therapy optimized with active stewardship intervention. With rapid diagnostics, does each hour of ineffective antibiotic therapy really count?

Methods. This multicenter, retrospective, cohort study compared adult inpatients with *E. coli* bacteremia from a urinary source who received initial effective (EA) vs ineffective antibiotics (IA). The primary outcome was clinical treatment success at day 4. Secondary endpoints included length of stay (LOS), infection-related mortality, incidence of *C. difficile* infection (CDI), and subgroup analysis of outcomes by ESBL (CTX-M type) vs non-ESBL. Associations with endpoints were assessed using Fisher's Exact tests using R v. 4.0.3.

Results. Clinical treatment success at day 4 was higher in the EA (n = 488) vs IA (n = 119) groups (93.7% vs 86.6%, p = 0.01) and median LOS was shorter (5 [IQR 4-6] vs 5 [IQR 5-7] days, p < 0.01). There were no differences in infection-related mortality (3.1% vs 3.4%, p = 0.8), 30-day mortality (2.5% vs 2.5%, p > 0.9), or incidence of CDI (1.8% vs 0%, p = 0.3) in the EA vs IA groups, respectively. For patients on IA < 24 h vs > 24 h, there was no difference in clinical improvement at day 4 (86.7% vs 90.5%, p > 0.9) nor 30-day mortality (2.4% vs 4.8%, p = 0.4). Clinical treatment success at day 4 was higher among non-CTX-M (n = 476) vs CTX-M (n = 131) patients (93.9% vs 86.3%, p = 0.01) even among those that received initial EA (94.5% vs 83.3%, p = 0.02). Median LOS was also shorter in CTX-M vs non CTX-M (5 [IQR 4-6] vs 5 [IQR 4-8] days, p < 0.01).

Conclusion. There was no mortality difference among patients receiving initial EA vs IA for *E. coli* bacteremia with rapid molecular blood culture diagnostics with active stewardship. Therapy for patients on IE is rapidly corrected and stewardship programs can use this intervention to promote judicious use of carbapenems.

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

208. Comparison of Bloodstream Infections in Hospitalized Patients Before and During the COVID-19 Surge in a Community Hospital in the South Bronx: An Observational Study

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Session: P-10. Bacteremia

Background. There is a paucity of data of bloodstream infections (BSI) before and during the COVID-19 pandemic. The aim of our study was to compare the incidence and characteristics of blood stream infections (BSI) in hospitalized patients before and during the surge of COVID-19 pandemic in a community hospital in South Bronx.

Methods. This is a retrospective observational comparative study of adult hospitalized patients with BSI admitted before (Jan 1-Feb 28, 2020) and during COVID-19 surge (Mar 1- May 1,2020). The incidence of BSI, patient demographics, clinical and microbiological characteristics of infections including treatment and outcomes were compared.

Results. Of the 155 patients with BSI, 64 were before COVID and 91 were during the COVID surge (Table 1). Incidence of BSI was 5.84 before COVID and 6.57 during surge (p = 0.004). Majority of patients during COVID period had ARDS (39.6%), required mechanical ventilation (57%), inotropic support (46.2%), therapeutic anticoagulation (24.2%), proning (22%), rectal tube (28.6%), Tocilizumab (9.9%), and steroids (30.8%) in comparison to pre-COVID (Table 2). Days of antibiotic therapy prior to BSI was 5 days before COVID and 7 during COVID. Mortality was higher among patients with BSI admitted during COVID surge (41.8% vs. 14.1% p < 0.0001). Of 185 BSI events, 71 were Pre-COVID and 114 during surge. Primary BSI were predominant (72%) before COVID contrary to secondary BSI (46%) (CLABSI) during COVID. Time from admission to positive culture was 2.5 days during COVID compared to 0.9 pre-COVID. Majority of BSI during COVID period were monomicrobial (93%) and hospital acquired (50%) (p=0.001). *Enterococcus* (20.2%), *E.coli* (13.2%), and *MSSA* (12.3%) were predominant microbes causing BSI during COVID vs. *MRSA* (15.5%), *Streptococci* (15.5%), and *S. pneumoniae* (14.1%) before COVID (Figure 1). In multivariate logistic regression, *Enterococcal* coinfection was associated with COVID positivity (OR 2.685, p = 0.038), mechanical ventilation (OR 8.739, p = 0.002), and presence of COPD/Asthma (OR 2.823, p = 0.035).

