*propensity matched pairs of 2:1 match and subgroup analysis on propensity matched pairs of (1) proven ißHS alone (2) probable ißHS alone (3) ICU admission (within 24h of culture sampling) (4) patients receiving vasopressor therapy (within 24h of culture sampling) (5) Group A ißHS alone (6) Non Group A ißHS alone.* There was no statistically significant difference in the ORs for in-hospital mortality between clinda-mycin and propensity-matched non-clindamycin cases in the primary analysis (*) as well as all sensitivity and subgroup (†) analyses.

Figure 3: SOFA Score Trajectory by Survival Status
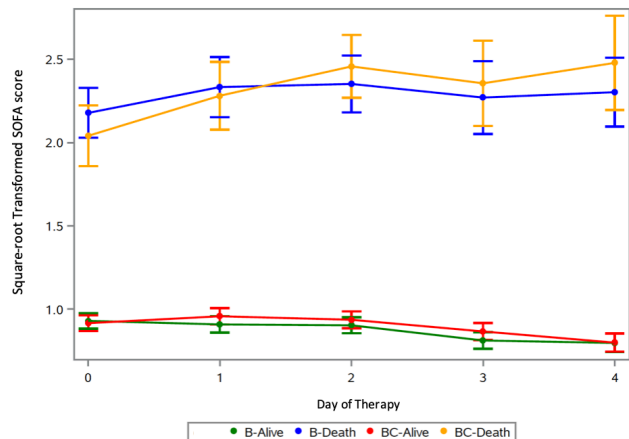
Abbreviations: B: Non-Clindamycin cases, BC: Clindamycin Cases

Figure 3 Legend: SOFA score by day of therapy of clindamycin and non-clinda-mycin matched cases based on survival status from day zero (day prior to antibiotic therapy) to day four of therapy. The linear mixed models were used to assess the time trends and the clindamycin effect on the longitudinal SOFA scores. SOFA trajectory was examined for the post matching sample. Square root transformation was applied to the SOFA score to meet the normality assumption Mean Baseline SOFA scores prior to therapy were similar amongst clindamycin and non-clindamycin subjects (mean [standard deviation(SD)] SOFA score: 1.88[2.48] vs. 1.96[2.60]; *p*= 0.634). On day 4 of therapy SOFA scores were similar between remaining 310 clindamycin and 286 non-clindamycin hospitalized patients (mean[SD] SOFA score: 1.79[2.88] vs. 1.67 [2.49]; *p*=0.586). The SOFA delta (day 0 SOFA score - day 4 SOFA score) was similar between the two groups (*p*=0.1331). When examined amongst survivors only, SOFA scores on day 4 of therapy were similar between and 272 non-clindamycin and 310 clindamycin hospitalized patients (mean[SD] SOFA score: 1.45 [2.20] vs. 1.52 [2.44])

Disclosures. All authors: No reported disclosures.

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474. Battling Addiction: Impact of Intravenous Drug Use on Invasive Skin and Soft Tissue Management

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Session: 51. Soft Tissue and Skin Infections
Thursday, October 3, 2019: 12:15 PM

Background. Although skin and soft-tissue infections (SSTIs) remain a common cause of hospitalization for intravenous drug users (IVDU), little has been done to iden-tify whether there should be differences in the SSTI management of IVDU vs. nonusers. The objective of this study was to evaluate the impact of documented intravenous drug abuse on the overall management of invasive SSTIs in hospitalized patients.

Methods. This retrospective cohort study randomly selected 100 IVDU and 100 nonusers (controls) hospitalized for an SSTI over 18 months in a community teach-ing hospital. Patients eligible for inclusion were 18–60 years old and treated with IV inpatient antibiotics for at least 48 hours. Pregnant women, transfers from an out-side hospital, and diabetic foot infections were excluded. The primary endpoint was hospital length of stay (LOS). Secondary endpoints included: percentage prescribed empiric combination antibiotic therapy, percentage prescribed an anti-pseudomonal agent, inpatient and total antibiotic duration of therapy (DOT), 30-day readmission rates, and 30-day emergency department (ED) visit rates.

