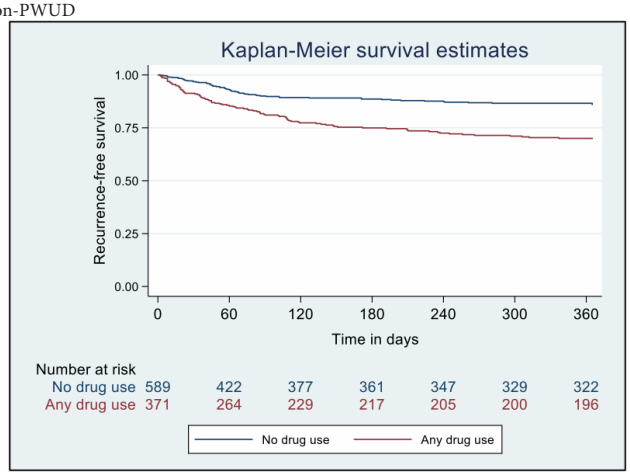
Figure 1: One-year Infection-free survival in persons who use drugs (PWUD) vs. non-PWUD



Conclusion. PWUD had higher proportions of *S. aureus* vertebral osteomyelitis, epidural abscess, and endocarditis than non-PWUD, lower odds of treatment completion, and greater risk of infection persistence/recurrence at one year. Among PWUD, opioid and stimulant use were common and undertreated. New patient centered models of care that deliver synchronized *S. aureus* infection and substance use disorder therapy are urgently needed.

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

40. The Impact of Medically Assisted Therapy for Opiate Use Disorder in staphylococcus Aureus Bacteremia Patients Within a Large Hospital System - A Retrospective Cohort Study

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Session: O-8. Bacteremia and Endocardits

Background. Intravenous drug use (IVDU) is a risk factor for development of *S. aureus* bacteremia (SAB) and prevalent in opiate use disorder (OUD). While the standard of care involves treating the underlying OUD with medically assisted therapy (MAT), it is unknown how much impact this has on clinical endpoints.

Methods. We conducted a retrospective cohort study of patients with IVDU with hospitalizations for SAB during a 28-month period from 9/2016 through 12/2018 in 10 urban and rural North Carolina hospitals in a single large health system. We compared outcomes for patients receiving prescription for MAT at discharge versus no MAT at discharge. MAT was defined as receiving methadone, buprenorphine, or naltrexone. Patients who expired inpatient were excluded from analysis. Clinical endpoints were 30- and 90-day mortality and 30-day SAB-related readmissions.

Results. Of the 174 patients, 28% received a prescription for MAT at discharge. The majority of the patients were Caucasian (88%), female (57%), with mean age of 37 years. Factors that significantly increased likelihood of MAT at discharge were female gender (34% vs 20%, p=0.04), having a complicated SAB (33% vs 28%, p=0.01), presence of a spinal/epidural abscess (57% vs 43%, p=0.002), and increased length of stay (LOS) (37 days vs 24 days, p=< 0.001). No difference in 30- and 90-day mortality was observed; only one patient in each group died within 90 days. Prescription for any MAT at discharge was associated with a significant decrease in the risk of SAB-related 30-day readmission (0% vs 17%, p=0.002).

Table 1: Baseline Characteristics

Table 1: Baseline Characteristics

	MAT at Discharge	No MAT at Discharge	P Value
	no. of patients (%)	*no. of patients (%)*	
All participants	**(n=49)**	**(n=125)**	
Mean Age (yrs)	36	38	0.16
Female Gender	34 (.34)	65 (.66)	0.04
Race			0.32
White/Caucasian	45 (.29)	108 (.71)	
Other Race or Unknown	4 (.19)	17 (.81)	
Hospital with Available Addiction Medicine Consultant	28 (.33)	56 (.67)	0.14
Admitting Service			0.22
Hospitalist	37 (.26)	103 (.74)	
Critical Care	6 (.27)	16 (.73)	
Other	6 (.50)	6 (.50)	
Blood culture with MRSA	24 (.25)	71 (.75)	0.35
Complicated Blood Stream Infection	43 (.33)	88 (.67)	0.01
Staph Bacteremia Complications			
Endocarditis	24 (.32)	52 (.68)	0.38
Suspected septic emboli	28 (.29)	68 (.71)	0.74
Soft tissue abscess	9 (.24)	29 (.76)	0.49
Spinal / epidural abscess	12 (.57)	9 (.43)	0.002
Osteomyelitis	3 (.15)	17 (.85)	0.16
Length of Stay (days)	37	24	<0.001

