Cytomegalovirus (CMV) Infection, renal replacement therapy (RRT), and post-transplant extra-corporeal membrane oxygenation (ECMO) were analyzed as a time-dependent covariate.

Results: 1,112 SOT recipients met inclusion criteria. Patient characteristics are shown in Table 1. 105 patients had at least one MDRBI. The cumulative incidence of MDRBI was 9.7% (95% CI 14.6–5.9) (Figure 1). The most common MDR pathogens were Vancomycin-resistant *Enterococci* and *E. coli* (Figure 2A), and the most common sites of infection were urinary tract infection and pneumonia (Figure 2B). The 1-year post-SOT survival in patients with MDR infection was 75.3% (95% CI 82.8–65.2) (Figure 2C). In multivariable analysis, MDRBI (HR = 6.2 [3.5–10.9]) and post-SOT RRT (HR = 17.8 [10.3–30.6]) were associated with an increased risk of 1-year mortality (Table 2).

Conclusion: MDRBI significantly impacts the 1-year survival of SOT recipients. Our results highlight the need to strengthen ASP measures in SOT. Additionally, this study illustrates the versatility of EHR-based registries and data extraction tools in the field of transplantation.

Table 1. Patient Characteristics (Solid Organ Transplant Recipients, N=1,112)

	n	% or IQR
Age (median)	57	40-74
Gender (Male)	725	65.2%
Race/Ethnicity		
African American	182	16.4%
Caucasian	662	59.5%
Hispanic	217	19.5%
Other/Unknown	51	4.6%
Diabetes	313	28.1%
Transplant type		
Heart	203	18.3%
Kidney	278	25.0%
Liver	199	17.9%
Lung	395	35.5%
Multiorgan	37	3.3%
CMV serostatus		
D+/R-	309	27.8%
D+/R+;D-/R+	676	60.8%
D-/R-	127	11.4%
CMV Infection	109	9.8%
Post-Transplant RRT	176	15.8%
Pre-Transplant ECMO	17	1.5%
Post-Transplant ECMO	10	0.9%

Table 2. Multivariable Analysis of Risk Factors for All-Cause 1-year Post-Transplant Mortality

Variable	HR (95% CI)	*P* value
Age	1.02 (1.00-1.03)	0.13
Female	0.97 (0.62-1.52)	0.89
Race/Ethnicity		
Caucasian	Reference	--
African American	0.67 (0.34-1.30)	0.24
Hispanic	1.12 (0.58-2.16)	0.74
Other/Unknown	0.96 (0.36-2.57)	0.92
Diabetes	0.90 (0.53-1.51)	0.68
Transplant type		
Kidney	Reference	--
Heart	4.62 (1.69-12.59)	< 0.01
Liver	2.51 (1.03-6.15)	0.04
Lung	14.59 (6.03-35.29)	< 0.01
Multiorgan	0.85 (0.17-4.17)	0.84
CMV serostatus		
D-/R-	Reference	--
D+/R-	1.39 (0.63-3.03)	0.42
D+/R+;D-/R+	1.57 (0.77-3.22	0.21
CMV Infection	0.98 (0.43-2.20)	0.95
Pre-Transplant ECMO	0.66 (0.15-2.95)	0.59
Post-Transplant ECMO	2.08 (0.74-5.92)	0.16
Renal Replacement Therapy	17.77 (10.31-30.63)	< 0.01
Type of Infection		
None	Reference	--
Non-MDRO	4.12 (2.18-7.79)	< 0.01
MDRO	6.28 (3.54-10.93)	< 0.01

