

Supplemental material

Supplemental Table 1. Sensitivity analysis: Characteristics of patients receiving 1st MSD/ haploidentical /MUD/7/8 HLA-matched UD/UCB allogeneic HCT for ALL in CR between 2013-2017 restricted to myeloablative regimens and peripheral blood stem cell source

Characteristic	MSD	Haplo	MUD	7/8 UD	UCB
Number of patients	1091	164	985	131	228
Number of centers	173	56	143	59	65
Age at HCT (range)	40 (18-70)	37 (18-67)	39 (18-73)	37 (18-63)	34 (18-65)
Age at HCT					
18-29	295 (27)	58 (35)	290 (29)	41 (31)	96 (42)
30-39	245 (22)	32 (20)	222 (23)	36 (27)	52 (23)
40-49	277 (25)	37 (23)	235 (24)	23 (18)	56 (25)
50-59	221 (20)	30 (18)	167 (17)	29 (22)	20 (9)
60+	53 (5)	7 (4)	71 (7)	2 (2)	4 (2)
Karnofsky score					
<90	339 (31)	60 (37)	348 (35)	33 (25)	73 (32)
≥90	721 (66)	101 (62)	625 (63)	98 (75)	153 (67)
Missing	31 (3)	3 (2)	12 (1)	0	2 (<1)
Gender					
Male	672 (62)	86 (52)	613 (62)	72 (55)	132 (58)
Female	419 (38)	78 (48)	372 (38)	59 (45)	96 (42)
HCT-CI					
0	388 (36)	40 (24)	254 (26)	33 (25)	70 (31)
1	146 (13)	24 (15)	132 (13)	16 (12)	30 (13)
2	165 (15)	24 (15)	186 (19)	25 (19)	31 (14)
3+	367 (34)	76 (46)	410 (42)	57 (44)	94 (41)
Missing	25 (2)	0	3 (<1)	0	3 (1)
Race					
White hispanic	184 (17)	41 (25)	100 (10)	28 (21)	49 (21)
White non-hispanic	525 (48)	58 (35)	701 (71)	66 (50)	105 (46)
Black	44 (4)	31 (19)	39 (4)	9 (7)	20 (9)
Asian	73 (7)	9 (5)	32 (3)	7 (5)	18 (8)
Other/not specified	265 (24)	25 (15)	113 (11)	21 (16)	36 (16)
Immunophenotype					
T-cell	140 (13)	11 (7)	127 (13)	16 (12)	26 (11)
B-cell	871 (80)	137 (84)	777 (79)	103 (79)	182 (80)
Cytogenetic score ^b					
Normal	216 (20)	35 (21)	209 (21)	27 (21)	45 (20)
Poor	518 (47)	96 (59)	493 (50)	59 (45)	115 (50)
Other	184 (17)	26 (16)	188 (19)	23 (18)	53 (23)
Not tested	28 (3)	0	14 (1)	3 (2)	1 (<1)
Missing	145 (13)	7 (4)	81 (8)	19 (15)	14 (6)
Unspecified	80 (7)	16 (10)	81 (8)	12 (9)	20 (9)

