Methods: Physicians at participating centers were provided with a link to access an online survey. The survey questions addressed current practices around management of AdV infections in allo-HCT recipients at their center, and classified patients with regard to known risks for AdV infection (e.g., T-cell depletion, cord blood, haploidentical, mismatched, GVHD). When necessary, respondents consulted with other physicians in their center to ensure consensus before submitting responses.

Results: 62 centers were approached, of which 15 (24%) agreed to participate in this survey prior to the first deadline for response. 11 of the participating centers treat pediatric patients and 4 treat adult patients (Figure). According to CIBMTR data and physician interview responses, the pediatric and adult centers conduct an average of 36 and 142 allo HCTs per year, respectively. Almost all (91%) pediatric centers conduct weekly routine screening for AdV after allo-HCT among higher-risk patients, and around half (55%) conduct routine screening for AdV among lower-risk patients. Routine AdV screening is conducted by 25% of adult centers for higher-risk patients, and none routinely screen lower-risk patients. Among those screening higher-risk patients for AdV, all pediatric and adult centers screen blood samples at least once weekly and the majority (90%) of pediatric centers screen blood for at least 3 months post allo-HCT; the one adult center that screens blood does so weekly for up to 6 months post-HCT. Most pediatric centers have a pre-emptive AdV treatment approach for higher-risk patients (91%) and lower-risk patients (82%), using positive blood PCR as the treatment trigger. All adult centers that screen higher-risk patients use a pre-emptive approach. The pre-emptive AdV treatment most frequently reported by pediatric and adult centers is off-label IV cidofovir in spite of well-known toxicity concerns including renal injury.

Conclusions: The AdVance US practice patterns survey suggests that pediatric centers are more likely than adult centers to screen for AdV, and are also more likely to have a pre-emptive AdV treatment approach compared to adult centers. Perceived risk of AdV infection is a determining factor for whether routine screening and pre-emptive treatment are implemented. For both pediatric and adult centers, AdV viremia was the most common pre-emptive treatment trigger, with off-label IV cidofovir commonly utilized for treatment in spite of toxicity concerns. Treatment practices in the centers surveyed are generally consistent with ASBMT guidelines.

	Pediatric Centers (N=11)		Adult Centers (N=4)	
	Lower-risk patients	Higher-risk patients	Lower-risk patients	Higher-risk patients
For higher-risk patients only				
Routine AdV screening after allo-HCT		**10/11 (91%)**		**1/4 (25%)**
Blood		10 (100%)		1 (100%)
Stool		1 (10%)		0
Urine		1 (10%)		0
Nasopharynx		1 (10%)		0
AdV screening in blood		**10/11 (91%)**		**1/4 (25%)**
Once weekly- 6 to <12 months		2 (20%)		0
Once weekly- 3 to <6 months		5 (50%)		1 (100%)
Once weekly- <3 months		1 (10%)		0
More than once weekly- 3 to <6 months		2 (20%)		0
For all patients				
Pre-emptive treatment for AdV	**9/11 (82%)**	**10/11 (91%)**	**1/4 (25%)**	**1/4 (25%)**
Pre-emptive trigger for AdV				
Stool positive	**1/9 (9%)**	**2/10 (20%)**	**0/1 (0%)**	**0/1 (0%)**
> 1000 copies/mL	1 (100%)	1 (50%)	-	-
No threshold defined	0	1 (50%)	-	-
Blood positive	**9/9 (100%)**	**10/10 (100%)**	**1/1 (100%)**	**1/1 (100%)**
500 to < 1000 copies/mL	2 (22%)	2 (20%)	0	0
1000 copies/mL	1 (11%)	1 (10%)	0	1 (100%)
> 1000 copies/mL	1 (11%)	0	1 (100%)	0
No threshold defined	5 (56%)	7 (70%)	0	0
For all patients				
CDV for pre-emptive AdV treatment		**10/11 (91%)**		**1/4 (25%)**
1 mg/kg 3 times a week		5 (50%)		0
5 mg/kg once per week		5 (50%)		1 (100%)
CDV for treatment of new symptomatic AdV disease		**11/11 (100%)**		**4/4 (100%)**
1 mg/kg 3 times per week		5 (45%)		1 (25%)
5 mg/kg once per week		6 (55%)		3 (75%)

Figure 1. Summary of AdVance US multicenter practice patterns survey results for screening and treatment of pediatric and adult allo-HCT recipients.

