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Supplemental Table 1 – List of variables offered to multivariable models

Patient-related variables	Categories
Recipient age	10-year increase
Recipient age decade	40-49, 50-59, 60+
Recipient sex	Male, Female
Karnofsky performance-status score	10-80, 90-100
Hematopoietic Cell Transplantation Comorbidity Index	0, 1-2, 3
Recipient telomere length quartiles	Shortest, Intermediate (2nd and 3rd), Longest
Predisposing condition	No, Yes

Disease-related variables	Categories
Hemoglobin (g/dL)	< 0.8, 8-10, >= 10
Platelet count (x 109/L)	< 50, 50-100, >= 100
Absolute neutrophil count (x 109/L)	< 0.8, >= 0.8
Bone marrow blasts at diagnosis (%)	<2, 2-5, 6-10, >10
Bone marrow blasts at transplantation (%)	<2, 2-5, 6-10, >10
TP53	No mutation, Mutation
JAK2 V617F	No mutation, Mutation
RAS-tyrosine kinase pathway	No mutation, Mutation
IPSS-R Risk score prior to transplantation	Very low, Low, Intermediate, High, Very high
IPSS-R Risk score prior to transplantation, Very high	Very high, Others
IPSS-R Cytogenetic Risk group, Very poor	Very poor, Others
Monosomal Karyotype	No, Yes, Unknown
Prior MDS therapy	None, Hypomethylating agent (HMA), Chemotherapy +/- HMA
MDS type	De novo MDS, Therapy-related MDS
Shaffer score[1]	Low (0-1) < Int (2-3) < High (4-5) < Very High (6+)

Transplant-related variables	Categories
Conditioning intensity	Myeloablative, Reduced intensity, Nonmyeloablative
Conditioning intensity	Myeloablative, Reduced intensity
Conditioning intensity	Myeloablative, Reduced intensity Fludarabine/Melphalan -based, Reduced intensity non-Fludarabine/Melphalan -based, Nonmyeloablative
Donor group	Matched Related, Matched Unrelated, Mismatched, Cord Blood
Donor age	< 35, >= 35, Missing
Donor sex	Male, Female
Donor sex match	Unmatched, Matched
Donor type	Bone marrow, PBSC, Cord blood, Other
In vivo T-cell depletion	No, Yes
GVHD prophylaxis	None reported, ex vivo T-cell depletion, CD34 selection, Cyclophosphamide-based, Tacrolimus-based, CSA-based, Other
Year of transplantation	2005-2007, 2008-2014

Supplemental Table 2 – HCT-CI unadjusted multivariable models for overall survival, non-relapse mortality, and relapse

	Total	Cox: Overall Survival			CRR: NRM			CRR: Relapse		
		Events			Events			Events		
	n = 1267 (%)	n = 835 (66)	HR (95% CI)	P	n = 459 (36)	HR (95% CI)	P	n = 472 (37)	HR (95% CI)	P
TP53										
No mutation	1005 (79)	622 (74)	Reference		365 (80)	Reference		339 (72)	Reference	
Mutation	262 (21)	213 (26)	1.72 (1.46, 2.02)	< 0.001	94 (20)	0.98 (0.77, 1.25)	0.89	133 (28)	1.75 (1.42, 2.17)	< 0.001
IPSSR										
Other	1133 (89)	723 (87)	Reference		404 (88)	Reference		407 (86)	Reference	
Very high	134 (11)	112 (13)	1.69 (1.37, 2.07)	< 0.001	55 (12)	1.15 (0.85, 1.57)	0.37	65 (14)	1.42 (1.06, 1.91)	0.02
Recipient telomere length quartile										
Longest	317 (25)	174 (21)	Reference		91 (20)	Reference		111 (24)	Reference	
Intermediate (2nd and 3rd)	633 (50)	433 (52)	1.35 (1.13, 1.62)	< 0.001	233 (51)	1.31 (1.03, 1.68)	0.03	244 (52)	1.09 (0.87, 1.36)	0.47
Shortest	317 (25)	228 (27)	1.52 (1.24, 1.85)	< 0.001	135 (29)	1.57 (1.20, 2.06)	0.001	117 (25)	1.02 (0.78, 1.32)	0.9
Donor group										
Matched, related	165 (13)	100 (12)	Reference		37 (8)	Reference		74 (16)	Reference	
Matched, unrelated	755 (60)	480 (57)	1.09 (0.86, 1.39)	0.46	268 (58)	1.57 (1.08, 2.27)	0.02	277 (59)	0.82 (0.62, 1.10)	0.19
Mismatched	242 (19)	181 (22)	1.55 (1.19, 2.01)	0.001	111 (24)	2.26 (1.53, 3.36)	< 0.001	82 (17)	0.73 (0.52, 1.03)	0.07
Cord Blood	105 (8)	74 (9)	1.76 (1.26, 2.48)	0.001	43 (9)	2.13 (1.28, 3.53)	0.004	39 (8)	0.92 (0.59, 1.43)	0.70
RAS-tyrosine kinase pathway										
No mutation	1118 (88)	724 (87)	Reference		404 (88)	Reference		409 (87)	Reference	
Mutation	149 (12)	111 (13)	1.35 (1.10, 1.65)	0.004	55 (12)	1.02 (0.75, 1.38)	0.91	63 (13)	1.25 (0.94, 1.67)	0.13
Donor age										
< 35 years old	755 (60)	487 (58)	Reference		279 (61)	Reference		270 (57)	Reference	
35 years or older	503 (40)	343 (41)	1.25 (1.07, 1.45)	0.005	178 (39)	1.11 (0.90, 1.36)	0.32	198 (42)	1.07 (0.87, 1.32)	0.50
Missing	9 (1)	5 (1)	0.73 (0.30, 1.79)	0.50	2 (0)	0.52 (0.13, 2.08)	0.35	4 (1)	1.31 (0.55, 3.12)	0.54
Age										
10 year increase	1267 (100)	835 (100)	1.15 (1.04, 1.27)	0.005	459 (100)	1.10 (0.96, 1.26)	0.18	472 (100)	1.09 (0.96, 1.24)	0.17
Year of transplantation										
2005-2007	219 (17)	163 (20)	Reference		97 (21)	Reference		80 (17)	Reference	
2008-2014	1048 (83)	672 (80)	0.78 (0.65, 0.93)	0.007	362 (79)	0.79 (0.62, 1.00)	0.06	392 (83)	0.97 (0.75, 1.26)	0.82
Karnofsky Performance Score										
90-100	640 (51)	410 (49)	Reference		227 (49)	Reference		232 (49)	Reference	
10-80	382 (30)	272 (33)	1.23 (1.06, 1.44)	0.008	160 (35)	1.21 (0.99, 1.49)	0.07	134 (28)	0.95 (0.76, 1.19)	0.67
Missing	245 (19)	153 (18)	1.03 (0.85, 1.24)	0.80	72 (16)	0.86 (0.66, 1.14)	0.30	106 (22)	1.24 (0.98, 1.57)	0.08
JAK2 V617F										
No mutation	1232 (97)	806 (97)	Reference		439 (96)	Reference		461 (98)	Reference	
Mutation	35 (3)	29 (3)	1.58 (1.09, 2.30)	0.02	20 (4)	1.81 (1.11, 2.94)	0.02	11 (2)	0.89 (0.49, 1.62)	0.71

Supplemental Table 3 – Multivariable models with HCT-CI
HCT-CI was forced into the multivariable models shown in supplemental Table 2.