Figure 1. Cumulative incidence MDRBI

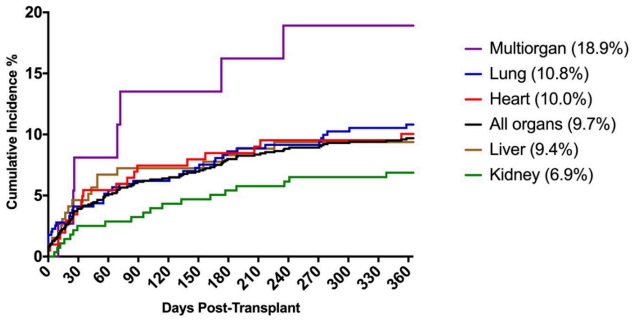
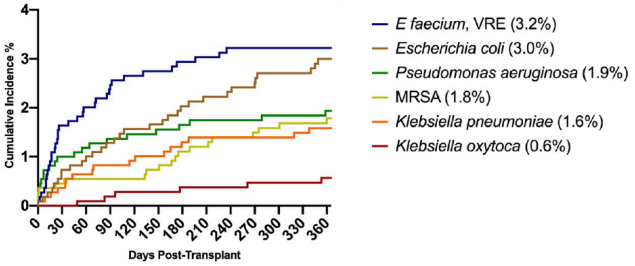
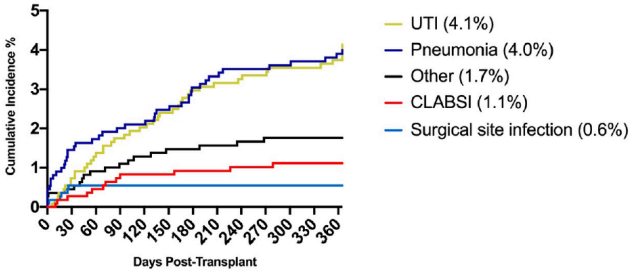


Figure 2.

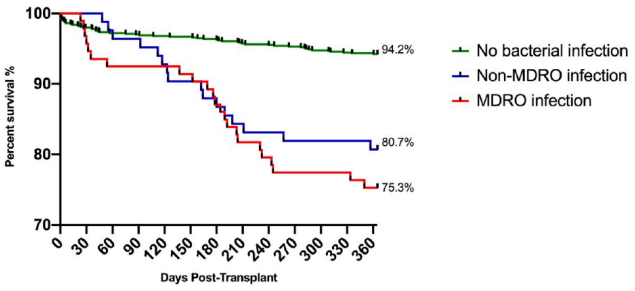
A. Cumulative incidence MDRBI by organism



B. Cumulative incidence MDRBI by site of infection



C. 1-year survival after MDRBI



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

2665. Intestinal Microbiome of Patients Submitted to Hematopoietic Stem Cell Transplantation Using *Lactobacillus plantarum* to Decolonized Multidrug-Resistant Bacteria

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Session: 273. Transplant ID: Bacterial Infections
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Background: Patients colonized by multidrug-resistant bacteria (MDR) have high risk for infection after hematopoietic stem cell transplantation (HSCT). Probiotic is a strategy that can be used to decolonize patients. Our aim was to describe the impact of use of *Lactobacillus plantarum* (LP) on decolonization, MDR infections and intestinal microbiome (IM) of autologous HSCT patients colonized by vancomycin-resistant *Enterococcus* (VRE) and carbapenem-resistant Gram-negative (CRGN).

Methods: A prospective study was conducted at Hospital das Clinicas of University of Sao Paulo Brazil from 2017 to 2018. Candidates for auto-HSCT colonized by MDR received LP in capsules, 5×10^9 CFU twice daily until neutropenia (NP). Rectal swabs were performed and cultured using selective media as well as PCR for carbapenemases, *van*A and *vanB*. Stool samples for IM analysis were collected weekly as baseline (before LB use) until the NP. The V4 region of 16S rDNA gene were sequenced by Ion Torrent PGM and analyzed using alpha and β diversities by Qiime. Demographic and clinical data including previous antibiotics use were evaluated; CDC criteria was applied for colonization and infection.

Results: All of seven patients were colonized by VRE and CRGN (Table 1). Only one patient remained colonized by CRGN after 61 days of LP. Four patients developed seven bloodstream infections (BSI) during the NP, two of them by CRGN. There was no infection caused by VRE neither by LP. One patient, with low adherence to LP use (66%), died due to MDR *K. pneumoniae* BSI. We observed a decrease of Clostridia, Verrucomicrobiae, *Blautia* and an increase of Enterobacteriaceae. Baseline samples from patients who used TMP/SMX had higher concentrations of Bacteroidetes when compared with those who had not use it. The Shannon index in controls ranged 1.98–5.55 and during NP 1.15–5.99. The β diversity analysis showed no clear patterns between patients.

