Supplemental Methods

Data Source

Data are reported to the CIBMTR, a coordinating center located at the Medical College of Wisconsin in Milwaukee and the National Marrow Donor Program (NMDP)/Be The Match in Minneapolis. Participating centers are required to report all transplantations consecutively, with long-term follow-up. The CIBMTR ensures data quality through computerized checks for discrepancies, physicians' review of submitted data and on-site audits. CIBMTR staff members visit and audit sites to monitor reporting compliance. The CIBMTR collects data at two levels: Transplant Essential Data (TED) and Comprehensive Report Form (CRF) data. TED data include age, sex, disease and stage, chemotherapy-responsiveness, date of diagnosis, graft type, conditioning regimen, post-transplant disease progression and survival, development of a new malignancy, and cause of death. All CIBMTR centers contribute TED data. The CIBMTR uses a weighted randomization scheme to select a subset of patients for more detailed CRF data, including infection-related data. TED and CRF level data are collected pre-transplant, 100 days and six months post-HCT, and annually thereafter or until death. Only CIBMTR CRF data are used in this analysis, and all patients have given informed consent.

Variables

Patient-related variables examined in the analyses included recipient age at transplant (in decades), sex, race/ethnicity, and Karnofsky/Lansky performance score at transplant (<80% vs. 80-89% vs. ≥90%). Donor age (in decades), donor/recipient sex match, and donor/recipient CMV serostatus were included. Disease and transplant related variables included hematologic malignancy, time from diagnosis to HCT, recipient HCT comorbidity index (HCT-CI), disease status at transplant (AML/ALL), cytogenetic risk group (AML/ALL), IPSS-R category (MDS), conditioning intensity according to CIBMTR definitions, use of total body irradiation (TBI), GVHD prophylaxis, stem cell source (peripheral blood vs. marrow), and planned therapy with growth factors (defined as day -3 to day +7). Neutrophil engraftment was included and treated as a time-dependent variable, as was the development of acute GVHD (grades 2-4). Additionally, total nucleated cell dose (TNC), CD34+ cell dose and CD3+ cell dose at transplant were included. We also included post-transplant immune recovery cell counts at D100 and D180, including: total white cell count, absolute lymphocyte count, CD3+, CD4+, CD8+, and CD56+ counts, and CD4:CD8 ratio. All cell count data were descriptive due to significant missing data for these variables.

Post-transplant infection-related variables included: number of unique viral infections (1 vs. 2 vs. 3+); CMV DNAemia by D100 and between days 101-180; CMV organ involvement and site of involvement by D180; non-CMV herpes viremia and/or organ involvement by D180; CRV viremia and/or organ involvement by D180; other viral infections in blood or non-blood sites by D180; and co-infection (yeast/mold/bacteria), defined by the presence or absence of co-infection of any type ± 30 days of viral infection versus only bacteria/fungal infection by D180 versus no infection by D180.

Outcomes and Competing Risks

Analysis 1: Incidence of CMV DNAemia and disease across three general donor cohorts (HaploCy, SibCy, and SibCNI)

- Cumulative incidence of CMV DNAemia by day 180: death is competing risk
- Cumulative incidence of CMV end-organ disease by day 180: death is competing risk

Analysis 2: Impact of CMV serostatus combination and donor source on transplant-related outcomes

- <u>Relapse by 2 years:</u> non-relapse mortality is the competing risk.

- Overall survival by 2 years: time to death. Death from any cause is an event. Surviving patients are censored at time of last follow-up.
- Disease Free survival by 2 years: time to relapse or death from any cause.
- Non-relapse mortality by 2 years: death without evidence of disease relapse**.** Relapse is the competing risk**.**
- Acute GVHD grade 2 – 4: Death is the competing risk
- Chronic GVHD, any severity by 2 years: Death is the competing risk
- Total number of days within first 100 days the patient is alive and out of the hospital: Median and range
- Cumulative incidence of CMV viremia by day 180: death is the competing risk.
- Cumulative incidence of CMV organ disease by day 180: death is the competing risk.
- Density of viral infections (all) by day 180: This is measured by the number of viral infections per patient per days at risk in the first 180 days after transplant

Analysis 3: Impact of CMV DNAemia (treated as a time-dependent main-effect variable) on transplant-related outcomes

- Relapse by 2 years: non-relapse mortality is the competing risk.
- Overall survival by 2 years: time to death. Death from any cause is an event. Surviving patients are censored at time of last follow-up
- Disease Free survival by 2 years: time to relapse or death from any cause.
- Non-relapse mortality by 2 years: death without evidence of disease relapse**.** Relapse is the competing risk
- aGVHD grade 2 – 4: Death is the competing risk.
- Chronic GVHD by 2 years: death is a competing risk.
- Cumulative incidence of CMV organ disease by day 180: death is the competing risk.