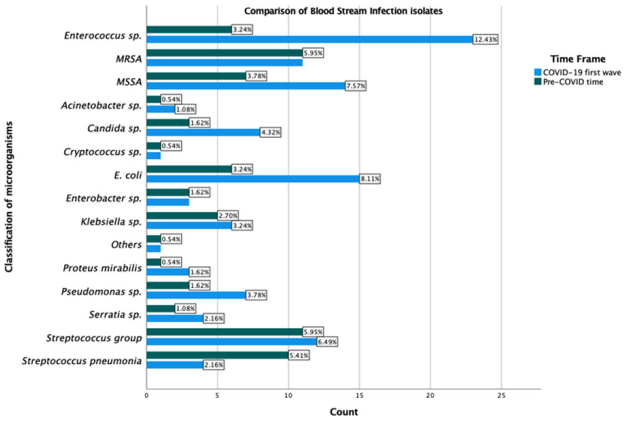
Table 1
Baseline characteristics & Demographics of patients with BSI during Pre-COVID Period vs. COVID Period

	Overall n=155	Pre-COVID Period n=64	COVID Period n=91
Baseline characteristics			
Age			
Median, IQR	60 (49 – 69)	59.50 (46 – 67.75)	60 (53 – 70)
<40 years old	16 (10.3%)	9 (14.1%)	7 (7.7%)
41-59 years old	59 (38.1%)	23 (35.9%)	36 (39.6%)
>60 years old	82 (51.6%)	32 (50.0%)	48 (52.8%)
Gender			
Female, No (%)	71 (45.8%)	35 (54.7%)	36 (39.6%)
Male, No (%)	84 (54.2%)	29 (45.3%)	55 (60.4%)
Race			
Hispanic	88 (56.8%)	36 (56.3%)	52 (57.1%)
Black	38 (24.5%)	12 (18.8%)	26 (28.6%)
White	3 (1.9%)	2 (3.1%)	1 (1.1%)
Asian	3 (1.9%)	2 (2.1%)	1 (1.1%)
Others	23 (14.8%)	12 (18.8%)	11 (12.1%)
Body mass index			
Normal	59 (38.1%)	31 (48.4%)	28 (30.8%)
Overweight	35 (22.6%)	13 (20.3%)	22 (24.2%)
Obese	44 (28.4%)	12 (18.8%)	32 (35.2%)
Underweight	17 (11%)	8 (12.5%)	9 (9.9%)
Comorbidities			
Charlson Comorbidity Score (CCS)	3 (2 – 6)	3 (1 – 6)	4 (2 – 6)
Hypertension	93 (60%)	30 (46.9%)	63 (69.2%)
Diabetes Mellitus	71 (45.8%)	23 (35.9%)	48 (52.7%)
Asthma/Chronic obstructive pulmonary disease	33 (21.3%)	17 (26.6%)	16 (17.6%)
SLE/RA	6 (3.9%)	5 (7.8%)	1 (1.1%)
CKD/ESRD	22 (14.2%)	6 (9.4%)	16 (17.6%)
Cirrhosis	6 (3.9%)	2 (3.1%)	4 (4.4%)
Dementia	7 (4.5%)	2 (3.1%)	5 (5.5%)
Previous history of cancer	15 (9.7%)	5 (7.8%)	10 (11%)
HIV	19 (12.3%)	11 (17.2%)	8 (8.8%)
Smoking	48 (31%)	26 (40.6%)	22 (24.2%)

Table 2. Therapeutic Interventions in patients with BSI during Pre-COVID vs. COVID Period