Characteristic	MSD	Haplo	MUD	7/8 UD	UCB
Ph+/BCR-ABL1 status					
No	487 (56)	78 (57)	417 (54)	55 (53)	93 (51)
Yes	384 (44)	59 (43)	360 (46)	48 (47)	89 (49)
Disease status					
CR1- MRD positive	367 (34)	38 (23)	295 (30)	34 (26)	59 (26)
CR1- MRD negative	410 (38)	67 (41)	425 (43)	50 (38)	85 (37)
CR1- MRD missing	93 (9)	6 (4)	41 (4)	4 (3)	7 (3)
CR2	205 (19)	46 (28)	197 (20)	34 (26)	61 (27)
≥ CR3	16 (1)	7 (4)	27 (3)	9 (7)	16 (7)
Time from diagnosis to HCT(CR1-only)					
0-5 months	589 (68)	51 (46)	466 (61)	32 (36)	65 (43)
6-11 months	244 (28)	48 (43)	268 (35)	46 (52)	76 (50)
≥ 12 months	37 (4)	12 (11)	27 (4)	10 (11)	10 (7)
Cord blood type ^d					
Double cord, 4/6 HLA	0	0	0	0	113 (50)
Double cord, 5-6/6 HLA	0	0	0	0	64 (28)
Single cord, 4/6 HLA	0	0	0	0	6 (3)
Single cord, 5-6/6 HLA	0	0	0	0	21 (9)
Single cord, missing HLA	0	0	0	0	24 (11)
Missing	1091	164	985	131	0
Conditioning regimen					
MAC-TBI	798 (73)	113 (69)	730 (74)	92 (70)	217 (95)
MAC-Chemo	293 (27)	51 (31)	255 (26)	39 (30)	11 (5)
Conditioning intensity/regimen					
MAC - TBI/Flud/Cy	5 (<1)	8 (5)	5 (<1)	0	181 (79)
MAC - TBI/Flud	50 (5)	95 (58)	34 (3)	9 (7)	21 (9)
MAC - TBI/Cy	572 (52)	9 (5)	552 (56)	67 (51)	13 (6)
MAC - TBI/VP	162 (15)	0	127 (13)	14 (11)	0
MAC - TBI/Other	9 (<1)	1 (<1)	12 (1)	2 (2)	2 (<1)
MAC - Bu/Cy	103 (9)	31 (19)	62 (6)	4 (3)	5 (2)
MAC - Bu/Flud	165 (15)	20 (12)	170 (17)	35 (27)	6 (3)
MAC - Bu/Other	25 (2)	0	23 (2)	0	0
Donor/recipient sex match					
M-M	381 (35)	55 (34)	440 (45)	51 (39)	48 (21)
M-F	221 (20)	38 (23)	236 (24)	38 (29)	9 (4)
F-M	291 (27)	31 (19)	172 (17)	21 (16)	125 (55)
F-F	198 (18)	40 (24)	134 (14)	21 (16)	40 (18)
Missing	0	0	3 (<1)	0	6 (3)
F-M gender mismatch vs. Other					
F-M gender mismatch	291 (27)	31 (19)	172 (17)	21 (16)	125 (55)
All other gender matching	800 (73)	133 (81)	810 (82)	110 (84)	97 (43)
Missing	0	0	3 (<1)	0	6 (3)
Donor/recipient CMV serostatus					

Characteristic	MSD	Haplo	MUD	7/8 UD	UCB
+/+	577 (53)	84 (51)	292 (30)	52 (40)	0
+/-	101 (9)	12 (7)	119 (12)	12 (9)	0
-/+	182 (17)	37 (23)	332 (34)	31 (24)	0
-/-	212 (19)	30 (18)	235 (24)	35 (27)	0
CB – Recipient +	0	0	0	0	149 (65)
CB – Recipient -	0	0	0	0	75 (33)
Missing	19 (2)	1 (<1)	7 (<1)	1 (<1)	4 (2)
Donor age at donation ^c					
0-17	38 (3)	6 (4)	0	0	0
18-29	223 (20)	55 (34)	579 (59)	60 (46)	0
30-39	217 (20)	38 (23)	224 (23)	34 (26)	0
40-49	240 (22)	23 (14)	130 (13)	30 (23)	0
50-59	199 (18)	31 (19)	41 (4)	7 (5)	0
60-69	66 (6)	7 (4)	0	0	0
70-79	3 (<1)	1 (<1)	0	0	0
Missing	105 (10)	3 (2)	11 (1)	0	228
Donor age, years	41 (11-75)	35 (10-74)	28 (18-58)	31 (19-60)	Not applicable
Type of graft source					
Peripheral blood	1091	164	985	131	0
Cord blood	0	0	0	0	228
Year of HCT					
2013	234 (21)	5 (3)	163 (17)	26 (20)	53 (23)
2014	231 (21)	14 (9)	197 (20)	31 (24)	49 (21)
2015	224 (21)	29 (18)	207 (21)	35 (27)	53 (23)
2016	198 (18)	48 (29)	205 (21)	14 (11)	39 (17)
2017	204 (19)	68 (41)	213 (22)	25 (19)	34 (15)
GVHD prophylaxis					
TAC/CSA + MMF ± others	112 (10)	0	66 (7)	8 (6)	204 (89)
TAC/CSA + MTX ± others	808 (74)	0	752 (76)	95 (73)	6 (3)
TAC/CSA others	94 (9)	0	99 (10)	9 (7)	3 (1)
TAC/CSA alone	32 (3)	0	28 (3)	3 (2)	12 (5)
Post-cy + TAC/CSA ± MMF	29 (3)	164	30 (3)	15 (11)	2 (<1)
Other prophylaxis	10 (<1)	0	6 (<1)	0	1 (<1)
Missing	6 (<1)	0	4 (<1)	1 (<1)	0
ATG/Campath					
ATG alone	51 (5)	0	353 (36)	81 (62)	23 (10)
CAMPATH alone	5 (<1)	0	24 (2)	4 (3)	0
No ATG or CAMPATH	1023 (94)	164	599 (61)	43 (33)	205 (90)
Missing	12 (1)	0	9 (<1)	3 (2)	0
Median follow-up of survivors (range), months	30 (3-72)	24 (6-58)	33 (3-74)	36 (3-64)	35 (3-64)