Conclusion: We observed a heterogeneity among IM of auto-HSCT patients prior and after LP. It was not possible to establish an IM pattern, probably, because of small number of patients. Although, clinical infections by CRGN occurred despite of LP use, no cases of colonization and infection by VRE were identified. Thus, it seems that LP is a good and safe strategy to decolonized HSCT.

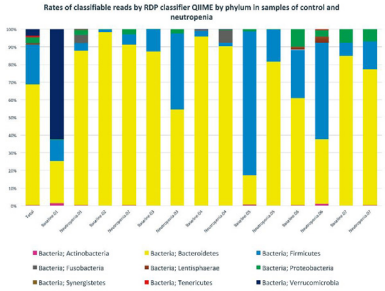

Table1. Demographic, clinical characteristics and IM of seven auto-HSCT.

Characteristics		
Diagnosis	**n**	**%**
Multiple Myeloma	2	29%
Hodgkin's lymphoma	4	57%
Acute Myeloid Leukemia	1	14%
Age		
≥60 years	3	43%
18 - 59 years	4	57%
Gender		
Women	4	57%
MDR Colonization		
VRE	7	100%
K. pneumoniae	4	57%
A. baumannii	3	43%
Conditioning Therapy		
BEAM (carmustine, etoposide, aracytin and melphalan)	3	43%
Bu Cy (busulfan and cyclophosphamide)	1	14%
Bu Mel (busulfan and melphalan)	1	14%
Use of ATB in collection of samples		
Baseline	5	71%
Neutropenia	5	71%
ATB class used by number of patients		
baseline		
Beta lactam + inhibitor	1	14%
Tuberculostatic	1	14%
Fluoroquinolone	3	43%
Sulfonamide	4	57%
Antifungal	0	0%
Antiviral	2	29%
neutropenia		
Beta lactam + inhibitor	1	14%
Fluoroquinolone	1	14%
Polymyxin	1	14%
Carbapenem	1	14%
Oxazolidinone	1	14%
Sulfonamide	2	29%
Aminoglycoside	1	14%
Antifungal	1	14%
Antiviral	7	100%
BSI in HSCT		
Yes	4	71%
No	3	29%
Adherence to LP (mean 84%)		
≤50%	0	0%
50% ≤ 70%	1	14%
71%≤ 80%	1	14%
81% ≤ 90%	3	43%
91% ≤ 100%	2	29%
LP consumption (Median 29; SD ±23)		
≤10 days	0	0%
11≤30 days	4	57%
31≤50 days	1	14%
51≤80 days	1	14%
81≤90 days	1	14%

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

2666. De-escalation of Broad-Spectrum Antibiotics in Hematopoietic Stem Cell Transplant Patients During Initial Episode of Febrile Neutropenia
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Session: 273. Transplant ID: Bacterial Infections
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Background: Febrile neutropenia (FN) is a common and serious complication in patients undergoing hematopoietic stem cell transplant (HSCT). Typically, broad-spectrum antibiotics (BSA) are promptly initiated with controversy on timing of de-escalation. ECIL 2013 guidelines suggest de-escalation after 72 hours if the patient is infection free and afebrile for at least 48 hours. Conversely, the 2011 IDSA recommends continuing BSA in patients who defervesce until absolute neutrophil count (ANC) recovery. In 2014, our center's practice changed to early de-escalation and we sought to compare outcomes between the two practices.

Methods: We retrospectively analyzed patients who underwent a HSCT in 2013 and 2017 with an episode of FN and negative infectious work up. The standard care group (SCG) were continued on BSA until ANC recovery. The early de-escalation group (EDG) de-escalated to fluoroquinolone prophylaxis at least 24 hours prior to ANC recovery after the patient was fever free for 48 hours. The primary end-point was duration of BSA. Secondary endpoints included 30-day mortality, re-hospitalization and length of stay (LOS) from FN. Median values were compared with the Mann–Whitney test.