	Overall n=155	Pre-COVID Period n=64	COVID Period n=91
Length of Stay (days)	14 (5 – 29)	10 (4 – 23.75)	15 (7 – 30)
Days to Positive Culture	1.4 (0.6 – 12.4)	0.9 (0.5 – 3.4)	2.5 (0.6 – 15.2)
ARDS on admission	42 (27.1%)	6 (9.4%)	36 (39.6%)
Mechanical Ventilation during hospitalization	71 (45.8%)	19 (29.7%)	52 (57.1%)
Days of Mechanical Ventilation	0 (0 – 12)	0 (0 – 2.5)	3 (0 – 20)
Inotrope use during hospitalization	59 (38.1%)	17 (26.6%)	42 (46.2%)
Days of Inotrope	6 (3 – 13)	4 (1.5 – 12.50)	7 (3 – 13.25)
Anticoagulation (therapeutic)	27 (17.4%)	5 (7.8%)	22 (24.2%)
Proning	21 (13.5%)	1 (1.6%)	20 (22.0%)
Rectal Tube	34 (21.9%)	8 (12.5%)	26 (28.6%)
Tocilizumab	9 (5.8%)	0	9 (9.9%)
Steroids	39 (25.2%)	11 (17.2%)	28 (30.8%)
Days of Steroids	0 (0 – 1)	0	0 (0 – 4)
Duration of Antibiotics (DOT)	5 (4 – 16)	5 (4 – 6)	7 (4 – 20)
Death	47 (30.3%)	9 (14.1%)	38 (41.8%)

Comparison of Microorganisms Isolated in the BSI



X-axis represents the total number of BSI events whereas the number at the end of each bar represents the percentage

Table 3. Characteristics of BSI in Covid Negative vs. COVID Positive patients

	Overall n=185	COVID Negative n=117	COVID Positive n=68	*p-value*
Primary	113 (61.1%)	89 (76.1%)	24(35.3%)	0.000
Secondary				
UTI	7 (3.8%)	5 (4.3%)	2 (2.9%)	
Skin	2 (1.1%)	2 (1.7%)	0	
Pneumonia	9 (4.9%)	3 (2.6%)	6 (8.8%)	
GU	3 (1.6%)	2 (1.7%)	1 (1.5%)	
Endocarditis	3 (1.6%)	3 (2.6%)	0	
CSF	2 (1.1%)	1 (0.9%)	1 (1.5%)	
CLABSI	46 (24.9%)	12 (10.3%)	34 (50 %)	0.000
Monomicrobial BSI	170 (91.9%)	110 (94%)	60 (88.2%)	0.165
Polymicrobial BSI	15 (8.1%)	7 (6%)	8 (11.8%)	0.165
Community Acquired BSI	106 (57.3%)	86 (73.5%)	20 (29.4%)	0.000
Hospital Acquired BSI	79 (42.7%)	31 (26.5%)	48 (70.6%)	0.000

Conclusion. Higher incidence of secondary BSI (CLABSI) due to *Enterococcus spp*. was observed during the surge of COVID-19 infection in the South Bronx. Breakdown of infection control measures during the COVID-19 pandemic could have been contributory.

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

209. Methicillin-Sensitive *Staphylococcus aureus* (MSSA) Septicemia-Outcomes of Ceftriaxone Compared with Cefazolin and Oxacillin Outpatient Therapy from a Large National Sample

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Session: P-10. Bacteremia

Background. Ceftriaxone has activity against MSSA and is convenient to use during outpatient parenteral antimicrobial therapy (OPAT). We examined outcomes of MSSA septicemia on patients receiving cefazolin, ceftriaxone or oxacillin OPAT using administrative data.

Methods. A large insurance claims database of privately insured patients (IBM MarketScan) aged 18 – 64 years from 2010 to 2018 was queried for patients with MSSA septicemia discharged from the hospital on cefazolin, ceftriaxone, or oxacillin OPAT. The primary endpoint was 90-day hospital readmission with same infection category as the index admission. Factors with significant association in univariate analysis were incorporated into a multivariable Cox proportional hazards model with sequential exclusion of variables with $p > 0.1$.

Results. A total of 1,895 patients were included; the median age was 54 years and 62.9% were male. Primary outcome occurred in 366 (19.3 %). Factors associated with readmission in multivariable analysis included older age (61-64 years) (aHR 1.42 [CI 1.02-1.98]), obesity (1.31 [1.04-1.65]), intensive care unit (ICU) stay during index MSSA hospitalization (2.11 [1.68-2.65]), hospitalization in the month prior to index MSSA (1.46 [1.15-1.85]), central line associated bacteremia (1.72 [1.26-2.35]), endocarditis (1.56 [1.19-2.04]) and prosthetic joint infection (1.77 [1.26-2.50]). There was no difference in infection-associated readmission among patients treated with ceftriaxone compared to cefazolin or oxacillin (Figure 1).

