

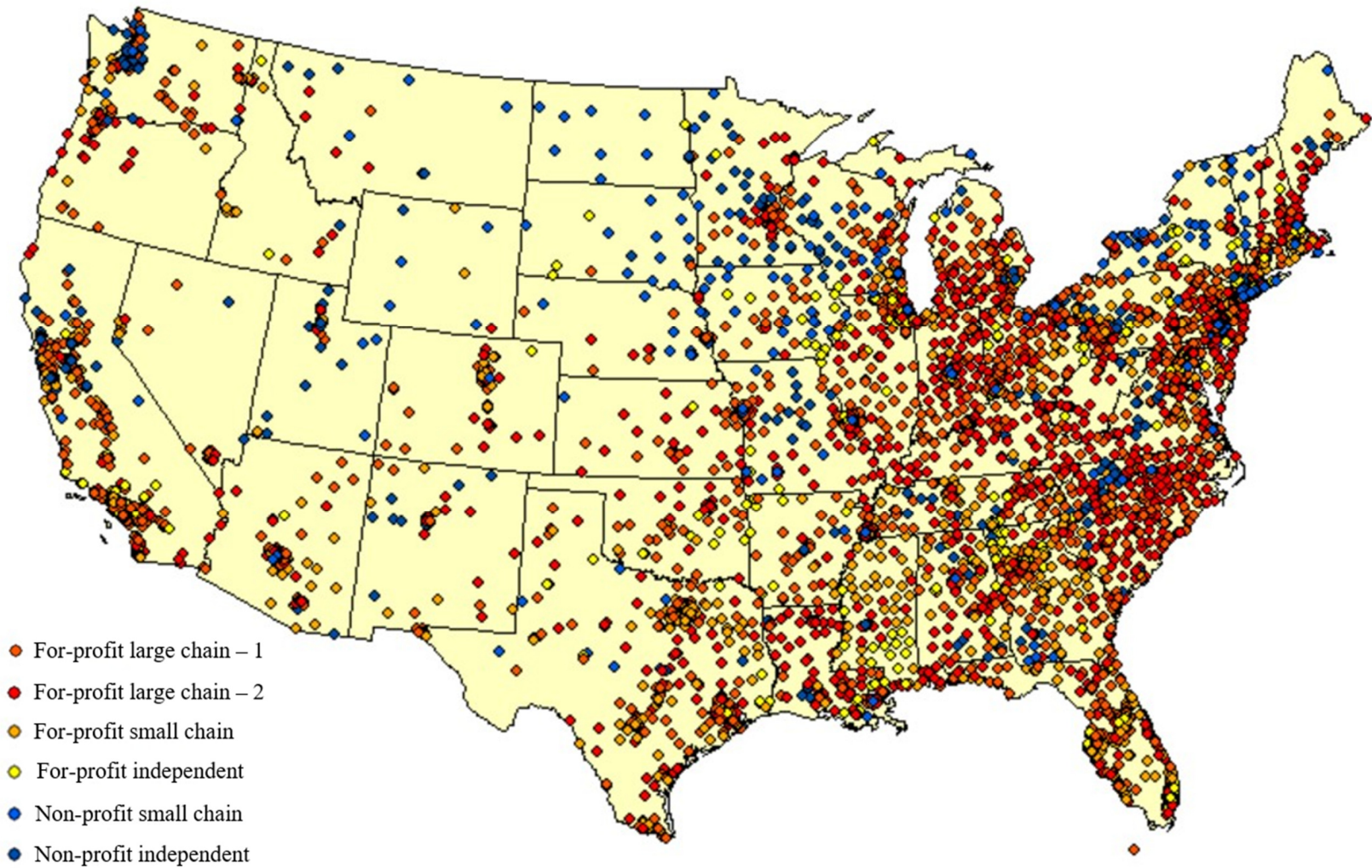
Supplementary Online Content

Gander JC, Zhang X, Ross K, et al. Association between dialysis facility ownership and access to kidney transplantation. *JAMA*. doi:10.1001/jama.2019.12803

