

Figure S1: Cohort Derivation

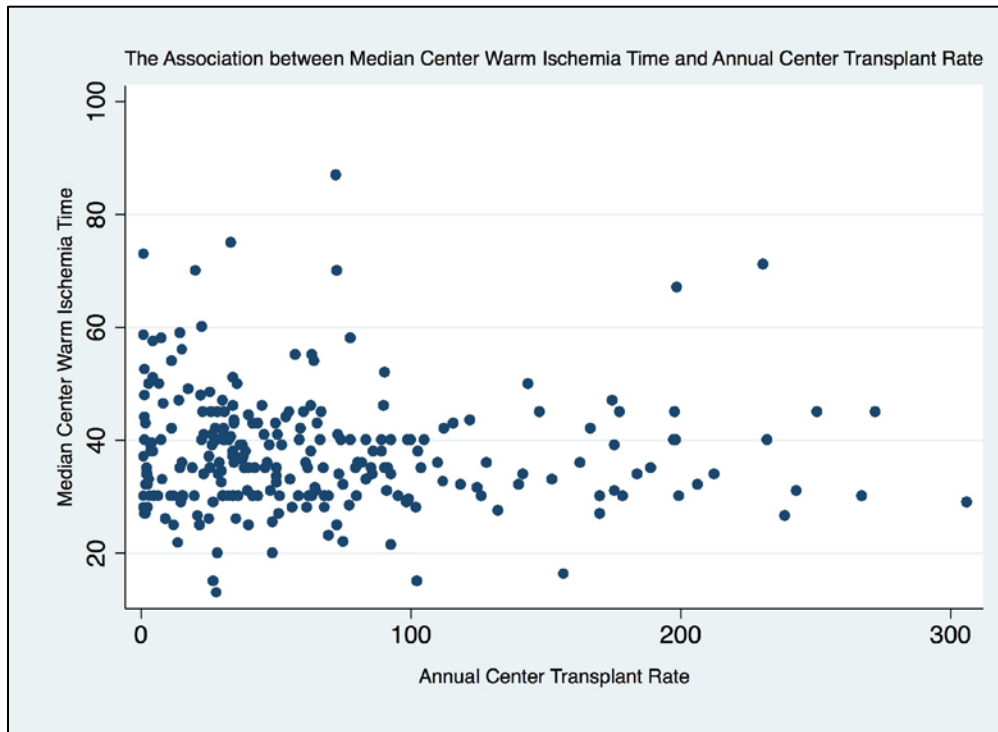


Figure S2: The Association between Median Center Warm Ischemia Time and Annual Center Transplant Rate

Table S1: Patient variables for those with WIT reported compared to those with missing WIT.