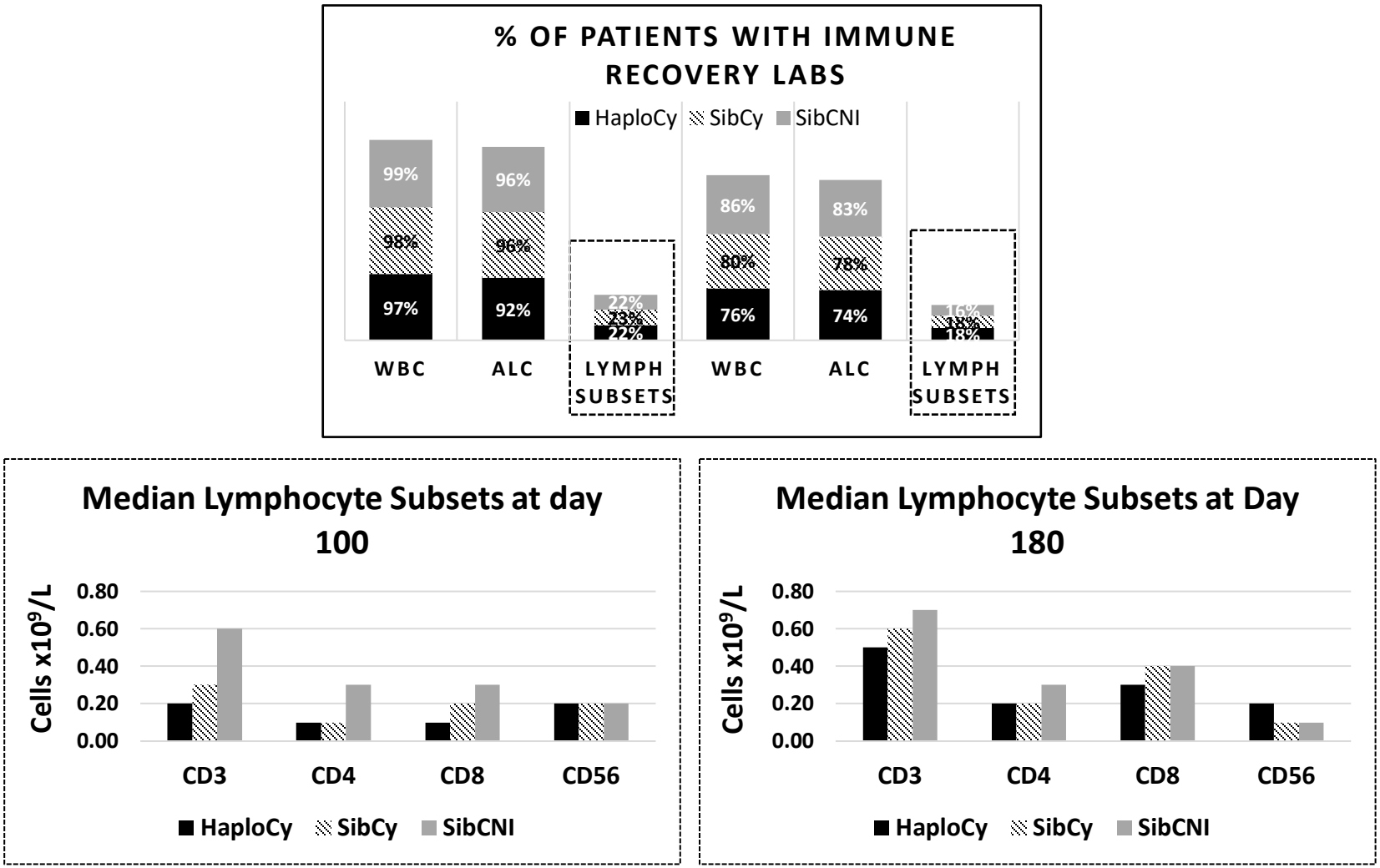
Supplemental Data

Cell doses at transplant				
Variable	HaploCy N(%)	SibCy N(%)	SibCNI N(%)	P value
Nucleated cell count, median(range), 10*8/kg, @infusion	4 (<1 - 37)	5 (<1 - 45)	9 (<1 - 42)	<0.001
Nucleated cell count, 10*8/kg				<0.001
<3	163 (22)	70 (17)	91 (6)	
3-9	235 (31)	118 (29)	474 (30)	
>9	101 (13)	67 (17)	521 (32)	
Missing but CD34 available	115 (15)	63 (16)	181 (11)	
Both Nucleated cell and CD34 Missing	143 (19)	85 (21)	338 (21)	
CD34+ cell count , median(range), 10*6/kg, @infusion	4 (<1 - 20)	5 (<1 - 17)	5 (<1 - 19)	<0.001
CD34 cell count, 10*6/kg				<0.001
0-5	360 (48)	179 (44)	576 (36)	
>5	247 (33)	133 (33)	665 (41)	
Missing but Nucleated available	7 (<1)	6 (1)	26 (2)	
Both Nucleated cell and CD34 Missing	143 (19)	85 (21)	338 (21)	

CD3+ cell count , median(range), 10*7/kg, @infusion	10 (<1 - 58)	13 (<1 - 59)	22 (<1 - 60)	<0.001
CD3 cell count, 10*7/kg				<0.001
<4	138 (18)	74 (18)	99 (6)	
4-8	43 (6)	17 (4)	47 (3)	
>8	228 (30)	126 (31)	755 (47)	
Missing	348 (46)	186 (46)	704 (44)	

Supplemental Table 1. Cell doses infused, stratified by donor source. Of those reported, total nucleated cell, CD34_, and CD3+ cell doses were significantly lower in the HaployCy and SibCy cohorts, possibly reflecting the increased frequency of bone marrow as a graft source.

Supplemental Figure 1:



Supplemental Figure 1. The top panel denotes the percent of patients, by cohort [■ Haplo Cy, ▨ SibCy, ■ SibCNI] who had white blood cell (WBC), lymphocyte (ALC), and lymphocyte subsets reported at day 100 and day 180. The bottom panels show the median absolute count, by subset, at day 100 and day 180 for each cohort for the 22% of patients at day 100 and 17% of patients at day 180.