^a**Other/ not specified:** Native American (n=30), Pacific Islander (n=20), Non-resident of the US (n=226), not specified (n= 99), Hispanic – excluding white Hispanic (n= 135)

^b**CIBMTR cytogenetics criteria definition:** Poor: Ph+/t(9:22), t(4:11), 11q23, MLL, hypodiploid (<45), t(8:14), complex(≥ 3 abnormalities), iAMP21; Normal: without any abnormality; Other: abnormality count 1 or 2 abnormalities.

^c**Donor age** is not reported for cord bloods.

4Cord Blood type: Double CB, worst HLA-match was selected

Supplemental Table 2. Sensitivity analysis: Characteristics of United States centers only patients receiving 1st MSD/ haploidentical /MUD/7/8 HLA-matched UD/UCB allogeneic HCT for ALL in CR between 2013-2017

Characteristic	MSD	Haplo	MUD	7/8 UD	UCB
Number of patients	1113	356	1501	203	273
Number of centers	131	79	131	71	61
Median (range)	45 (18-75)	43 (18-74)	44 (18-77)	38 (18-70)	38 (18-70)
Age at HCT					
18-29	251 (23)	102 (29)	366 (24)	70 (34)	93 (34)
30-39	195 (18)	52 (15)	273 (18)	39 (19)	59 (22)
40-49	250 (22)	74 (21)	287 (19)	30 (15)	61 (22)
50-59	269 (24)	70 (20)	284 (19)	45 (22)	40 (15)
60+	148 (13)	58 (16)	291 (19)	19 (9)	20 (7)
Karnofsky score					
<90	431 (39)	145 (41)	593 (40)	60 (30)	98 (36)
≥90	674 (61)	203 (57)	892 (59)	142 (70)	174 (64)
Missing	8 (<1)	8 (2)	16 (1)	1 (<1)	1 (<1)
Gender					
Male	650 (58)	189 (53)	888 (59)	124 (61)	157 (58)
Female	463 (42)	167 (47)	613 (41)	79 (39)	116 (42)
HCT-CI					
0	281 (25)	56 (16)	315 (21)	36 (18)	71 (26)
1	154 (14)	54 (15)	203 (14)	34 (17)	38 (14)
2	191 (17)	60 (17)	256 (17)	35 (17)	44 (16)
3+	487 (44)	186 (52)	725 (48)	98 (48)	120 (44)
Missing	0	0	2 (<1)	0	0
Race					
White hispanic	230 (21)	85 (24)	135 (9)	42 (21)	63 (23)
White non-hispanic	648 (58)	152 (43)	1164 (78)	103 (51)	139 (51)
Black	60 (5)	58 (16)	51 (3)	19 (9)	26 (10)
Asian	64 (6)	20 (6)	52 (3)	8 (4)	17 (6)
Other/not specified	111 (10)	41 (12)	99 (7)	31 (15)	28 (10)
Immunophenotype					
T-cell	109 (10)	22 (6)	168 (11)	20 (10)	32 (12)
B-cell	935 (84)	299 (84)	1207 (80)	166 (82)	220 (81)
Unspecified	69 (6)	35 (10)	126 (8)	17 (8)	21 (8)
Cytogenetic score ^b					
Normal	196 (18)	78 (22)	298 (20)	46 (23)	59 (22)
Poor	570 (51)	209 (59)	787 (52)	94 (46)	134 (49)
Other	217 (19)	55 (15)	291 (19)	33 (16)	65 (24)
Not tested	10 (<1)	1 (<1)	8 (<1)	1 (<1)	1 (<1)
Missing	120 (11)	13 (4)	117 (8)	29 (14)	14 (5)
Disease status					