| | Total | Cox: Overall Survival | | | CRR: NRM | | | CRR: Relapse | | |
| | | Events | | | Events | | | Events | | |
	n = 1267 (%)	n = 835 (66)	HR (95% CI)	P	n = 459 (36)	HR (95% CI)	P	n = 472 (37)	HR (95% CI)	P
TP53										
No mutation	1005 (79)	622 (74)	Reference		365 (80)	Reference		339 (72)	Reference	
Mutation	262 (21)	213 (26)	1.69 (1.43, 2.00)	< 0.001	94 (20)	0.97 (0.76, 1.25)	0.84	133 (28)	1.76 (1.42, 2.19)	< 0.001
IPSSR										
Other	1133 (89)	723 (87)	Reference		404 (88)	Reference		407 (86)	Reference	
Very high	134 (11)	112 (13)	1.66 (1.35, 2.05)	< 0.001	55 (12)	1.14 (0.84, 1.56)	0.40	65 (14)	1.44 (1.07, 1.94)	0.02
Recipient telomere length quartile										
Longest	317 (25)	174 (21)	Reference		91 (20)	Reference		111 (24)	Reference	
Intermediate (2nd and 3rd)	633 (50)	433 (52)	1.34 (1.12, 1.60)	0.001	233 (51)	1.30 (1.02, 1.67)	0.04	244 (52)	1.09 (0.87, 1.37)	0.46
Shortest	317 (25)	228 (27)	1.49 (1.22, 1.83)	< 0.001	135 (29)	1.56 (1.19, 2.04)	0.001	117 (25)	1.02 (0.78, 1.33)	0.88
Donor group										
Matched, related	165 (13)	100 (12)	Reference		37 (8)	Reference		74 (16)	Reference	
Matched, unrelated	755 (60)	480 (57)	1.00 (0.66, 1.52)	0.99	268 (58)	1.08 (0.58, 2.01)	0.81	277 (59)	1.25 (0.74, 2.13)	0.40
Mismatched	242 (19)	181 (22)	1.41 (0.91, 2.18)	0.12	111 (24)	1.55 (0.82, 2.95)	0.18	82 (17)	1.12 (0.64, 1.94)	0.69
Cord Blood	105 (8)	74 (9)	1.63 (1.01, 2.64)	0.05	43 (9)	1.47 (0.72, 3.00)	0.29	39 (8)	1.38 (0.74, 2.58)	0.31
RAS-tyrosine kinase pathway										
No mutation	1118 (88)	724 (87)	Reference		404 (88)	Reference		409 (87)	Reference	
Mutation	149 (12)	111 (13)	1.35 (1.10, 1.66)	0.004	55 (12)	1.02 (0.76, 1.38)	0.89	63 (13)	1.25 (0.93, 1.67)	0.14
Donor age										
< 35 years old	755 (60)	487 (58)	Reference		279 (61)	Reference		270 (57)	Reference	
35 years or older	503 (40)	343 (41)	1.26 (1.08, 1.47)	0.004	178 (39)	1.13 (0.92, 1.39)	0.23	198 (42)	1.04 (0.84, 1.29)	0.73
Missing	9 (1)	5 (1)	0.75 (0.31, 1.82)	0.52	2 (0)	0.51 (0.12, 2.08)	0.35	4 (1)	1.36 (0.58, 3.16)	0.48
Age										
10 year increase	1267 (100)	835 (100)	1.14 (1.03, 1.26)	0.01	459 (100)	1.08 (0.94, 1.24)	0.27	472 (100)	1.11 (0.98, 1.27)	0.11
Year of transplantation										
2005-2007	219 (17)	163 (20)	Reference		97 (21)	Reference		80 (17)	Reference	
2008-2014	1048 (83)	672 (80)	0.70 (0.44, 1.11)	0.13	362 (79)	0.49 (0.25, 0.96)	0.04	392 (83)	1.64 (0.90, 2.97)	0.11
Karnofsky Performance Score										
90-100	640 (51)	410 (49)	Reference		227 (49)	Reference		232 (49)	Reference	
10-80	382 (30)	272 (33)	1.20 (1.03, 1.41)	0.02	160 (35)	1.18 (0.96, 1.45)	0.12	134 (28)	0.96 (0.77, 1.20)	0.75
Missing	245 (19)	153 (18)	1.01 (0.83, 1.23)	0.91	72 (16)	0.87 (0.66, 1.15)	0.34	106 (22)	1.20 (0.94, 1.53)	0.14
JAK2 V617F										
No mutation	1232 (97)	806 (97)	Reference		439 (96)	Reference		461 (98)	Reference	
Mutation	35 (3)	29 (3)	1.61 (1.11, 2.35)	0.01	20 (4)	1.84 (1.13, 3.01)	0.02	11 (2)	0.87 (0.48, 1.59)	0.65
HCT-CI										
0	185 (15)	102 (12)	Reference		60 (13)	Reference		65 (14)	Reference	
1-2	228 (18)	143 (17)	1.23 (0.95, 1.59)	0.11	82 (18)	1.13 (0.80, 1.58)	0.49	83 (18)	1.11 (0.80, 1.53)	0.55
3 or above	497 (39)	343 (41)	1.29 (1.03, 1.62)	0.03	193 (42)	1.22 (0.90, 1.65)	0.21	176 (37)	0.94 (0.70, 1.25)	0.66
Missing	357 (28)	247 (30)	1.09 (0.69, 1.73)	0.72	124 (27)	0.70 (0.36, 1.38)	0.30	148 (31)	1.70 (0.95, 3.03)	0.07

Supplemental Table 4 – Association between somatic mutations and shortest and longest telomere length quartiles

Shown is the number of patients with a mutation in each telomere group, odds ratio of patient with a mutation belonging to the longest vs the shortest telomere length quartile, and nominal P value using Fisher's exact test. Results shown for patients age 40 or older and genes mutated in 10 or more patients.

Gene	Total n = 1267 (%)	Telomere length quartile			Odds Ratio Longest vs Shortest	Nominal P value
		Shortest n = 317 (25)	Intermediate (2nd and 3rd) n = 633 (50)	Longest n = 317 (25)		
SRSF2	95 (7)	8 (3)	37 (6)	50 (16)	7.21	< 0.001
DNMT3A	220 (17)	41 (13)	101 (16)	78 (25)	2.19	< 0.001
PPM1D	87 (7)	33 (10)	40 (6)	14 (4)	0.4	0.01
WT1	21 (2)	12 (4)	6 (1)	3 (1)	0.24	0.03
STAG2	84 (7)	17 (5)	35 (6)	32 (10)	1.98	0.04
ATM	16 (1)	8 (3)	7 (1)	1 (0)	0.12	0.04
NPM1	22 (2)	11 (3)	8 (1)	3 (1)	0.27	0.05
U2AF1	117 (9)	40 (13)	52 (8)	25 (8)	0.59	0.07
TP53	262 (21)	69 (22)	142 (22)	51 (16)	0.69	0.08
DDX41	22 (2)	8 (3)	12 (2)	2 (1)	0.25	0.11
CBL	32 (3)	13 (4)	13 (2)	6 (2)	0.45	0.16
SF3B1	141 (11)	39 (12)	74 (12)	28 (9)	0.69	0.2
KRAS	22 (2)	4 (1)	9 (1)	9 (3)	2.28	0.26
CEBPA	13 (1)	3 (1)	3 (0)	7 (2)	2.36	0.34
JAK2	35 (3)	12 (4)	16 (3)	7 (2)	0.57	0.35
RUNX1	141 (11)	38 (12)	58 (9)	45 (14)	1.21	0.48
NF1	19 (1)	3 (1)	10 (2)	6 (2)	2.02	0.5
BRCC3	14 (1)	3 (1)	5 (1)	6 (2)	2.02	0.5
GATA2	27 (2)	8 (3)	14 (2)	5 (2)	0.62	0.58
TET2	177 (14)	45 (14)	81 (13)	51 (16)	1.16	0.58
NRAS	51 (4)	14 (4)	19 (3)	18 (6)	1.3	0.59
BCOR	64 (5)	18 (6)	32 (5)	14 (4)	0.77	0.59
CSF3R	15 (1)	2 (1)	9 (1)	4 (1)	2.01	0.69
ETNK1	18 (1)	5 (2)	10 (2)	3 (1)	0.6	0.72
IDH1	22 (2)	7 (2)	10 (2)	5 (2)	0.71	0.77
CUX1	28 (2)	8 (3)	10 (2)	10 (3)	1.26	0.81
ZRSR2	30 (2)	10 (3)	12 (2)	8 (3)	0.8	0.81
IDH2	41 (3)	13 (4)	17 (3)	11 (3)	0.84	0.84
ASXL1	262 (21)	67 (21)	125 (20)	70 (22)	1.06	0.85
GNB1	11 (1)	2 (1)	6 (1)	3 (1)	1.5	1
PRPF8	20 (2)	3 (1)	13 (2)	4 (1)	1.34	1
SETBP1	72 (6)	20 (6)	31 (5)	21 (7)	1.05	1
PTPN11	43 (3)	14 (4)	15 (2)	14 (4)	1	1
PHF6	42 (3)	9 (3)	24 (4)	9 (3)	1	1

RAD21	13 (1)	3 (1)	7 (1)	3 (1)	1	1
BCORL1	11 (1)	3 (1)	5 (1)	3 (1)	1	1
ETV6	53 (4)	16 (5)	22 (3)	15 (5)	0.93	1
EZH2	51 (4)	14 (4)	24 (4)	13 (4)	0.93	1
RIT1	10 (1)	4 (1)	3 (0)	3 (1)	0.75	1

Supplemental Table 5 – Distribution of conditioning regimens by telomere length quartiles

