Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.

	HCV Ab (+)	HCV Ab (-)
	(n = 1,887)	(n = 22,613)
HCV NAT (+)	1,216	64
(n = 1,280)	(64.4%)	(0.3%)
HCV NAT (-)	671	22,549
(n = 23, 220)	(35.6%)	(99.7%)

eTable 1. Donor HCV Ab and NAT status

June 1st, 2015 to December 1st, 2018 Abbreviations: HCV, hepatitis C virus; Ab, antibody; NAT, nucleic acid amplification

	HCV NAT (+) (n = 1,280)	HCV NAT (-) (n = 23,220)	P
Age, years	34 (28-42)	40 (27-54)	< 0.001
Gender Male Female	817 (63.8%) 462 (36.2%)	13,975 (60.2%) 9,245 (39.8%)	0.009
Race White Hispanic Black or African American Asian Other	1,042 (81.4%) 88 (6.9%) 137 (10.7%) 6 (0.5%) 7 (0.6%)	14,781 (63.7%) 3,162 (13.6%) 4,423 (19.1%) 587 (2.5%) 267 (1.2%)	< 0.001
ABO type A AB B O	487 (38.1%) 20 (1.6%) 114 (8.9%) 659 (51.5%)	8,662 (37.3%) 700 (3.0%) 2,705 (11.7%) 11,153 (48.0%)	< 0.001
BMI	27.0 (23.5-31.5)	25.6 (22.9-28.8)	< 0.001
Hypertension	263 (20.5%)	8,179 (35.2%)	< 0.001
Diabetes	82 (6.4%)	2,791 (12.0%)	< 0.001
Cigarette use (>20 pack years)	354 (27.7%)	4,635 (20.0%)	< 0.001
Heavy alcohol use (>2 drinks/day)	235 (18.4%)	3,728 (16.1%)	0.03
History of cocaine use	667 (52.7%)	4,683 (20.4%)	< 0.001
History of other drug abuse	1,067 (84.4%)	10,340 (45.1%)	< 0.001
Increased risk donor	1,069 (83.5%)	5,767 (24.8%)	< 0.001
Hepatitis B surface antigen (+)	1 (0.1%)	20 (0.1%)	0.92
Hepatitis B detectable by PCR	11 (0.9%)	42 (0.2%)	< 0.001
Hepatitis B core Ab (+)	178 (13.9%)	1,064 (4.6%)	< 0.001
HIV Ab (+)	2 (0.2%)	26 (0.1%)	0.65
HIV detectable by PCR	3 (0.2%)	14 (0.1%)	0.02
Liver biopsy performed Micro-vesicular steatosis present Macro-vesicular steatosis 0-4% 5-30% 31-60% > 60%	883/1278 (69.1%) 429/834 (51.4%) 417/851 (49.0%) 410/851 (48.2%) 20/851 (2.4%) 4/851 (0.5%)	8,515/23,070 (36.9%) 4,546/7,813 (58.2%) 3,057/8,218 (37.2%) 4,691/8,218 (57.1%) 410/8,218 (5.0%) 60/8,218 (0.7%)	< 0.001 < 0.001 < 0.001
Mechanism of death Drug overdose Intracranial hemorrhage/Stroke	691 (54.0%) 173 (13.5%)	2,788 (12.0%) 6,876 (29.6%)	< 0.001

eTable 2. Baseline characteristics of donors by HCV NAT status (mid 2015-2018)

Cardiovascular Other	133 (10.4%) 283 (22.1%)	3,953 (17.0%) 9,603 (41.4%)	
DCD	93 (7.6%)	1,440 (6.8%)	0.24
Cold ischemia time, hours	5.9 (4.8-7.2)	5.8 (4.5-7.2)	0.02

Values expressed as median (IQR) or n (%) unless otherwise stated. Abbreviations: Ab, antibody; HCV, hepatitis C virus; BMI, body mass index; PCR, polymerase chain reaction; DCD, deceased after cardiac death.

Region	2	3	10	11	5	1	4	7	8	9	6
Total HCV	402	313	258	242	150	131	100	87	83	83	83
AB (+)											
Total HCV	2601	3935	1963	2458	3355	699	2520	1837	1503	959	783
AB (-)											
Percent	13.4	7.4	11.6	9.0	4.3	15.8	3.8	4.5	5.2	8.0	9.6
HCV Ab (+)											

eTable 3. The volume of HCV Ab (+) donors utilized in each OPTN region.

