	LR - Acc	RF - Acc	SVM - Acc	ENS - Acc	LR - AUC	RF - AUC	SVM - AUC	ENS - AUC
28 days	0.46	0.79	0.78	0.81	0.65	0.83	0.74	0.81
91 days	0.54	0.61	0.58	0.57	0.59	0.68	0.64	0.66
182 days	0.62	0.81	0.85	0.79	0.72	0.82	0.73	0.78
365 days	0.65	0.81	0.85	0.72	0.70	0.85	0.73	0.80

Table 3: Model performance on test set. LR: Logistic regression, RF: Random forests, SVM: Support vector machine, ENS: Ensemble classifier. Acc – Accuracy. AUC: Area under receiver-operator characteristic (ROC) curve. Underlined values are the highest for each model measure.

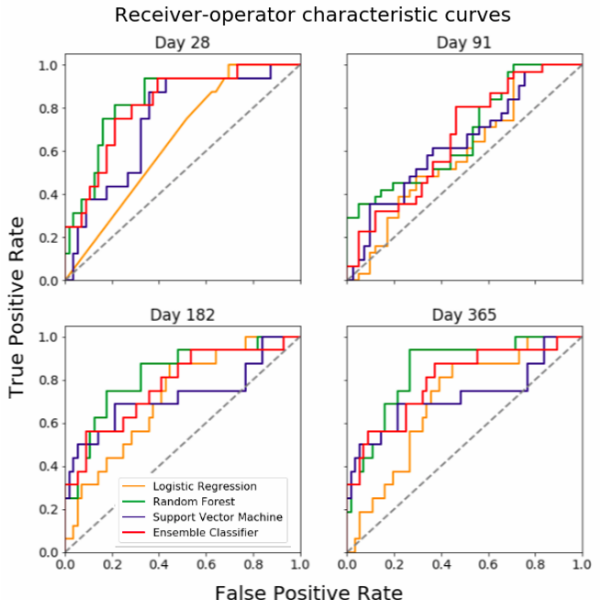

Figure 1: Test set receiver-operator characteristic (ROC) curves for each predictive model at 28, 91, 182 and 365 days.

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580. Association Between Central Venous Catheter Repair and Bloodstream Infections in a Pediatric Oncology Center

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Background. Central venous catheters (CVCs) are important for healthcare delivery in pediatric oncology patients. It is common to repair CVC breakage to prevent replacement. Existing evidence regarding the association between CVC repair and bloodstream infections (BSI) is limited in the general pediatric population and lacking in pediatric oncology patients. We aim at evaluating whether repairing broken CVCs is associated with an increased risk for subsequent BSI in a pediatric oncology center.

Methods. This is a retrospective case-crossover study of pediatric oncology patients with broken CVCs that underwent repair between July 2015 and June 2017. The incidence and characteristics of BSI in the 30-day pre-repair period were compared with those in the 30-day post-repair period. Wilcoxon-Mann–Whitney and Fisher's Exact tests were used for comparison of continuous and categorical variables, respectively. Univariate logistic regression was used to identify potential risk factors for BSI post CVC repair. Multiple breakages of the same CVC, and BSIs in overlapping observation periods of consecutive breakages are assumed independent.

Results. Sixty-four patients had 99 episodes of CVC breakage/repair in 68 CVCs. Median age (range) at repair was 2.5 (0.15–17.6) years. 48% of CVC breakages occurred in patients with solid tumors, 24% in HSCT recipients, and 19% in patients with leukemia. Only 25% of patients had neutropenia at repair and 14% had CVC occlusion 72 hours prior to breakage. All CVCs were made of silicone and 88% were double lumen external tunneled. First CVC breakage occurred at a median (range) of 130 (2–718) days since insertion, and CVCs were removed at a median (range) of 72.5 (3–753) days from the last repair. End of treatment was the most common cause (43%) for removal. The post-repair incidence of BSI was 4.5 per 1000 line-days compared with a pre-repair incidence of 4.3 (RR= 0.95, 95% CI 0.44, 2.18). There is no statistical difference between the characteristics of the pre-repair and post-repair BSI (Table 1). Figure 1 shows the organisms causing BSI before and after CVC repair. None of the evaluated variables was identified as a significant risk factor for BSI 30 days after CVC repair (Table 2).