	Recipient Positive			Donor Pos/Recipient Neg			Both Donor and Recipient Neg			
Variable	HaploCy N(%) N=563	SibCy N(%) N=284	SibCNI N(%) N=1086	HaploCy N(%) N=54	SibCy N(%) N=36	SibCNI N(%) N=163	HaploCy N(%) N=131	SibCy N(%) N=79	SibCNI N(%) N=327	P value
Patient related										
Number of centers	95	70	97	34	23	59	54	32	70	
Gender, Male	333 (59)	164 (58)	617 (57)	35 (65)	27 (75)	103 (63)	86 (66)	51 (65)	197 (60)	0.167
Age, median(range), years	58 (3 - 78)	46 (6 - 75)	56 (3 - 78)	45 (4 - 75)	49 (13 - 72)	59 (2 - 76)	61 (3 - 77)	49 (3 - 73)	56 (4 - 77)	<0.001
Age at transplant, years										<0.001
≤ 20	61 (11)	16 (6)	82 (7)	13 (24)	3 (8)	10 (6)	9 (7)	7 (9)	33 (10)	
21-40	81 (14)	97 (34)	177 (16)	13 (24)	9 (25)	16 (10)	16 (12)	23 (29)	53 (16)	
41-60	173 (31)	105 (37)	306 (37)	12 (23)	14 (38)	62 (38)	36 (28)	29 (37)	119 (37)	
>60	248 (44)	66 (23)	421 (39)	16 (30)	10 (28)	75 (46)	70 (53)	20 (26)	122 (38)	
Karnofsky/Lansky performance at HCT										<0.001
<80	94 (17)	49 (17)	120 (11)	1 (2)	3 (8)	21 (13)	23 (18)	13 (16)	55 (17)	
80-89	175 (31)	76 (27)	317 (29)	10 (19)	8 (22)	47 (29)	42 (32)	18 (23)	78 (24)	
>=90	283 (50)	157 (55)	642 (59)	37 (69)	25 (69)	93 (57)	64 (49)	47 (59)	193 (59)	
Missing	11 (2)	2 (<1)	7 (<1)	6 (11)	0	2 (1)	2 (2)	1 (1)	1 (<1)	
Race/Ethnicity										<0.001
Caucasian	302 (54)	149 (52)	675 (62)	36 (67)	23 (64)	130 (80)	103 (79)	63 (80)	283 (87)	
African-American	110 (20)	44 (15)	87 (8)	7 (13)	9 (25)	10 (6)	11 (8)	3 (4)	10 (3)	
Asian/Pacific Islander, non-Hispanic	46 (8)	28 (10)	90 (8)	3 (6)	1 (3)	7 (4)	5 (4)	1 (1)	9 (2)	
Native American, non-Hispanic	2 (<1)	1 (<1)	6 (<1)	0	0	0	1 (<1)	0	3 (<1)	
Hispanic	65 (12)	39 (13)	118 (11)	5 (9)	2 (6)	11 (7)	5 (3)	8 (10)	12 (3)	
Missing	38 (7)	23 (8)	110 (10)	3 (6)	1 (3)	5 (3)	6 (5)	4 (5)	10 (3)	
Donor related										
Donor age, in decades										<0.001
0-20	43 (8)	30 (10)	82 (7)	1 (2)	2 (6)	9 (5)	7 (5)	5 (7)	31 (9)	
21-40	303 (54)	95 (33)	199 (18)	30 (56)	7 (20)	16 (10)	77 (59)	27 (34)	61 (19)	
41-60	186 (33)	116 (41)	466 (42)	21 (39)	17 (47)	71 (44)	42 (32)	37 (47)	147 (45)	
>60	25 (4)	43 (15)	329 (30)	2 (4)	10 (28)	67 (41)	5 (4)	10 (13)	86 (26)	
Missing	6 (1)	0	9 (<1)	0	0	0	0	0	2 (<1)	
Donor age, median(range), years	36 (9 - 76)	44 (4 - 72)	54 (3 - 79)	38 (17 - 66)	48 (18 - 70)	58 (5 - 82)	34 (17 - 74)	47 (4 - 67)	54 (2 - 74)	<0.001
Donor/recipient gender match										<0.001
Male-Male	208 (37)	105 (37)	335 (31)	19 (35)	13 (36)	45 (28)	59 (45)	37 (47)	119 (36)	

