

**Supplemental Table 1a. Demographic and Clinical Characteristics of Liver Transplant Donors whose livers were transplanted into HCC or non-HCC recipient in pre- and post-policy periods.** Numbers represent total count (%) and means (SD). Post-policy, pre-COVID period was defined as the timeframe between 5/20/2019 – 3/13/2020 and post-policy, COVID time was defined as the timeframe between 3/14/2020 – 3/1/2021.

Variable	non-HCC				HCC			
	pre-MMaT-3 N=8,385	post-policy; pre- COVID N=4,251	Post-policy; COVID N=5,282	p-value	pre-MMaT-3 N=2,954	post-policy; pre- COVID N=1,079	post-policy; COVID N=1,213	p-value
<b><u>DONOR</u></b>								
<b>Age</b>	41.23 (15.66)	41.20 (15.69)	40.52 (14.99)	0.02	42.97 (16.56)	44.29 (16.38)	45.24 (16.12)	<0.001
<b>Gender</b>				0.62				0.91
Male	5,125 (61.1%)	2,634 (62.0%)	3,257 (61.7%)		1,783 (60.4%)	645 (59.8%)	640 (61.2%)	
Female	3,260 (38.9%)	1,617 (38.0%)	2,025 (38.3%)		1,171 (39.6%)	434 (40.2%)	405 (38.8%)	
<b>Race</b>				0.92				0.76
White	5,365 (64.0%)	2,719 (64.0%)	3,362 (63.7%)		1,938 (65.6%)	692 (64.1%)	743 (61.3%)	
Non-White	3,020 (36.0%)	1,532 (36.0%)	1,920 (36.3%)		1,016 (34.4%)	387 (35.9%)	470 (38.7%)	
<b>Ethnicity</b>				0.33				0.87
Latino	1,222 (14.6%)	652 (15.3%)	754 (14.3%)		397 (13.4%)	152 (14.1%)	166 (13.7%)	
Non-Latino	7,163 (85.4%)	3,599 (84.7%)	4,528 (85.7%)		2,557 (86.6%)	927 (85.9%)	1,047 (86.3%)	
<b>Donor/s Cause of Death</b>				0.001				0.006
Anoxia	3,517 (41.9%)	1,927 (45.3%)	2,392 (45.3%)		1,248 (42.2%)	492 (45.6%)	534 (44.0%)	
CVA	2,265 (27.0%)	1,079 (25.4%)	1,309 (24.8%)		884 (29.9%)	324 (30.0%)	374 (30.8%)	
Head Trauma	2,390 (28.5%)	1,151 (27.1%)	1,438 (27.2%)		758 (25.7%)	238 (22.1%)	261 (21.5%)	
CNS Tumor	30 (0.4%)	10 (0.2%)	14 (0.3%)		13 (0.4%)	3 (0.3%)	4 (0.3%)	

Other	183 (2.2%)	84 (2.0%)	129 (2.4%)		51 (1.7%)	22 (2.0%)	40 (3.3%)	
<b>BMI</b>	28.28 (6.71)	28.26 (6.98)	28.19 (6.59)	0.72	28.37(6.63)	28.546 (6.97)	29.40 (7.52)	<0.001
<b>Donor Aged 70 or More</b>	279 (3.3%)	143 (3.4%)	126 (2.4%)	0.003	145 (4.9%)	72 (6.7%)	64 (5.3%)	0.09
<b>Donation After Cardiac Death</b>	657 (7.8%)	382 (9.0%)	491 (9.3%)	0.006	245 (8.3%)	138 (12.8%)	195 (16.1%)	<0.001
<b>Organ Shared Nationally</b>	3,315 (39.5%)	1,702 (40.0%)	3,516 (66.6%)	<0.001	721 (24.4%)	319 (29.6%)	553 (45.6%)	<0.001
<b>DRI</b>	1.45 (.41)	1.45 (.42)	1.50 (.41)	<0.001	1.46 (.41)	1.53 (.42)	1.60 (.44)	<0.001
<b>Cold Ischemia Time (hours)</b>	5.92 (2.12)	5.85(1.98)	6.07 (2.06)	<0.001	5.91 (2.24)	5.94 (2.11)	5.94 (1.95)	0.9
<b>Warm Ischemia Time (DCD; minutes)</b>	14.88 (10.58)	14.70 (9.80)	10.95 (11.07)	<0.001	15.93 (9.67)	15.28 (9.11)	14.06 (9.27)	0.17
<b>Diabetes</b>	1,076 (12.8%)	550 (12.9%)	563 (10.7%)	<0.001	443 (15.0%)	165 (15.3%)	192 (15.8%)	0.79
<b>Donor HCV Ab</b>	736 (8.8%)	438 (10.3%)	475 (10.5%)	<0.001	327 (11.1%)	107 (9.9%)	128 (10.6%)	0.57
<b>Donor HCV NAT</b>	484 (5.8%)	276 (6.5%)	349 (6.6%)	0.092	224 (7.6%)	61 (5.7%)	74 (7.1%)	0.19
<b>High Risk of Disease Transmission</b>	2,458 (29.3%)	1,259 (29.6%)	1,609 (30.5%)	0.35	878 (29.7%)	301 (27.9%)	332 (27.4%)	0.24
<b>Liver Biopsied</b>	3,298 (39.3%)	1,677 (39.5%)	2,182 (41.3%)	0.003	1,311 (44.4%)	503 (46.6%)	619 (51.1%)	<0.001
<b>% Macrovesicular Fat on Biopsy</b>				0.49				0.086
No Biopsy	5,184 (61.8%)	2,616 (61.5%)	3,245 (61.4%)		1,677 (56.8%)	590 (54.7%)	631 (52.0%)	
0-14.9% Steatosis	2,461 (29.4%)	1,282 (30.2%)	1,606 (30.4%)		1,012 (34.3%)	384 (35.6%)	443 (36.5%)	
15-29.9% Steatosis	400 (4.8%)	193 (4.5%)	251 (4.8%)		148 (5.0%)	61 (5.7%)	83 (6.8%)	
30+% Steatosis	340 (4.1%)	160 (3.8%)	180 (3.4%)		117 (4.0%)	44 (4.1%)	56 (4.6%)	

