Conclusion. 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 on either the cobas® 4800 and 6800 Systems allow for more accurate discrimination between GU etiologies that may help address the re-emergence of Syphilis in the USA.

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433. Implementation of an Emergency Department Syphilis Screening Program

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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 (CDC 2017). The USPSTF recommends targeted syphilis screening in patients at increased risk. However, in emergency departments (EDs) 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 receiving STI testing. Syphilis testing employed a reverse sequence algorithm, which is suggested for high prevalence settings and provides rapid turnaround time. Patients were excluded if they opted out from 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, 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 the screening in 2018. Introducing an automated EMR-based syphilis screening program is 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)

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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 as most antibiotic resistance surveillance is based on only male urethral isolates.

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 by agar dilution. We identified patients with isolates from multiple anatomic sites of infection collected during the same clinic visit. Isolate sets were categorized as pairs or triplets based on the number of culture positive anatomic sites. We identified same-patient isolate sets with differing MICs (≥2 dilution difference) for each antibiotic, and identified if the difference affected susceptibility categorization. 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 ≥1 antibiotic and 21 sets (15%) for ≥2 antibiotics. Across all anatomical 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 ≥2 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.

Table. Prevalence of concurrent gonococcal isolate sets with differing susceptibility results, by anatomic site combination sets, eGISP, August 2017-February 2019

Anatomic Site Combinations	Differing susceptibility results definition	Ceftriaxone # of sets (%)	Cefixime # of sets (%)	Azithromycin # of sets (%)	Ciprofloxacin # of sets (%)	Penicillin/ Beta-lactamase # of sets (%)	Tetracycline # of sets (%)	Gentamicin # of sets (%)
Genital / Pharyngeal (Total = 72 isolate pairs)	MICs differ by ≥2 dilutions	5 (6.9%)	3 (4.2%)	7 (9.7%)	7 (9.7%)	7 (9.7%)	3 (4.2%)	5 (6.9%)
	One susceptible & one resistant/ reduced-susceptible*	0 (0%)	0 (0%)	1 (1.4%)	5 (6.9%)	4 (5.6%)	1 (1.4%)	N/A
Genital / Rectal (Total = 29 isolate pairs)	MICs differ by ≥2 dilutions	2 (7.4%)	1 (3.4%)	2 (6.9%)	3 (10.3%)	0 (0%)	2 (6.9%)	0 (0%)
	One susceptible & one resistant/ reduced-susceptible*	0 (0%)	0 (0%)	2 (6.9%)	3 (10.3%)	0 (0%)	0 (0%)	N/A
Pharyngeal / Rectal (Total = 27 isolate pairs)	MICs differ by ≥2 dilutions	2 (7.4%)	1 (3.7%)	3 (11.1%)	2 (7.4%)	6 (22.2%)	2 (7.4%)	2 (7.4%)
	One susceptible & one resistant/ reduced-susceptible*	0 (0%)	0 (0%)	2 (7.4%)	2 (7.4%)	2 (7.4%)	0 (0%)	N/A
Any 2 Combination (Total = 128 isolate pairs)	MICs differ by ≥2 dilutions	9 (7.0%)	5 (3.9%)	12 (9.4%)	12 (9.4%)	12 (10.2%)	7 (5.5%)	7 (5.5%)
	One susceptible & one resistant/ reduced-susceptible*	0 (0%)	0 (0%)	5 (3.9%)	10 (7.8%)	6 (4.7%)	1 (0.8%)	N/A
Genital / Pharyngeal /Rectal (Total = 8 isolate triplets)	MICs differ by ≥2 dilutions	2 (25.0%)	2 (25.0%)	1 (12.5%)	2 (25.0%)	0 (0%)	1 (12.5%)	2 (25.0%)
	One susceptible & one resistant/ reduced-susceptible*	0 (0%)	0 (0%)	0 (0%)	2 (25%)	0 (0%)	0 (0%)	N/A
All Combinations (Total = 136 isolate sets)	MICs differ by ≥2 dilutions	11 (8.1%)	7 (5.1%)	13 (9.6%)	14 (10.3%)	13 (9.6%)	8 (5.9%)	9 (6.6%)
	≥1 susceptible & ≥1 resistant/ reduced-susceptible*	0 (0%)	0 (0%)	5 (3.7%)	12 (8.8%)	6 (4.4%)	1 (0.7%)	N/A

* Subset of pairs or triplets with MICs that differ by ≥2 dilutions

Genital = Urethral, Endocervical, or Vaginal

Ceftriaxone: MIC <0.125 µg/ml (susceptible); MIC ≥0.125 µg/ml (reduced-susceptible)
Azithromycin: MIC <2.0 µg/ml (susceptible); MIC ≥2.0 µg/ml (reduced-susceptible)
Penicillin: MIC <2.0 µg/ml (susceptible); MIC ≥2.0 µg/ml or Beta-lactamase-positive (resistant)
Gentamicin: No recognized susceptibility or reduced-susceptibility cut points (N/A)
Cefixime: MIC <0.25 µg/ml (susceptible); MIC ≥0.25 µg/ml (reduced-susceptible)
Ciprofloxacin: MIC <1.0 µg/ml (susceptible); MIC ≥1.0 µg/ml (resistant)
Tetracycline: MIC <2.0 µg/ml (susceptible); MIC ≥2.0 µg/ml (resistant)

