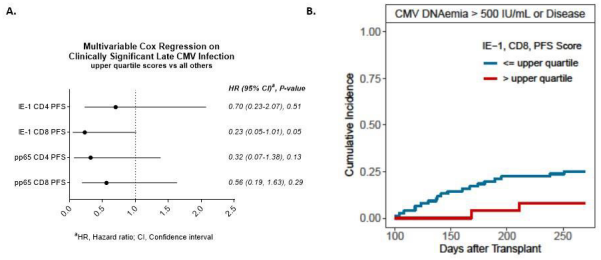

Figure 3 – A) Multivariable Cox regression of upper quartile CMV-specific polyfunctionality scores (PFS) on late clinically significant CMV infection (as defined by CMV disease or by a viral load greater than 500 IU/mL for the assay used). B) Cumulative incidence of clinically significant CMV infection between days 100-270 post-HCT in patients with upper quartile CD8+ IE-1 PFS compared to all other scores.

Conclusion: Our findings demonstrate that COMPASS is a valuable tool to evaluate multiple, T-cell cytokine responses to CMV in HCT recipients. COMPASS appears to be useful to identify patients at risk for late cs-CMV infection.

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195. Economic and Clinical Burden of Respiratory Virus Infections in Allogeneic Hematopoietic Cell Transplantation Recipients

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Background: Respiratory viruses (RV), including respiratory syncytial virus (RSV), influenza, parainfluenza virus (PIV), and human metapneumovirus (HMPV), frequently lead to serious complications such as lower respiratory tract infections and death in allogeneic hematopoietic cell transplantation (HCT) recipients. We used a large US claims database to compare the total reimbursement (TR), health resource utilization (HRU) and clinical outcomes between HCT patients with and without RV infections (RVI).

Methods: We used the Decision Resources Group Real World Evidence Data Repository to identify HCT recipients with date of service for the procedure from 1/1/2012-12/31/2017. We estimated the reimbursements from submitted charges using a reimbursement to charge ratio of 0.425. We examined the study outcomes in the year following HCT in patients with and without RVI. We also used a generalized linear model to determine adjusted TR stratified by the presence or absence of any acute or chronic graft-versus-host diseases (GVHD) after adjusting for age, health plan, underlying disease, stem cell source, number of comorbidities, baseline costs, and follow-up time.

Results: The study included 13,363 patients, representing 22% of HCTs reported to CIBMTR for the study period, of which 1,368 (10%) were coded with an RVI in the year following HCT: 578 (4%) RSV, 687 (5%) influenza, 166 (1%) PIV, and 181 (1%) HMPV. Unadjusted median TR were $132,395 higher for any RVI ($139,439 RSV, $101,963 influenza, $185,041 PIV and $248,029 HMPV) compared to those without RVI (**Table 1**). Adjusted TR were significantly higher for patients with any RVI compared to patients without that infection (p< .01) with or without GVHD (**Figure 1**). Patients with any RVI had significantly longer length of stay (LOS) for the HCT hospitalization, readmission rate and LOS after HCT hospitalization compared to patients without RVI (p< 0.05) (**Table 2**). A significantly higher proportion of patients with any RVI had pneumonia as compared to patients without that infection, irrespective of presence of GVHD (p< .0001).

Table 1: Total healthcare reimbursement within one year of undergoing allogeneic HCT for patients with and without respiratory viral infections

Observed total reimbursement (2019 USD)	RVI within 1 year of HCT			P-value
	With infection	Without infection	Difference in medians	
Any RVI (RSV, Influenza, PIV or HMPV)	**n=1368**	**n=11995**		
Median [Q1 ; Q3]	353,251 [178,189 ; 637,219]	220,856 [95,303 ; 439,876]	132,395	<.0001
RSV	**n=578**	**n=12785**		
Median [Q1 ; Q3]	365,600 [194,047 ; 657,393]	226,161 [99,197 ; 450,597]	139,439	<.0001
Influenza	**n=687**	**n=12676**		
Median [Q1 ; Q3]	328,762 [153,768 ; 628,193]	226,799 [98,863 ; 449,737]	101,963	<.0001
PIV	**n=166**	**n=13197**		
Median [Q1 ; Q3]	414,671 [245,157 ; 709,668]	229,630 [100,582 ; 454,503]	185,041	<.0001
HMPV	**n=181**	**n=13182**		
Median [Q1 ; Q3]	477,463 [257,397 ; 773,445]	229,434 [100,462 ; 453,161]	248,029	<.0001

Total health care reimbursements were calculated by applying reimbursement to charge ratio of 0.425 to the total submitted charges