- eFigure.** Geographic distribution of US dialysis facilities by dialysis facility ownership (n=6,511) obtained from the Dialysis Facility Compare, 2016
- eTable 1.** Patient and facility demographic characteristics of patients with ESRD at the time of dialysis start within the United States Renal Data System, 2000-2016, stratified by whether or not the patient changed dialysis facilities based on their first and last facility
- eTable 2.** Fully adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant and whether or not a patient changed dialysis facilities and facility profit status
- eTable 3.** Crude and adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant and dialysis facility ownerships by patient-level and facility-level characteristics, among ideal kidney transplantation candidates, 2000-2016 (n=454,726)
- eTable 4.** Fully adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant by patient-level and facility-level characteristics, stratified by end stage renal disease network region, 2000-2016
- eTable 5.** Crude and adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant by patient-level and facility-level characteristics for dialysis facilities that are (vs are not) affiliated with transplant centers, 2000-2016
- eTable 6.** Crude and adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant by patient-level and facility-level characteristics for dialysis facilities that are (vs are not) affiliated with hospitals, 2000-2016

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

eFigure. Geographic distribution of U.S. dialysis facilities by dialysis facility ownership (n=6,511) obtained from the Dialysis Facility Compare, 2016.



eTable 1. Patient and facility demographic characteristics of patients with ESRD at the time of dialysis start within the United States Renal Data System, 2000-2016, stratified by whether or not the patient changed dialysis facilities based on their first and last facility.

Characteristics ^a	Total Population	Did not switch dialysis facilities	Changed dialysis facilities and remained within the same profit status	Changed dialysis facilities from for-profit to nonprofit facility	Changed dialysis facilities from nonprofit to for-profit facility
Patient, No.	1,478,564	1,135,502 (76.8%)	282,885 (19.1%)	16,431 (1.1%)	43,746 (3.0%)
Months between starting first facility and last facility, median (IQR)	0 (0, 0)	0 (0, 0)	14.3 (3.9, 35.9)	14.7 (4.3, 35.9)	14.5 (2.8, 41.5)
Placement on the deceased donor kidney transplant waiting list, n (%)	121,680 (8.2)	104,904 (9.2)	2,805 (1.0)	15 (0.1)	13,956 (31.9)
Receipt of a living donor kidney transplant, n (%)	23,762 (1.6)	19,957 (1.8)	1,773 (0.6)	96 (0.6)	1,936 (4.4)
Receipt of a deceased donor kidney transplant, n (%)	49,290 (3.3)	41,574 (3.7)	2,790 (1.0)	103 (0.6)	4,823 (11.0)
<i>Patient-level characteristics at start of dialysis^a, n (%)</i>					
Age, years, median (IQR)	66 (55, 76)	66 (55, 76)	65 (54, 74)	66.5 (55, 76)	59 (48, 70)
Age Group, n (%)					
18-29	31,745 (2.2)	22,612 (2.1)	5,630 (2.0)	295 (1.8)	2,208 (5.0)
30-39	67,186 (4.5)	49,217 (4.3)	13,686 (4.8)	731 (4.4)	3,552 (8.1)
40-49	143,339 (10.0)	105,681 (9.3)	29,543 (10.4)	1,544 (9.4)	6,571 (15.0)
50-59	268,858 (18.2)	201,600 (17.8)	54,480 (19.3)	32,909 (17.7)	9,869 (22.6)
60-69	364,820 (24.7)	279,026 (24.7)	71,611 (25.3)	4,012 (24.4)	10,171 (23.3)
≥70	602,616 (40.8)	476,366 (42.0)	107,935 (38.2)	6,940 (42.2)	11,375 (26.0)
Sex, n (%)					
Male	818,096 (55.3)	630,309 (55.5)	153,806 (54.4)	8,989 (54.7)	24,992 (57.1)
Female	660,468 (44.7)	505,193 (44.5)	129,079 (45.6)	7,442 (45.3)	18,754 (42.9)
Race and Ethnicity, n (%)					
White, non-Hispanic	805,905 (54.5)	625,875 (55.1)	149,954 (53.0)	9,692 (59.0)	20,384 (46.6)
White, Hispanic	178,763 (12.1)	135,867 (12.0)	35,485 (12.5)	1,358 (8.3)	6,053 (13.8)
Black, non-Hispanic	178,763 (12.1)	312,926 (27.6)	83,049 (29.4)	4,334 (26.4)	15,044 (34.3)
Other ^b	78,543 (5.3)	60,834 (5.4)	14,397 (5.1)	1,047 (6.4)	2,265 (5.2)
Insurance Coverage, n (%)					

