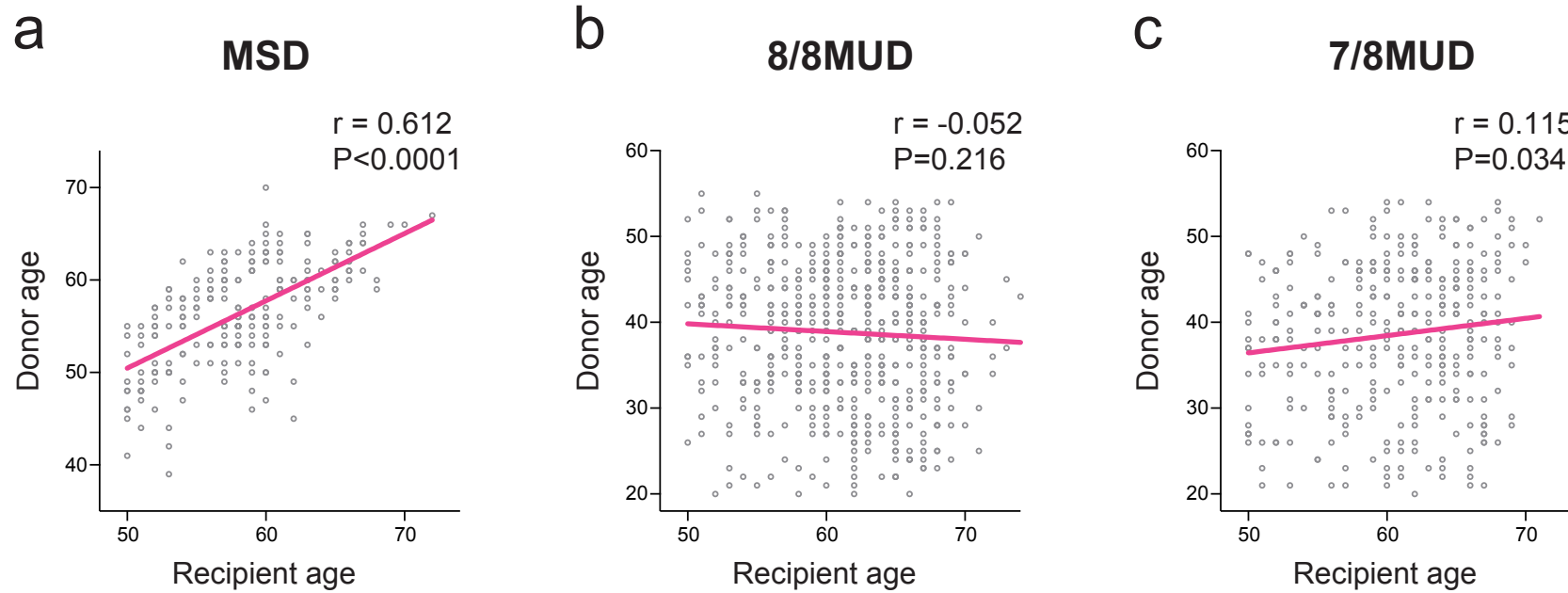
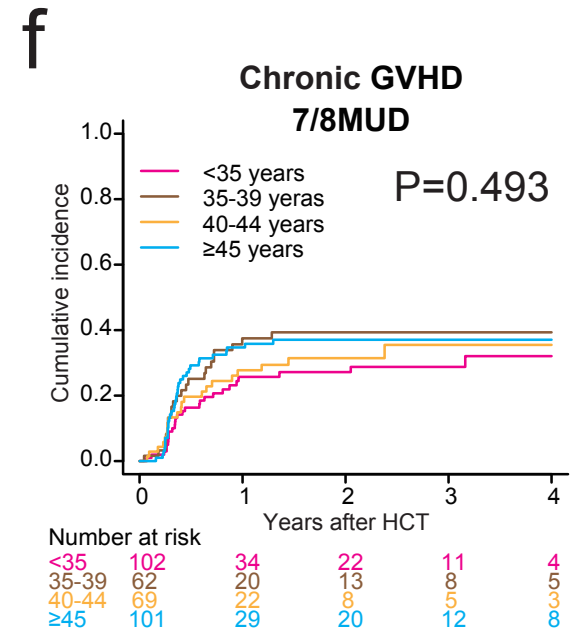
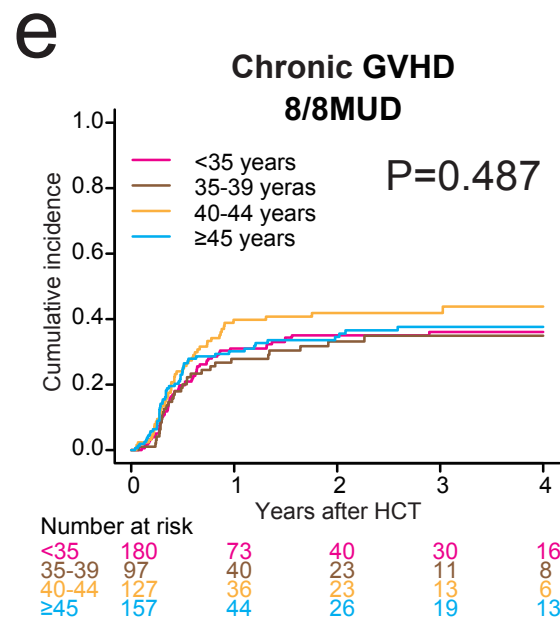