Sorted based on the volume of HCV Ab (+) donors utilized in each OPTN region. Abbreviations: HCV, hepatitis C virus; OPTN, Organ Procurement, and Transplantation Network

Region	2	3	10	11	5	1	4	7	8	9	6
Total HCV	266	210	182	176	97	92	68	63	56	48	22
NAT (+)											
Total HCV	2,737	4,038	2,039	2,524	3,408	738	2,552	1,523	1,868	994	799
NAT (-)											
Percent HCV	8.9	4.9	8.2	6.5	2.8	11.1	2.6	4.0	2.9	4.6	2.7
NAT (+)											

eTable 4. The volume of HCV NAT (+) donors utilized in each OPTN region.

Sorted based on the volume of HCV NAT (+) donors utilized in each OPTN region. Abbreviations: HCV, hepatitis C virus; OPTN, Organ Procurement, and Transplantation Network

Rank	City	Number	% of OPO Total
1	Philadelphia - R2	196	16.1%
2	Waltham - R1	131	15.8%
3	Nashville - R11	86	10.9%
4	Baltimore - R2	70	14.6%
5	Pittsburgh - R2	68	12.7%
6	Tampa - R3	56	9.4%
7	Cleveland - R10	55	13.9%
8	Metairie - R3	54	10.0%
9	App Arbor - R10	53	7.5%
10	St Louis R8	47	10.5%
10	Now Providence P2	47	10.5%
10		47	10.3%
12		43	10.3%
13	New York - R9	45	6.3%
14	Columbus - R10	43	14.6%
15	Cincinnati - R10	43	22.2%
16	Fort Worth - R4	42	4.7%
17	Itasca - R7	41	4.2%
18	Indianapolis - R10	40	8.7%
19	Gainesville - R3	39	9.8%
20	Phoenix - R5	38	6.9%
21	Louisville - R11	38	12.5%
22	Miami - R3	36	8.3%
23	Dallas - R4	36	3.6%
24	Birmingham - R3	31	6.9%
25	Winter Park - R3	31	8.4%
26	Norcross - R11	28	3.3%
27	Virginia Beach - R11	28	7.9%
28	Bellevue - R6	28	5.9%
29	San Ramon - R5	24	3.0%
30	Maumee - R10	24	14 1%
31	Los Angeles - R5	23	2.2%
32	Falls Church - R11	21	6.5%
33	San Diego - R5	20	7.0%
34	Milwaukee P7	20	0.5%
25		10	9.J70
26	Charloston P11	10	14.5%
30	Madiaan DZ	10	4.3%
37	Madison - R7	18	0.7%
38		17	6.7%
39	Las Vegas - R5	17	6.0%
40	Flowood - R3	16	7.2%
41	Westwood - R8	14	2.7%
42	Oklahoma City - R4	14	3.8%
43	Guaynabo - R3	13	4.9%
44	Rochester - R9	12	11.3%
45	Denver - R8	11	4.0%
46	Albuquerque - R5	11	8.7%
47	Cordova - R11	10	6.0%
48	Little Rock - R3	9	6.2%
49	West Sacramento - R5	9	4.6%
50	North Liberty - R8	8	6.1%
51	Minneapolis - R7	8	2.0%
52	Buffalo - R9	8	8.4%

eTable 5. The volume of HCV Ab+ donors utilized in each OPO center

53	Portland - R6	8	2.9%
54	San Antonio - R4	8	2.1%
55	Salt Lake City - R5	8	3.5%
56	Omaha - R8	3	1.8%
57	Honolulu - R6	2	2.7%
58	Maitland - R3	0	0.0%
59	Covington - R3	0	0.0%
60	Williamsville - R9	0	0.0%