(115,322 (7.8%) missing)					
Medicare	542,921 (39.8)	420,980 (40.3)	103,271 (39.6)	6,347 (42.0)	12,323 (29.7)

Characteristics ^a	Total Population	Did not switch dialysis facilities	Changed dialysis facilities and remained within the same profit status	Changed dialysis facilities from for-profit to nonprofit facility	Changed dialysis facilities from nonprofit to for-profit facility
Medicaid	377,827 (27.7)	288,788 (27.6)	74,276 (28.5)	4,188 (27.7)	10,575 (25.5)
Employer group	239,678 (17.6)	184,596 (17.6)	43,762 (16.8)	2,571 (17.0)	8,749 (21.1)
No coverage	99,553 (7.3)	75,256 (7.2)	21,047 (8.1)	920 (6.1)	6,040 (14.6)
Other coverage	103,263 (7.6)	76,302 (7.3)	18,428 (7.1)	1,070 (17.0)	3,753 (9.1)
Attribute Cause of ESRD, n (%)					
Diabetes	694,455 (47.0)	527,133 (46.4)	140,090 (49.5)	7,996 (48.7)	19,236 (44.0)
Hypertension	439,480 (29.7)	337,437 (29.7)	85,949 (30.4)	4,814 (29.3)	11,280 (25.8)
Other	236,794 (16.0)	187,911 (16.5)	38,311 (13.5)	2,516 (15.3)	8,056 (18.4)
Glomerulonephritis	107,835 (7.3)	83,021 (7.3)	18,535 (6.6)	1,105 (6.7)	5,174 (11.8)
Dialysis Type^c, n (%)					
Hemodialysis	1,340,123 (91.1)	1,034,453 (91.7)	252,101 (89.1)	15,202 (92.5)	38,367 (87.7)
Peritoneal dialysis	108,819 (7.4)	81,869 (7.3)	21,771 (7.7)	1,023 (6.2)	4,156 (9.5)
Other	21,817 (1.5)	11,375 (1.0)	9,013 (3.2)	206 (1.3)	1,223 (2.8)
Patient-level comorbidities at start of dialysis and access to transplant metrics^a, n (%)					
BMI >35 kg/m ²	275,833 (18.7)	207,009 (18.2)	57,429 (20.3)	3,149 (19.2)	8,246 (18.9)
Congestive heart failure	490,683 (33.2)	382,872 (33.7)	90,486 (32.0)	5,334 (32.5)	11,991 (27.4)
Atherosclerotic heart disease	205,331 (13.9)	160,599 (14.1)	37,019 (13.1)	2,336 (14.2)	5,377 (12.3)
Other cardiac disease	206,715 (14.0)	162,286 (14.3)	37,517 (13.3)	2,209 (13.4)	4,703 (10.8)
Cerebrovascular disease	143,362 (9.7)	111,751 (9.8)	26,412 (9.3)	1,620 (10.0)	3,579 (8.2)
Peripheral vascular disease	198,760 (13.4)	156,006 (13.7)	35,978 (12.7)	2,219 (13.5)	4,557 (10.4)
Hypertension	1,247,373 (84.4)	954,959 (84.1)	241,565 (85.4)	13,674 (83.2)	37,175 (85.0)
Diabetes	710,345 (48.0)	542,381 (47.8)	141,188 (50.0)	7,877 (48.0)	18,899 (43.2)
Chronic obstructive pulmonary disease	142,639 (9.7)	113,322 (10.0)	24,832 (8.8)	1,488 (9.1)	2,997 (6.9)
Tobacco use	92,390 (6.3)	70,249 (6.2)	18,268 (6.5)	1,016 (6.2)	2,857 (6.5)
Cancer	275,833 (18.7)	207,009 (18.2)	57,429 (20.3)	3,149 (19.2)	8,246 (18.9)
Pre-ESRD Nephrology Care (546,900 (37.0% missing))	622,983 (66.9)	481,935 (67.0)	117,047 (66.5)	6,651 (67.1)	17,350 (65.3)