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435. Iliopsoas Abscess in Egyptian Patients Presenting to Cairo University Hospitals

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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 IPA was by ultrasonography (US). The confirmed patients were diagnosed as having psoas 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 MGIT) 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 19–65years (mean 37years) 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 MGIT 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

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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

use for SSTI is common. We determined the prevalence of SSTI and associated inappropriate antimicrobial use among inpatients in Sri Lanka.

Methods. A point-prevalence study of antimicrobial use was conducted using one-day cross-sectional surveys at five public hospitals in Southern Province, Sri Lanka from Jun-August 2017. Inpatients' medical records were reviewed for clinical data including antimicrobials prescribed. Inappropriate antimicrobial use was identified as (1) antimicrobial use discordant with guidelines by the Sri Lanka College of Microbiologists (SLCM), and (2) redundant combinations of antimicrobials.

Results. Of 1,709 surveyed patients, 935 (54.7%) received antimicrobials, of whom 779 (83.3%) had a specified or inferred indication for antimicrobial use. Among patients with an indication for antimicrobial use, SSTI was the second leading indication (181 patients, 23.2%) after lower respiratory tract infection (194, 24.9%). One-third (62, 34.2%) of patients with SSTI had a history of diabetes. Commonly used antimicrobials for SSTI included amoxicillin and clavulanic acid (40.3%), extended-spectrum penicillins (24.9%), and metronidazole (22.1%). inappropriate antimicrobial use was observed in 53.0% of SSTI patients, with redundant antibiotic therapy in 35.9% and antimicrobials discordant with SLCM guidelines in 32.6%.

Conclusion. SSTI was a common reason for antimicrobial use among inpatients in Sri Lanka, with more than half of patients receiving potentially inappropriate antimicrobial therapy. We identified targets for future antimicrobial stewardship efforts.

Table 1:

Antimicrobials used for UTI	N (%)	Number of patients (%) receiving antimicrobials not recommended by the Guidelines	Number of patients (%) receiving redundant antimicrobials	Total patients receiving antimicrobials
Co-amoxiclav	73 (40.33)			
Extended-spectrum penicillins	45 (24.86)			
Metronidazole	40 (22.10)	59 (32.60)	65 (35.91)	181
Clindamycin	40 (22.10)			
Third-generation cephalosporins	25 (13.81)			

Table 2:

Hospital/ ward Characteristic	Inappropriate antimicrobial use	Appropriate antimicrobial use	P values
	No. (%)	No. (%)	
Tertiary level hospital	66 (68.75)	54 (63.53)	
Secondary level hospital	21 (21.88)	27 (31.76)	<.001
Primary level hospitals	9 (9.37)	4 (4.71)	
Overall	**96 (100.0)**	**85 (100.0)**	
Medical wards	28 (29.17)	23 (27.06)	
Surgical wards	65 (67.71)	60 (70.59)	
Pediatric wards	1 (1.04)	1 (1.18)	<.001
Intensive care units	2 (2.08)	1 (1.18)	
Overall	**96 (100.0)**	**85 (100.0)**	

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437. Gram-Negative Rod Skin and Soft-tissue infections following Breast Tissue Expander Surgery in Breast Cancer Patients

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Background. Breast cancer patients who undergo tissue expander surgery (TES) are at an increased risk of developing gram-negative rod (GNR) skin and soft-tissue infection (SSIs) and its complications including prolonged antibiotic therapy, antibiotics side effects, and implant removal. Current perioperative antimicrobials focus mostly on gram-positive organisms, but the presence of a foreign body increases the risk of GNR SSI. We describe here the most common GNR bacteria and their susceptibility patterns that cause SSI after TES among breast cancer patients.

Methods. We conducted a retrospective cohort study at Moffitt Cancer Center, Tampa, FL from January 2016, to January 2018, on all breast cancer patients who developed GNR SSIs following TES. We reviewed records after approval from the Institutional Review Board. The data collected included patient's age, pathogens from wound culture, antibiotic susceptibilities, the perioperative and definitive antibiotics used.

Results. A total of 38 cases of GNR SSI with a mean age of 56 ± 11 years were identified. The 3 most common pathogens were *Pseudomonas aeruginosa* (45%), *Serratia marcescens* (16%), and *Klebsiella pneumoniae* (8%) (Figure 1). The susceptibility pattern was available for 33 cases. Pseudomonas and Klebsiella isolates were susceptible to all tested antibiotics (Table 1). The Stenotrophomonas isolates showed resistance to ceftazidime. *Enterobacter cloacae*, *Enterobacter aerogenes*, *Morganella morganii,* and *Acinetobacter baumannii* complex, showed resistance to cefazolin. Twenty-five cases (74%) received perioperative antibiotics for gram-positive organisms; mostly cefazolin, and vancomycin. The common antibiotics used for definitive treatment were ciprofloxacin, cefepime, ceftazidime, piperacillin–tazobactam, and meropenem.