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Scrubbing the Hub, How Long Is Enough?

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Background: Patients undergoing hematopoietic stem cell transplant (HSCT) require a central venous catheter (CVC) for their care. The presence of a CVC increases the risk of bloodstream infections (BSI). Central line associated bloodstream infections (CLABSI) are associated with increase morbidity, mortality and healthcare costs. Substantial effort is placed in the maintenance and disinfection of needless connectors (NC) with the goal to prevent CLABSI. Current guidelines don't specify the duration of mechanical friction that should be applied to NC prior to accessing a CVC. Our current practice is 30 seconds of scrubbing and 30 seconds of dry time with nurses collectively spending approximately a total of 120 hours/day scrubbing. The objective of this study was to evaluate the impact that length of mechanical friction has on NC disinfection.

Methods: Sixty sterile NC were used, divided in groups of ten. McFarland solution composed of *Staphylococcus aureus, Staphylococcus epidermidis, Escherichia coli,* and *Pseudomonas aeruginosa* was used to inoculate the NC for 30 minutes. One millimeter of sterile saline was used to flush the NC into a sterile tube and ten microliter loops were used to inoculate blood agar plates followed by use of spreaders for quantification. The first group was negative controls which were flushed after being removed from the package, the second group was positive controls with no scrubbing done prior to the flush. For the remaining 4 groups 2% chlorhexidine gluconate plus 70% alcohol pads were used to scrub the NC per routine practice for 15 seconds, 30 seconds, 45 seconds and 60 seconds. All the groups had the same drying time of 30 seconds. After 24 hours of incubation at 38 degrees Celsius positive cultures were identified and number of colonies on each plate were recorded. Ten nurses participated in the study scrubbing the hubs.

Results: All the negative controls were negative, 7/10 positive controls were positive with a mean of 127 CFU/ml. For the 3rd group 8/10 were positive with a mean of 171 CFU/ml. For the 4th group 6/10 were positive with a mean of 122 CFU/ml. For the 5th group 4/10 were positive with a mean of 55 CFU/ml and for the 6th group 3/10 were positive with a total of 15 CFU/ml. There was a statistically significant difference between positive and negative cultures in the 15 second group versus 60 second group ($p = 0.02$) but not between

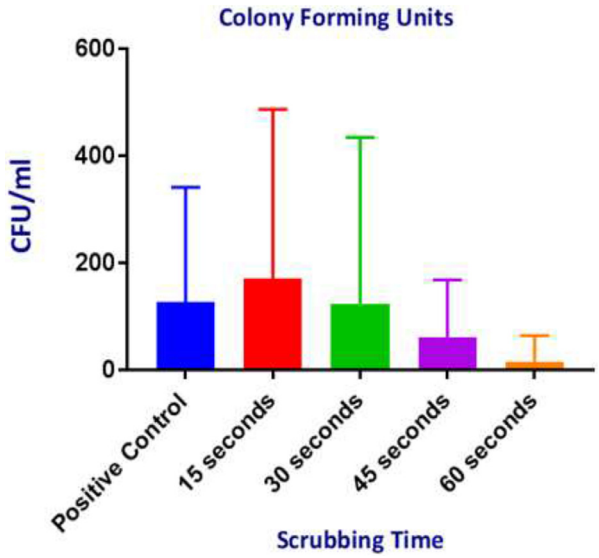

Figure 1. Results of CFU/ml in the control group and the four different scrubbing time groups

the 30 second versus the 60 second group (p=0.2). Three cultures were too numerous to count and were given a value of 1000 CFU/ml. Results do not appear to be dependent on who was scrubbing the NC.