Characteristics ^a	Total Population	Did not switch dialysis facilities	Changed dialysis facilities and remained within the same profit status	Changed dialysis facilities from for-profit to nonprofit facility	Changed dialysis facilities from nonprofit to for-profit facility
Patients not informed of transplant due to medical reasons, median (IQR)	80,085 (5.4)	64,555 (5.7)	12,425 (4.4)	788 (4.8)	2,317 (5.3)
Years on dialysis until event, median (IQR)					
Placement on waiting list ^d	2.0 (0.7, 4.2)	1.7 (0.6, 3.8)	3.1 (1.5, 5.5)	3.1 (1.5, 5.4)	2.5 (1.1, 5.0)
First transplant ^e	2.2 (0.8, 4.5)	1.9 (0.6, 4.1)	3.1 (1.5, 5.4)	3.0 (1.5, 5.3)	3.5 (1.7, 6.1)
<i>Dialysis facility-level characteristics</i>					
Number of patients per facility, median (IQR)	35 (10, 93)	140 (63, 245)	37 (21, 58)	17 (9, 29)	5 (2, 10)
Number of social workers per facility, median (IQR)	1 (0, 1)	1 (0, 1)	1 (0, 1)	1 (0, 1)	1 (0, 1)
Ratio of patients to social workers per facility, median (IQR)	6 (0, 63)	68 (0, 224)	20 (0, 53)	8 (0, 26)	2 (0, 8)
Hospitalization rate per 100 patient-years, median (IQR)	173.8 (142.3, 209.4)	177.2 (148.6, 210.2)	180 (150, 214.7)	168.4 (142.2, 202.5)	183.2 (154.2, 217.3)
Standardized mortality ratio, mean (SD)	1.0 (0.4)	1.0 (0.3)	1.0 (0.4)	1.0 (0.4)	1.0 (0.3)
ESRD Network Geographic Region, n (%) ^f					
South	608,050 (41.1)	462,676 (22.4)	125,197 (44.3)	4,776 (29.1)	16,027 (36.6)
Midwest	333,802 (22.6)	254,676 (22.4)	65,344 (23.1)	4,057 (24.7)	9,725 (22.2)
West	298,030 (20.2)	226,627 (20.0)	60,661 (21.4)	3,704 (22.5)	7,038 (16.1)
Northeast	238,682 (16.1)	192,149 (16.9)	31,683 (11.2)	3,894 (23.7)	10,956 (25.0)
Metro classification, n (%) ^{c, g}	1,233,267 (84.2)	941,931 (83.7)	240,069 (85.5)	13,366 (82.2)	37,901 (87.9)
Metro					