Results. The study population was predominantly male (66%), Caucasian (72%), and had a mean age of 40 years old (18–59). IVDU were more likely to have complications (18% vs. 6%) and polymicrobial infections (19% vs. 2%), Mean hospital length of stay was 9.0 days for IVDU compared with 4.8 days for controls (*P* < 0.001). There was no differ-ence in empiric combination therapy (48% vs. 37%; *P* = 0.115) or empiric exposure to an anti-pseudomonal agent (38% vs. 30%; *P* = 0.232). Mean duration of inpatient antibiotic DOT was longer in IVDU (7.5 days vs. 4.3 days; *P* < 0.001), but total antibiotic DOT was similar between groups (16.0 days vs. 13.8 days; *P* = 0.141). Thirty-day ED visits were higher for IVDU (16% vs. 5%; *P* = 0.009); however, there was no difference in 30-day readmission (14% vs. 16%; *P* = 0.692).

Conclusion. Documented IV drug abuse resulted in a significant increase in the length of stay in hospitalized adults with SSTIs requiring IV antibiotics. Exposure to combination therapy and anti-pseudomonal agents did not differ between the groups as would be expected. In the future stewardship initiatives are needed to increase ad-herence to SSTI guideline recommendations for empiric therapy.

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475. High Rate of Extended-Spectrum β-Lactamase Producing Gram-Negative Infections and Associated Mortality in Ethiopia: A Systematic Review and Meta-Analysis

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Session: 52. HAI: MDRO – GNR Epidemiology, ESBL Producers
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Background. Extended-spectrum β-lactamase (ESBL)-producing Gram-negative bacteria have become a serious threat to global health. The rapid increase of ESBL-producing bacteria is associated with high mortality due to ineffective antibiotic treatment. To date, regular surveillance of multidrug-resistant (MDR) pathogens is lacking in Ethiopia. For this report, published data regarding ESBL-producing bacteria in different regions of Ethiopia were reviewed systematically. To our knowledge, this is the first systematic review from Ethiopia on ESBL-producing infections and associated mortality in the country.

Methods. A literature search was conducted in PubMed, PubMed Central, and Google Scholar from January 1, 1990 to April 28, 2019, using the following search terms: "ESBL producing Enterobacteriaceae," "Gram-negative bacteria infection asso-ciated mortality," and "Ethiopia." Patient mortality associated with infections by ESBL-producing Gram-negative bacteria was recorded.

Results. Fourteen publications qualified for review. Totally, 1,782 Gram-negative bacteria isolated from 5,191 clinical samples were included. The phenotypic pooled rate of ESBL-producing Gram-negatives was estimated to be 52.9(95% CI: 50.5%–55.4%). Among different species, ESBL rates were 65. 7% (262/399) *Klebsiella* spp., 60.6% (20/33) for *Enterobacter* spp., 47.8% (22/46) for *Citrobacter* spp., 47.0% (383/815) for *E. coli*, 45.7% (85/186) for *Salmonella* spp., 27.8%(15/54) for *Proteus* spp., 16.7%(4/24) for *P. aeruginosa*, 14.3% (3/21) for *Acinetobacter spps.*, and 40.5% (15/37) for others, respectively. ESBL genes were confirmed in three studies. bla$_{CTX-M-1}$ and bla$_{TEM}$ were the predominately detected genes. Two studies reported mortality associated with Gram-negative infections and 86% (12/14) of the patients infected with ESBL-producing bacteria died.

Conclusion. In this meta-analysis, the pooled phenotypic prevalence of ESBL-producing pathogens is considerably high. Also, the mortality due to ESBL-producers is high but data are scarce. This highlights the need for establishing and upgrading of clinical microbiology laboratories in the country for routine antibiotic susceptibility testing. The capacity to detect ESBL genes is desirable for continuous surveillance of MDR.

Disclosures. All authors: No reported disclosures.