Variable N (%)	WIT reported 55,829 (66.0%)	WIT excluded 5,458 (6.5%)	WIT missing 23,316 (27.6%)
Donor Factors			
Age (y) mean +/- SD	39.4 +/- 15.7	38.6 +/- 15.7	40.2 +/- 16.0
18 to < 40	21,283 (41.9%)	2,143 (43.6%)	8,555 (40.2%)
40 to < 60	24,809 (48.8%)	2,358 (47.9%)	10,446 (49.1%)
60+	4,707 (9.3%)	418 (8.5%)	2,296 (10.8%)
DM	3,953 (7.1%)	378 (7.0%)	1,806 (7.8%)
HTN	15,890 (28.5%)	1,486 (27.2%)	6,913 (29.7%)
Sex (Male)	33,507 (60.0%)	3,308 (60.6%)	14,019 (60.1%)
BMI (kg/m ²)			
<18.5	2,740 (4.9%)	305 (5.6%)	1,144 (4.9%)
18.5-24.99	19,684 (35.3%)	1,865 (34.2%)	8,075 (34.6%)
24.5-29.99	17,632 (31.6%)	1,738 (31.8%)	7,417 (31.8%)
30.0-34.99	9,133 (16.4%)	924 (16.9%)	3,874 (16.6%)
>35.0	6,639 (11.9%)	626 (11.5%)	2,806 (12.0%)
Race			
White	38,704 (69.3%)	3,774 (69.2%)	16,080 (69.0%)
Black	7,962 (14.3%)	672 (12.3%)	3,082 (13.2%)
Other	9,163 (16.4%)	1,012 (18.5%)	4,154 (17.8%)
Recipient Factors			
Age (y) mean +/- SD	53.0 +/- 13.1	52.5 +/- 13.1	53.3 +/- 13.1
18 to < 40	9,905 (17.7%)	1,000 (18.3%)	3,964 (17.0%)
40 to < 60	27,036 (48.4%)	2,694 (49.4%)	11,311 (48.5%)
60+	18,888 (33.8%)	1,764 (32.3%)	8,041 (34.5%)
DM	19,306 (34.6%)	1,827 (33.4%)	8,358 (35.9%)
HTN	45,321 (81.2%)	4,403 (80.7%)	15,492 (66.4%)
CAD	3,952 (7.1%)	291 (5.3%)	1,234 (5.3%)
PVD	2,416 (4.3%)	236 (4.3%)	812 (3.5%)
Sex (Male)	33,885 (60.7%)	3,329 (61.0%)	14,151 (60.7%)
BMI (kg/m ²)			
<18.5	1,215 (2.2%)	164 (3.0%)	494 (2.1%)
18.5-24.99	16,373 (29.3%)	1,674 (30.7%)	6,652 (28.5%)
24.5-29.99	18,788 (33.7%)	1,833 (33.6%)	7,959 (34.1%)
30.0-34.99	12,818 (23.0%)	1,204 (22.1%)	5,354 (23.0%)
>35.0	6,467 (11.6%)	573 (10.5%)	2,792 (12.0%)
Race			
White	25,234 (45.2%)	2,519 (46.2%)	10,526 (45.1%)
Black	18,371 (32.9%)	1,557 (28.5%)	7,552 (32.4%)
Other	12,224 (21.9%)	1,382 (25.3%)	5,238 (22.5%)
ESRD			
GN	12,346 (22.1%)	1,171 (21.5%)	4,939 (21.2%)
DM	14,736 (26.4%)	1,413 (25.9%)	6,286 (27.0%)
PCKD	4,757 (8.5%)	475 (8.7%)	1,932 (8.3%)
Other	23,644 (42.4%)	2,362 (43.3%)	9,997 (42.9%)
Dialysis vintage >1 year (v. <1 year)	45,181 (80.9%)	4,236 (77.6%)	18,555 (79.6%)
Prior Kidney Transplant	7,170 (12.8%)	712 (13.1%)	3,254 (14.0%)
Transplant Factors			
Era after 2009 (v. before)	43,510 (77.9%)	4,261 (78.1%)	18,711 (80.3%)
Donor WIT (min) mean +/- SD	18.0 +/- 15.0	15.7 +/- 13.9	18.6 +/- 15.4
Center transplant rate (Deceased + Living) (per y) median +/- IQR	98.3 IQR 61.1-170.1	89.2 IQR 55.3-175.6	99.3 IQR 64.8-178.6
On pump (v. ice)	9,239 (72.7%)	551 (71.6%)	3,597 (71.1%)
Cold Ischemic Time (h) mean +/- SD	18.0 +/- 9.5	16.4 +/- 8.1	17.9 +/- 8.4
<12 (h)	14,564 (26.1%)	1,695 (31.1%)	5,184 (22.2%)
12-24 (h)	29,076 (52.1%)	2,710 (49.7%)	10,775 (46.2%)
>24 (h)	11,758 (21.1%)	993 (18.2%)	4,630 (19.9%)
Transplant Side (Right)	26,619 (53.1%)	2,872 (52.6%)	12,281 (52.7%)
ECD	9,404 (16.8%)	783 (14.4%)	4,347 (17.2%)

Missing data: Recipient HTN 7.5%, recipient CAD 10.6%, recipient PVD 3.2%, ESRD 0.6%, CIT 0.8%, donor HTN 0.5%, dialysis vintage 0.9%, donor BMI 0.002%, recipient BMI 0.3%. *Diabetes mellitus (DM), hypertension (HTN), body mass index (BMI), coronary artery disease (CAD), peripheral vascular disease (PVD), end-stage renal disease (ESRD), glomerulonephritis (GN), polycystic kidney disease (PCKD), warm ischemia time (WIT), cold ischemia time (CIT), expanded criteria donor (ECD), donation after cardiac death (DCD).*

Table S2: Multivariable linear regression model for donor, recipient, and transplant variables associated with a prolonged *log-transformed* recipient warm ischemia time (≥ 30 minutes) treating transplant center as a random effect.

