

Supplemental Tables

Table S1. Regression Parameter Estimates in the Cox Proportional Hazards Model for Graft Survival for the First and the Second Five-Year Periods Post-Transplant

Characteristic	Group	Parameter Estimates			
		First 5-years		Second 5-years	
		Estimate	SE	Estimate	SE
Living Donor Type	Unrelated (Ref)	0.0000	0.0000	0.0000	0.0000
	Related-1st Degree	0.0112	0.0248	0.0493	0.0331
	Related-2nd or Higher Degree	0.0434	0.0357	0.0408	0.0490
Recipient Age	< 13	0.0263	0.7981	1.3055	1.0089
	13-17	0.5365	0.6445	-0.4378	1.0982
	18-29	0.4375	0.3877	1.2684	0.5361
	30-39	-0.1087	0.4500	0.8588	0.6087
	40-49 (Ref)	0.0000	0.0000	0.0000	0.0000
	50-59	-0.2557	0.4138	1.0170	0.5220
	60+	-0.0748	0.5302	1.6204	0.6582
Among Recipients Age < 12	Donor Age (continuous)	-0.0078	0.0273	-0.0360	0.0342
	Donor Age > 30	-0.0158	0.0425	0.0968	0.0515
	Donor Age >40	0.0608	0.0449	-0.0794	0.0480
	Donor Age > 50	-0.0205	0.0774	0.1326	0.0696
Among Recipients Age 13-17	Donor Age (continuous)	0.0011	0.0224	0.0640	0.0388
	Donor Age > 30	-0.0110	0.0378	-0.1099	0.0609
	Donor Age >40	-0.0066	0.0325	0.0396	0.0486
	Donor Age > 50	0.0700	0.0428	0.0935	0.0577
Among Recipients Age 18-29	Donor Age (continuous)	-0.0151	0.0101	-0.0227	0.0147
	Donor Age > 30	0.0633	0.0176	0.0898	0.0257
	Donor Age >40	-0.0704	0.0172	-0.0960	0.0249
	Donor Age > 50	0.0342	0.0214	0.0188	0.0328
	Donor Age >60	0.0854	0.0581	-0.3487	0.3172
Among Recipients Age 30-39	Donor Age (continuous)	-0.0056	0.0125	-0.0152	0.0171
	Donor Age > 30	0.0117	0.0185	0.0162	0.0251
	Donor Age >40	0.0154	0.0167	0.0221	0.0229
	Donor Age > 50	-0.0169	0.0218	-0.0098	0.0309
	Donor Age >60	0.0732	0.0360	-0.0111	0.0584
Among Recipients Age 40-49	Donor Age (continuous)	-0.0113	0.0114	0.0188	0.0150
	Donor Age > 30	0.0222	0.0186	-0.0393	0.0242
	Donor Age >40	-0.0225	0.0148	0.0425	0.0192

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Characteristic	Group	Parameter Estimates			
		First 5-years		Second 5-years	
		Estimate	SE	Estimate	SE
	Donor Age > 50	0.0627	0.0189	0.0050	0.0245
	Donor Age >60	-0.0620	0.0360	0.0059	0.0419
Among Recipients Age 50-59	Donor Age (continuous)	0.0003	0.0109	-0.0126	0.0130
	Donor Age > 30	0.0049	0.0173	0.0054	0.0209
	Donor Age >40	-0.0012	0.0155	0.0212	0.0195
	Donor Age > 50	0.0239	0.0153	0.0040	0.0200
	Donor Age >60	0.0103	0.0304	0.0249	0.0414
Among Recipients Age 60+	Donor Age (continuous)	0.0014	0.0160	-0.0229	0.0192
	Donor Age > 30	0.0115	0.0218	0.0399	0.0265
	Donor Age >40	0.0049	0.0143	0.0097	0.0180
	Donor Age > 50	-0.0174	0.0150	-0.0426	0.0205
	Donor Age >60	0.0472	0.0180	0.0579	0.0285
Donor-Recipient Type	Female-Female	0.0458	0.0265	-0.0561	0.0354
	Male-Female	0.0502	0.0328	-0.0125	0.0425
	Female-Male (Ref)	0.0000	0.0000	0.0000	0.0000
	Male-Male	-0.1221	0.0276	-0.0469	0.0354
HLA ABDR Mismatch	0 HLA MM	-0.4623	0.0411	-0.4616	0.0515
	1-2 HLA MM, 0 DR MM	-0.0892	0.0312	-0.1842	0.0413
	1-2 HLA MM, Any DR MM	-0.0688	0.0288	-0.0344	0.0364
	3-4 HLA MM, 0 DR MM	-0.0581	0.0653	-0.1595	0.0926
	3-4 HLA MM, Any DR MM (Ref)	0.0000	0.0000	0.0000	0.0000
	5,6, Missing HLA MM	0.0662	0.0242	0.0877	0.0330
Recipient BMI	Not Obese (<30) (Ref)	0.0000	0.0000	0.0000	0.0000
	Obese (> 30)	0.1469	0.0257	0.1484	0.0345
	Missing	0.1224	0.0394	0.1044	0.0470
Donor BMI	Not Obese (<30) (Ref)	0.0000	0.0000	0.0000	0.0000
	Obese (> 30)	0.0654	0.0254	0.0929	0.0346
	Missing	0.0381	0.0524	0.0807	0.0643
Donor-recipient Weight Ratio	< 0.75	0.0903	0.0349	0.0235	0.0486
	0.75-0.90	0.0083	0.0302	0.0571	0.0406
	0.90-1.15 (Ref)	0.0000	0.0000	0.0000	0.0000
	> 1.15	0.0047	0.0286	0.0078	0.0383
	Missing	0.0857	0.0452	0.0074	0.0557
Donor-Recipient Height Ratio	< 0.94	0.0943	0.0347	0.0342	0.0478
	0.94-1.00	0.0067	0.0301	0.0196	0.0410
	1.00-1.06 (Ref)	0.0000	0.0000	0.0000	0.0000
	> 1.06	-0.0269	0.0330	0.0011	0.0447