	Total n = 1267 (%)	Telomere length quartile		
		Shortest n = 317 (25)	Intermediate (2nd and 3rd) n = 633 (50)	Longest n = 317 (25)
Myeloablative conditioning				
Cy/TBI/others	4 (0)	1 (0)	2 (0)	1 (0)
CY/TBI	40 (3)	12 (4)	18 (3)	10 (3)
TBI/others	3 (0)	1 (0)	-	2 (1)
Bu/Flu	155 (12)	31 (10)	72 (11)	52 (16)
Thiotepa based	2 (0)	1 (0)	1 (0)	-
Bu/Cy/others	2 (0)	2 (1)	-	-
Bu/Cy	144 (11)	41 (13)	69 (11)	34 (11)
Bu/Flu + others	36 (3)	5 (2)	19 (3)	12 (4)
Bu + others	168 (13)	35 (11)	97 (15)	36 (11)
Flu/Melphalan	7 (1)	1 (0)	6 (1)	-
Treosulfan	8 (1)	4 (1)	4 (1)	-
Others	13 (1)	6 (2)	3 (0)	4 (1)
Reduced-intensity conditioning				
Flu/Mel-based				
Flu/Melphalan	197 (16)	41 (13)	99 (16)	57 (18)
Flu/Melphalan/others	23 (2)	8 (3)	11 (2)	4 (1)
Other RIC				
Bu/Flu	262 (21)	75 (24)	129 (20)	58 (18)
TBI+others	53 (4)	16 (5)	25 (4)	12 (4)
Bu/Flu/others	3 (0)	1 (0)	2 (0)	-
Bu/others	2 (0)	-	1 (0)	1 (0)
Others	15 (1)	4 (1)	7 (1)	4 (1)
Non-myeloablative conditioning				
TBI/Cy/Flu	52 (4)	7 (2)	30 (5)	15 (5)
TBI/Flu	26 (2)	9 (3)	9 (1)	8 (3)
Flu/Cy	14 (1)	5 (2)	6 (1)	3 (1)
Others	29 (2)	7 (2)	19 (3)	3 (1)
Missing	9 (1)	4 (1)	4 (1)	1 (0)

Supplemental Table 6 – Reported causes of death according to telomere length groups and conditioning intensity

	Shortest quartile			Intermediate (2nd and 3rd)			Longest quartile		
	Total	RIC	MAC	Total	RIC	MAC	Total	RIC	MAC
	n = 227 (%)	n = 121 (53)	n = 106 (47)	n = 446 (%)	n = 243 (54)	n = 203 (46)	n = 183 (%)	n = 96 (52)	n = 87 (48)
Non-relapse mortality									
GVHD	34 (15)	17 (7)	17 (7)	59 (13)	35 (8)	24 (5)	19 (10)	12 (7)	7 (4)
Infection	31 (13)	15 (7)	16 (7)	54 (12)	21 (5)	33 (7)	19 (10)	7 (4)	12 (7)
Other	23 (10)	12 (5)	11 (5)	50 (11)	31 (7)	19 (4)	20 (11)	10 (5)	10 (5)
Organ failure	15 (7)	8 (3)	7 (3)	21 (5)	9 (2)	12 (3)	16 (9)	11 (6)	5 (3)
Non-infectious pulmonary disease	15 (7)	7 (3)	8 (3)	27 (6)	11 (2)	16 (4)	9 (5)	2 (1)	7 (4)
Primary disease	11 (5)	6 (3)	5 (2)	16 (4)	10 (2)	6 (1)	7 (4)	5 (3)	2 (1)
Other malignancy	4 (2)	3 (1)	1 (0)	5 (1)	4 (1)	1 (0)	1 (1)	1 (1)	-
Relapse									
Primary disease	66 (29)	36 (16)	30 (13)	158 (35)	89 (20)	69 (15)	67 (37)	35 (19)	32 (17)

Supplemental Table 7 – Association between Hematopoietic Cell Transplantation Comorbidity Index (HCT-CI) components and telomere length groups
Comorbidities defined according to Sorror et al.[2]

| | Total | Telomere length quartile | | | p-value | FDR corrected p-value |
| | | Shortest | Intermediate (2nd and 3rd) | Longest | | |
	n = 1267 (%)	n = 317 (25)	n = 633 (50)	n = 317 (25)		
Infection						
No	986 (78)	223 (70)	503 (79)	260 (82)	< 0.001†	0.004
Yes	57 (4)	23 (7)	28 (4)	6 (2)		
Missing	224 (18)	71 (22)	102 (16)	51 (16)		
Pulmonary						
No	617 (49)	129 (41)	308 (49)	180 (57)	< 0.001‡	0.004
Moderate	265 (21)	68 (21)	145 (23)	52 (16)		
Severe	161 (13)	49 (15)	78 (12)	34 (11)		
Missing	224 (18)	71 (22)	102 (16)	51 (16)		
Hepatic						
No	960 (76)	220 (69)	482 (76)	258 (81)	0.001‡	0.008
Mild	65 (5)	23 (7)	35 (6)	7 (2)		
Moderate/severe	18 (1)	3 (1)	14 (2)	1 (0)		
Missing	224 (18)	71 (22)	102 (16)	51 (16)		
Prior solid tumor						
No	856 (68)	211 (67)	434 (69)	211 (67)	0.07†	0.21
Yes	186 (15)	35 (11)	97 (15)	54 (17)		
Missing	225 (18)	71 (22)	102 (16)	52 (16)		
Arrhytmia						
No	984 (78)	231 (73)	495 (78)	258 (81)	0.07†	0.21
Yes	55 (4)	15 (5)	33 (5)	7 (2)		
Missing	228 (18)	71 (22)	105 (17)	52 (16)		
Cardiac						
No	876 (69)	201 (63)	443 (70)	232 (73)	0.09†	0.21
Yes	165 (13)	45 (14)	86 (14)	34 (11)		
Missing	226 (18)	71 (22)	104 (16)	51 (16)		
Diabetes						
No	891 (70)	208 (66)	445 (70)	238 (75)	0.10†	0.22
Yes	150 (12)	38 (12)	84 (13)	28 (9)		
Missing	226 (18)	71 (22)	104 (16)	51 (16)		
Renal						
No	1,033 (82)	244 (77)	528 (83)	261 (82)	0.20†	0.38
Yes	10 (1)	2 (1)	3 (0)	5 (2)		
Missing	224 (18)	71 (22)	102 (16)	51 (16)		
Inflammatory Bowel Disease						

No	1,028 (81)	242 (76)	526 (83)	260 (82)	*0.52†*	*0.77*
Yes	15 (1)	4 (1)	5 (1)	6 (2)		
Missing	224 (18)	71 (22)	102 (16)	51 (16)		
Psychiatric						
No	847 (67)	205 (65)	424 (67)	218 (69)	*0.65†*	*0.77*
Yes	194 (15)	40 (13)	106 (17)	48 (15)		
Missing	226 (18)	72 (23)	103 (16)	51 (16)		
Obesity						
No	942 (74)	228 (72)	471 (74)	243 (77)	*0.66†*	*0.77*
Yes	100 (8)	18 (6)	59 (9)	23 (7)		
Missing	225 (18)	71 (22)	103 (16)	51 (16)		
Cerebrovascular						
No	1,015 (80)	241 (76)	512 (81)	262 (83)	*0.67†*	*0.77*
Yes	24 (2)	5 (2)	15 (2)	4 (1)		
Missing	228 (18)	71 (22)	106 (17)	51 (16)		
Rheumatologic						
No	1,010 (80)	239 (75)	512 (81)	259 (82)	*0.68†*	*0.77*
Yes	32 (3)	7 (2)	19 (3)	6 (2)		
Missing	225 (18)	71 (22)	102 (16)	52 (16)		
Peptic Ulcer						
No	1,024 (81)	242 (76)	520 (82)	262 (83)	*0.90†*	*0.90*
Yes	18 (1)	4 (1)	10 (2)	4 (1)		
Missing	225 (18)	71 (22)	103 (16)	51 (16)		
Heart valve disease						
No	1,019 (80)	240 (76)	519 (82)	260 (82)	*0.90†*	*0.90*
Yes	22 (2)	6 (2)	10 (2)	6 (2)		
Missing	226 (18)	71 (22)	104 (16)	51 (16)		