Characteristic	MSD	Haplo	MUD	7/8 UD	UCB
CR1- MRD positive	374 (34)	100 (28)	467 (31)	53 (26)	70 (26)
CR1- MRD negative	472 (42)	132 (37)	645 (43)	75 (37)	115 (42)
CR1- MRD missing	43 (4)	10 (3)	46 (3)	4 (2)	5 (2)
CR2	210 (19)	95 (27)	297 (20)	56 (28)	65 (24)
≥ CR3	14 (1)	19 (5)	46 (3)	15 (7)	18 (7)
Time from diagnosis to HCT(CR1-only)					
0-5 months	602 (68)	123 (51)	699 (60)	51 (39)	83 (44)
6-11 months	247 (28)	99 (41)	412 (36)	71 (54)	93 (49)
≥ 12 months	40 (4)	20 (8)	47 (4)	10 (8)	14 (7)
Cord blood type ^d					
Double cord, 4/6 HLA	0	0	0	0	127 (47)
Double cord, 5-6/6 HLA	0	0	0	0	98 (36)
Single cord, 4/6 HLA	0	0	0	0	7 (3)
Single cord, 5-6/6 HLA	0	0	0	0	21 (8)
Single cord, missing HLA	0	0	0	0	18 (7)
Missing	1113	356	1501	203	2 (<1)
Conditioning regimen					
MAC-TBI	649 (58)	147 (41)	851 (57)	122 (60)	195 (71)
MAC-Chemo	240 (22)	49 (14)	291 (19)	46 (23)	5 (2)
RIC/NMA	222 (20)	160 (45)	359 (24)	34 (17)	72 (26)
Missing	2 (<1)	0	0	1 (<1)	1 (<1)
Conditioning intensity/regimen					
MAC - TBI/Flud/Cy	4 (<1)	9 (3)	8 (<1)	3 (1)	164 (60)
MAC - TBI/Flud	16 (1)	110 (31)	23 (2)	9 (4)	18 (7)
MAC - TBI/Cy	462 (42)	26 (7)	664 (44)	91 (45)	11 (4)
MAC - TBI/VP	157 (14)	0	144 (10)	15 (7)	0
MAC - TBI/Other	10 (<1)	2 (<1)	12 (<1)	4 (2)	2 (<1)
MAC - Bu/Cy	80 (7)	29 (8)	62 (4)	9 (4)	3 (1)
MAC - Bu/Flud	136 (12)	20 (6)	187 (12)	36 (18)	2 (<1)
MAC- Bu/Other	24 (2)	0	42 (3)	1 (<1)	0
RIC/NMA - TBI/Other	10 (<1)	0	4 (<1)	3 (1)	0
RIC/NMA - Bu/Flud	39 (4)	0	80 (5)	7 (3)	1 (<1)
RIC/NMA - Mel/Flud	115 (10)	12 (3)	181 (12)	11 (5)	9 (3)
RIC/NMA - TBI/Flud/Cy	17 (2)	135 (38)	20 (1)	8 (4)	57 (21)
RIC/NMA - TBI/Flud	41 (4)	13 (4)	74 (5)	5 (2)	5 (2)
Missing	2 (<1)	0	0	1 (<1)	1 (<1)
Donor/recipient sex match					
M-M	356 (32)	115 (32)	668 (45)	84 (41)	66 (24)
M-F	238 (21)	85 (24)	394 (26)	44 (22)	9 (3)
F-M	294 (26)	74 (21)	218 (15)	40 (20)	146 (53)
F-F	225 (20)	82 (23)	216 (14)	35 (17)	48 (18)
Missing	0	0	5 (<1)	0	4 (1)
F-M gender mismatch vs. Other					
F-M gender mismatch	294 (26)	74 (21)	218 (15)	40 (20)	146 (53)