Conclusions: Longer scrubbing time appears to decrease line contamination which can be translated into clinical practice. Results from a larger study with a total of 120 NC assessing different disinfecting solutions as well as drying time will be available by December 2018.

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Severity of Cytokine Release Syndrome As a Predictor of Infections after T-Cell Replete Haploidentical Hematopoietic Cell Transplantation (haploHCT)

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Background: HaploHCT is a common alternative donor graft source for patients with hematological malignancies. A sepsis-like hyper-cytokine state referred to as cytokine release syndrome (CRS) has been described following haploHCT. Given the distinctive biology of CRS in haploHCT, understanding the infectious complications as a function of severity of CRS is critical.

Methods: We evaluated 78 consecutive adult haploHCT patients (pts) at our center for development of CRS (graded as per criteria by Lee et al. Blood 2014) and examined the incidence of infectious complications in correlation with CRS severity. All pts received haploHCT for malignancies between 04/2012-04/2018, using post-transplant cyclophosphamide (PTCY) and tacrolimus/mycophenolate mofetil for graft-versus-host disease prophylaxis. The incidence of infections was examined in two time periods in relation to day of stem cell infusion (day 0): day 0-100 (early) and day 101-180 (late).

Results: Among the 78 pts, 41 (53%) developed grade 0-1 CRS and 37 (47%) had grade 2-5 CRS. Overall, 61 patients (78%) experienced early infections whereas 19 (27%, n=70) experienced late infections. 44% of those with CRS grade 0-1 had early infections and 37% had late infections. In contrast, early and late infections occurred in 56% and 63% CRS grade 2-5 pts (p=.002 and p=.31). In CRS 0-1 cohort, blood-stream infections (BSI) were seen in 10% pts in first 180 days; the corresponding number was 46% in CRS 2-5 cohort (P<.001). There was evidence for increased viral infections in pts with CRS 2-5 (81% vs 61% in CRS 0-1; p=0.05). This was driven by increased frequency of BK viruria in CRS grade 2-5 (46% vs. 24%, p=.046). There was no significant difference in incidence of fungal infections with CRS severity.

Conclusion: Infections are common post-transplant complications in first 6 months. The severity of CRS developing after haploHCT using PTCY-platform is associated with increased frequency of BSI. Viral and fungal infections do not have a higher risk post-haploHCT based on CRS severity.

Table 1
Baseline characteristic

	Patients, No. (%) [n=78]
Age in years, median (min-max)	56 (20-74)
Male sex	44 (56)
Underlying disease:	
Leukemia/MDS/MF	49 (63)
Lymphoma/MM	24 (31)
Others	5 (6)
Disease risk index	
Low	5 (6)
Intermediate	53 (68)
High+ Very High	16 (21)
NA	4 (5)
HCT-CI, grouped	
≥3	35 (45)
<3	43 (55)
Conditioning intensity	
MA	21 (27)
RIC	57 (73)
CMV Status (D/R)	
D-/R+	23 (30)
Others (D+/R+, D+/R-, D-/R-)	55 (70)
KPS	
90-100	30 (39)
<90	48 (61)
Stem cell source	
Bone Marrow	23 (30)
Peripheral Blood	55 (70)
Follow up of survivors (months), median (range)	11 (0.13-73.6)

Abbreviations: MDS, myelodysplastic syndrome; MF, myelofibrosis; MM, multiple myeloma; HCT-CI, Hematopoietic Cell Transplantation Co-morbidity Index; MA, myeloablative; RIC, reduced intensity; CMV, cytomegalovirus; D-, donor seronegative; R-, recipient seronegative, D+, donor seropositive, R+, recipient seropositive; KPS, Karnofsky Performance Score
HCT-CI: Adapted from Sorror et al. Blood 2005; 106(8): 2912-2919.
CRS: Adapted from Lee at al. Blood 2014; 124(2): 188–195.