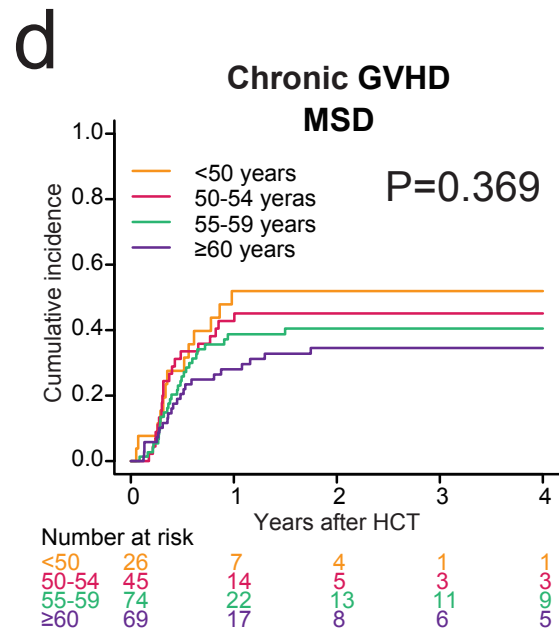
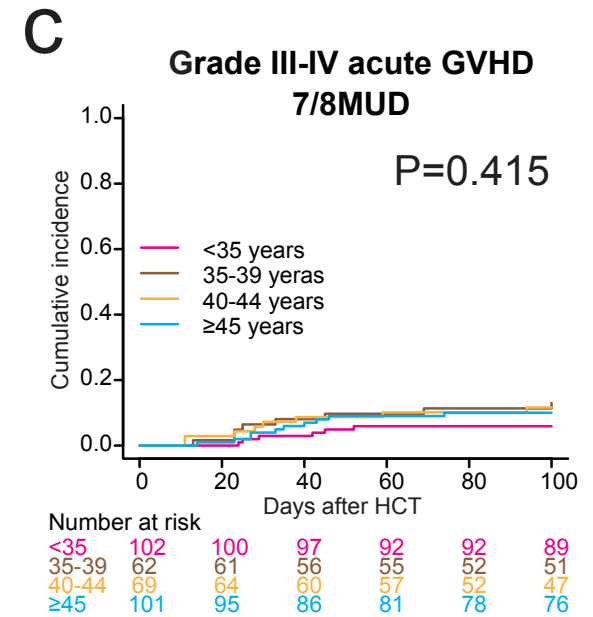
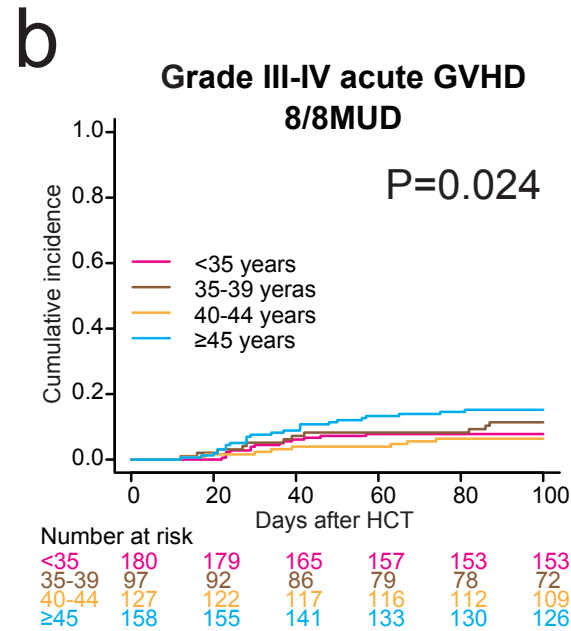
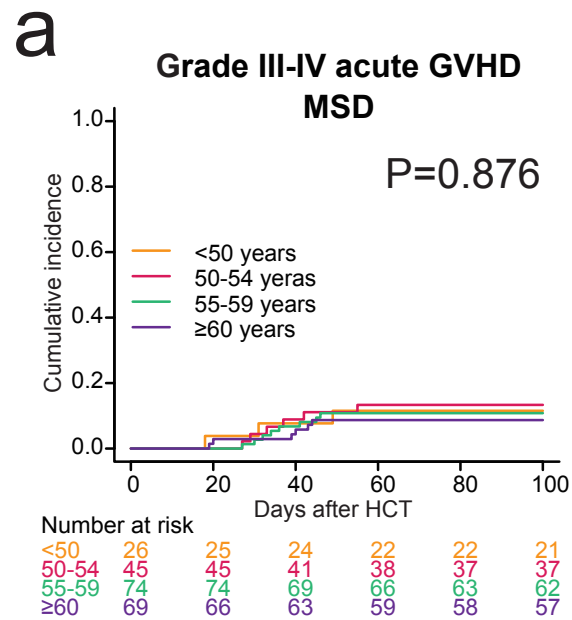