Characteristic	MSD	Haplo	MUD	7/8 UD	UCB
All other gender matching	819 (74)	282 (79)	1278 (85)	163 (80)	123 (45)
Missing	0	0	5 (<1)	0	4 (1)
Donor/recipient CMV serostatus					
+/+	519 (47)	175 (49)	451 (30)	79 (39)	0
+/-	120 (11)	29 (8)	185 (12)	23 (11)	0
-/+	226 (20)	81 (23)	513 (34)	56 (28)	0
-/-	236 (21)	70 (20)	345 (23)	45 (22)	0
CB – Recipient +	0	0	0	0	181 (66)
CB – Recipient -	0	0	0	0	88 (32)
Missing	12 (1)	1 (<1)	7 (<1)	0	4 (1)
Donor age at donation ^c					
0-17	45 (4)	14 (4)	0	0	0
18-29	194 (17)	118 (33)	916 (61)	93 (46)	0
30-39	185 (17)	79 (22)	331 (22)	57 (28)	0
40-49	227 (20)	72 (20)	180 (12)	43 (21)	0
50-59	253 (23)	49 (14)	57 (4)	8 (4)	0
60-69	111 (10)	16 (4)	0	0	0
70-79	9 (<1)	1 (<1)	0	0	0
Missing	89 (8)	7 (2)	17 (1)	2 (<1)	273
Donor age, years	44 (9-75)	35 (10-74)	28 (18-58)	31 (19-60)	Not applicable
Type of graft source					
Bone marrow	122 (11)	142 (40)	285 (19)	62 (31)	0
Peripheral blood	991 (89)	214 (60)	1216 (81)	141 (69)	0
Cord blood	0	0	0	0	273
Year of HCT					
2013	227 (20)	26 (7)	258 (17)	38 (19)	58 (21)
2014	229 (21)	47 (13)	289 (19)	44 (22)	64 (23)
2015	234 (21)	72 (20)	315 (21)	46 (23)	63 (23)
2016	218 (20)	97 (27)	302 (20)	32 (16)	46 (17)
2017	205 (18)	114 (32)	337 (22)	43 (21)	42 (15)
GVHD prophylaxis					
TAC/CSA + MMF ± others	143 (13)	0	175 (12)	16 (8)	243 (89)
TAC/CSA + MTX ± others	751 (67)	0	1042 (69)	140 (69)	7 (3)
TAC/CSA others	116 (10)	0	141 (9)	12 (6)	6 (2)
TAC/CSA alone	39 (4)	0	54 (4)	5 (2)	5 (2)
Post-cy + TAC/CSA ± MMF	50 (4)	356	73 (5)	28 (14)	2 (<1)
Other prophylaxis	8 (<1)	0	12 (<1)	1 (<1)	9 (3)
Missing	6 (<1)	0	4 (<1)	1 (<1)	1 (<1)
ATG/Campath					
ATG alone	24 (2)	1 (<1)	461 (31)	96 (47)	31 (11)
CAMPATH alone	17 (2)	0	56 (4)	6 (3)	0
No ATG or CAMPATH	1064 (96)	355	972 (65)	99 (49)	241 (88)
Missing	8 (<1)	0	12 (<1)	2 (<1)	1 (<1)
Median follow-up of survivors (range), months	36 (3-72)	25 (5-67)	36 (3-74)	36 (3-64)	36 (3-64)

^a**Other/ not specified:** Native American (n=24), Pacific Islander (n=12), Non-resident of the US (n=5), not specified (n= 111), Hispanic – excluding white Hispanic (n= 194)

^b**CIBMTR cytogenetics criteria definition:** Poor: Ph+/t(9:22), t(4:11), 11q23, MLL, hypodiploid (<45), t(8:14), complex(\geq 3 abnormalities), iAMP21; Normal: without any abnormality; Other: abnormality count 1 or 2 abnormalities.

^c**Donor age** is not reported for cord bloods.