OPO	Total	HCV Ab+	Actual	Total	HCV Ab-	Actual
	potential	donors who	conversion	potential	donors who	conversion
	HCV Ab+	underwent	rate	HCV Ab-	underwent LT	rate
	donors	LT		donors		
Philadelphia	281	196	69.8%	1,574	1,021	64.9%
Waltham	183	131	71.6%	1,038	699	67.3%
Nashville	98	86	87.8%	860	701	81.5%
Baltimore	82	70	85.4%	474	411	86.7%
Pittsburgh	86	68	79.1%	657	466	70.9%
Tampa	65	56	86.2%	681	537	78.9%
Cleveland	69	55	79.7%	447	340	76.1%
Metairie	60	54	90.0%	521	483	92.7%
Ann Arbor	74	53	71.6%	966	654	67.7%
St Louis	54	47	87.0%	592	450	76.0%
New	56	47	83.9%	551	399	72.4%
Providence						
Greenville	62	45	72.6%	566	391	69.1%
New York	60	45	75.0%	883	672	76.1%
Columbus	49	43	87.8%	316	252	79.7%
Cincinnati	44	43	97.7%	166	151	91.0%
Fort Worth	56	42	75.0%	1,143	844	73.8%
Itasca	56	41	73.2%	1,283	933	72.7%
Indianapolis	49	40	81.6%	491	420	85.5%
Gainesville	47	39	83.0%	442	358	81.0%
Phoenix	61	38	62.3%	711	511	71.9%
Louisville	44	38	86.4%	332	266	80.1%
Miami	48	36	75.0%	497	398	80.1%
Dallas	50	36	72.0%	1,171	952	81.3%
Birmingham	39	31	79.5%	480	417	86.9%
Winter Park	41	31	75.6%	488	337	69.1%
Top 25 total	1,814	1,411	79.6%*	17,330	13,063	77.3%*

eTable 6. Conversion rates of HCV Ab (+) and (-) donors by the top 25 OPO centers

Values expressed as n or %; * = average conversion rate across top 25 OPO Abbreviations: HCV, hepatitis C virus; Ab, antibody; NAT, nucleic acid amplification

OPTN	Total	HCV Ab-	Actual	Total	HCV	Actual	Total	HCV	Actual
region	potential	/NAT-	conversion	potential	Ab+/NAT+	conversion	potential	Ab+/NAT-	conversion
-	HCV Ab-	donors who	rate (%)	HCV	donors	rate (%)	HCV	donors	rate (%)
	/NAT-	underwent		Ab+/NAT+	who		Ab+/NAT-	who	
	donors	LT		donors	underwent		donors	underwent	
					LT			LT	
1	1,033	694	67.2%	121	87	71.9%	62	44	71.0
2	3,661	2,587	70.7%	334	252	75.4%	196	150	76.5
3	4,727	3,927	83.1%	249	202	81.1%	128	111	86.7
4	3,340	2,518	75.4%	96	66	68.8%	59	34	57.6
5	4,667	3,350	71.8%	154	92	59.7%	84	58	69.0
6	1,230	782	63.6%	34	21	61.8%	22	17	77.3
7	2,537	1,833	72.3%	65	52	80.0%	46	35	76.1
8	2,150	1,499	69.7%	82	59	72.0%	34	24	70.6
9	1,374	956	69.6%	67	45	67.2%	52	38	73.1
10	2,564	1,957	76.3%	209	176	84.2%	105	82	78.1
11	3,170	2,446	77.2%	215	164	76.3%	96	78	81.3
OPTN									
region									
total	30,453	22,549	72.5%*	1,626	1,216	72.6%*	884	671	74.3%*

eTable 7. Conversion rates of HCV Ab+/NAT+, Ab+/NAT-, and HCV Ab- donors by OPTN region

Values expressed as n or %; * = average conversion rate across OPTN regions Abbreviations: HCV, hepatitis C virus; Ab, antibody; NAT, nucleic acid amplification

		Underwer	Underwent L1							
	Offered for LT	Locally	Regionally	Nationally	Total					
HCV Ab+, NAT+	1,626	553 (45.5%)	439 (36.1%)	224 (18.4%)	1,216					
HCV Ab+, NAT-	884	307 (45.8%)	250 (37.3%)	114 (17.0%)	671					
HCV Ab-, NAT-	30,453	15,013 (66.6%)	6,705 (29.7%)	831 (3.7%)	22,549					

eTable 8. Ultimate destination of HCV Ab+/NAT+, HCV Ab+/NAT-, and HCV Ab-/NAT- grafts

Abbreviations: HCV, hepatitis C virus; Ab, antibody; NAT, nucleic acid amplification