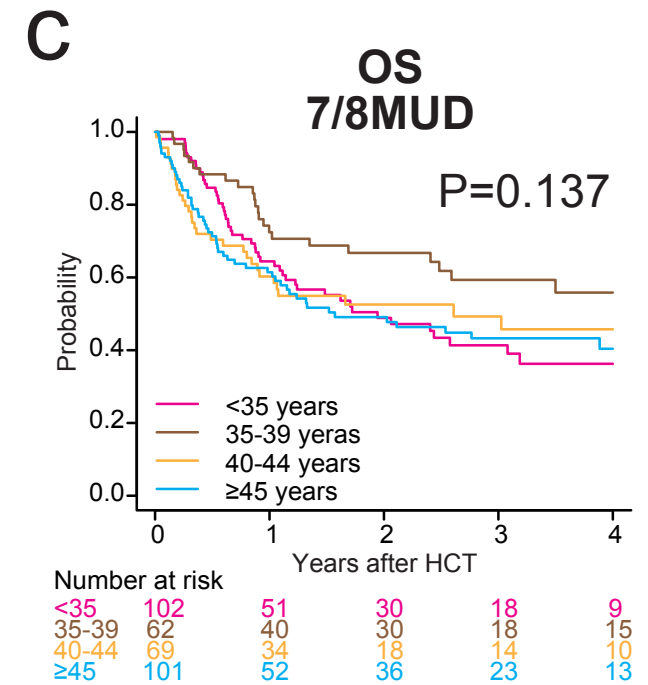
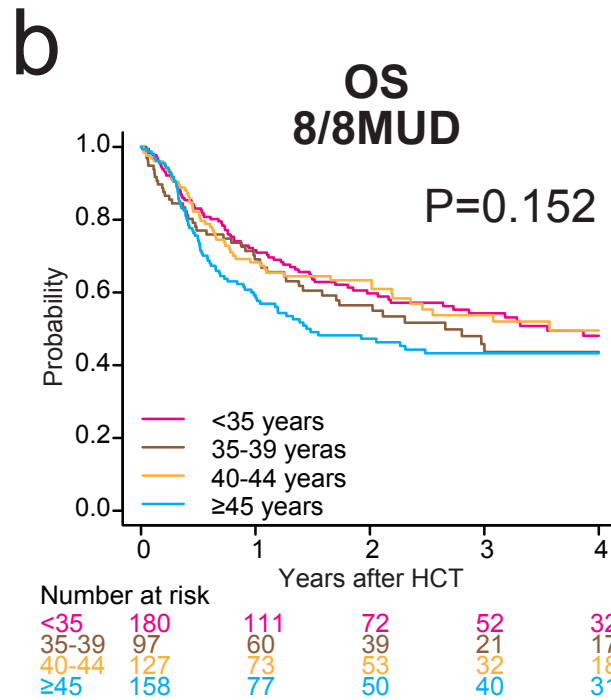
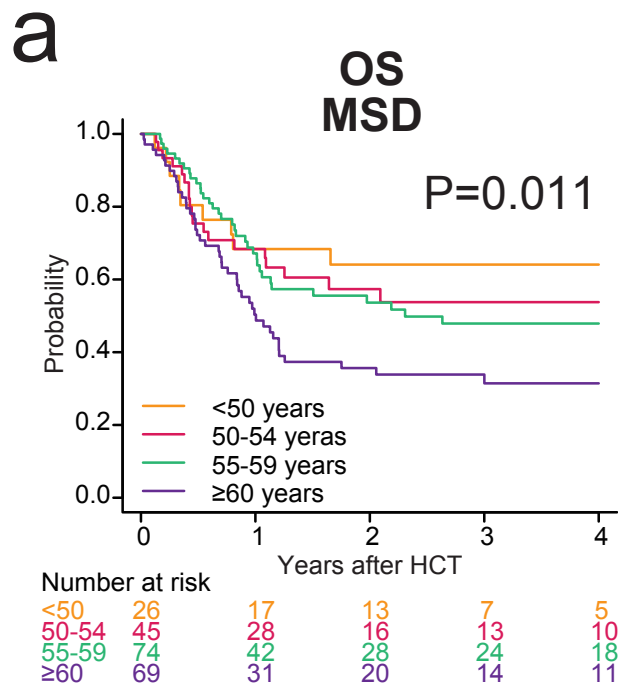
**Supplementary Figure 1.** Correlation between donor age and recipient age in MSD (a), 8/8MUD (b), and 7/8MUD (C) transplantations.