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476. Risk Factors of Community-Onset Extended-Spectrum β-Lactamase-Pro-ducing *Klebsiella pneumoniae* Bacteremia in South Korea Using National Health Insurance Claims Data

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Session: 52. HAI: MDRO – GNR Epidemiology, ESBL Producers
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Background. Antibiotic resistance is a significant threat to public health not only in healthcare setting but also in community because antimicrobial-resistant infections can be transmitted in community. Although it is essential to know whether there are particular reasons that caused antibiotic-resistant infection in community, there is lack of evidence regarding risk factors for community-onset extended-spectrum β-lactamase-producing *Klebsiella pneumoniae* bloodstream infection (ESBL-KP BSI) in South Korea. In the pres-ent study, we aimed to reveal risk factors for community-onset ESBL-KP BSI.

Methods. From May 2016 to April 2017, patients with community-onset KP BSI (*n* = 408) from six sentinel hospitals in South Korea were included. The hospitals are located in different districts throughout South Korea, and had a total of 5,194 beds, ranged from 715 to 1,050 beds per hospital. Admission history and previous usage of antibiotics and medical devices before bacteremia were acquired from National Health Insurance claims data. Risk factors of ESBL-KP BSI were analyzed with a multivariable logistic regression model. PCR and sequencing for the identification of genes encoding ESBLs, and multilocus sequence typing were performed.

Results. Of 408 patient of community-onset KP BSI, 70 (17%) were ESBL-KP BSI patients. ESBL-KP isolates most frequently carried CTX-M-1-group ESBLs (74%, n = 52), followed by CTX-M-9-group ESBLs (16%, n = 11). Most prevalent sequence type (ST) among ESBL-KP isolates was ST48 (14%, n = 10). Among non-ESBL-KP isolates, ST23 was most prevalent (21%, n = 70). Analyzing with multivariate analysis, recent admission to long-term care hospital within 3 months (OR, 5.7; 95% CI, 2.1–15.6; P = 0.001), previous usage of trimethoprim-sulfamethoxazole (OR, 11.5; 95% CI, 2.7–48.6; P = 0.001), expanded-spectrum cephalosporin (OR, 2.2; 95% CI, 1.2–3.9; P = 0.01), and previous use of urinary catheter (OR, 2.3; 95% CI, 1.1–4.5; P = 0.02) were identified as independent risk factors for community-onset ESBL-KP BSI.

Conclusion. Recent admission to long-term care hospital, use of urinary catheter, recent usage of antibiotics were identified as risk factors for community-onset ESBL-KP BSI. Strict antibiotic stewardship and infection control measures in long-term care hospital are needed.

Variable Number (%)	Non-ESBL KP BSI (n=338)	ESBL KP BSI (n=70)	P value
Age	71.0 [60.75-79.0]	75.0 [64.0-81.0]	0.079
Male	201 (59.5%)	48 (68.6%)	0.155
ICU admission	16 (4.7%)	10 (14.3%)	0.003
Previous history of admission	152 (45%)	50 (71.4%)	0.000
Previous history of nursing home admission	9 (2.7%)	9 (12.9%)	0.000
Underlying disease			
End-stage renal disease	38 (11.2%)	10 (14.3%)	0.472
Cerebrovascular disease	17 (5.0%)	6 (8.6%)	0.242
Liver cirrhosis	9 (2.7%)	1 (1.4%)	0.543
Chronic pulmonary disease	15 (4.4%)	2 (2.9%)	0.547
Diabetes mellitus	77 (22.8%)	13 (18.6%)	0.439
Cardiovascular disease	25 (7.4%)	5 (7.1%)	0.941
Malignancy	92 (27.2%)	20 (28.6%)	0.817
Charlson comorbidity index	1.0 [0.0-2.0]	1.0 [0.0-2.0]	0.630
SOFA score	4.0 [2.0-7.0]	5.0 [2.75-7.0]	0.349
Previous usage of antibiotics			
Penicillins	17 (5.0%)	2 (2.9%)	0.432
β-bactam and β-lactamase inhibitor	87 (25.7%)	21 (30.0%)	0.462
Fluoroquinolone	68 (20.1%)	28 (40.0%)	0.000
Colistin	2 (0.6%)	0 (0%)	0.519
Macrolide	26 (7.7%)	2 (2.9%)	0.145
Aminoglycoside	22 (5.4%)	6 (8.6%)	0.534
Carbapenems	30 (8.9%)	16 (22.9%)	0.001
1st cephalosporins	28 (8.3%)	8 (11.4%)	0.399
2nd cephalosporins	33 (9.8%)	11 (15.7%)	0.144
Expanded-spectrum cephalosporins	98 (29%)	36 (51.4%)	0.000
Glycopeptide	14 (4.1%)	9 (12.9%)	0.004
TMT/SMT	3 (0.9%)	7 (10.0%)	0.000
Previous history of intervention			
Urinary catheterization	37 (10.9%)	22 (31.4%)	0.000
Central catheter	21 (6.2%)	6 (8.6%)	0.470
Intubation	5 (1.5%)	1 (1.4%)	0.974
Nasogastric tube	19 (5.6%)	9 (12.9%)	0.029
Major surgery	5 (1.5%)	4 (5.7%)	0.028