†Kruskal-Wallis trend test, ‡Jonckheere-Terpstra test

Supplemental Table 8 – Patient characteristics by telomere length quartiles in patients with HCT-CI score 0 who received myeloablative conditioning

| | Total | Telomere length quartile | | | p-value |
		Shortest	Intermediate (2nd and 3rd)	Longest	
	n = 86 (%)	n = 19 (22)	n = 37 (43)	n = 30 (35)	
Patient-related variables					
Recipient age					
Median (range)	55.1 (40.0 - 75.1)	53.4 (42.4 - 69.9)	57.8 (40.9 - 75.1)	53.2 (40.0 - 71.1)	> 0.99^
Recipient sex					
Male	51 (59)	11 (58)	24 (65)	16 (53)	0.62†
Female	35 (41)	8 (42)	13 (35)	14 (47)	
Karnofsky performance-status score					
90-100	60 (70)	12 (63)	26 (70)	22 (73)	0.66†
10-80	15 (17)	4 (21)	6 (16)	5 (17)	
Missing	11 (13)	3 (16)	5 (14)	3 (10)	
Telomere length					
Median (range)	0.5 (0.3 - 0.9)	0.4 (0.3 - 0.4)	0.5 (0.4 - 0.6)	0.6 (0.6 - 0.9)	< 0.001^
Disease-related variables					
IPSS-R					
Very low	10 (12)	-	6 (16)	4 (13)	0.12‡
Low	25 (29)	4 (21)	10 (27)	11 (37)	
Intermediate	18 (21)	7 (37)	7 (19)	4 (13)	
High	11 (13)	2 (11)	5 (14)	4 (13)	
Very high	7 (8)	1 (5)	5 (14)	1 (3)	
Missing	15 (17)	5 (26)	4 (11)	6 (20)	
IPSS-R Cytogenetic risk group					
Good	46 (53)	10 (53)	16 (43)	20 (67)	0.45‡
Intermediate	10 (12)	3 (16)	6 (16)	1 (3)	
Poor	13 (15)	3 (16)	7 (19)	3 (10)	
Very poor	7 (8)	1 (5)	4 (11)	2 (7)	
Unknown	10 (12)	2 (11)	4 (11)	4 (13)	
Absolute neutrophil count (x 109/L)					
Median (Interquartile Range)	1.3 (0.6-2.7)	1.4 (1.0-2.5)	1.1 (0.5-2.6)	1.7 (0.7-2.7)	0.47^
Hemoglobin (g/dL)					
Median (Interquartile Range)	10.1 (8.9-12.1)	9.4 (9.0-10.1)	10.4 (9.5-13.0)	10.7 (8.9-12.0)	0.06^
Platelet count (x 109/L)					

Median (Interquartile Range)	87 (47-205)	48 (32-112)	111 (58-218)	101 (66-207)	*0.04^*
Bone marrow blasts (%)					
Median (Interquartile Range)	3 (1-6)	3 (1-6)	3 (1-6)	3 (1-5)	*0.80^*
Monosomal karyotype					
No	68 (79)	15 (79)	28 (76)	25 (83)	*0.79†*
Yes	11 (13)	2 (11)	7 (19)	2 (7)	
Unknown	7 (8)	2 (11)	2 (5)	3 (10)	
Prior MDS therapy					
None	19 (22)	6 (32)	6 (16)	7 (23)	*0.92†*
HMA only	55 (64)	11 (58)	25 (68)	19 (63)	
Chemotherapy	8 (9)	1 (5)	5 (14)	2 (7)	
Missing	4 (5)	1 (5)	1 (3)	2 (7)	
Therapy-related MDS					
De Novo MDS	85 (99)	18 (95)	37 (100)	30 (100)	0.15†
t-MDS	1 (1)	1 (5)	-	-	
JAK2 V617F					
No mutation	82 (95)	18 (95)	34 (92)	30 (100)	0.27†
Mutation	4 (5)	1 (5)	3 (8)	-	
Transplant-related variables					
Graft type					
Bone marrow	15 (17)	4 (21)	6 (16)	5 (17)	*0.35†*
PBSC	66 (77)	15 (79)	29 (78)	22 (73)	
Cord Blood	5 (6)	-	2 (5)	3 (10)	
Donor group					
Matched, related	4 (5)	1 (5)	2 (5)	1 (3)	*0.32†*
Matched, unrelated	53 (62)	14 (74)	23 (62)	16 (53)	
Mismatched	24 (28)	4 (21)	10 (27)	10 (33)	
Cord Blood	5 (6)	-	2 (5)	3 (10)	
Donor age					
Under 35	55 (64)	9 (47)	24 (65)	22 (73)	*0.08†*
35 or over	31 (36)	10 (53)	13 (35)	8 (27)	
Donor sex					
Male	65 (76)	17 (89)	28 (76)	20 (67)	*0.08†*
Female	17 (20)	2 (11)	6 (16)	9 (30)	
Missing	4 (5)	-	3 (8)	1 (3)	
Sex match (donor/recipient)					
Male/Male	39 (45)	11 (58)	17 (46)	11 (37)	*0.29†*

Male/Female	26 (30)	6 (32)	11 (30)	9 (30)	
Female/Male	10 (12)	-	5 (14)	5 (17)	
Female/Female	7 (8)	2 (11)	1 (3)	4 (13)	
Missing	4 (5)	-	3 (8)	1 (3)	
in vivo T-cell depletion					
No	49 (57)	11 (58)	23 (62)	15 (50)	*0.48†*
Yes	37 (43)	8 (42)	14 (38)	15 (50)	
GVHD prophylaxis					
None reported	2 (2)	1 (5)	-	1 (3)	*> 0.99†*
Ex vivo T-cell depletion	4 (5)	1 (5)	1 (3)	2 (7)	
CD34 selection	67 (78)	14 (74)	30 (81)	23 (77)	
Tacrolimus-based	10 (12)	2 (11)	5 (14)	3 (10)	
CSA-based	3 (3)	1 (5)	1 (3)	1 (3)	
Other	1 (2)		1 (3)	-	
Year of transplantation					
>2007	86 (100)	19 (100)	37 (100)	30 (100)	-

†Kruskal-Wallis trend test, ‡Jonckheere-Terpstra test, ^Cuzick's trend test

Supplemental Table 9 – GvHD prophylaxis by telomere quartiles and conditioning intensity

	Total n = 1267 (%)	Telomere length quartile			P value
		Shortest n = 317 (25)	Intermediate (2nd and 3rd) n = 633 (50)	Longest n = 317 (25)	
Myeloablative conditioning	n = 582 (%)	n = 140 (24)	n = 291 (50)	n = 151 (26)	
Tacrolimus-based	496 (85)	121 (86)	247 (85)	128 (85)	0.84
CSA-based	35 (6)	8 (6)	19 (7)	8 (5)	
CD34 selection	19 (3)	2 (1)	11 (4)	6 (4)	
Cyclophosphamide-based	9 (2)	2 (1)	6 (2)	1 (1)	
Ex vivo T-cell depletion	11 (2)	2 (1)	6 (2)	3 (2)	
Other	9 (2)	4 (3)	2 (1)	3 (2)	
None reported	3 (1)	1 (1)	-	2 (1)	
RIC - Flu/Mel	n = 220 (%)	n = 49 (22)	n = 110 (50)	n = 61 (28)	
Tacrolimus-based	176 (80)	36 (73)	94 (85)	46 (75)	0.51
CSA-based	22 (10)	8 (16)	8 (7)	6 (10)	
CD34 selection	4 (2)	1 (2)	2 (2)	1 (2)	
Cyclophosphamide-based	4 (2)	2 (4)	1 (1)	1 (2)	
Ex vivo T-cell depletion	1 (0)	-	1 (1)	-	
Other	8 (4)	2 (4)	2 (2)	4 (7)	
None reported	5 (2)	-	2 (2)	3 (5)	
Other RIC	n = 335 (%)	n = 96 (29)	n = 164 (49)	n = 75 (22)	
Tacrolimus-based	258 (77)	76 (79)	125 (76)	57 (76)	0.45
CSA-based	48 (14)	10 (10)	26 (16)	12 (16)	
CD34 selection	3 (1)	2 (2)	-	1 (1)	
Cyclophosphamide-based	2 (1)	-	1 (1)	1 (1)	
Ex vivo T-cell depletion	4 (1)	3 (3)	-	1 (1)	
Other	12 (4)	3 (3)	9 (5)	-	
None reported	8 (2)	2 (2)	3 (2)	3 (4)	

†Kruskal-Wallis rank-sum test

Supplemental Table 10 – Patient characteristics according to telomere length quartiles among patients who received myeloablative conditioning regimen