Characteristics ^a	Total Population	Did not switch dialysis facilities	Changed dialysis facilities and remained within the same profit status	Changed dialysis facilities from for-profit to nonprofit facility	Changed dialysis facilities from nonprofit to for-profit facility
Distance from assigned facility to nearest transplant center, in miles, median (IQR) ^h (319,177 (21.6% missing))	16.7 (6.1, 53.2)	17.4 (6, 55)	15.7 (6.5, 49.5)	13.9 (4.3, 54.9)	12.4 (5, 38)
<p>Abbreviations: BMI, body mass index; ESRD, end stage renal disease; IQR, interquartile range</p> <p>^aBaseline characteristics were obtained at the time the CMS-2728 form is complete</p> <p>^b'Other' race/ethnicity was defined as either Asian, Middle East, Native American, Pacific Islander, or multiracial</p> <p>^cMissing Data: Dialysis type: 7,805 (0.5%); Rural-urban classification: 13,322 (0.9%)</p> <p>^dCalculated as the time on dialysis from the first date of dialysis service to either date of first waitlisting or censor (end of study or death)</p> <p>^eCalculated as the time on dialysis from the first date of dialysis service to either date of first transplant (living or deceased donor transplant) or censor (end of study or death)</p> <p>^fCharacteristic was obtained from the Dialysis Facility Report (2013-2016); ESRD Network Geographic Region is defined as Northeast (ESRD Network 1: Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont; ESRD Network 2: New York; ESRD Network 3: New Jersey; ESRD Network 4: Delaware, Pennsylvania), South (ESRD Network 5: District of Columbia, Maryland, Virginia, West Virginia; ESRD Network 6: Georgia, North Carolina, South Carolina; ESRD Network 7: Florida; ESRD Network 8: Alabama, Mississippi, Tennessee; ESRD Network 13: Arkansas, Louisiana, Oklahoma; ESRD Network 14: Texas), Midwest (ESRD Network 9/10: Illinois, Indiana, Kentucky, Ohio; ESRD Network 11: Michigan, Minnesota, North Dakota, South Dakota, Wisconsin; ESRD Network 12: Iowa, Kansas, Missouri, Nebraska), and West (ESRD Network 15: Arizona, Colorado, Nevada, New Mexico, Utah, Wyoming; ESRD Network 16: Alaska, Idaho, Montana, Oregon, Washington; ESRD Network 17: Hawaii, Northern California; ESRD Network 18: Southern California)</p> <p>^gCharacteristic was obtained from the United States Department of Agriculture Rural and Urban Continuum Code</p> <p>^hCharacteristic was calculated using the dialysis facility address from Dialysis Facility Compare (2013-2016) and the nearest transplant center address from the Scientific Registry of Transplant Recipients</p>					

eTable 2. Fully adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant and whether or not a patient changed^a dialysis facilities and facility profit status. Analysis is stratified by an individual's last dialysis facility change, 2000-2016.

Fully adjusted model ^b stratified by the last dialysis facility ^c						
Dialysis Facility Change Status ^a	Nonprofit, small dialysis facility chain (n=435)	Nonprofit, independent owned dialysis facility (n=324)	For-profit large chain - 1 (n=2,239)	For-profit large chain - 2 (n=2,082)	For-profit, small dialysis facility chain (n=997)	For-profit, independent dialysis facility chain (n=434)
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Placement on the deceased donor kidney transplant waiting list (n=121,680)						
Did not switch dialysis facilities	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
Changed dialysis facilities and remained within the same profit status	0.56 (0.53, 0.59)	0.40 (0.37, 0.43)	0.02 (0.02, 0.02)	0.04 (0.04, 0.05)	0.01 (0, 0.01)	0.02 (0.02, 0.03)
Changed dialysis facilities from for-profit to non-profit facility	0 ^d (0, 0)	0.01 ^d (0, 0.01)	N/A	N/A	N/A	N/A
Changed dialysis facilities from non-profit to for-profit facility	N/A	N/A	2.64 (2.56, 2.72)	2.84 (2.76, 2.93)	2.11 (2.02, 2.22)	2.30 (2.15, 2.45)
Receipt of a living donor kidney transplant (n=23,762)						
Did not switch dialysis facilities	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
Changed dialysis facilities and remained within the same profit status	0.74 (0.66, 0.83)	0.65 (0.56, 0.76)	0.29 (0.26, 0.32)	0.34 (0.31, 0.37)	0.30 (0.26, 0.35)	0.23 (0.19, 0.30)
Changed dialysis facilities from for-profit to non-profit facility	0.19 (0.14, 0.25)	0.20 (0.15, 0.27)	N/A	N/A	N/A	N/A
Changed dialysis facilities from non-profit to for-profit facility	N/A	N/A	1.41 (1.31, 1.52)	1.42 (1.31, 1.53)	1.18 (1.03, 1.35)	1.39 (1.17, 1.64)