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Characteristic	Group	Parameter Estimates			
		First 5-years		Second 5-years	
		Estimate	SE	Estimate	SE
	Missing	-0.0600	0.0511	-0.0489	0.0631
Recipient Race	White	0.0000	0.0000	0.0000	0.0000
	Black	0.1984	0.0503	0.1448	0.0784
	Hispanic	-0.1068	0.0505	-0.1684	0.0700
	Other	-0.3160	0.0484	-0.4079	0.0664
Donor Race	Not Black or Hispanic (Ref)	0.0000	0.0000	0.0000	0.0000
	Black	0.1395	0.0522	0.0401	0.0810
	Hispanic	-0.1359	0.0508	-0.1642	0.0704
Donor History of Cigarette Use	No	0.0000	0.0000	0.0000	0.0000
	Yes	0.0771	0.0314	0.2257	0.0647
	Missing	0.1587	0.0288	0.1065	0.0429
ABO Compatibility	Not Incompatible	0.0000	0.0000	0.0000	0.0000
	Incompatible	0.3594	0.0748	0.0547	0.1357
PRA	0-9 (Ref)	0.0000	0.0000	0.0000	0.0000
	10-79	0.0965	0.0286	0.1397	0.0411
	80+	0.3464	0.0549	0.2660	0.0939
	Missing	-0.0939	0.0581	-0.0258	0.0774
Recipient Diagnosis	Not Diabetes (Ref)	0.0000	0.0000	0.0000	0.0000
	Diabetes	0.2732	0.0215	0.4675	0.0273
Previous Transplant	No (Ref)	0.0000	0.0000	0.0000	0.0000
	Yes	0.2246	0.0292	0.1608	0.0409
Time on dialysis	Pre-emptive Transplant	-0.4141	0.0269	-0.4092	0.0352
	0-1 years	-0.1731	0.0252	-0.1946	0.0334
	1-2 years (Ref)	0.0000	0.0000	0.0000	0.0000
	2-3 years	-0.0220	0.0337	0.0231	0.0455
	3+ years	0.0512	0.0311	-0.0234	0.0444
Recipient Hepatitis C Serology	Negative or Missing (Ref)	0.0000	0.0000	0.0000	0.0000
	Positive	0.3970	0.0445	0.3831	0.0630
Recipient insurance	Public Primary Payer (Ref)	0.0000	0.0000	0.0000	0.0000
	Private Primary Payer	-0.2266	0.0199	-0.2084	0.0264
	Other/Missing	-0.1160	0.0523	-0.2214	0.0716
Transplant Year	1998-2002 (Ref)	0.0000	0.0000	0.0000	0.0000
	2003-2007	-0.1098	0.0253	-0.1155	0.0285
	2008-2012	-0.3330	0.0381	-0.0762	0.1943

Baseline survival at first 5 years: 0.7995; at second 5 years: 0.8615

Table S2. Regression Parameter Estimates in the Cox Proportional Hazards Models for Graft Survival (Censored at Death) and Death* Based on Data Up to 5-Years Post Transplant