Variable	Beta-coefficient	95% Confidence Interval
Donor Factors		
Age (y)	Ref	-
18 to < 40	0.0104	0.0013 – 0.0195
40 to < 60	0.0084	-0.0174 – 0.0342
60+	0.0163	-0.0040 – 0.0365
DM	0.0064	-0.0084 – 0.0211
HTN	0.0122	0.0046 – 0.0199
Sex (Male)		
BMI (kg/m ²)		
<18.5	-0.0054	-0.0286 – 0.0178
18.5-24.99	Ref	-
24.5-29.99	0.0076	-0.0008 – 0.0160
30.0-34.99	0.0173	0.0059 – 0.0286
>35.0	0.0250	0.0083 – 0.0418
Race		
White	Ref	-
Black	-0.0177	-0.0395 – 0.0041
Other	0.0085	-0.0284 – 0.0454
Recipient Factors		
Age (y)	Ref	-
18 to < 40	0.0035	-0.0085 – 0.0155
40 to < 60	0.0008	-0.0192 – 0.0208
60+	-0.0023	-0.0209 – 0.0162
DM	0.0267	-0.0004 – 0.0537
HTN	0.0190	-0.0180 – 0.0559
CAD	0.0267	0.0006 – 0.0528
PVD	0.0073	-0.0008 – 0.0154
Sex (Male)		
BMI (kg/m ²)		
<18.5	0.0083	-0.0155 – 0.0321
18.5-24.99	Ref	-
24.5-29.99	0.0260	0.0158 – 0.0363
30.0-34.99	0.0479	0.0326 – 0.0633
>35.0	0.0848	0.0606 – 0.1090
Race		
White	Ref	-
Black	-0.0026	-0.0341 – 0.0289
Other	-0.0048	-0.0409 – 0.0314
ESRD		
GN	Ref	-
DM	0.0325	0.0081 – 0.0570
PCKD	0.0011	-0.0134 – 0.0157
Other	0.0071	-0.0124 – 0.0267
Dialysis vintage >1 year (v. <1 year)	0.0247	0.0065 – 0.0430
Prior Kidney Transplant	0.0394	0.0239 – 0.0550
Transplant Factors		
Era after 2009 (v. before)	0.0586	0.0165 – 0.1006
Cold Ischemic Time (h)		
<12	Ref	-
12-24	0.0198	-0.0058 – 0.0454
>24	0.0827	-0.0144 – 0.1798
Transplant Side (Right)	0.0211	0.0122 – 0.0300
ECD	0.0126	-0.0062 – 0.0314
DCD	0.0073	-0.0317 – 0.0462

Missing data: Recipient HTN 7.5%, recipient CAD 10.6%, recipient PVD 3.2%, ESRD 0.6%, CIT 0.8%, donor HTN 0.5%, dialysis vintage 0.9%, donor BMI 0.002%, recipient BMI 0.3%. *Diabetes mellitus (DM)*, *hypertension (HTN)*, *body mass index (BMI)*, *coronary artery disease (CAD)*, *peripheral vascular disease (PVD)*, *end-stage renal disease (ESRD)*, *glomerulonephritis (GN)*, *polycystic kidney disease (PCKD)*, *warm ischemia time (WIT)*, *cold ischemia time (CIT)*, *expanded criteria donor (ECD)*, *donation after cardiac death (DCD)*.

Table S3: Multivariable logistic regression model for donor, recipient, and transplant variables associated with a prolonged recipient warm ischemia time (≥ 45 minutes versus 10 to < 30 minutes)) treating transplant center as a random effect.

Variable	Odd's Ratio	95% Confidence Interval
Donor Factors		
Age (y)		
18 to < 40	Ref	-
40 to < 60	1.10	1.02 – 1.19
60+	1.05	0.88 – 1.26
DM	1.15	1.00 – 1.31
HTN	1.04	0.95 – 1.13
Sex (Male)	1.13	1.06 – 1.21
BMI (kg/m ²)		
<18.5	0.99	0.78 – 1.25
18.5-24.99	Ref	-
24.5-29.99	1.04	0.96 – 1.13
30.0-34.99	1.07	0.97 – 1.18
>35.0	1.14	1.01 – 1.27
Race		
White	Ref	-
Black	0.88	0.79 – 0.98
Other	0.97	0.88 – 1.07
Recipient Factors		
Age (y)		
18 to < 40	Ref	-
40 to < 60	1.02	0.92 – 1.12
60+	1.05	0.94 – 1.17
DM	1.07	0.94 – 1.22
HTN	1.10	0.99 – 1.23
CAD	1.03	0.90 – 1.18
PVD	1.17	0.99 – 1.39
Sex (Male)	1.07	1.00 – 1.15
BMI (kg/m ²)		
<18.5	1.23	0.98 – 1.55
18.5-24.99	Ref	-
24.5-29.99	1.29	1.18 – 1.40
30.0-34.99	1.59	1.45 – 1.75
>35.0	1.98	1.76 – 2.23
Race		
White	Ref	-
Black	1.09	1.00 – 1.18
Other	0.98	0.89 – 1.08
ESRD		
GN	Ref	-
DM	1.31	1.13 – 1.53
PCKD	1.11	0.97 – 1.27
Other	1.11	1.01 – 1.21
Dialysis vintage >1 year (v. <1 year)	1.07	0.98 – 1.16
Prior Kidney Transplant	1.51	1.36 – 1.68
Transplant Factors		
Era after 2009 (v. before)	1.03	0.94 – 1.12
CIT (h)		
<12	Ref	-
12-24	1.26	1.16 – 1.36
>24	1.34	1.20 – 1.50
Transplant Side (Right)	1.21	1.13 – 1.29
ECD	1.02	0.89 – 1.17
DCD	0.94	0.85 – 1.04