	Recipient Positive			Donor Pos/Recipient Neg			Both Donor and Recipient Neg			
Variable	HaploCy N(%) N=563	SibCy N(%) N=284	SibCNI N(%) N=1086	HaploCy N(%) N=54	SibCy N(%) N=36	SibCNI N(%) N=163	HaploCy N(%) N=131	SibCy N(%) N=79	SibCNI N(%) N=327	P value
Male-Female	140 (25)	76 (27)	233 (21)	10 (19)	4 (11)	25 (15)	28 (21)	16 (20)	83 (25)	
Female-Male	125 (22)	59 (21)	282 (26)	16 (30)	14 (39)	58 (36)	27 (21)	14 (18)	78 (24)	
Female-Female	90 (16)	44 (15)	235 (22)	9 (17)	5 (14)	35 (21)	17 (13)	12 (15)	47 (14)	
Missing	0	0	1 (<1)	0	0	0	0	0	0	
Disease related										
Disease										<0.001
AML	398 (71)	224 (79)	700 (64)	36 (67)	25 (69)	94 (58)	87 (66)	57 (72)	209 (64)	
ALL	22 (4)	15 (5)	37 (3)	1 (2)	1 (3)	8 (5)	3 (2)	3 (4)	15 (5)	
MDS	143 (25)	45 (16)	349 (32)	17 (31)	10 (28)	61 (37)	41 (31)	19 (24)	103 (31)	
HCT-CI										0.464
0	147 (26)	78 (27)	283 (26)	21 (39)	8 (22)	31 (19)	29 (22)	13 (16)	71 (22)	
1-2	147 (26)	89 (31)	287 (26)	16 (30)	12 (33)	54 (33)	43 (33)	23 (29)	96 (29)	
3-4	168 (30)	71 (25)	318 (29)	8 (15)	9 (25)	53 (33)	31 (24)	24 (30)	97 (30)	
5+	100 (18)	45 (16)	194 (18)	9 (17)	7 (19)	25 (15)	28 (21)	19 (24)	62 (19)	
Missing	1 (<1)	1 (<1)	4 (<1)	0	0	0	0	0	1 (<1)	
Disease status										<0.001
AML/ALL, early	225 (40)	139 (49)	472 (43)	21 (39)	14 (39)	70 (43)	58 (44)	32 (41)	161 (49)	
AML/ALL, intermed	111 (20)	54 (19)	156 (14)	14 (26)	9 (25)	17 (10)	16 (12)	14 (18)	36 (11)	
AML/ALL, advanced	80 (14)	45 (16)	101 (9)	2 (4)	2 (6)	13 (8)	14 (11)	14 (18)	25 (8)	
AML/ALL, unknown	4 (<1)	1 (<1)	9 (<1)	0	1 (3)	4 (2)	2 (2)	0	2 (<1)	
MDS, early	55 (10)	11 (4)	120 (11)	5 (9)	5 (14)	18 (11)	15 (11)	8 (10)	38 (12)	
MDS, advanced	88 (16)	34 (12)	228 (21)	12 (22)	5 (14)	41 (25)	26 (20)	11 (14)	65 (20)	
Cytogenetics for AML/ALL (n=1968)										<0.001
Favorable	16 (3)	12 (4)	32 (3)	3 (6)	2 (6)	1 (<1)	4 (3)	4 (5)	6 (2)	
Intermediate (incl normal)	230 (41)	124 (44)	415 (38)	13 (24)	13 (36)	53 (33)	52 (40)	29 (37)	119 (36)	
Poor	150 (27)	94 (33)	243 (22)	17 (31)	10 (28)	42 (26)	32 (24)	26 (33)	82 (25)	
Other	17 (3)	4 (1)	30 (3)	1 (2)	1 (3)	5 (3)	2 (2)	1 (1)	13 (4)	
Not tested/Missing	7 (1)	5 (2)	17 (2)	3 (6)	0	1 (<1)	0	0	4 (1)	
IPSS-R prior to transplant (MDS only) (n=797)										0.004
Very low/low	59 (10)	21 (7)	128 (12)	9 (17)	3 (8)	23 (14)	18 (14)	12 (15)	42 (13)	
Intermediate	36 (6)	13 (5)	102 (9)	4 (7)	5 (14)	21 (13)	13 (10)	4 (5)	33 (10)	
High/Very high	33 (6)	8 (3)	80 (7)	2 (4)	2 (6)	13 (8)	7 (5)	3 (4)	17 (5)	
Missing	15 (3)	3 (1)	39 (4)	2 (4)	0	4 (2)	3 (2)	0	11 (3)	
Transplant-related										
Graft type										<0.001
Bone Marrow	209 (37)	84 (30)	127 (12)	30 (56)	12 (33)	13 (8)	63 (48)	34 (43)	56 (17)	