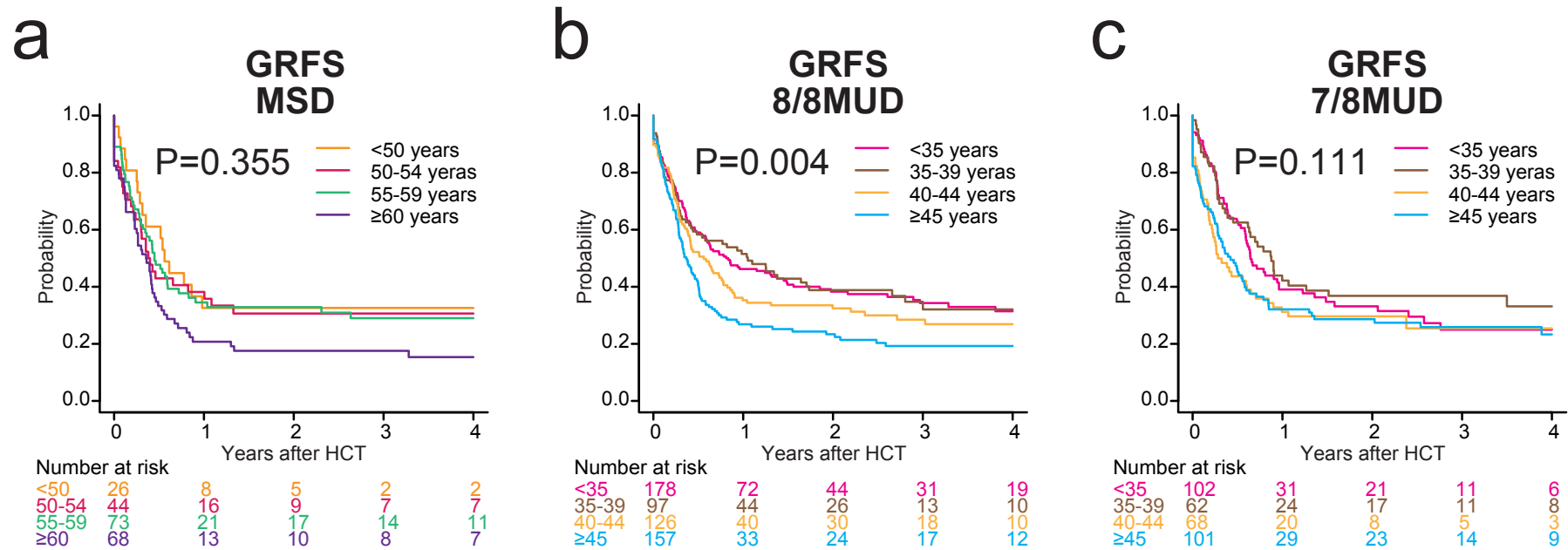
**Supplementary Figure 2.** Unadjusted cumulative incidences of grades III-IV acute GVHD and chronic GVHD following allogeneic HCT using MSDs (a,d), 8/8 MUDs (b,e), and 7/8 MUDs (c,f) for patients with MDS over 50 years of age according to donor age.



**Supplementary Figure 3.** Unadjusted probabilities of OS following allogeneic HCT using MSDs (a), 8/8 MUDs (b), and 7/8 MUDs (c) for patients with MDS over 50 years of age according to donor age.



**Supplementary Figure 4.** Unadjusted probabilities of GRFS following allogeneic HCT using MSDs (a), 8/8 MUDs (b), and 7/8 MUDs (c) for patients with MDS over 50 years of age according to donor age.



Supplementary Table 1. Multivariate analysis of OS.

		MUD 30 years		MUD 35 years		MUD 40 years		MUD 45 years	
		HR (95%CI)	P	HR (95%CI)	P	HR (95%CI)	P	HR (95%CI)	P
<b>Donor</b>									
	MSD	Reference		Reference		Reference		Reference	
	8/8MUD with younger donor	0.71 (0.49-1.03)	0.075	0.80 (0.60-1.08)	0.152	0.85 (0.65-1.11)	0.246	0.84 (0.65-1.08)	0.179
	8/8MUD with older donor	0.94 (0.74-1.20)	0.659	0.95 (0.74-1.23)	0.739	0.96 (0.74-1.26)	0.800	1.10 (0.81-1.49)	0.539
	7/8MUD with younger donor	1.35 (0.92-1.99)	0.120	1.19 (0.85-1.65)	0.300	0.98 (0.73-1.33)	0.924	1.05 (0.80-1.38)	0.695
	7/8MUD with older donor	0.97 (0.73-1.27)	0.828	0.96 (0.72-1.29)	0.833	1.11 (0.81-1.51)	0.494	1.00 (0.68-1.48)	0.973
<b>Recipient age</b>									
	50-59 years	Reference		Reference		Reference		Reference	
	≥ 60 years	1.18 (0.97-1.42)	0.081	1.18 (0.97-1.42)	0.082	1.16 (0.96-1.40)	0.108	1.16 (0.96-1.40)	0.113
<b>Recipient sex</b>									
	Female	Reference		Reference		Reference		Reference	
	Male	1.20 (0.98-1.47)	0.071	1.20 (0.98-1.47)	0.070	1.20 (0.98-1.47)	0.068	1.19 (0.97-1.46)	0.091
<b>PS</b>									
	0-1	Reference		Reference		Reference		Reference	