Missing data: Recipient HTN 7.5%, recipient CAD 10.6%, recipient PVD 3.2%, ESRD 0.6%, CIT 0.8%, donor HTN 0.5%, dialysis vintage 0.9%, donor BMI 0.002%, recipient BMI 0.3%. *Diabetes mellitus (DM), hypertension (HTN), body mass index (BMI), coronary artery disease (CAD), peripheral vascular disease (PVD), end-stage renal disease (ESRD), glomerulonephritis (GN), polycystic kidney disease (PCKD), warm ischemia time (WIT), cold ischemia time (CIT), expanded criteria donor (ECD), donation after cardiac death (DCD).*

Table S4: Multivariable logistic regression model for donor, recipient, and transplant variables associated with a prolonged recipient warm ischemia time (≥ 30 minutes) in centers with $\geq 75\%$ reporting, treating transplant center as a random effect.

Variable	Odd's Ratio	95% Confidence Interval
Donor Factors		
Age (y)		
18 to < 40	Ref	-
40 to < 60	1.07	1.01 – 1.14
60+	1.03	0.89 – 1.19
DM	1.07	0.96 – 1.19
HTN	1.05	0.98 – 1.13
Sex (Male)	1.10	1.04 – 1.16
BMI (kg/m ²)		
<18.5	1.21	1.01 – 1.45
18.5-24.99	Ref	-
24.5-29.99	1.04	0.98 – 1.11
30.0-34.99	1.01	0.94 – 1.10
>35.0	1.08	0.99 – 1.19
Race		
White	Ref	-
Black	0.97	0.89 – 1.05
Other	0.99	0.92 – 1.07
Recipient Factors		
Age (y)		
18 to < 40	Ref	-
40 to < 60	0.98	0.91 – 1.06
60+	0.97	0.89 – 1.06
DM	1.05	0.95 – 1.17
HTN	1.02	0.93 – 1.11
CAD	1.03	0.93 – 1.15
PVD	1.17	0.99 – 1.30
Sex (Male)	1.03	0.98 – 1.09
BMI (kg/m ²)		
<18.5	1.05	0.88 – 1.27
18.5-24.99	Ref	-
24.5-29.99	1.22	1.14 – 1.30
30.0-34.99	1.37	1.27 – 1.48
>35.0	1.58	1.44 – 1.75
Race		
White	Ref	-
Black	1.05	0.98 – 1.12
Other	1.00	0.92 – 1.08
ESRD		
GN	Ref	-
DM	1.17	1.04 – 1.32
PCKD	1.03	0.93 – 1.15
Other	1.06	0.99 – 1.14
Dialysis vintage >1 year (v. <1 year)	1.04	0.97 – 1.12
Prior Kidney Transplant	1.29	1.18 – 1.40
Transplant Factors		
Era after 2009 (v. before)	1.03	0.96 – 1.10
Cold Ischemic Time (h)		
<12	Ref	-
12-24	1.14	1.07 – 1.21
>24	1.21	1.10 – 1.32
Transplant Side (Right)	1.17	1.11 – 1.24
ECD	1.07	0.96 – 1.19
DCD	1.02	0.94 – 1.11

Missing data: Recipient HTN 7.5%, recipient CAD 10.6%, recipient PVD 3.2%, ESRD 0.6%, CIT 0.8%, donor HTN 0.5%, dialysis vintage 0.9%, donor BMI 0.002%, recipient BMI 0.3%. *Diabetes mellitus (DM), hypertension (HTN), body mass index (BMI), coronary artery disease (CAD), peripheral vascular disease (PVD), end-stage renal disease (ESRD), glomerulonephritis (GN), polycystic kidney disease (PCKD), warm ischemia time (WIT), cold ischemia time (CIT), expanded criteria donor (ECD), donation after cardiac death (DCD).*