Characteristic	Group	Parameter Estimates			
		Graft Survival (Censored at Death)		Patient Survival*	
		Estimate	SE	Estimate	SE
Living Donor Type	Unrelated (Ref)	0.0000	0.0000	0.0000	0.0000
	Related-1st Degree	-0.0044	0.0313	0.0485	0.0338
	Related-2nd or Higher Degree	0.0111	0.0442	0.0483	0.0513
Recipient Age	< 13	0.0039	0.9092	0.2958	1.3422
	13-17	1.0019	0.6927	-2.0730	1.6554
	18-29	0.8476	0.4476	-0.5893	0.6710
	30-39	-0.0082	0.5259	-0.6933	0.7164
	40-49 (Ref)	0.0000	0.0000	0.0000	0.0000
	50-59	-0.6343	0.5534	0.0346	0.5244
	60+	-0.5335	0.8410	0.7895	0.6107
Among Recipients Age < 12	Donor Age (continuous)	0.0023	0.0306	-0.0486	0.0481
	Donor Age > 30	-0.0297	0.0473	0.0064	0.0802
	Donor Age >40	0.0745	0.0492	0.1189	0.0901
	Donor Age > 50	-0.0174	0.0814	-0.1214	0.1667
Among Recipients Age 13-17	Donor Age (continuous)	-0.0032	0.0231	0.0415	0.0614
	Donor Age > 30	-0.0023	0.0390	-0.0677	0.1001
	Donor Age >40	-0.0112	0.0335	0.0033	0.0879
	Donor Age > 50	0.0766	0.0440	-0.0841	0.1962
Among Recipients Age 18-29	Donor Age (continuous)	-0.0193	0.0106	-0.0175	0.0215
	Donor Age > 30	0.0738	0.0184	0.0353	0.0384
	Donor Age >40	-0.0771	0.0179	-0.0273	0.0396
	Donor Age > 50	0.0337	0.0226	0.0539	0.0463
	Donor Age >60	0.0607	0.0662	0.0812	0.1041
Among Recipients Age 30-39	Donor Age (continuous)	-0.0016	0.0140	-0.0095	0.0218
	Donor Age > 30	0.0048	0.0207	0.0320	0.0319
	Donor Age >40	0.0203	0.0188	-0.0217	0.0282
	Donor Age > 50	-0.0109	0.0246	0.0104	0.0373
	Donor Age >60	0.0529	0.0413	0.0571	0.0589
Among Recipients Age 40-49	Donor Age (continuous)	-0.0112	0.0140	-0.0157	0.0154
	Donor Age > 30	0.0256	0.0229	0.0088	0.0256
	Donor Age >40	-0.0233	0.0182	0.0040	0.0210
	Donor Age > 50	0.0551	0.0232	0.0398	0.0269
	Donor Age >60	-0.0386	0.0435	-0.0563	0.0518
	Donor Age (continuous)	0.0063	0.0156	-0.0076	0.0130

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Characteristic	Group	Parameter Estimates			
		Graft Survival (Censored at Death)		Patient Survival*	
		Estimate	SE	Estimate	SE
Among Recipients Age 50-59	Donor Age > 30	-0.0181	0.0248	0.0277	0.0206
	Donor Age >40	0.0434	0.0223	-0.0378	0.0183
	Donor Age > 50	-0.0133	0.0213	0.0474	0.0187
	Donor Age >60	0.0306	0.0409	-0.0099	0.0394
Among Recipients Age 60+	Donor Age (continuous)	-0.0044	0.0275	-0.0196	0.0169
	Donor Age > 30	0.0112	0.0381	0.0451	0.0232
	Donor Age >40	0.0141	0.0255	-0.0132	0.0153
	Donor Age > 50	0.0072	0.0259	-0.0191	0.0162
	Donor Age >60	0.0165	0.0289	0.0554	0.0198
Donor-Recipient Type	Female-Female	0.1905	0.0328	-0.1111	0.0375
	Male-Female	0.2050	0.0402	-0.1237	0.0466
	Female-Male (Ref)	0.0000	0.0000	0.0000	0.0000
	Male-Male	-0.1516	0.0357	-0.0902	0.0369
HLA ABDR Mismatch	0 HLA MM	-0.6096	0.0529	-0.2880	0.0551
	1-2 HLA MM, 0 DR MM	-0.1623	0.0399	-0.0402	0.0426
	1-2 HLA MM, Any DR MM	-0.0985	0.0365	-0.0513	0.0395
	3-4 HLA MM, 0 DR MM	-0.1672	0.0863	0.0029	0.0880
	3-4 HLA MM, Any DR MM (Ref)	0.0000	0.0000	0.0000	0.0000
	5,6, Missing HLA MM	0.1022	0.0302	0.0525	0.0333
Recipient BMI	Not Obese (<30) (Ref)	0.0000	0.0000	0.0000	0.0000
	Obese (> 30)	0.1668	0.0330	0.1117	0.0342
	Missing	0.0763	0.0495	0.0694	0.0536
Donor BMI	Not Obese (<30) (Ref)	0.0000	0.0000	0.0000	0.0000
	Obese (> 30)	0.0762	0.0319	0.0359	0.0352
	Missing	0.0438	0.0660	-0.0506	0.0709
Donor-recipient Weight Ratio	< 0.75	0.1010	0.0446	0.0513	0.0474
	0.75-0.90	0.0033	0.0386	0.0020	0.0410
	0.90-1.15 (Ref)	0.0000	0.0000	0.0000	0.0000
	> 1.15	-0.0930	0.0356	0.1565	0.0397
	Missing	-0.0010	0.0563	0.2207	0.0618
Donor-Recipient Height Ratio	< 0.94	0.1265	0.0441	0.0676	0.0476
	0.94-1.00	0.0382	0.0382	0.0034	0.0411
	1.00-1.06 (Ref)	0.0000	0.0000	0.0000	0.0000
	> 1.06	-0.0158	0.0410	-0.0137	0.0469
	Missing	-0.0154	0.0646	0.0082	0.0695
Recipient Race	White	0.0000	0.0000	0.0000	0.0000
	Black	0.3694	0.0600	-0.0861	0.0747