^d**Cord Blood type:** Double CB, worst HLA-match was selected

Supplemental Table 3. Univariate outcomes, 2013-2017

Outcomes	MSD (N = 1627)		Haploidentical (N = 393)		MUD (N = 1646)		7/8 HLA- matched UD (N = 230)		UCB (N = 305)		P Value
	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	
NRM	1583		381		1618		227		291		<0.001
1-year		12.4 (10.8- 14.1)%		12.6 (9.5- 16.1)%		15.3 (13.6- 17.1)%		24.9 (19.4- 30.7)%		25 (20.2- 30.2)%	<0.001
2-year		15.3 (13.5- 17.2)%		15.7 (12.1- 19.6)%		20.2 (18.3- 22.2)%		29.7 (23.8- 35.9)%		27.7 (22.6- 33)%	<0.001
Relapse	1583		381		1618		227		291		<0.001
1-year		22.1 (20- 24.2)%		24.5 (20.3- 29)%		18.5 (16.7- 20.5)%		18.7 (13.9- 24.1)%		17.9 (13.6- 22.5)%	0.023
2-year		28.9 (26.6- 31.3)%		31.5 (26.8- 36.4)%		23.8 (21.8- 26)%		21.6 (16.4- 27.3)%		22.3 (17.7- 27.4)%	<0.001
LFS	1583		381		1618		227		291		0.095
1-year		65.5 (63.1- 67.9)%		62.8 (57.9- 67.6)%		66.2 (63.8- 68.5)%		56.4 (49.9- 62.8)%		57.1 (51.3- 62.8)%	0.004
2-year		55.8 (53.2- 58.3)%		52.8 (47.7- 58)%		55.9 (53.5- 58.4)%		48.7 (42.2- 55.3)%		50 (44.1- 55.8)%	0.101
OS	1627		393		1646		230		305		0.018
1-year		75.1 (72.9- 77.2)%		77.5 (73.3- 81.5)%		75.7 (73.6- 77.8)%		64 (57.7- 70.1)%		67.2 (61.7- 72.4)%	<0.001
2-year		65.2 (62.7- 67.7)%		65.8 (60.9- 70.6)%		64.1 (61.7- 66.5)%		55.4 (48.9- 61.9)%		57.4 (51.6- 63)%	0.010

Supplemental Table 4. Univariate outcomes. Sensitivity analysis for myeloablative conditioning and peripheral blood stem cell source only, 2013-2017

Outcomes	MSD (N = 1091)		Haploidentical (N = 164)		MUD (N = 985)		7/8 HLA- matched UD (N = 131)		UCB (N = 228)		P Value
	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	
NRM	1061		159		965		129		217		<0.001
1-year		11.6 (9.7- 13.6)%		15.1 (10- 21.1)%		14.2 (12- 16.5)%		25.8 (18.6- 33.8)%		28.6 (22.7- 34.8)%	<0.001
2-year		14.7 (12.5- 16.9)%		19.5 (13.6- 26.1)%		19.5 (17- 22.1)%		29.2 (21.5- 37.4)%		30.1 (24.1- 36.5)%	<0.001
Relapse	1061		159		965		129		217		<0.001
1-year		21.7 (19.2- 24.2)%		20.2 (14.3- 26.8)%		16.9 (14.6- 19.3)%		16.5 (10.5- 23.4)%		12.8 (8.7- 17.7)%	0.006
2-year		27.6 (24.9- 30.5)%		24.7 (18.2- 31.9)%		22.3 (19.7- 25)%		19 (12.6- 26.3)%		18.4 (13.4- 24)%	0.006
LFS	1061		159		965		129		217		0.401
1-year		66.7 (63.8- 69.6)%		64.7 (57.1- 72)%		68.9 (66- 71.8)%		57.7 (49- 66.1)%		58.6 (51.9- 65.1)%	0.015
2-year		57.7 (54.6- 60.8)%		55.8 (47.8- 63.6)%		58.2 (55- 61.4)%		51.8 (43.1- 60.5)%		51.5 (44.7- 58.2)%	0.319
OS	1091		164		985		131		228		0.115
1-year		75.5 (72.9- 78.1)%		75 (68.1- 81.3)%		77.3 (74.7- 79.9)%		62.2 (53.7- 70.3)%		65.9 (59.5- 71.9)%	<0.001
2-year		65.7 (62.7- 68.6)%		63.7 (56- 71.1)%		65.9 (62.8- 68.9)%		55.5 (46.8- 64)%		59 (52.4- 65.4)%	0.082

Supplemental Table 5. Univariate outcomes. Sensitivity analysis for United States centers only