**Supplemental Table 1b. Demographic and Clinical Characteristics of Liver Transplant Recipients with and without Exception Points for Hepatocellular Carcinoma in Pre- and Post-policy periods.** Numbers represent total count (%) and means (SD). Post-policy, pre-COVID period was defined as the timeframe between 5/20/2019 – 3/13/2020 and post-policy, COVID time was defined as the timeframe between 3/14/2020 – 3/1/2021.

Variable	non-HCC				HCC			
	pre-MMaT-3	Post-policy; pre-COVID	Post-policy; COVID	p-value	pre-MMaT-3	post-policy; pre-COVID	Post-policy; COVID	p-value
	N=8,385	N=4,251	N=5,282		N=2,954	N=1,079	N=1,213	
<b>RECIPIENT</b>								
<b>Age</b>	54.40 (10.85)	54.47 (11.23)	53.70 (11.40)	<0.001	62.06 (6.74)	62.13 (7.29)	62.95 (6.77)	<0.001
<b>Gender:</b>				0.08				0.67
Male	5,341 (63.7%)	2,656 (62.5%)	3,266 (61.8%)		2,281 (77.2%)	838 (77.7%)	924 (76.2%)	
Female	3,044 (36.3%)	1,595 (37.5%)	2,016 (38.2%)		673 (22.8%)	241 (22.3%)	289 (23.8%)	
<b>Race</b>				0.75				0.032
White	6,090 (72.6%)	3,106 (73.1%)	3,274 (72.2%)		1,957 (66.2%)	697 (64.6%)	752 (62.0%)	
Non-White	2,295 (27.4%)	1,145 (26.9%)	1,261 (27.8%)		997 (33.8%)	382 (35.4%)	461 (38.0%)	
<b>Ethnicity</b>				0.21				<0.001
Latino	1,279 (15.3%)	678 (15.9%)	864 (16.4%)		513 (17.4%)	208 (19.3%)	276 (22.8%)	
Non-Latino	7,106 (84.7%)	3,573 (84.1%)	4,418 (83.6%)		2,441 (82.6%)	871 (80.7%)	937 (77.2%)	
<b>Lab MELD at Transplant</b>	25.97 (9.02)	25.50 (8.91)	26.26 (8.83)	<0.001	12.69 (6.17)	13.15 (6.63)	13.41 (6.84)	0.002
<b>Match MELD at Transplant</b>	28.36 (8.70)	27.80 (8.68)	28.64 (8.40)	<0.001	28.15 (4.99)	26.14 (5.13)	24.99 (5.26)	<0.001
<b>Primary Diagnosis</b>				<0.001				<0.001
HCV	808 (9.6%)	262 (6.2%)	241 (4.6%)	<0.001	783 (26.5%)	239 (22.2%)	213 (17.6%)	
Alcohol	3,431 (40.9%)	1,910 (44.9%)	2,511 (47.5%)		407 (13.8%)	169 (15.7%)	156 (12.9%)	
NASH	1,951 (23.3%)	1,022 (24.0%)	1,205 (22.8%)		283 (9.6%)	130 (12.0%)	168 (13.8%)	