	Recipient Positive			Donor Pos/Recipient Neg			Both Donor and Recipient Neg			
Variable	HaploCy N(%) N=563	SibCy N(%) N=284	SibCNI N(%) N=1086	HaploCy N(%) N=54	SibCy N(%) N=36	SibCNI N(%) N=163	HaploCy N(%) N=131	SibCy N(%) N=79	SibCNI N(%) N=327	P value
Peripheral blood	354 (63)	200 (70)	959 (88)	24 (44)	24 (67)	150 (92)	68 (52)	45 (57)	271 (83)	
Conditioning regimen intensity										<0.001
Myeloablative	237 (42)	160 (56)	636 (59)	26 (48)	16 (44)	85 (52)	46 (35)	44 (56)	193 (59)	
RIC/NMA	326 (58)	124 (44)	450 (41)	28 (52)	20 (56)	78 (48)	85 (65)	35 (44)	134 (41)	
GVHD prophylaxis										<0.001
Cyclophosphamide	563	284	0	54	36	0	131	79	0	
TAC/CSA + MMF +- others	0	0	249 (23)	0	0	41 (25)	0	0	69 (21)	
TAC/CSA + MTX +- others	0	0	837 (77)	0	0	122 (75)	0	0	258 (79)	
TBI, Yes	392 (70)	167 (59)	293 (27)	35 (65)	21 (58)	44 (27)	99 (76)	42 (53)	90 (28)	<0.001
G-CSF, GM-CSF-Planned										<0.001
No	92 (16)	55 (19)	820 (76)	12 (22)	7 (19)	131 (80)	26 (20)	21 (27)	248 (76)	
Yes	468 (83)	229 (81)	264 (24)	42 (78)	29 (81)	32 (20)	104 (79)	58 (73)	78 (24)	
Missing	3 (<1)	0	2 (<1)	0	0	0	1 (<1)	0	1 (<1)	
Time from diagnosis to transplant										<0.001
<6 month	235 (42)	131 (46)	592 (55)	21 (39)	12 (33)	84 (52)	55 (42)	34 (43)	193 (59)	
6 month-1Y	141 (25)	80 (28)	238 (22)	12 (22)	9 (25)	40 (25)	41 (31)	27 (34)	66 (20)	
>1Y	186 (33)	72 (25)	255 (24)	21 (39)	15 (42)	37 (23)	35 (27)	18 (23)	67 (20)	
Missing	1 (<1)	1 (<1)	1 (<1)	0	0	2 (1)	0	0	1 (<1)	
Time from diagnosis to transplant, median(range), months	7 (1 - 165)	7 (<1 - 396)	6 (1 - 556)	8 (2 - 77)	8 (2 - 107)	6 (1 - 104)	7 (2 - 101)	7 (2 - 291)	5 (1 - 187)	<0.001
Year of transplant										<0.001
2012-2014	118 (21)	58 (20)	529 (49)	12 (22)	9 (25)	93 (57)	37 (28)	20 (25)	170 (52)	
2015-2017	445 (79)	226 (80)	557 (51)	42 (78)	27 (75)	70 (43)	94 (72)	59 (75)	157 (48)	

Supplemental Table 2. Baseline patient, disease, and transplant characteristics stratified by CMV serostatus, donor source, and PTCy. *HaploCy, haploidentical HCT with PTCy; SibCy, HLA-matched sibling HCT with PTCy; SibCNI, HLA-matched sibling HCT with calcineurin-inhibitor-based GVHD prophylaxis; HCT, hematopoietic cell transplantation; PTCy, post-transplant cyclophosphamide*