Table 2: MAT & Clinical Outcomes in S. aureus Bacteremia

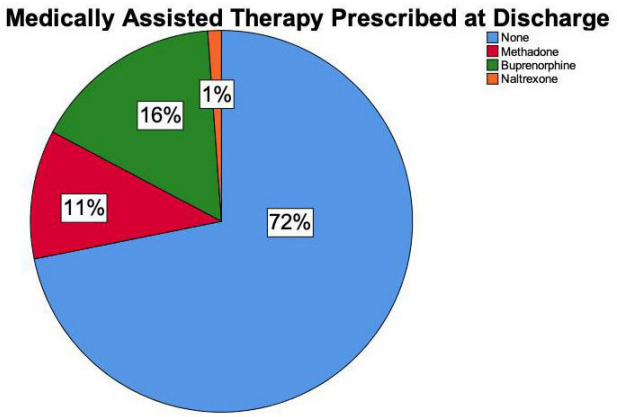
Table 2: MAT & Clinical Outcomes in S. aureus Bacteremia

	MAT at Discharge	No MAT at Discharge	P Value
	no. of patients (%)	*no. of patients (%)*	
All participants	**(n=49)**	**(n=125)**	
30-day mortality (inpatient deaths excluded)	0	0	–
90 day mortality (inpatient deaths exluded)	1 (.5)	1 (.5)	0.49
SAB-associated 30 day readmission*	0 (0)	21 (.17)	0.002

*SAB-associated readmission defined as including progressive worsening of original infectious foci(s), disseminated bacterial seeding from original foci(s), issues with outpatient parenteral antimicrobial therapy, or adverse drug reaction

Figure 1: Medically Assisted Therapy Prescribed at Discharge

Conclusion. Gender, more complicated infections, and prolonged LOS may increase the likelihood of receiving a prescription for MAT at discharge. MAT prescription at discharge may decrease the risk of 30-day SAB related re-admission (NNT 5.9). The results suggest that provision of MAT to patients with SAB and history of IVDU should be incorporated into standardized treatment guidelines.



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

41. Impact of Gut Microbiome Changes on Hematopoietic Stem Cell Transplantation Outcomes in Children.

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Session: O-9. Basic and Translational Science

Background. In adults undergoing allogeneic hematopoietic cell transplantation (HCT), higher gut microbiome diversity is associated with reduced bloodstream infections (BSI) and improved overall survival (OS). Rifaximin prophylaxis in adult HCT helps to maintain microbiome diversity. We examine changes in microbiome in a cohort of pediatric patients undergoing HCT.

Methods. Patients were enrolled in an institutional biorepository (n=82) with a subset enrolled in an ongoing trial using rifaximin (n=21) between 2013–2020. All patients had HCT for a hematologic malignancy, using myeloablative conditioning. Patients in the rifaximin trial received rifaximin starting 7 days before HCT (D-7) through D+28, otherwise, no prophylactic antibiotics were used. Systemic antibiotic timing was categorized as none, early (≤ Day 0, day of HCT), and late (> D0). We performed 16s rRNA sequencing from stool for 73 subjects, at baseline (D-7), and weekly through D+28 (engraftment). Microbiome diversity was assessed by Shannon index.

Results. Median age was 9 years (range 1–20), 59% male, 41% Caucasian and 29% Black. There were no differences in BSI or mortality by age, sex, or race.

Microbiome diversity changed significantly over time (p=0.008). Drop in diversity was most notable in patients who had early antibiotics (Mean=1.4, CI -0.15, 2.94, p=0.077). Higher diversity was seen when patients received none or late versus early antibiotics, but this was not statistically significant (Figure 1, p=0.23). Piperacillin-tazobactam was used empirically in 91% of patients. OS at 1 year was 88.5% (CI 68.4%, 96.1%) for patients with high (≥ median) D+28 diversity compared to 60% (CI 38.4%, 76.1%) for patients with low diversity (Figure 2, p=0.018) Only 1 of 21 (4.8%) in the rifaximin group developed a BSI with a gut bacterium compared to 8 of 61 (13.1%) not on rifaximin within the first 30 days (trial enrollment ongoing).

Figure 1. Effect of systemic antibiotic timing on microbiome diversity over time.