Results: Among 229 HSCT patients, 155 (68%) developed FN post-transplant and of those 97 (63%) were without infection (13 EDG and 84 SCG). Initial FN duration of BSA was less in the EDG (3.09 days vs. 4.69 days, $P = 0.069$). Total antibiotic free days to 30 day follow-up were similar (EDG 24.08 vs SCG 25.19, $P = 0.81$). Duration of neutropenia was less in the SCG with 7.99 days compared with 11.69 days in the EDG ($P = 0.007$), but duration of initial fever was less in the EDG (2.55 days vs. 3.33 days, $P = 0.023$). 30 day mortality was 0% in both groups. Rates of re-hospitalization within 30 days were approximately the same (7.1% vs. 7.6%). LOS from FN was not significantly different with 6.68 days in SCG and 7.75 days in EDG ($P = 0.140$). More new bacterial infections were identified within 30 days of FN in the SCG than the EDG (10.7% vs. 7.6%).

Conclusion: Early BSA de-escalation resulted in no significant difference in LOS from FN and fewer days of BSA with 30-day mortality and re-hospitalization rates similar. This data suggest de-escalating BSA prior to ANC recovery is likely safe and leads to less BSA exposure, but more multi-center data are needed.

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

2667. Does Ceftazidime–Avibactam (CAZ-AVI) Improve Short- and Long-Term Outcomes Among Solid-Organ Transplant (SOT) Recipients with Carbapenem-Resistant Enterobacteriaceae (CRE) Infections?
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Session: 273. Transplant ID: Bacterial Infections
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Background: SOT recipients are an ideal population in which to study the impact of new antibiotics, since they are particularly dependent upon drug activity to clear infections. In 3/15, FDA approved CAZ-AVI, the first new anti-CRE agent to arrive in the clinic. Our objective was to determine whether CAZ-AVI improves short- and long-term outcomes of CRE-infected SOT recipients.

Methods: We performed a retrospective study of SOT recipients infected with CRE since 2012, who were treated with CAZ-AVI or salvage agents for ≥ 3 days.

Results: 35 CRE-infected SOT recipients (14 liver, 11 lung, 6 kidney, 3 intestine, 1 heart) with bacteremia (20), pneumonia (11), intra-abdominal abscess (3) and soft-tissue infection/osteomyelitis (1) were enrolled. 16 and 19 patients (pts) were treated with CAZ-AVI and salvage agents, respectively. Types of infection or SOT, APACHE II and McCabe scores did not differ significantly between patients treated with CAZ-AVI or salvage agents. 30- and 90-d mortality rates were significantly lower among SOT recipients treated with CAZ-AVI (0% and 6%, respectively) compared with salvage agents (26% and 37%; $P = 0.049$ and 0.047). Among patients who survived 90 days, recurrent CRE infections were diagnosed in 53% and 17% of those treated with CAZ-AVI and a salvage regimen, respectively ($P = 0.10$). Median time from end of therapy for the 1st CRE infection to recurrent infection was 116 days (max 1,242) and 361 days (max 799) for CAZ-AVI and salvage regimens, respectively. Survival and recurrence-free survival were greater for treatment with CAZ-AVI and salvage agents, respectively, as measured by Kaplan–Meier (Figures). CAZ-AVI resistance developed in 37% ($n = 3$) of patients with recurrent infections. Recurrent isolates were genetically indistinguishable from parent isolates by core genome SNP phylogeny (< 15 SNP).

Conclusion: CAZ-AVI significantly reduced short-term mortality among SOT recipients with CRE infections compared with salvage regimens, but was limited by recurrent infections and emergence of resistance. The same strains caused recurrent and initial infections, suggesting that CAZ-AVI did not eliminate CRE from GI sites that serve as sources of recurrence. Optimizing outcomes in SOT recipients with CRE infections will require new agents like CAZ-AVI, and strategies to eliminate long-term colonization.