Figure 1: Adjusted total reimbursements within one year of undergoing allogeneic HCT for patients with and without respiratory viral infections

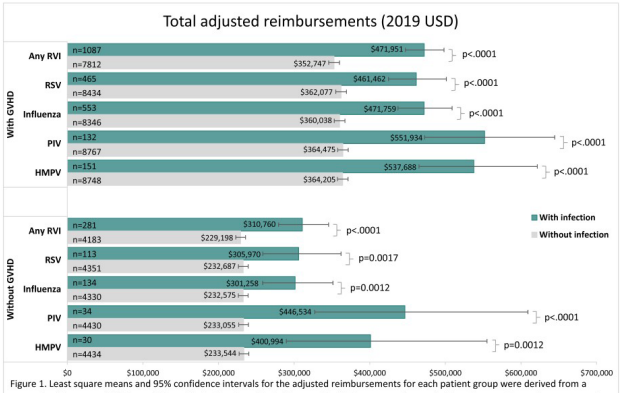

Figure 1. Least square means and 95% confidence intervals for the adjusted reimbursements for each patient group were derived from a generalized linear model. The model provided estimates adjusted for age, health insurance plan, underlying disease, stem cell source, number of comorbidities, costs at baseline, GVHD during follow-up, interaction between presence of RVIs and GVHD and follow-up time.

Table 2: Health resource utilization within one year of undergoing allogeneic HCT for patients with and without respiratory viral infections

	RVI within 1 year of HCT		P-value
	With infection	Without infection	
Any RVI (RSV, Influenza, PIV or HMPV)	**n=1368**	**n=11995**	
LOS for allo-HCT hospitalization, Median [Q1 ; Q3]	25.0 [18.0 ; 35.0]	23.0 [16.0 ; 31.0]	<.0001
Readmission rate (per person yr) (95% CI)	3.2 (3.1 - 3.3)	1.9 (1.8 - 1.9)	<.0001
LOS after allo-HCT hospitalization, Median [Q1 ; Q3]	26.0 [11.0 ; 60.0]	22.0 [9.0 ; 49.0]	<.0001
RSV	**n=578**	**n=12785**	
LOS for allo-HCT hospitalization, Median [Q1 ; Q3]	25.0 [18.0 ; 36.0]	23.0 [16.0 ; 31.0]	<.0001
Readmission rate (per person yr) (95% CI)	3.1 (3.0 - 3.3)	2.0 (1.9 - 2.0)	<.0001
LOS after allo-HCT hospitalization, Median [Q1 ; Q3]	25.0 [11.0 ; 56.5]	22.0 [9.0 ; 50.0]	0.0083
Influenza	**n=687**	**n=12676**	
LOS for allo-HCT hospitalization, Median [Q1 ; Q3]	24.0 [18.0 ; 34.0]	23.0 [16.0 ; 32.0]	0.0002
Readmission rate (per person yr) (95% CI)	3.2 (3.0 - 3.3)	1.9 (1.9 - 2.0)	<.0001
LOS after allo-HCT hospitalization, Median [Q1 ; Q3]	26.0 [10.0 ; 62.0]	22.0 [9.0 ; 50.0]	0.0021
PIV	**n=166**	**n=13197**	
LOS for allo-HCT hospitalization, Median [Q1 ; Q3]	26.0 [21.0 ; 36.0]	23.0 [16.0 ; 32.0]	0.0001
Readmission rate (per person yr) (95% CI)	4.2 (3.9 - 4.6)	2.0 (2.0 - 2.0)	<.0001
LOS after allo-HCT hospitalization, Median [Q1 ; Q3]	40.5 [17.0 ; 76.5]	22.0 [9.0 ; 50.0]	<.0001
HMPV	**n=181**	**n=13182**	
LOS for allo-HCT hospitalization, Median [Q1 ; Q3]	24.0 [19.0 ; 33.0]	23.0 [16.0 ; 32.0]	0.0423
Readmission rate (per person yr) (95% CI)	3.6 (3.3 - 3.9)	2.0 (2.0 - 2.0)	<.0001
LOS after allo-HCT hospitalization, Median [Q1 ; Q3]	29.0 [10.5 ; 67.0]	22.0 [9.0 ; 50.0]	0.0031

Conclusion: Allogeneic HCT patients with RVI have a significantly higher burden of TR, health resource utilization and worse clinical outcomes such as pneumonia during one year of undergoing HCT, regardless of the presence of GVHD.

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196. Antibodies to Vaccine-preventable Infections After CAR-T Cell Immunotherapy for B Cell Malignancies

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