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Characteristic	Group	Parameter Estimates			
		Graft Survival (Censored at Death)		Patient Survival*	
		Estimate	SE	Estimate	SE
Donor Race	Hispanic	0.0105	0.0620	-0.3473	0.0731
	Other	-0.2432	0.0611	-0.4812	0.0670
	Not Black or Hispanic (Ref)	0.0000	0.0000	0.0000	0.0000
	Black	0.2035	0.0622	0.0269	0.0777
	Hispanic	-0.1086	0.0625	-0.2078	0.0730
Donor History of Cigarette Use	No	0.0000	0.0000	0.0000	0.0000
	Yes	0.1312	0.0401	0.0104	0.0435
	Missing	0.1859	0.0364	0.1585	0.0399
ABO Compatibility	Not Incompatible	0.0000	0.0000	0.0000	0.0000
	Incompatible	0.4304	0.0916	0.2538	0.1065
PRA	0-9 (Ref)	0.0000	0.0000	0.0000	0.0000
	10-79	0.1287	0.0355	0.0787	0.0396
	80+	0.4307	0.0655	0.2724	0.0800
	Missing	-0.1415	0.0744	-0.0605	0.0788
Recipient Diagnosis	Not Diabetes (Ref)	0.0000	0.0000	0.0000	0.0000
	Diabetes	-0.0211	0.0310	0.5788	0.0263
Previous Transplant	No (Ref)	0.0000	0.0000	0.0000	0.0000
	Yes	0.1988	0.0358	0.2737	0.0414
Time on dialysis	Pre-emptive Transplant	-0.4016	0.0340	-0.4712	0.0368
	0-1 years	-0.1476	0.0316	-0.2381	0.0349
	1-2 years (Ref)	0.0000	0.0000	0.0000	0.0000
	2-3 years	-0.0947	0.0439	0.0819	0.0435
	3+ years	-0.0421	0.0398	0.1726	0.0409
Recipient Hepatitis C Serology	Negative or Missing (Ref)	0.0000	0.0000	0.0000	0.0000
	Positive	0.3548	0.0589	0.5183	0.0552
Recipient insurance	Public Primary Payer (Ref)	0.0000	0.0000	0.0000	0.0000
	Private Primary Payer	-0.1680	0.0253	-0.3418	0.0271
	Other/Missing	-0.1155	0.0638	-0.1525	0.0747
Transplant Year	1998-2002 (Ref)	0.0000	0.0000	0.0000	0.0000
	2003-2007	-0.0893	0.0316	-0.1975	0.0348
	2008-2012	-0.3489	0.0482	-0.3770	0.0525

Baseline death censored graft survival: 0.8778; baseline patient survival: 0.8655

*Patients are not censored at graft failure.

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Table S3. Five-Year Estimates of Graft Failure (Censored at Death) and Death for a 50-year Old Male Candidate with 3 Potential Donors*

Characteristic*	Donor 1 (Sister)	Donor 2 (Unrelated)	Donor 3 (Unrelated)
Donor Age	55 years	25 years	35 years
Donor Sex	Female	Male	Female
Donor BMI	Not Obese	Not Obese	Obese
Donor-Recipient Weight Ratio	0.70	1.20	0.95
HLA	3 HLA MM 1 DR	2 HLA MM 2 DR	5 HLA MM 2 DR
Estimated Probability of Graft Failure* (Confidence Interval)	8.3% (7.0%, 9.6%)	4.3% (3.6%, 5.1%)	6.4% (5.4%, 7.4%)
Estimated Probability of Death*(Confidence Interval)	10.2% (8.6%, 11.8%)	7.1% (5.9%, 8.3%)	9.4% (8.0%, 10.8%)

*In these examples, all recipient and donor characteristics with the exception of Transplant Year not described are the reference characteristic found in Supplementary Table S2. The Transplant Year is 2008-2012, the most recent cohort, in these examples. For the estimated graft failure, patients are censored at death. For the estimated probability of death, patients are not censored at graft failure.