Pairwise Comparison	HR	99% CI Lower Limit	99% CI Upper Limit	p-value
R+, HaploCy vs R+, SibCy	**1.0**	**0.8**	**1.4**	**0.72**
R+, HaploCy vs R+, SibCNI	**2.1**	**1.4**	**3.1**	**<.0001**
R+, HaploCy vs D+/R-, HaploCy	2.8	1.6	5.1	<.0001
R+, HaploCy vs D+/R-, SibCy	5.3	1.6	17.4	0.0003
R+, HaploCy vs D+/R-, SibCNI	6.4	3.5	11.5	<.0001
R+, HaploCy vs D-/R-, HaploCy	34.0	10.3	112.5	<.0001
R+, HaploCy vs D-/R-, SibCy	28.2	6.7	118.2	<.0001
R+, SibCy vs R+, SibCNI	**2.0**	**1.3**	**3.1**	**0.0001**
R+, SibCy vs D+/R-, HaploCy	2.7	1.4	5.2	0.0001
R+, SibCy vs D+/R-, SibCy	5.0	1.4	17.9	0.001
R+, SibCy vs D+/R-, SibCNI	6.1	3.4	11.1	<.0001
R+, SibCy vs D-/R-, HaploCy	32.6	10.1	105.3	<.0001
R+, SibCy vs D-/R-, SibCy	27.1	6.7	109.0	<.0001
R+, SibCNI vs D+/R-, HaploCy	1.4	0.6	2.8	0.29
R+, SibCNI vs D+/R-, SibCy	2.5	0.8	8.2	0.04
R+, SibCNI vs D+/R-, SibCNI	3.1	1.8	5.2	<.0001
R+, SibCNI vs D-/R-, HaploCy	16.4	4.6	57.6	<.0001
R+, SibCNI vs D-/R-, SibCy	13.6	3.1	58.8	<.0001
D+/R-, HaploCy vs D+/R-, SibCy	**1.9**	**0.4**	**8.2**	**0.3**
D+/R-, HaploCy vs D+/R-, SibCNI	**2.3**	**0.9**	**5.5**	**0.02**
D+/R-, HaploCy vs D-/R-, HaploCy	12.1	3.3	44.6	<.0001
D+/R-, HaploCy vs D-/R-, SibCy	10.0	1.9	51.8	0.0003
D+/R-, SibCy vs D+/R-, SibCNI	**1.2**	**0.4**	**4.2**	**0.69**
D+/R-, SibCy vs D-/R-, HaploCy	6.5	1.1	37.1	0.006
D+/R-, SibCy vs D-/R-, SibCy	5.4	1.0	29.5	0.01
D+/R-, SibCNI vs D-/R-, HaploCy	5.3	1.7	16.5	0.0001
D+/R-, SibCNI vs D-/R-, SibCy	4.4	1.2	16.3	0.003
D-/R-, HaploCy vs D-/R-, SibCy	**0.8**	**0.3**	**2.2**	**0.63**

Supplemental Table 3. **Pairwise comparisons (between subgroups based on CMV serostatus combination, graft type, and post-transplant cyclophosphamide) from the multivariable analysis assessing the impact of these variables on the incidence of CMV infection, defined as CMV DNAemia ± organ disease.** Bolded comparisons represent contrasts within serostatus subgroups. Notably, both recipient-seropositive cohorts that received PTCy had twice the risk of CMV infection relative to the recipient-seropositive SibCNI cohort [R+HaploCy vs. R+SibCNI: HR 2.1, 99% CI (1.4-3.1), p<0.0001; R+SibCy vs. R+SibCNI: HR 2.0 (1.3-3.1), p=0.0001]. A similar non-significant trend was seen for the D+/R- HaploCy cohort compared to the D+/R- SibCNI cohort [HR: 2.3, 99% CI (0.9-5.5), p=0.02]. *CI, confidence interval; D, donor; R, recipient; HaploCy, haploidentical HCT with PTCy; SibCy, HLA-matched sibling HCT with PTCy; SibCNI, HLA-matched sibling HCT with calcineurin-inhibitor-based GVHD prophylaxis; HCT, hematopoietic cell transplantation; PTCy, post-transplant cyclophosphamide*

Variable	HaploCy N(%)	SibCy N(%)	SibCNI N(%)	P value
Number of Deaths	375	179	753	
Cause of Death				<0.001
Primary malignancy	186 (50)	93 (52)	438 (58)	
Graft failure	3 (<1)	1 (<1)	2 (<1)	
GVHD	29 (8)	12 (7)	110 (15)	
Infection	60 (16)	18 (10)	72 (10)	
Interstitial Pneumonitis	12 (3)	4 (2)	15 (2)	
Acute Respiratory Distress Syndrome	7 (2)	3 (2)	8 (1)	
Organ failure	31 (8)	21 (12)	54 (7)	
Secondary malignancy	5 (1)	2 (1)	7 (<1)	
Hemorrhage	10 (3)	5 (3)	6 (<1)	
Accident/suicide	0	1 (<1)	2 (<1)	
Vascular	2 (<1)	2 (1)	3 (<1)	
Other	25 (7)	10 (6)	26 (3)	
Unknown	5 (1)	7 (4)	10 (1)	
Infection as a Secondary Cause	82 (22)	30 (17)	129 (17)	

Supplemental Table 4. Causes of death across donor type. *HaploCy, haploidentical HCT with PTCy; SibCy, HLA-matched sibling HCT with PTCy; SibCNI, HLA-matched sibling HCT with calcineurin-inhibitor-based GVHD prophylaxis; HCT, hematopoietic cell transplantation; PTCy, post-transplant cyclophosphamide*