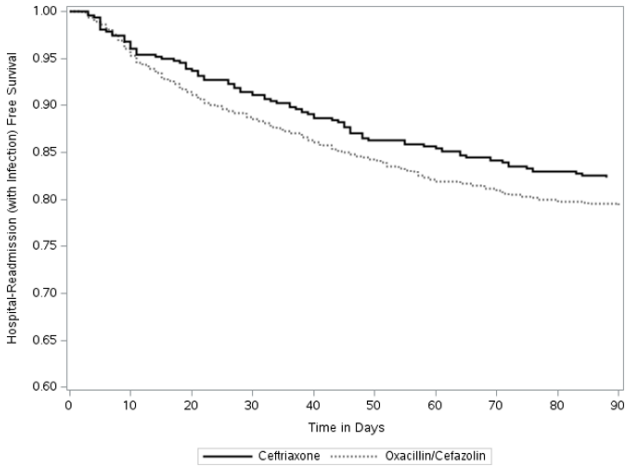
Conclusion. Older age, ICU admission, obesity, endocarditis, and prosthetic joint infections were associated with increased risk of hospital readmission with infection following OPAT for MSSA septicemia. Treatment with ceftriaxone was not associated with worse outcomes compared to oxacillin or cefazolin.

Table 1: Factors associated with readmission due to infection

Risk Factor N (%) or Median (IQR)	Readmission due to infection n = 366 n (%)	No readmission due to infection n = 1529 n (%)	P value for univariate analysis	aHR [95% CI]
Age (years) 18-40	71 (19.4)	261 (17.1)	0.055	1.38 [0.97-1.96]
41-50	60 (16.4)	319 (20.9)	Ref	Ref
51-60	132 (36.1)	575 (37.6)	0.221	1.21 [0.89-1.66]
61-64	103 (28.1)	374 (24.5)	0.030	1.42 [1.02-1.98]
Sex (Males)	229 (62.6)	963 (63.0)	0.983	
Region Northeast	76 (20.8)	290 (19.0)	0.884	
North Central	107 (29.2)	361 (23.6)	Ref	
South	125 (34.2)	578 (37.8)	0.748	
West	58 (15.9)	300 (19.6)	0.670	
Residing in an urban area	309 (87.5)	1306 (87.7)	0.846	
Comorbidities				
AIDS	3 (0.8)	7 (0.5)	0.352	
Congestive heart failure	57 (15.6)	138 (9.0)	<0.001	
Diabetes	130 (35.5)	500 (32.7)	0.187	
Chronic kidney disease	32 (8.7)	100 (6.6)	0.098	
Hypertension	201 (54.9)	746 (48.8)	0.032	
Solid Tumors	29 (7.9)	107 (7.0)	0.364	
Hematological malignancies	17 (4.6)	41 (2.7)	0.070	
Valvular heart disease	45 (12.3)	159 (10.4)	0.277	
Pulmonary circulation disease	41 (11.2)	101 (6.6)	0.003	
Peripheral vascular disease	32 (8.7)	96 (6.3)	0.055	
Obesity	113 (30.9)	369 (24.1)	0.008	1.31 [1.04-1.65]
Drug abuse	30 (8.2)	74 (4.8)	0.037	
Length of index hospital stay (days)	8 (6-12)	7 (5-11)	0.093	
Intensive Care Unit stay during index	245 (66.9)	712 (46.6)	<0.001	2.11 [1.68-2.65]
Infectious Diseases consultation (index)	244 (66.7)	1064 (69.6)	0.340	
Echocardiography during index admission	257 (70.2)	1049 (68.6)	0.495	
Recent admission in the preceding 30 days	99 (27.1)	257 (16.8)	<0.001	1.46 [1.15-1.85]
CIED in place	28 (7.7)	61 (4.0)	0.007	
Valve replaced during index	6 (1.6)	23 (1.5)	0.747	
Valve replaced the year before admission	3 (0.8)	10 (0.7)	0.653	
Receipt of OPAT at home	341 (93.2)	1371 (89.7)	0.078	
Type of infection at index admission				
Bone and Joint	116 (31.7)	467 (30.5)	0.633	
Osteomyelitis	68 (18.6)	267 (17.5)	0.521	
Septic arthritis	50 (13.7)	201 (13.2)	0.750	
Prosthetic joint infection	43 (11.8)	119 (7.8)	0.018	1.77 [1.26-2.50]
Central line associated bacteremia	48 (13.1)	127 (8.3)	0.002	1.72 [1.26-2.35]
Infection of vascular device	46 (12.6)	146 (9.6)	0.119	
Surgical site infections	126 (34.4)	432 (28.3)	0.051	
Epidural abscess	42 (11.5)	158 (10.3)	0.364	
Endocarditis	71 (19.4)	205 (13.4)	0.003	1.56 [1.19-2.04]
Pneumonia	58 (15.9)	298 (19.5)	0.114	
Antibiotics				
Ceftriaxone	78 (21.3)	382 (25.0)	Ref	Ref
Oxacillin/ Nafcillin	104 (28.4)	418 (27.3)	0.279	1.07 [0.79-1.44]
Cefazolin	184 (50.3)	729 (47.7)	0.247	1.10 [0.84-1.44]