Conclusion. In centers with a high percentage of GNR SSI following TES should consider using perioperative antibiotics that include coverage against *Pseudomonas aeruginosa*, the most common isolate (45%). The use only of cefazolin or other antibiotics against gram-positive organism may be inadequate. However, GNR infection may occur from 48 hours to 2 weeks postoperatively and may be from the acquisition of the GNR at home in which perioperative antibiotics may have minimal effect.

Figure 1. Gram-Negative Rod Pathogens Isolated from Wound Cultures Among Breast Cancer Patients Who Developed Skin and Soft Tissue Infection following Breast Reconstructive Surgery, Moffitt Cancer Center, Tampa, 2016-2018. n=38 (%)

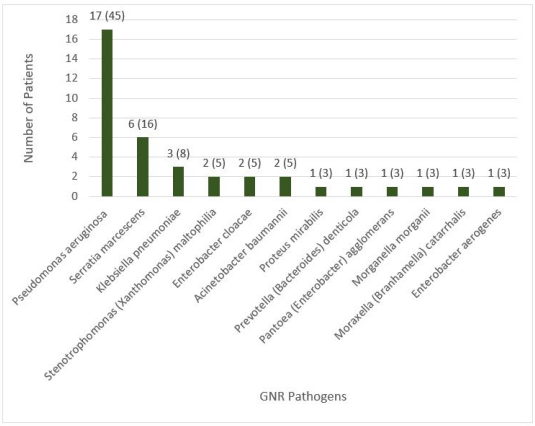

Table 1. In Vitro Susceptibility Profile of Gram-Negative Rod Pathogens Isolated from Wound Cultures Among Breast Cancer Patients Who Developed Skin and Soft Tissue Infection following Breast Reconstructive Surgery, Moffitt Cancer Center, Tampa, 2016-2018. n=33

Antibiotic	Susceptible, n (%)	Intermediate, n (%)	Resistant, n (%)
Ampicillin	1 (14%)	0	6 (86%)
Cefazolin	5 (31%)	0	11 (69%)
Cefoxitin	5 (31%)	1 (6%)	10 (63%)
Ceftazidime	1 (50%)	0	1 (50%)
Ampicillin/Sulbactam	6 (86%)	1 (14%)	0
Ceftriaxone	16 (94%)	1 (6%)	0
Cefepime	30 (100%)	0	0
Ciprofloxacin	31 (100%)	0	0
Levofloxacin	2 (100%)	0	0
Trimeth/Sulfa	17 (100%)	0	0
Pipercillin/Tazobactam	24 (100%)	0	0
Meropenem	1 (100%)	0	0
Tobramycin	31 (100%)	0	0
Gentamicin	31 (100%)	0	0
Amikacin	1 (100%)	0	0
Minocycline	2 (100%)	0	0

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438. Dalbavancin Clinical Experience at an NCI Designated Cancer Center

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Background. Dalbavancin (DAL) is a long-acting lipoglycopeptide, which allows for up to 2 weeks of therapy from a single dose. Outside of its FDA-approved indication for the treatment of acute bacterial skin and skin structure infections (ABSSSI), there is a growing interest in the utilization of DAL for other indications, including catheter-related bloodstream infection (CRBSI). The long-acting formulation potentially facilitates patient discharge or admission deferral without the need for daily outpatient parenteral antimicrobial therapy (OPAT). However, there is limited experience reporting DAL utilization in an oncology population. The objective of this study was to report our experience with DAL in an oncology patient population at a National Cancer Institute (NCI) Designated Cancer Center.

Methods. We conducted a retrospective review of all patients receiving DAL therapy in June 2016–June 2017. The primary outcome was a clinical success at 30 days (complete/partial resolution of symptoms without readmission for a same/similar infection), with secondary outcomes including readmission rate, acute kidney injury (AKI) incidence (Acute Kidney Injury Network [AKIN] criteria) and additional antimicrobial use within 30 days.

Results. We identified 76 unique subjects, with 77 unique infectious episodes, receiving 78 DAL doses. The majority of the subjects were male (57%), the median age was 61 years old, 55% had a solid tumor type and most were treated for ABSSSI (86%). Doses were administered inpatient 76% of the time and most patients received 1500 mg (90%). The most common pathogen isolated was *Staphylococcus aureus* (19%). Patients frequently received additional methicillin-resistant *Staphylococcus aureus* active oral antibiotics (39%). Clinical success was reported in 78% of infections. Potential DAL-related AKI was identified in 4 subjects (5%).

Conclusion. We reported on the use of DAL in a variety of oncology patients at a major cancer center. Clinical success was often achieved in ABSSSI with a single DAL