	A. Non-Relapse Mortality at 2 Years				B. Overall Survival at 2 Years				C. Relapse at 2 Years				D. cGVHD at 2 Years			
Comparison	**HR**	**99% CI Lower Limit**	**99% CI Upper Limit**	**p-value**	**HR**	**99% CI Lower Limit**	**99% CI Upper Limit**	**p-value**	**HR**	**99% CI Lower Limit**	**99% CI Upper Limit**	**p-value**	**HR**	**99% CI Lower Limit**	**99% CI Upper Limit**	**p-value**
R+ HaploCy vs R+ SibCy	1.4	0.9	2.2	0.06	1.1	0.8	1.5	0.37	1.0	0.8	1.3	0.98	1.2	0.8	1.8	0.24
R+ HaploCy vs R+ SibCNI	1.9	1.3	2.7	<.0001	1.4	1.1	1.7	0.0001	0.9	0.7	1.2	0.57	0.8	0.6	1.0	0.02
R+ SibCy vs R+ SibCNI	1.3	0.8	2.2	0.13	1.2	0.9	1.6	0.07	0.9	0.7	1.3	0.59	0.6	0.5	0.9	0.0004
D+/R- HaploCy vs D+/R- SibCy	0.7	0.2	2.0	0.34	1.2	0.6	2.4	0.44	1.2	0.6	2.6	0.50	0.6	0.2	1.4	0.09
D+/R- HaploCy vs D+/R- SibCNI	1.5	0.5	4.3	0.32	1.2	0.7	2.3	0.39	0.8	0.4	1.6	0.51	0.6	0.3	1.3	0.09
D+/R- SibCy vs D+/R- SibCNI	2.3	0.9	5.9	0.03	1.0	0.5	2.1	0.96	0.7	0.3	1.5	0.24	1.1	0.5	2.3	0.83
D-/R- HaploCy vs D-/R- SibCy	0.9	0.4	2.0	0.75	1.0	0.6	1.6	0.84	0.8	0.5	1.6	0.48	1.0	0.6	1.9	0.86
CMV DNAemia HaploCy vs CMV DNAemia SibCy	1.4	0.8	2.6	0.16	1.3	0.8	2.0	0.17	1.2	0.8	1.9	0.30	1.1	0.7	1.9	0.52
CMV DNAemia HaploCy vs CMV DNAemia SibCNI	1.1	0.7	1.6	0.74	1.1	0.8	1.6	0.28	1.1	0.7	1.6	0.71	0.8	0.6	1.2	0.22
CMV DNAemia HaploCy vs No CMV DNAemia HaploCy	1.3	0.7	2.5	0.27	1.1	0.7	1.7	0.52	0.9	0.6	1.4	0.52	1.6	1.0	2.3	0.006
CMV DNAemia SibCy vs CMV DNAemia SibCNI	0.8	0.4	1.3	0.19	0.9	0.6	1.3	0.51	0.9	0.5	1.5	0.56	0.7	0.5	1.1	0.03
CMV DNAemia SibCy vs No CMV DNAemia SibCy	1.1	0.4	2.9	0.78	1.0	0.6	1.8	0.94	0.8	0.5	1.4	0.32	1.2	0.8	2.0	0.27
No CMV DNAemia HaploCy vs No CMV DNAemia SibCy	1.2	0.5	3.0	0.66	1.2	0.8	1.8	0.37	1.1	0.7	1.6	0.65	0.9	0.6	1.4	0.55

Supplemental Table 5. Notable pairwise comparisons (between subgroups based on CMV serostatus combination OR CMV DNAemia status, graft type, and post-transplant cyclophosphamide) from the multivariable analyses assessing the impact of these variables on (A) Non-relapse mortality, (B) Overall survival, (C) Relapse, and (D) Chronic graft-vs-host disease (cGVHD) by 2 years. *CI, confidence interval; D, donor; R, recipient; HaploCy, haploidentical HCT with PTCy; SibCy, HLA-matched sibling HCT with PTCy; SibCNI, HLA-matched sibling HCT with calcineurin-inhibitor-based GVHD prophylaxis; HCT, hematopoietic cell transplantation; PTCy, post-transplant cyclophosphamide*