Conclusion. Repair of CVC in pediatric oncology patients was not associated with increased risk of BSI.

Table 1: Comparison of the incidence, characteristics, clinical course, and outcomes of Bloodstream infections occurring 30 days before vs 30 days after CVC breakage and repair

Variable	BSI 30 days before CVC breakage/repair (N=12)	BSI 30 days after CVC breakage/repair (N=12)	P-value
Median (range) age at BSI in years	2.63 (0.86 - 10.53)	2.29 (0.82 - 12.39)	0.42
Double lumen external tunneled CVC, n (%)	10 (83)	12 (100)	0.48
Median (range) ANC at repair	1,400 (0 - 29,200)	2,050 (0 – 8,600)	0.39
Diagnosis at BSI, n (%)			0.58
HSCT recipient	5 (42)	5 (42)	
Hematology	2 (17)	0 (0)	
Leukemia	2 (17)	2 (17)	
Solid Tumor	3 (25)	5 (42)	
Classification of BSI, n (%)			>0.99
CLABSI	5 (42)	5 (42)	
MBI-LCBI	5 (42)	5 (42)	
SPBC	2 (17)	2 (17)	
Organism, n (%)			0.71
Gram-negative bacteria	2 (17)	3 (25)	
Gram-positive bacteria	9 (75)	7 (58)	
Polymicrobial	1 (8)	2 (17)	
HAI vs Ambulatory, n (%)			>0.99
Ambulatory	8 (67)	9 (75)	
HAI	4 (33)	3 (25)	
ICU within 7 days of BSI	0 (0)	3 (25)	0.22
Death within 30 days of BSI	0 (0)	2 (17)	0.48
Line removal due to BSI	0 (0)	3 (25)	0.22

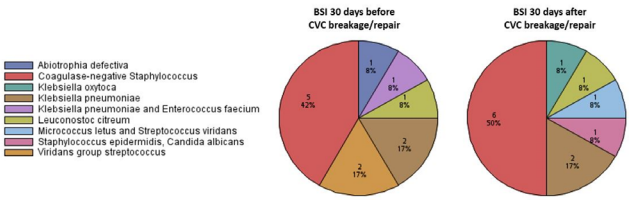
BSI, bloodstream infection; CVC, central venous catheter; HSCT, hematopoietic stem cell transplant; CLABSI, central line associated bloodstream infection; MBI-LCBI, mucosal barrier injury – laboratory confirmed blood infection; SPBC, single positive blood culture; HAI, hospital acquired infection; ICU, intensive care unit; ANC, absolute neutrophil count.

Table 2: Univariate analysis to assess potential risk factors for BSI 30 days after CVC breakage and repair

Risk factor	Odds Ratio	Odds Ratio 95% Confidence Limits	P-value
Age at repair in years	1.07	[0.93, 1.23]	0.38
Neutropenia	1.63	[0.44, 5.97]	0.46
Inpatient location at time of CVC breakage/repair	1.82	[0.53, 6.28]	0.35
Occlusion within 72 hours prior to breakage/repair	0.50	[0.06, 4.24]	0.53
BSI within 30 days before repair	1.5	[0.29, 7.85]	0.63
Prior CVC breakage/repair	0.35	[0.07, 1.69]	0.19
Line type of DL vs. SL external tunneled	>999.99		0.97
Diagnosis at CVC breakage/repair			
HSCT vs. Hematology	>999.99		0.96
Leukemia vs. Hematology	>999.99		0.96
(Solid Tumor & NO) vs. Hematology	>999.99		0.96

BSI, bloodstream infection; CVC, central venous catheter; HSCT, hematopoietic stem cell transplant; NO, neuro-oncology; DL, double lumen; SL, single lumen.

Figure1: Organisms causing the bloodstream infections (BSI) occurring 30 days before or 30 days after the CVC breakage and repair



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

581. The Epidemiology of Imipenem-Resistant *Acinetobacter baumannii* Bacteremia in a Pediatric Intensive Care Unit and Carbapenem Use

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