	Total n = 582 (%)	Telomere length quartile			P value
		Shortest n = 140 (24)	Intermediate (2nd and 3rd) n = 291 (50)	Longest n = 151 (26)	
Patient-related variables					
Recipient age					
Median (range)	57 (40 - 75)	57 (40 - 75)	58 (40 - 75)	56 (40 - 72)	*0.34^*
Recipient sex					
Male	351 (60)	94 (67)	174 (60)	83 (55)	*0.04†*
Female	231 (40)	46 (33)	117 (40)	68 (45)	
Karnofsky performance-status score					
90-100	307 (53)	66 (47)	152 (52)	89 (59)	*0.08†*
10-80	153 (26)	40 (29)	80 (27)	33 (22)	
Missing	122 (21)	34 (24)	59 (20)	29 (19)	
Hematopoietic Cell Transplantation Comorbidity Index					
0	86 (15)	19 (14)	37 (13)	30 (20)	0.34‡
1-2	95 (16)	21 (15)	53 (18)	21 (14)	
>/= 3	203 (35)	46 (33)	107 (37)	50 (33)	
Missing	198 (34)	54 (39)	94 (32)	50 (33)	
Disease-related variables					
IPSS-R					
Very low	45 (8)	5 (4)	26 (9)	14 (9)	*<0.001‡*
Low	117 (20)	12 (9)	63 (22)	42 (28)	
Intermediate	125 (21)	29 (21)	72 (25)	24 (16)	
High	80 (14)	29 (21)	36 (12)	15 (10)	
Very high	76 (13)	24 (17)	36 (12)	16 (11)	
Missing	139 (24)	41 (29)	58 (20)	40 (26)	
IPSS-R Cytogenetic risk group					
Very good	5 (1)	2 (1)	3 (1)	-	*0.86‡*
Good	211 (36)	47 (34)	106 (36)	58 (38)	
Intermediate	83 (14)	19 (14)	46 (16)	18 (12)	
Poor	99 (17)	25 (18)	49 (17)	25 (17)	
Very poor	65 (11)	17 (12)	33 (11)	15 (10)	
Unknown	119 (20)	30 (21)	54 (19)	35 (23)	
Absolute neutrophil count (x 10^9/L)					
Median (Interquartile Range)	1.3 (0.6-2.3)	0.9 (0.4-1.7)	1.3 (0.5-2.4)	1.5 (0.7-2.7)	*< 0.001^*
Hemoglobin (g/dL)					
Median (Interquartile Range)	9.5 (8.3-11.4)	8.9 (8.0-10.1)	9.6 (8.5-11.8)	10.2 (8.6-11.8)	*< 0.001^*
Platelet count (x 10^9/L)					
Median (Interquartile Range)	79 (35-153)	50 (19-94)	86 (32-176)	98 (58-173)	*< 0.001^*

Bone marrow blasts (%)					
Median (Interquartile range)	3 (1-6)	4 (2-8)	2 (1-6)	2 (1-5)	*0.009^*
Monosomal karyotype					
No	400 (69)	92 (66)	204 (70)	104 (69)	*0.75†*
Yes	94 (16)	22 (16)	48 (16)	24 (16)	
Unknown	88 (15)	26 (19)	39 (13)	23 (15)	
Prior MDS therapy					
None	188 (32)	54 (39)	83 (29)	51 (34)	*0.34†*
HMA only	291 (50)	67 (48)	153 (53)	71 (47)	
Chemotherapy	44 (8)	5 (4)	27 (9)	12 (8)	
Missing	59 (10)	14 (10)	28 (10)	17 (11)	
Therapy-related MDS					
De Novo MDS	451 (77)	107 (76)	229 (79)	115 (76)	*0.94†*
t-MDS	131 (23)	33 (24)	62 (21)	36 (24)	
Time from MDS diagnosis to transplantation (Months)					
Median (range)	7.5 (0.9 – 163.2)	7.7 (0.9 – 130.4)	7.5 (1.8 – 163.2)	6.8 (1.9 – 116.3)	*0.41^*
Transplant-related variables					
Graft type					
Bone marrow	97 (17)	25 (18)	51 (18)	21 (14)	*0.27†*
PBSC	455 (78)	109 (78)	224 (77)	122 (81)	
Cord Blood	26 (4)	4 (3)	14 (5)	8 (5)	
Other	4 (1)	2 (1)	2 (1)	-	
Donor group					
Matched, Related	95 (16)	21 (15)	47 (16)	27 (18)	*0.48†*
Matched, Unrelated	345 (59)	83 (59)	172 (59)	90 (60)	
Mismatched	116 (20)	32 (23)	58 (20)	26 (17)	
Cord Blood	26 (4)	4 (3)	14 (5)	8 (5)	
Donor age					
<35	314 (54)	76 (54)	160 (55)	78 (52)	*0.64†*
≥35	265 (46)	63 (45)	130 (45)	72 (48)	
Missing	3 (1)	1 (1)	1 (0)	1 (1)	
Donor sex					
Male	371 (64)	87 (62)	191 (66)	93 (62)	*0.81†*
Female	162 (28)	44 (31)	74 (25)	44 (29)	
Missing	49 (8)	9 (6)	26 (9)	14 (9)	
Sex match (Donor/Recipient)					
Male/Male	231 (40)	61 (44)	116 (40)	54 (36)	*0.22†*
Male/Female	140 (24)	26 (19)	75 (26)	39 (26)	
Female/Male	87 (15)	26 (19)	41 (14)	20 (13)	
Female/Female	75 (13)	18 (13)	33 (11)	24 (16)	
Missing	49 (8)	9 (6)	26 (9)	14 (9)	
in vivo T-cell depletion					

No	335 (58)	90 (64)	170 (58)	75 (50)	*0.03†*
Yes	208 (36)	44 (31)	101 (35)	63 (42)	
Missing	39 (7)	6 (4)	20 (7)	13 (9)	
GVHD prophylaxis					
None reported	3 (1)	1 (1)	-	2 (1)	*0.84†*
Ex vivo T-cell depletion	11 (2)	2 (1)	6 (2)	3 (2)	
CD34 selection	19 (3)	2 (1)	11 (4)	6 (4)	
Cyclophosphamide-based	9 (2)	2 (1)	6 (2)	1 (1)	
Tacrolimus-based	496 (85)	121 (86)	247 (85)	128 (85)	
CSA-based	35 (6)	8 (6)	19 (7)	8 (5)	
Other	9 (2)	4 (3)	2 (1)	3 (2)	
Year of transplantation					
≤2007	114 (20)	36 (26)	51 (18)	27 (18)	*0.10†*
>2007	468 (80)	104 (74)	240 (82)	124 (82)	

†Kruskal-Wallis trend test, ‡Jonckheere-Terpstra test, ˆCuzick's trend test

Supplemental Table 11 – Patient characteristics according to telomere length quartiles among patients who received reduced-intensity conditioning regimen

| | Total | Telomere length quartile | | | P value |
	n = 555 (%)	Shortest n = 145 (26)	Intermediate (2nd and 3rd) n = 274 (49)	Longest n = 136 (25)	
Patient-related variables					
Recipient age					
Median (range)	63 (40 - 77)	63 (40 - 77)	63 (40 - 77)	63 (40 - 76)	*0.50^*
Recipient sex					
Male	343 (62)	101 (70)	169 (62)	73 (54)	*0.006†*
Female	212 (38)	44 (30)	105 (38)	63 (46)	
Karnofsky performance-status score					
90-100	252 (45)	67 (46)	118 (43)	67 (49)	*0.72†*
10-80	205 (37)	52 (36)	106 (39)	47 (35)	
Missing	98 (18)	26 (18)	50 (18)	22 (16)	
Hematopoietic Cell Transplantation Comorbidity Index					
0	75 (14)	15 (10)	40 (15)	20 (15)	0.04‡
1-2	116 (21)	25 (17)	57 (21)	34 (25)	
>/= 3	239 (43)	70 (48)	118 (43)	51 (38)	
Missing	125 (23)	35 (24)	59 (22)	31 (23)	
Disease-related variables					
IPSS-R					
Very low	48 (9)	14 (10)	23 (8)	11 (8)	*0.48‡*
Low	107 (19)	19 (13)	61 (22)	27 (20)	
Intermediate	132 (24)	38 (26)	60 (22)	34 (25)	
High	87 (16)	24 (17)	40 (15)	23 (17)	
Very high	47 (8)	11 (8)	29 (11)	7 (5)	
Missing	134 (24)	39 (27)	61 (22)	34 (25)	
IPSS-R Cytogenetic risk group					
Very good	4 (1)	1 (1)	-	3 (2)	*0.55‡*
Good	227 (41)	56 (39)	115 (42)	56 (41)	
Intermediate	88 (16)	26 (18)	37 (14)	25 (18)	
Poor	89 (16)	23 (16)	52 (19)	14 (10)	
Very poor	40 (7)	11 (8)	18 (7)	11 (8)	
Unknown	107 (19)	28 (19)	52 (19)	27 (20)	
Absolute neutrophil count (x 109/L)					
Median (Interquartile Range)	1.1 (0.5-2.3)	0.8 (0.4-1.7)	1.2 (0.5-2.3)	1.5 (0.7-3.0)	*< 0.001^*
Hemoglobin (g/dL)					
Median (Interquartile Range)	9.4 (8.2-11.0)	9.1 (8.2-10.2)	9.6 (8.1-11.2)	9.7 (8.2-11.2)	*0.07^*
Platelet count (x 109/L)					
Median (Interquartile Range)	75 (31-145)	58 (24-115)	78 (32-151)	95 (41-159)	*0.003^*