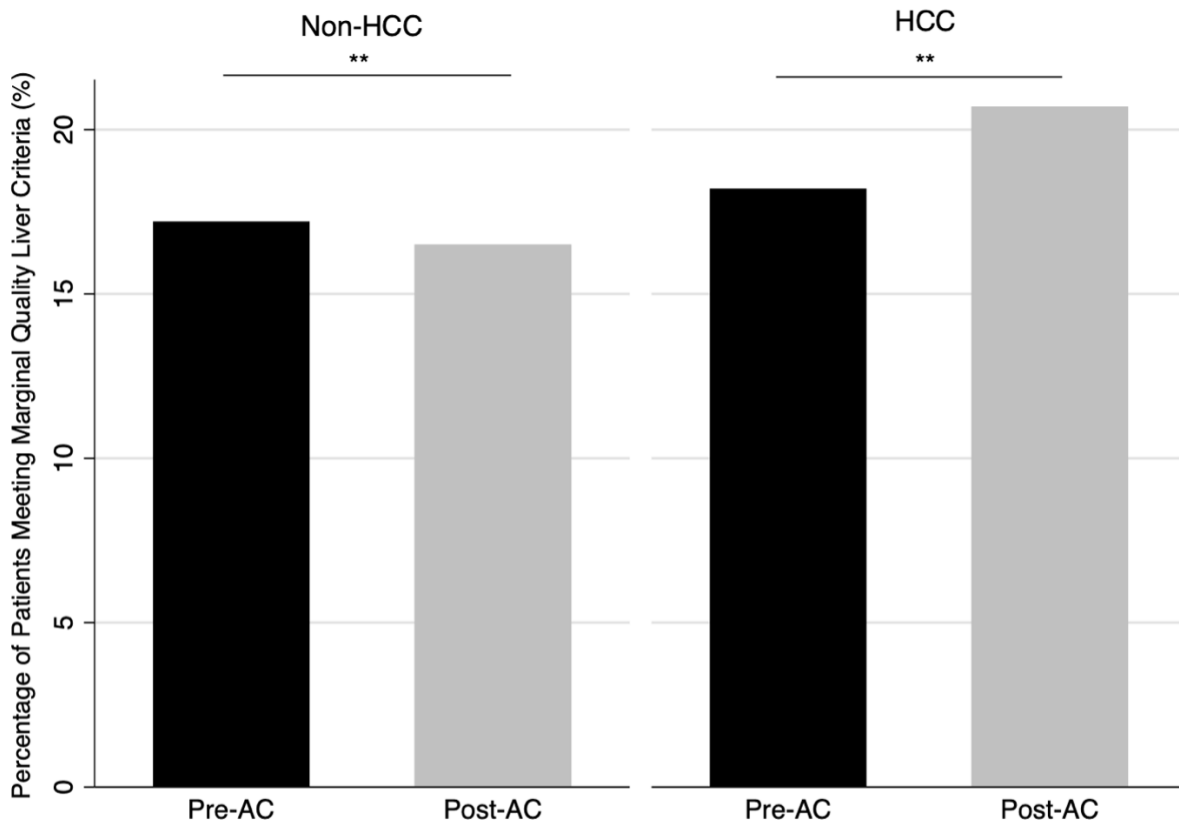
HCC	151 (1.8%)	71 (1.7%)	78 (1.5%)		1,241 (42.0%)	459 (42.5%)	565 (46.6%)	
Other	2,044 (24.4%)	986 (23.2%)	1,247 (23.6%)		240 (8.1%)	82 (7.6%)	111 (9.2%)	
<b>Waiting Time (Days)</b>	172.74 (410.39)	161.03 (368.19)	147.22 (395.22)	0.001	372.93 (483.86)	358.78 (425.15)	332.09 (391.82)	0.03
<b>BMI:</b>	29.16 (9.23)	29.44 (6.33)	29.75 (14.58)	0.06	29.72 (9.07)	29.35 (6.76)	29.79 (5.63)	0.15
<b>ABO Blood Type</b>				0.68				0.58
A	3,033 (36.2%)	1,548 (36.4%)	1,950 (36.9%)		1,131 (38.3%)	393 (36.4%)	428 (35.3%)	
AB	454 (5.4%)	224 (5.3%)	281 (5.3%)		125 (4.2%)	46 (4.3%)	61 (5.0%)	
B	1,196 (14.3%)	581 (13.7%)	693 (13.1%)		393 (13.3%)	146 (13.5%)	172 (14.2%)	
O	3,702 (44.2%)	1,898 (44.6%)	2,358 (44.6%)		1,305 (44.2%)	494 (45.8%)	552 (45.5%)	
<b>On Life Support at Transplant</b>	1,016 (12.1%)	435 (10.2%)	417 (7.9%)	<0.001	30 (1.0%)	16 (1.5%)	14 (1.2%)	0.47
<b>Dialysis Within 1 Week Pre-Transplant</b>	1,955 (23.3%)	911 (21.4%)	1,187 (22.5%)	0.06	72 (2.4%)	30 (2.8%)	38 (3.1%)	0.43
<b>Prior Abdominal Surgery</b>	3,639 (43.4%)	1,765 (41.5%)	2,150 (40.7%)	0.005	1,342 (45.4%)	481 (44.6%)	556 (45.8%)	0.83
<b>Diabetes</b>	2,347 (28.0%)	1,227 (28.9%)	1,376 (26.5%)	0.03	1,104 (37.4%)	420 (38.9%)	489 (40.3%)	0.19
<b>Preoperative Portal Vein Thrombosis</b>	708 (8.4%)	305 (7.2%)	517 (9.8%)	<0.001	231 (7.8%)	84 (7.8%)	89 (7.3%)	0.86
<b>Region</b>				0.005				0.03
1	279 (3.3%)	123 (2.9%)	129 (2.4%)		105 (3.6%)	47 (4.4%)	38 (3.1%)	
2	956 (11.4%)	464 (10.9%)	558 (10.6%)		390 (13.2%)	147 (13.6%)	163 (13.4%)	
3	1,520 (18.1%)	790 (18.6%)	1,007 (19.1%)		424 (14.4%)	145 (13.4%)	180 (14.8%)	
4	767 (9.1%)	419 (9.9%)	457 (8.7%)		336 (11.4%)	115 (10.7%)	121 (10.0%)	
5	1,256 (15.0%)	619 (14.6%)	748 (14.2%)		407 (13.8%)	160 (14.8%)	214 (17.6%)	
6	265 (3.2%)	153 (3.6%)	192 (3.6%)		142 (4.8%)	54 (5.0%)	50 (4.1%)	
7	672 (8.0%)	312 (7.3%)	358 (6.8%)		295 (10.0%)	109 (10.1%)	99 (8.2%)	
8	590 (7.0%)	305 (7.2%)	432 (8.2%)		156 (5.3%)	66 (6.1%)	79 (6.5%)	
9	286 (3.4%)	155 (3.6%)	176 (3.3%)		121 (4.1%)	50 (4.6%)	51 (4.2%)	
10	830 (9.9%)	430 (10.1%)	557 (10.5%)		203 (6.9%)	86 (8.0%)	95 (7.8%)	
11	964 (11.5%)	481 (11.35%)	668 (12.6%)		375 (12.7%)	100 (9.3%)	123 (10.1%)	