Outcomes	HLA-id sib (N = 1113)		Haplo (N = 356)		8/8 MUD (N = 1501)		7/8 MUD (N = 203)		Cord blood (N = 273)		P Value
	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	
TRM	1101		344		1482		200		265		<0.001
1-year		12.2 (10.3-14.2)%		11.1 (8-14.6)%		15.2 (13.4-17.1)%		24.1 (18.4-30.4)%		25.4 (20.3-30.8)%	<0.001
2-year		15.6 (13.5-17.8)%		14 (10.5-18)%		20.3 (18.3-22.4)%		28.9 (22.8-35.4)%		28.1 (22.8-33.7)%	<0.001
Relapse	1101		344		1482		200		265		<0.001
1-year		21.9 (19.5-24.4)%		25.7 (21.2-30.4)%		18.2 (16.3-20.3)%		18.1 (13.1-23.8)%		18.2 (13.8-23.1)%	0.016
2-year		29 (26.3-31.7)%		33.3 (28.3-38.4)%		23.6 (21.5-25.9)%		21.3 (15.9-27.3)%		22.9 (18-28.2)%	<0.001
LFS	1101		344		1482		200		265		0.188
1-year		65.9 (63-68.6)%		63.3 (58.1-68.3)%		66.5 (64.1-68.9)%		57.7 (50.8-64.5)%		56.4 (50.4-62.4)%	0.006
2-year		55.4 (52.4-58.4)%		52.7 (47.3-58.1)%		56 (53.5-58.6)%		49.8 (42.8-56.8)%		49 (43-55.1)%	0.133
OS	1113		356		1501		203		273		0.039
1-year		76.4 (73.9-78.9)%		78.6 (74.2-82.7)%		76.4 (74.3-78.6)%		65.8 (59.1-72.2)%		67.3 (61.6-72.7)%	<0.001
2-year		66.3 (63.5-69.1)%		66.2 (61.1-71.2)%		64.5 (62-67)%		57.4 (50.5-64.2)%		57 (51-62.9)%	0.016

Supplemental Table 6. Multivariate sensitivity analysis for matched-sibling donor (MSD) vs. haploidentical HCT, myeloablative conditioning regimens and peripheral blood stem cell source only, 2013-2017.

Covariates	N	HR (95% CI)	p-value
<u>OS</u>			
Main effect			0.99
Haploidentical	164	Reference	
MSD	1091	1.00 (0.76-1.31)	0.99
<u>LFS</u>			
Main effect			0.98
Haploidentical	159	Reference	
MSD	1061	1.00 (0.78-1.27)	0.98
<u>NRM</u>			
Main effect			0.19
Haploidentical	159	Reference	
MSD	1061	0.77 (0.53-1.13)	0.19
<u>Relapse</u>			
Main effect			0.46
Haploidentical	159	Reference	
MSD	1061	1.13 (0.82-1.55)	0.46

Supplemental Table 7. Multivariate sensitivity analysis for 8/8 HLA-matched unrelated donor (MUD) vs. haploidentical HCT, myeloablative conditioning regimens and peripheral blood stem cell source only, 2013-2017.

Covariates	N	HR (95% CI)	p-value
<u>OS</u>			
Main effect			0.71
Haploidentical	164	Reference	
MUD	985	1.06 (0.79-1.41)	0.71
<u>LFS</u>			
Main effect			0.97
Haploidentical	159	Reference	
MUD	965	1.00 (0.77-1.29)	0.97
<u>NRM</u>			
Main effect			0.53
Haploidentical	159	Reference	
MUD	965	1.14 (0.76-1.69)	0.53
<u>Relapse</u>			
Main effect			0.57
Haploidentical	159	Reference	
MUD	965	0.90 (0.64-1.28)	0.57

Supplemental Table 8. Multivariate sensitivity analysis (MAC / PBSC) for 7/8 HLA-matched unrelated donor (UD) vs. haploidentical HCT, myeloablative conditioning regimens and peripheral blood stem cell source only, 2013-2017.

Covariates	N	HR (95% CI)	p-value
<u>OS</u>			
Main effect			0.07
Haploidentical	164	Reference	
7/8 HLA-matched UD	131	1.39 (0.97-1.98)	0.07
<u>LFS</u>			
Main effect			0.40
Haploidentical	159	Reference	
7/8 HLA-matched UD	129	1.16 (0.82-1.63)	0.40
<u>NRM</u>			
Main effect			0.010
Haploidentical	159	Reference	
7/8 HLA-matched UD	129	1.88 (1.16-3.03)	0.010
<u>Relapse</u>			
Main effect			0.32
Haploidentical	159	Reference	
7/8 HLA-matched UD	129	0.78 (0.47-1.28)	0.32

Supplemental Table 9. Multivariate sensitivity analysis for umbilical cord blood (UCB) vs. haploidentical HCT, myeloablative conditioning regimens and peripheral blood stem cell source only, 2013-2017.