Bone marrow blasts (%)					
Median (Interquartile Range)	3 (1-5)	2 (0-5)	3 (1-7)	3 (1-5)	0.21^
Monosomal karyotype					
No	403 (73)	107 (74)	202 (74)	94 (69)	0.67†
Yes	77 (14)	20 (14)	36 (13)	21 (15)	
Unknown	75 (14)	18 (12)	36 (13)	21 (15)	
Prior MDS therapy					
None	136 (25)	45 (31)	64 (23)	27 (20)	0.06†
HMA only	357 (64)	84 (58)	179 (65)	94 (69)	
Chemotherapy	35 (6)	12 (8)	15 (5)	8 (6)	
Missing	27 (5)	4 (3)	16 (6)	7 (5)	
Therapy-related MDS					
De Novo MDS	445 (80)	108 (74)	225 (82)	112 (82)	0.09†
t-MDS	110 (20)	37 (26)	49 (18)	24 (18)	
Time from MDS diagnosis to transplantation (Months)					
Median (range)	9.5 (0.4 – 266.0)	10.6 (0.6 – 266.0)	8.7 (0.4 – 134.0)	9.2 (2.6 – 111.3)	0.27^
Transplant-related variables					
Graft type					
Bone marrow	51 (9)	15 (10)	23 (8)	13 (10)	0.65†
PBSC	472 (85)	119 (82)	236 (86)	117 (86)	
Cord Blood	28 (5)	10 (7)	13 (5)	5 (4)	
Other	4 (1)	1 (1)	2 (1)	1 (1)	
Donor group					
Matched, Related	61 (11)	11 (8)	32 (12)	18 (13)	0.22†
Matched, Unrelated	356 (64)	89 (61)	180 (66)	87 (64)	
Mismatched	106 (19)	34 (23)	47 (17)	25 (18)	
Cord Blood	32 (6)	11 (8)	15 (5)	6 (4)	
Donor age					
<35	345 (62)	95 (66)	164 (60)	86 (63)	0.73†
≥35	206 (37)	50 (34)	107 (39)	49 (36)	
Missing	4 (1)	-	3 (1)	1 (1)	
Donor sex					
Male	383 (69)	101 (70)	183 (67)	99 (73)	0.61†
Female	148 (27)	37 (26)	80 (29)	31 (23)	
Missing	24 (4)	7 (5)	11 (4)	6 (4)	
Sex match (Donor/Recipient)					
Male/Male	252 (45)	74 (51)	123 (45)	55 (40)	0.03†
Male/Female	131 (24)	27 (19)	60 (22)	44 (32)	
Female/Male	77 (14)	22 (15)	41 (15)	14 (10)	
Female/Female	71 (13)	15 (10)	39 (14)	17 (12)	

Missing	24 (4)	7 (5)	11 (4)	6 (4)	
in vivo T-cell depletion					
No	289 (52)	69 (48)	148 (54)	72 (53)	0.25†
Yes	251 (45)	73 (50)	120 (44)	58 (43)	
Missing	15 (3)	3 (2)	6 (2)	6 (4)	
GVHD prophylaxis					
None reported	13 (2)	2 (1)	5 (2)	6 (4)	0.61†
Ex vivo T-cell depletion	5 (1)	3 (2)	1 (0)	1 (1)	
CD34 selection	7 (1)	3 (2)	2 (1)	2 (1)	
Cyclophosphamide-based	6 (1)	2 (1)	2 (1)	2 (1)	
Tacrolimus-based	434 (78)	112 (77)	219 (80)	103 (76)	
CSA-based	70 (13)	18 (12)	34 (12)	18 (13)	
Other	20 (4)	5 (3)	11 (4)	4 (3)	
Year of transplantation					
≤2007	80 (14)	26 (18)	38 (14)	16 (12)	0.14†
>2007	475 (86)	119 (82)	236 (86)	120 (88)	

†Kruskal-Wallis trend test, ‡Jonckheere-Terpstra test, ˆCuzick's trend test

Supplemental Figure 1 – Outcomes by telomere length quartiles in patients under age 40

Panel A shows the distribution of telomere lengths and transplant outcomes by age-unadjusted telomere length quartiles in patients under age 40. Panel B shows the strategy for telomere length age-adjustment and transplant outcomes in age-adjusted telomere quartiles in patients under age 40.
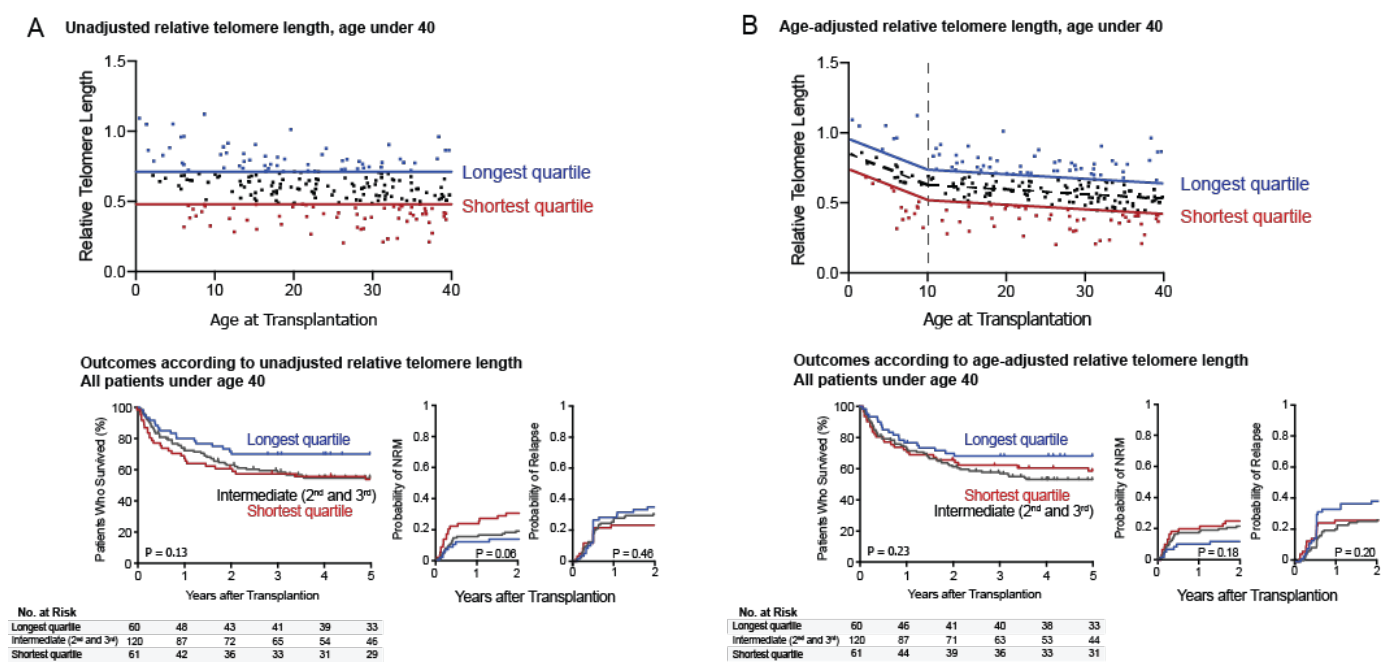
Supplemental Figure 2 – Characteristics of patients with somatic mutations in *SRSF2*, *DNMT3A*, *STAG2*, *ATM*, *WT1*, and *PPM1D*

Panel A shows the association between variant allele fraction (VAF) and telomere length for genes that were significantly associated with longest or shortest telomere length quartiles in Figure 1D. Also shown is the age at transplantation (Panel B), sex (Panel C), and absolute neutrophil count at transplantation (Panel D) according to mutation status in genes that were associated with longest (blue) and shortest (red) telomere length quartiles in Figure 1D. Nominal P values shown.