**Supplemental Table 2. Marginal liver characteristics of liver transplant donors whose livers were transplanted into HCC or non-HCC recipients in pre- and post-AC periods.** Numbers represent total count (%) and means (SD).

Variable	non-HCC			HCC		
	pre-AC N=13,336	post-AC N=4,582	p-value	pre-AC N=3,893	post-AC N=1,354	p-value
<b><i>Marginal Liver Characteristics</i></b>						
<b>Donation After Cardiac Death</b>	968 (8.1%)	562 (9.5%)	0.002	357 (9.2%)	219 (16.2%)	<0.001
<b>Donor Aged 70 or More</b>	405 (3.4%)	143 (2.4%)	<0.001	200 (5.1%)	81 (6.0%)	0.23
<b>DRI</b>	1.44 (0.41)	1.49 (0.41)	0.01	1.47 (0.41)	1.61 (0.42)	<0.001
<b>Macrosteatosis ≥ 30%</b>	474 (3.9%)	206 (3.5%)	0.49	151 (3.9%)	66 (4.9%)	0.007

**Supplemental Figure 1. Comparison of adjusted percentages of liver transplant (LT) with a marginal quality liver among HCC and non-HCC recipients in pre- and post-AC periods.**

Transplanted livers were classified as marginal if they met  $\geq 1$  of the following: 1) donation after circulatory death; 2) donor age  $\geq 70$ ; 3) macrosteatosis  $\geq 30\%$ ; 4) donor risk index  $\geq 95$ th percentile.



\*\*p-value < 0.01