Covariates	N	HR (95% CI)	p-value
<u>OS</u>			
UCB vs. haploidentical ≤18 months		1.88 (1.26-2.80)	0.002
UCB vs. haploidentical >18 months		0.62 (0.26-1.51)	0.29
<u>LFS</u>			
UCB vs. haploidentical ≤18 months		1.54 (1.07-2.20)	0.02
UCB vs. haploidentical >18 months		0.59 (0.26-1.32)	0.20
<u>NRM</u>			
Main effect			0.001
Haploidentical	159	Reference	
UCB	217	2.24 (1.37-3.66)	0.001
<u>Relapse</u>			
Main effect			0.27
Haploidentical	159	Reference	
UCB	217	0.76 (0.47-1.23)	0.27

Supplemental Table 10. Multivariate sensitivity analysis for matched-sibling donor (MSD) vs. haploidentical HCT, United States centers only, 2013-2017.

Covariates	N	HR (95% CI)	p-value
<u>OS</u>			
Main effect			0.26
Haploidentical	356	Reference	
MSD	1113	1.12 (0.92-1.37)	0.26
<u>LFS</u>			
Main effect			0.70
Haploidentical	344	Reference	
MSD	1101	1.04 (0.87-1.24)	0.70
<u>NRM</u>			
Main effect			0.25
Haploidentical	344	Reference	
MSD	1101	1.20 (0.88-1.63)	0.25
<u>Relapse</u>			
Main effect			0.47
Haploidentical	344	Reference	
MSD	1101	0.92 (0.75-1.14)	0.47

Supplemental Table 11. Multivariate sensitivity analysis for 8/8 HLA-matched unrelated donor (MUD) vs. haploidentical HCT, United States centers only, 2013-2017.

Covariates	N	HR (95% CI)	p-value
<u>OS</u>			
Main effect			0.05
Haploidentical	356	Reference	
MUD	1501	1.23 (1.00-1.50)	0.05
<u>LFS</u>			
Main effect			0.73
Haploidentical	344	Reference	
MUD	1482	1.03 (0.86-1.23)	0.73
<u>NRM</u>			
Main effect			0.001
Haploidentical	344	Reference	
MUD	1482	1.67 (1.23-2.28)	0.001
<u>Relapse</u>			
Main effect			0.02
Haploidentical	344	Reference	
MUD	1482	0.76 (0.61-0.96)	0.02

Supplemental Table 12. Multivariate sensitivity analysis for 7/8 HLA-matched unrelated donor vs. haploidentical HCT, United States centers only, 2013-2017.

Covariates	N	HR (95% CI)	p-value
<u>OS</u>			
Main effect			0.03
Haploidentical	356	Reference	
7/8 HLA-matched UD	203	1.34 (1.02-1.75)	0.03
<u>LFS</u>			
Main effect			0.19
Haploidentical	344	Reference	
7/8 HLA-matched UD	200	1.19 (0.92-1.55)	0.19
<u>NRM</u>			
Main effect			< 0.001
Haploidentical	344	Reference	
7/8 HLA-matched UD	200	2.21 (1.52-3.23)	< 0.001
<u>Relapse</u>			
Main effect			0.10
Haploidentical	344	Reference	
7/8 HLA-matched UD	200	0.74 (0.51-1.06)	0.10

Supplemental Table 13. Multivariate sensitivity analysis for umbilical cord blood (UCB) vs. haploidentical HCT, United States centers only, 2013-2017.

Covariates	N	HR (95% CI)	p-value
<u>OS</u>			
UCB vs. haploidentical ≤18 months		1.96 (1.46-2.63)	< 0.001
UCB vs. haploidentical >18 months		0.69 (0.39-1.24)	0.22
<u>LFS</u>			
UCB vs. haploidentical ≤18 months		1.42 (1.10-1.84)	0.007
UCB vs. haploidentical >18 months		0.56 (0.30-1.04)	0.07
<u>NRM</u>			
Main effect			< 0.001
Haploidentical	344	Reference	
UCB	265	2.25 (1.53-3.31)	< 0.001
<u>Relapse</u>			
Main effect			0.18
Haploidentical	344	Reference	
UCB	265	0.80 (0.58-1.11)	0.18