	2-4	1.85 (1.35-2.53)	<b>&lt;0.001</b>	1.87 (1.36-2.57)	<b>&lt;0.001</b>	1.85 (1.35-2.54)	<b>&lt;0.001</b>	1.83 (1.33-2.51)	<b>&lt;0.001</b>
<b>HCT-CI</b>									
	0-2	Reference		Reference		Reference		Reference	
	≥3	1.45 (1.19-1.76)	<b>&lt;0.001</b>	1.44 (1.19-1.76)	<b>&lt;0.001</b>	1.43 (1.18-1.75)	<b>&lt;0.001</b>	1.43 (1.17-1.74)	<b>&lt;0.001</b>
<b>Karyotype</b>									
	Others	Reference		Reference		Reference		Reference	
	Poor	1.60 (1.34-1.90)	<b>&lt;0.001</b>	1.60 (1.34-1.91)	<b>&lt;0.001</b>	1.59 (1.33-1.90)	<b>&lt;0.001</b>	1.60 (1.34-1.91)	<b>&lt;0.001</b>
<b>Disease risk at HCT</b>									
	Low-risk	Reference		Reference		Reference		Reference	
	High-risk	0.99 (0.82-1.19)	0.948	0.99 (0.82-1.20)	0.965	1.00 (0.83-1.21)	0.936	1.00 (0.83-1.21)	0.961
<b>Conditioning regimen</b>									
	MAC	Reference		Reference		Reference		Reference	
	RIC	0.83 (0.69-1.00)	0.060	0.82 (0.68-0.99)	<b>0.046</b>	0.84 (0.70-1.01)	0.069	0.85 (0.71-1.02)	0.094
<b>GVHD prophylaxis</b>									
	With MTX	Reference		Reference		Reference		Reference	
	Without MTX	0.70 (0.48-1.04)	0.082	0.70 (0.48-1.04)	0.083	0.70 (0.47-1.04)	0.078	0.72 (0.48-1.06)	0.101
<b>Use of ATG</b>									
	No	Reference		Reference		Reference		Reference	
	Yes	0.63 (0.47-0.85)	<b>0.002</b>	0.63 (0.47-0.85)	<b>0.002</b>	0.63 (0.47-0.85)	<b>0.002</b>	0.63 (0.47-0.85)	<b>0.002</b>

OS, overall survival; MSD, matched sibling donor; MUD, matched unrelated donor; PS, performance status; HCT-CI, hematopoietic cell transplantation-specific comorbidity index; HCT, hematopoietic cell transplantation; MAC, myeloablative conditioning; RIC, reduced-intensity conditioning; GVHD, graft-versus-host disease; MTX, methotrexate; ATG, antithymocyte globulin; HR, hazard ratio; CI, confidence interval.

The P values in bold are statistically significant (<0.05).