	OR (95% CI)	P-Value
Previous history of nursing home admission	5.648 (2.073-15.589)	0.001
Expanded-spectrum cephalosporins	2.170 (1.207-3.900)	0.010
TMP/SMT	11.546 (2.746-48.551)	0.001
Urinary catheterization	2.258 (1.136-4.489)	0.020
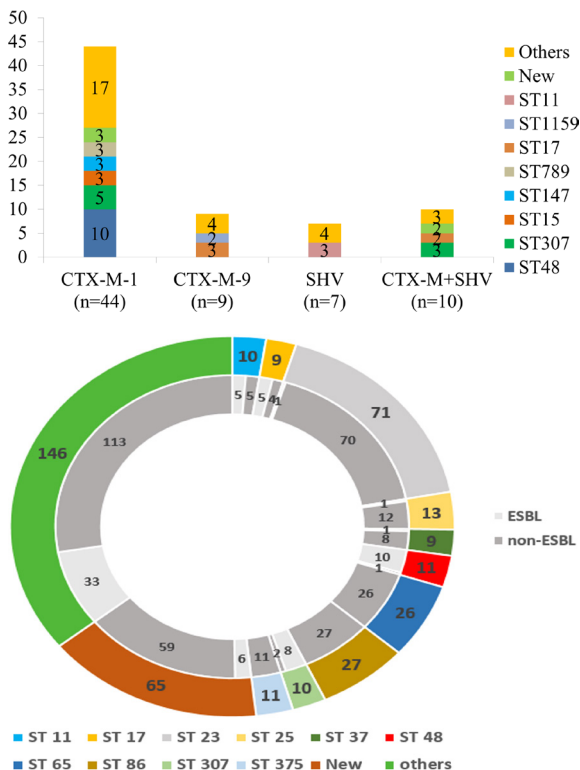
Disclosures. All authors: No reported disclosures.

477. Characterization of Extended-Spectrum B-Lactamase (ESBL) Producing Gram-negative (GN) Urinary Tract Infections (UTI) in Pediatric Patients

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Session: 52. HAI: MDRO – GNR Epidemiology, ESBL Producers
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Background. There has been an increase in antimicrobial resistance among GN pathogens, not only in adults, but also pediatrics. UTIs are common in pediatrics; however, reports of pediatric UTI with ESBL producing GN are limited.

Methods. All urine cultures positive for ESBL producing GN from 5/1/18 to December 31/18 were retrospectively reviewed. Proven infection (PI) defined as ≥50,000 colony-forming units (CFU)/mL of bacteria plus pyuria or positive leukocyte esterase for catheterized or clean catch specimens. Relapsed infection defined as same pathogen cultured within 30 days of infection. Abnormal urinary tract systems or functions (AUTS) include neurogenic bladder, structural anomalies, or intermittent catheterization.