A **Association between variant allele fraction (VAF) and relative telomere length**
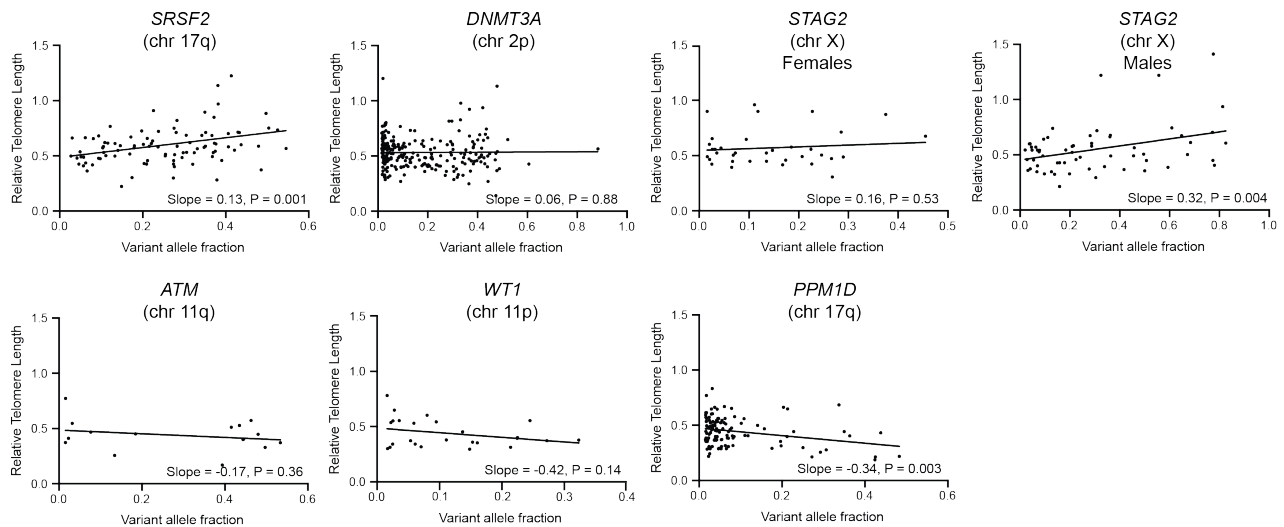
B **Age at transplantation**
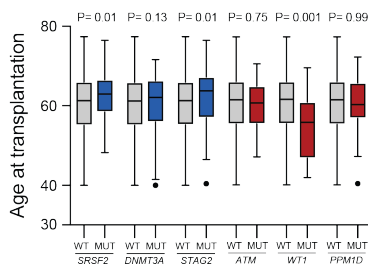
C **Proportion of female patients**
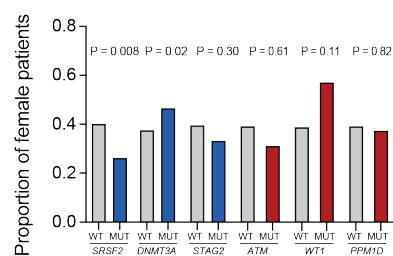
D **Neutrophil count at transplantation**

22
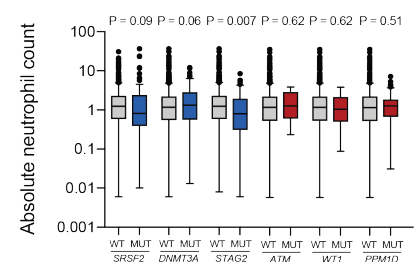
Supplemental Figure 3 - Association between recipient neutrophil count and recipient telomere length

Shown is the proportion of neutrophils in the white blood cell differential and recipient relative telomere length at transplantation.
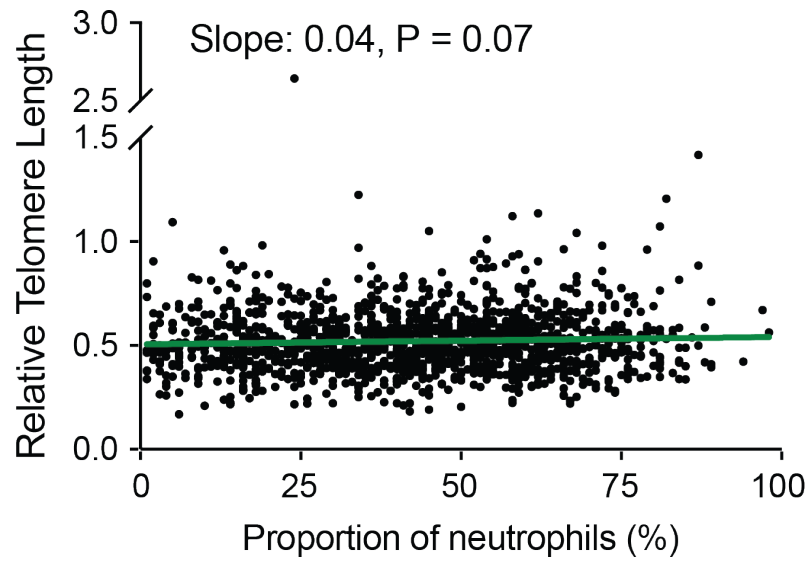
Supplemental Figure 4 –Outcomes in myeloablative and reduced intensity
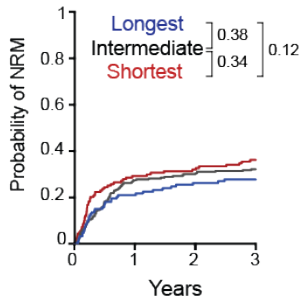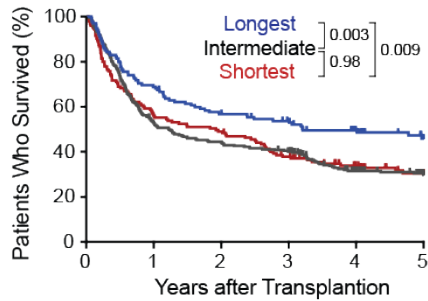conditioning, pairwise telomere quartile comparisons

Myeloablative conditioning
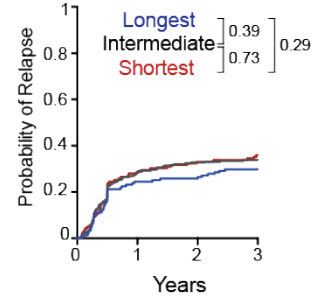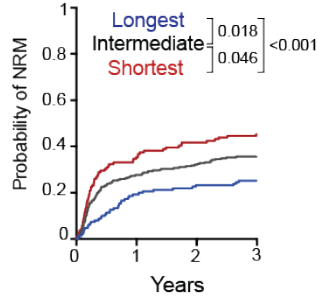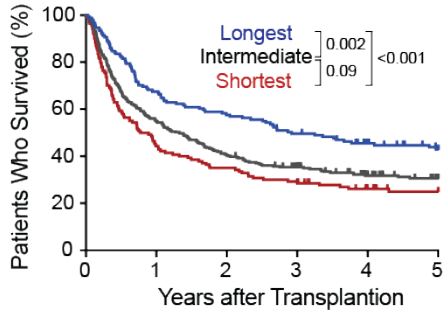
No. at Risk						
Longest quartile	151	102	87	74	58	46
Intermediate (2nd and 3rd)	291	160	118	97	69	49
Shortest quartile	140	62	49	40	27	21

Reduced intensity conditioning
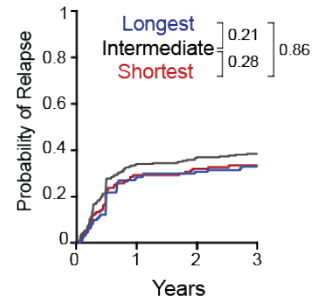
No. at Risk						
Longest quartile	136	93	74	66	49	31
Intermediate (2nd and 3rd)	274	143	120	107	65	44
Shortest quartile	145	81	71	53	37	24

