Skin and Soft-tissue Infections Are A Common Reason for Potentially Inappropriate Antimicrobial Use among Inpatients in Sri Lanka<br>Author: Tianchen Sheng, MSc1; Gaya B. Wijayarathne, MBBS MD2; Shelani M. Dabera, MBBS MD3, Ajith Nagahawatte, MBBS MD1; Champika K. Bodinayake, MBBS MD1; Ravini Kurukulasooriya, MSc2; Kristin J. Nagaro, MD1; Cherin De Silva, MBBS2; Hasini Ranawakaarachchi, MBBS1; Arambegadda Thushitha Sudarshana, MBBS1; Deverick J. Anderson, MD, MPH1; Richard H. Drew, PharmD MS5; Richard H. Drew, PharmD MS6; Truls Ostbye, MD, PhD1; Chris W. Woods, MD1 and L. Gayani Tillekeratne, MD, MSc1; Duke University Medical Center, Durham, North Carolina; University of Ruhuna, Galle, Southern Province, Sri Lanka; Sri Lanka Ministry of Health, Colombo, Western Province, Sri Lanka; Duke University, Durham, North Carolina; Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, North Carolina; Duke University Hospital, Durham, North Carolina; Duke University School of Medicine, Durham, North Carolina

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Background. Skin and soft-tissue infections (SSTI) are a common reason for antimicrobial use in the outpatient and inpatient settings. Inappropriate antimicrobial...