**Supplementary Table 2.** Multivariate analysis of GRFS.

		<b>MUD 30 years</b>		<b>MUD 35 years</b>		<b>MUD 40 years</b>		<b>MUD 45 years</b>	
		HR (95%CI)	P	HR (95%CI)	P	HR (95%CI)	P	HR (95%CI)	P
<b>Donor</b>									
	MSD	Reference		Reference		Reference		Reference	
	8/8MUD with younger donor	0.65 (0.48-0.89)	<b>0.007</b>	0.69 (0.54-0.89)	<b>0.004</b>	0.73 (0.59-0.92)	<b>0.007</b>	0.77 (0.63-0.95)	<b>0.016</b>
	8/8MUD with older donor	0.89 (0.73-1.09)	0.289	0.94 (0.76-1.15)	0.564	0.99 (0.79-1.24)	0.976	1.12 (0.86-1.45)	0.376
	7/8MUD with younger donor	1.07 (0.77-1.50)	0.664	0.93 (0.70-1.24)	0.657	0.84 (0.65-1.09)	0.196	0.95 (0.76-1.20)	0.699
	7/8MUD with older donor	0.92 (0.74-1.16)	0.530	0.97 (0.76-1.23)	0.804	1.11 (0.86-1.44)	0.401	0.99 (0.72-1.36)	0.967
<b>Recipient age</b>									
	50-59 years	Reference		Reference		Reference		Reference	
	≥ 60 years	1.15 (0.98-1.34)	0.077	1.15 (0.98-1.34)	0.078	1.14 (0.98-1.33)	0.087	1.13 (0.96-1.32)	0.118
<b>Recipient sex</b>									
	Female	Reference		Reference		Reference		Reference	
	Male	1.14 (0.96-1.34)	0.118	1.13 (0.96-1.34)	0.122	1.13 (0.96-1.34)	0.132	1.12 (0.95-1.32)	0.172
<b>PS</b>									
	0-1	Reference		Reference		Reference		Reference	
	2-4	1.54 (1.16-2.05)	<b>0.002</b>	1.57 (1.18-2.09)	<b>0.001</b>	1.59 (1.20-2.11)	<b>0.001</b>	1.58 (1.18-2.10)	<b>0.001</b>
<b>HCT-CI</b>									
	0-2	Reference		Reference		Reference		Reference	
	≥3	1.10 (0.93-1.31)	0.247	1.10 (0.92-1.30)	0.265	1.08 (0.91-1.28)	0.373	1.08 (0.91-1.28)	0.362
<b>Karyotype</b>									
	Others	Reference		Reference		Reference		Reference	
	Poor	1.43 (1.23-1.65)	<b>&lt;0.001</b>	1.43 (1.24-1.66)	<b>&lt;0.001</b>	1.42 (1.23-1.65)	<b>&lt;0.001</b>	1.44 (1.24-1.67)	<b>&lt;0.001</b>
<b>Disease risk at HCT</b>									
	Low-risk	Reference		Reference		Reference		Reference	
	High-risk	1.01 (0.86-1.18)	0.852	1.01 (0.86-1.18)	0.856	1.02 (0.87-1.20)	0.749	1.01 (0.86-1.19)	0.820
<b>Conditioning regimen</b>									
	MAC	Reference		Reference		Reference		Reference	
	RIC	0.80 (0.69-0.94)	<b>0.006</b>	0.80 (0.68-0.93)	<b>0.005</b>	0.80 (0.69-0.94)	<b>0.007</b>	0.81 (0.69-0.95)	<b>0.010</b>
<b>GVHD prophylaxis</b>									
	With MTX	Reference		Reference		Reference		Reference	
	Without MTX	0.91 (0.68-1.22)	0.544	0.91 (0.68-1.23)	0.560	0.89 (0.66-1.20)	0.463	0.92 (0.68-1.23)	0.586
<b>Use of ATG</b>									
	No	Reference		Reference		Reference		Reference	
	Yes	0.57 (0.45-0.73)	<b>&lt;0.001</b>	0.57 (0.44-0.73)	<b>&lt;0.001</b>	0.57 (0.44-0.73)	<b>&lt;0.001</b>	0.57 (0.44-0.72)	<b>&lt;0.001</b>

GRFS, graft-versus-host disease (GVHD)-free, relapse-free survival; MSD, matched sibling donor; MUD, matched unrelated donor; PS, performance status; HCT-CI, hematopoietic cell transplantation-specific comorbidity index; HCT, hematopoietic cell transplantation; MAC, myeloablative conditioning; RIC, reduced-intensity conditioning; GVHD, graft-versus-host disease; MTX, methotrexate; ATG, antithymocyte globulin; HR, hazard ratio; CI, confidence interval.

The P values in bold are statistically significant (<0.05).