Supplemental Figure 5 – HCT-CI score and year of transplantation

On the left, the number of patients with missing HCT-CI score by year of transplantation. On the right, the number of patients belonging to each HCT-CI score group by year of transplantation. Patients age 40 or older are shown.
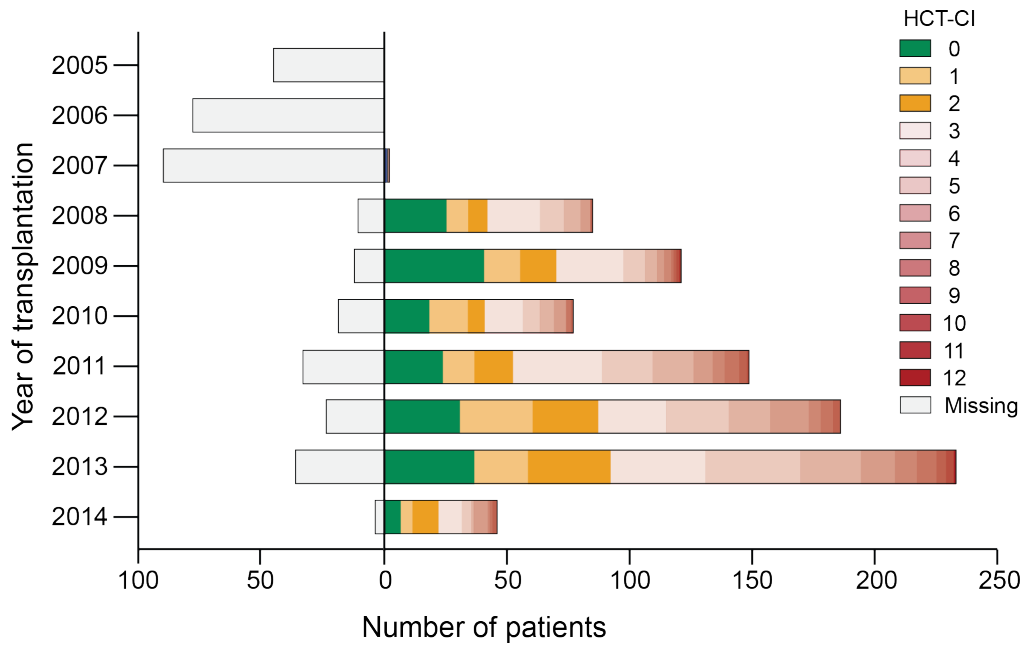
# Supplemental Figure 6 – Outcomes after chronic GVHD by telomere length

Cumulative incidence of chronic GVHD (Panel A), overall survival (Panel B) and cumulative incidence of non-relapse mortality (Panel C) after chronic GVHD onset by telomere length quartiles.

A

B

C
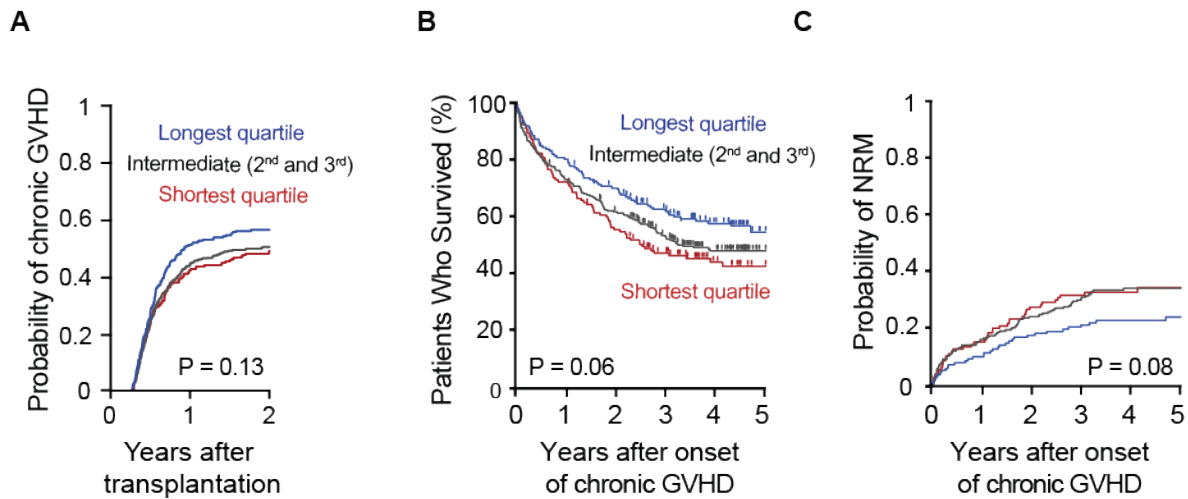
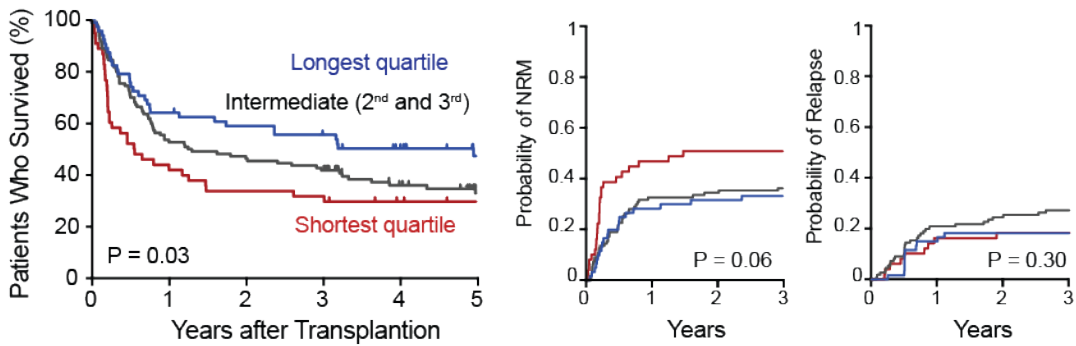| No. at Risk						
Longest quartile	171	136	116	95	70	45
Intermediate (2nd and 3rd)	291	211	174	132	89	57
Shortest quartile	141	101	76	57	33	23

Supplemental Figure 7 – Distribution of melphalan doses in Flu/Mel RIC

Melphalan dose was available for 86 patients in the fludarabine/melphalan-based RIC group. Orange line represents the median value.
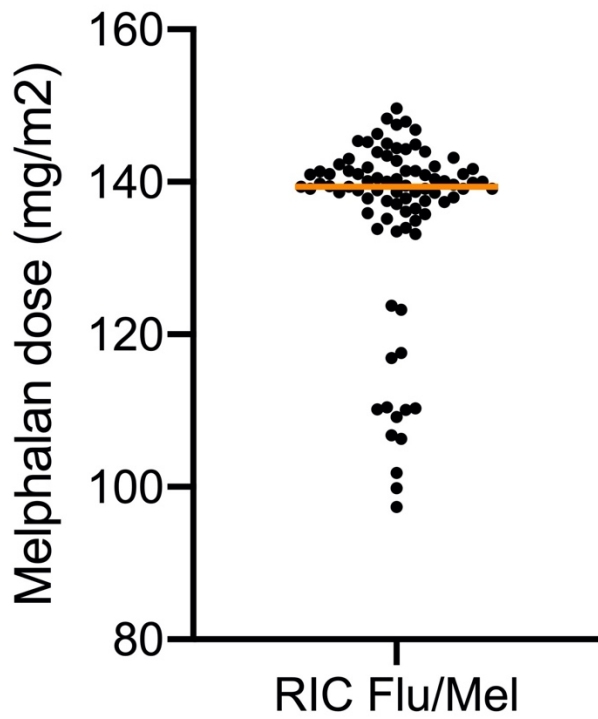
A **Flu/Mel based RIC**

No. at Risk

Longest quartile	61	39	35	33	26	17
Intermediate (2nd and 3rd) 110	60	53	47	31	19
Shortest quartile	49	22	17	16	12	10

B **Non-Flu/Mel based RIC**
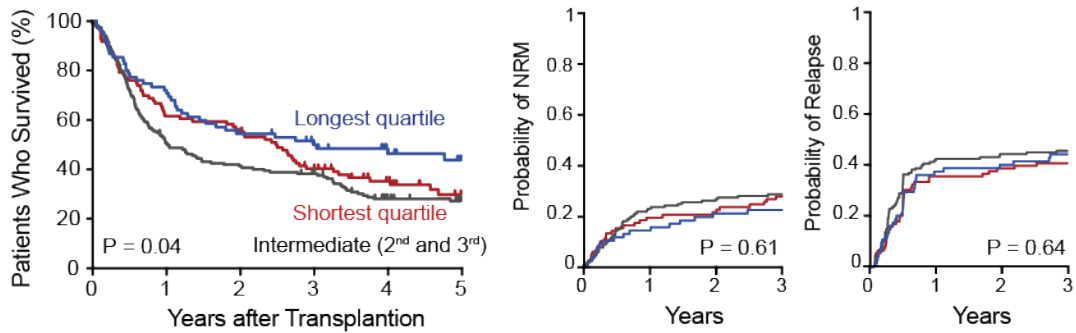
No. at Risk

Longest quartile	75	54	39	33	23	14
Intermediate (2nd and 3rd) 164	83	67	60	34	25
Shortest quartile	96	59	54	37	25	14

References:

1. Shaffer BC, Ahn KW, Hu Z-H, et al. Scoring System Prognostic of Outcome in Patients Undergoing Allogeneic Hematopoietic Cell Transplantation for Myelodysplastic Syndrome. J Clin Oncol 2016;34(16):1864–71.
2. Sorror ML, Maris MB, Storb R, et al. Hematopoietic cell transplantation (HCT)-specific comorbidity index: a new tool for risk assessment before allogeneic HCT. Blood 2005;106(8):2912–9.