AIDS, acquired immunodeficiency syndrome; CI, confidence interval; CIED, cardiac implantable electronic device; HR, hazard ratio; IQR, interquartile range; OPAT, outpatient parenteral antimicrobial therapy

Figure 1. Kaplan Meier Survival Analysis for readmission free survival (log-rank P value 0.31)



Disclosures. **Margaret A. Olsen, PhD, MPH**, **Pfizer** (Consultant, Research Grant or Support)

210. Outcomes of Kidney Transplant Recipients with Donor Positive Blood Cultures

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Session: P-10. Bacteremia

Background. Based on expert opinion, solid organ transplant recipients from donors with bacteremia are treated with 7-14 days of pre-emptive antibiotic therapy (PAT). However, studies addressing necessity, optimal duration of therapy, and outcomes in kidney transplant recipients (KTR) are lacking.

Methods. We retrospectively reviewed all kidney transplants performed at our institution from 01/01/2015-01/01/2021 to identify those cases where matched deceased donors had positive blood cultures. Bacteremia was defined per CDC criteria. We analyzed rate of infection in the KTR with the same organism identified in the donor blood culture within 30 days of transplantation.

Results. A total of 56 KTRs with donor positive blood cultures were identified. Demographic data are summarized in Table 1. Twenty of 56 cases (35.8%) had bacteremia and 36 (64.2%) had organisms classified as common commensals. The most common organisms in the bacteremia group were Gram-negative bacteria (12/20) and *Staphylococcus aureus* (6/20). Most common commensals were coagulase-negative staphylococci (26/36) (Table 2). All KTR received preoperative antibiotics at the time of transplantation, primarily cefazolin (15/20), and vast majority received TMP/SMX prophylaxis, for *Pneumocystis jirovecii*, post-transplant (19/20). PAT was administered in 70% (14/20) cases of bacteremia for a median of 8.5 days (IQR 7-14), while six cases were left untreated (Table 2). In contrast, majority of cases with common commensals were not treated (75%, 27/36). Of the cases treated (9/36), median duration of therapy was 7 days (IQR 5-14). No cases of infection with the same organism identified in the donor blood culture were reported in KTR within 30 days of transplantation.

Table 1: Demographic data of kidney transplant recipients.

	KTR[b] of Positive Blood Culture Donor, n = 56	KTR of Bacteremic[c] Donor, n = 20	KTR of Commensal Donor, n = 36
Age (in years)[a]	58 (36.75-79.25)	43.5 (25.75-61.25)	63.5 (53-74)
Gender			
Female	28 (50%)	9 (45%)	19 (52.8%)
Male	28 (50%)	11 (55%)	17 (47.2%)
Ethnicity			
White	9 (16.1%)	2 (10%)	7 (19.4%)
Black	47 (83.9%)	18 (90%)	29 (80.6%)

[a] Age at transplant, median (interquartile range)
[b] Kidney transplant recipient (KTR)
[c] Bacteremia defined as culture growth of non-commensal organisms per the Center for Disease Control and Prevention's National Healthcare Safety Network Organism List