	Total Deaths in the Region	Drug OD Total ¹	Drug OD HCV Ab (+) ²	Drug OD HCV Ab (-) ³
Region 1	830	213 (25.7%)	79 (60.3%)	134 (19.2%)
Region 2	3003	743 (24.7%)	250 (62.2%)	493 (19.0%)
Region 3	4248	481 (11.3%)	155 (49.5%)	326 (8.3%)
Region 4	2620	126 (4.8%)	13 (13.0%)	113 (4.5%)
Region 5	3505	294 (8.4%)	41 (27.3%)	253 (7.5%)
Region 6	821	90 (11.0%)	14 (36.8%)	76 (9.7%)
Region 7	1924	290 (15.1%)	57 (65.5%)	233 (12.7%)
Region 8	1586	205 (12.9%)	42 (50.6%)	163 (10.8%)
Region 9	1042	231 (22.2%)	51 (61.4%)	180 (18.8%)
Region 10	2221	465 (20.9%)	167 (64.7%)	298 (15.2%)
Region 11	2700	341 (12.6%)	107 (44.2%)	234 (9.5%)

eTable 9. Distribution of Drug Overdose by HCV Ab status

June 2015 to December 2018; Value expressed as n (%) or n as appropriate ¹ expressed as n (%) of total deaths in the specific region; ² expressed as n (%) of HCV Ab (+) deaths in the specific region; ³ expressed as n (%) of HCV Ab (-) deaths in the specific region Abbreviations: OD, overdose; HCV, hepatitis C virus; Ab, antibody

		1	2	3	4	5	6	7	8	9	10	11
	1	90.8	3.0	0.6	4.0	0	0	4.6	2.4	3.6	0.8	4.1
	2	0	85.6	1.0	0	0	0	2.3	4.8	2.4	1.9	4.1
gior	3	0	0.5	84.0	8.0	1.3	0	8.0	7.2	0	0.8	2.1
۸ Re	4	0.8	0.2	1.3	68.0	0	2.6	1.1	2.4	1.2	0.4	1.7
PTA	5	1.5	0.2	2.2	8.0	98.0	26.3	5.7	4.8	1.2	3.9	2.1
o t	6	0	0	0	00	0	68.4	0	0	0	0	0
cipie	7	0.8	0.7	1.0	3.0	0	0	63.2	3.6	0	1.2	1.2
Rec	8	0	0.2	0.6	2.0	0	26	23	62.7	0	12	0
	9	4.6	4.7	5.4	3.0	0	0	5.7	84	88.0	3.5	7.0
	10	1.5	42	2.6	2.0	0.7	0	6.9	24	3.6	86.0	3.3
	11	0	0.5	1.3	2.0	0	0	0	1.2	0	0.4	74.4

Donor OPTN Region

eFig. 1. Distribution of the ultimate destination (recipient OPTN region) of HCV Ab (+) donor grafts from each donor OPTN region.

Abbreviations: HCV, hepatitis C virus; OPTN, Organ Procurement and Transplantation Network



eFig. 2. The volume of HCV NAT (+) donors utilized in each OPTN region. Sorted based on the volume of HCV NAT (+) donors utilized in each OPTN region. Abbreviations: HCV, hepatitis C virus; OPTN, Organ Procurement, and Transplantation Network

eMethods. Data Collection

Donor demographics (age, body mass index, sex, race), clinical (history of hypertension, diabetes, alcohol use, drug use, classification as a deceased after cardiac death (DCD) donor or as an increased risk donor, mechanism of death), laboratory (HIV status, hepatitis B status) characteristics were collected. Prior exposure to hepatitis B virus (HBV) was defined as testing positive for hepatitis B core Ab. Increased risk donor was defined as per the Centers for Disease Control and Prevention 2013 criteria.¹ Anyone with one of 11 possible risk factors for HIV, HBV, or HCV was considered an increased risk donor.¹ Graft characteristics such as the performance of a liver biopsy prior to transplant, presence of micro-vesicular and/or macro-vesicular steatosis, and cold ischemia time were also collected. Micro-vesicular steatosis was graded as follows: normal (0-4%), mild (5-30%), moderate (31-60%), severe (>60%) steatosis on biopsy.² Conversion rate was defined as the number of donors who underwent actual LT relative to the number of total potential donors. Data regarding HCV positive donor usage was collected for each OPTN region and organ procurement organization (OPO) center.

Donor risk index (DRI) was calculated for each donor by the formula shown below.³ A DRI \leq 1 was considered an excellent donor with historical 3-year graft survival of greater than 80% while a DRI > 2 was considered a poor donor with 3-year graft survival of approximately 60%. Donor risk index = exp[(0.154 if 40≤age<50)+(0.274 if 50≤age<60)+(0.424 if 60≤age<70)+(0.501 if 70≤age)+(0.079 if COD=anoxia)+(0.145 if COD=CVA)+(0.184 if COD=other)+(0.176 if race=African American)+(0.126 if race=other)+(0.411 if DCD)+(0.422 if partial/split)+(0.066 ((170-height)/10))+(0.105 if regional share)+(0.244 if national share)+(0.010×cold time)

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