Results. A total of 107 urine cultures for ESBL producing GN, from 85 patients, were included. Majority of specimens [78/107 (73%)] were obtained from the ED or outpatient clinics. 43% of specimens were from patients with AUTS. *E. coli* was the majority (95%) of ESBL isolates. 57% of ESBL producing GNs were susceptible to amoxicillin/clavulanate (AC) or trimethoprim/sulfamethoxazole (TMP/SMX). 88% were nitrofurantoin susceptible. Only 1 isolate was meropenem resistant. Antibiotics (ABX) were prescribed for UTI in 67/107 episodes. However, only 52 episodes were PI. Of these, 38 were empirically treated with oral ABX and 29 with intravenous ABX. The most commonly prescribed empiric ABX was oral cephalexin (25/67, 37%.) Ineffective empiric ABX for UTI was very common, 83% (43/52). Of these, 5/43 never received effective therapy and none had relapse. Most common duration of ABX was 10 days (range 5–17 days.) 43% (23/52) of PI were treated with oral AC or TMP/SMX. 15% (8/52) of PI were treated with nitrofurantoin. 12% of PI were treated with a once-daily aminoglycoside. Only 6% of PI were treated with a carbapenem.

Conclusion. Many ESBL UTI isolates remain susceptible to oral ABX. Although small numbers, patients treated with ineffective ABX did not return with relapsed infection. Non-carbapenem ABX are a reasonable option to minimize selective pressure or unnecessary use. Empiric narrow-spectrum antibiotic therapy may still be appropriate.

Disclosures. All authors: No reported disclosures.

478. Outcomes of Extended-Spectrum β-Lactamase-Producing *Escherichia coli* Bloodstream Infection in Neutropenic Patients with Hematological Malignancies

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Session: 52. HAI: MDRO – GNR Epidemiology, ESBL Producers
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Background. Infections with extended-spectrum β-lactamase (ESBL) producing Enterobacteriaceae is an emerging problem leading to poor clinical outcomes and increased mortality. The purpose of this study was to determine the prevalence, risk factors and outcomes of ESBL-producing *E. coli* (EC) in bloodstream infections (BSIs) of neutropenic patients with hematological malignancies and compare the difference with Non-ESBL producing EC.

Methods. Through an IRB approved protocol, a retrospective cohort study was conducted at the H. Lee Moffitt Cancer Center from January, 2007 till October, 2017. Of the 310 records, who had +ive blood cultures for E. Coli, a total of 63 neutropenic patients with hematological malignancies were identified based on the bloodstream infections with ESBL-EC and Non ESBL EC. Data included demographics, underlying malignancy, type of bone marrow transplant, duration of neutropenia, antibiotics use pre and post culture, length of hospital stay, severity of infection, ventilator use, and mortality data.

Results. A total of 310 cases with hematological malignancy and neutropenia were reviewed, 63 were identified as +ive blood culture for *E. coli*. Out of the 63 cases, 17 were ESBL-EC +ive and 46 were non-ESBL-EC. The prevalence of ESBL-EC was highest in the year 2015 (29.4%) and decreased in the subsequent years (Figure 1). The mean ages of the two groups were 53.59 ±12.4 and 60.82 ± 11.1, respectively. The average length of stay for the ESBL-EC group was 26.59 ± 11.2 days, longer than the non-ESBL EC group 21.96 ± 11.2. Days of neutropenia in non-ESBL vs. ESBL EC were 9 days ± 8.3, and 19 days ± 22.0, respectively, P < 0.01. No differences were observed in the 30–60 day mortality and other outcomes listed in Table 1.

Conclusion. The prevalence of ESBL-EC was observed to be higher in patients who were neutropenic for longer duration, were older and resulted in longer hospital stay. Early identification and empirical therapy in neutropenic patients suspected to have ESBL-EC infection is crucial. Also, the infection with ESBL-EC was higher in the year 2015 and decreased in the subsequent years. After higher rates, perhaps infection control, lab reporting changes, antibiotic stewardship and transmission-based precautions might have played a role.