	Fully adjusted model ^b stratified by the last dialysis facility ^c					
Dialysis Facility Change Status ^a	Nonprofit, small dialysis facility chain (n=435)	Nonprofit, independent owned dialysis facility (n=324)	For-profit large chain - 1 (n=2,239)	For-profit large chain - 2 (n=2,082)	For-profit, small dialysis facility chain (n=997)	For-profit, independent dialysis facility chain (n=434)
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Receipt of a deceased donor kidney transplant (n=49,290)						
Did not switch dialysis facilities	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
Changed dialysis facilities and remained within the same profit status	0.56 (0.51, 0.61)	0.42 (0.37, 0.47)	0.19 (0.17, 0.2)	0.22 (0.20, 0.23)	0.16 (0.14, 0.18)	0.17 (0.14, 0.20)
Changed dialysis facilities from for-profit to non-profit facility	0.11 (0.09, 0.14)	0.05 (0.03, 0.07)	N/A	N/A	N/A	N/A
Changed dialysis facilities from non-profit to for-profit facility	N/A	N/A	1.71 (1.63, 1.80)	1.64 (1.56, 1.73)	1.62 (1.50, 1.75)	1.38 (1.23, 1.55)
Abbreviations: CI, confidence interval; HR, hazard ratio; N/A, not applicable						
^a Patients' dialysis facility switching was classified based on their first dialysis facility and their last dialysis facility						
^b Fully adjusted models is stratified by dialysis facility organization and adjusted for patient-level demographics (age, gender, race reported at the time of dialysis start), clinical characteristics (BMI>35 kg/m ² , attributed cause of end stage renal disease, congestive heart failure, atherosclerotic heart disease, other cardiac disease, cerebrovascular disease, peripheral vascular disease, hypertension, diabetes, chronic obstructive pulmonary disease, tobacco use, cancer reported at the time of dialysis start), and socioeconomic variables (pre-ESRD nephrology care, ESRD Network geographic region, distance from assigned dialysis facility to the nearest transplant center, not informed of transplant due to medical reasons, urban/rural designation, and insurance type reported at the time of dialysis start)						
^c The patient was assigned to the last dialysis facility from which they were receiving treatment when the outcome event of interest occurred						
^d Hazard ratios derived from small event numbers should be interpreted carefully						

eTable 3. Crude and adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant and dialysis facility ownership^a by patient-level and facility-level characteristics, among ideal kidney transplantation candidates^b, 2000-2016. (n=454,726)

	3-year Cumulative Incidence Difference, % (95% CI) ^b	5-year Cumulative Incidence Difference, % (95% CI) ^b	10-year Cumulative Incidence Difference, % (95% CI) ^b	Crude Model (N=454,726)	Adjusted for ^d :		
					Demographics ^e (N=454,726)	+ Clinical ^f (N=454,726)	+ Socioeconomic and geographic ^g (N=454,726)
					HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Placement on the deceased donor kidney transplant waiting list (n=87,238)</i>							
Nonprofit, small dialysis facility chain	reference	reference	reference	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, independent dialysis facility	23.0% (22.2%, 23.7%)	24.3% (23.6%, 25.1%)	25.0% (24.3%, 25.8%)	2.24 (2.18, 2.31)	2.20 (2.14, 2.27)	2.23 (2.17, 2.30)	2.12 (2.06, 2.19)
For-profit large chain - 1	-11.4% (-11.9%, -10.9%)	-11.6% (-12.1%, -11.1%)	-11.1% (-11.7%, -10.6%)	0.47 (0.45, 0.48)	0.48 (0.47, 0.49)	0.48 (0.47, 0.50)	0.49 (0.47, 0.50)
For-profit large chain - 2	-12.5% (-13.0%, -12.0%)	-13.0% (-13.5%, -12.4%)	-12.7% (-13.3%, -12.2%)	0.44 (0.42, 0.45)	0.45 (0.44, 0.47)	0.48 (0.47, 0.49)	0.48 (0.46, 0.49)
For-profit, small dialysis facility chain	-11.7% (-12.3%, -11.2%)	-12.1% (-12.6%, -11.5%)	-11.9% (-12.4%, -11.3%)	0.46 (0.45, 0.48)	0.48 (0.46, 0.49)	0.49 (0.47, 0.50)	0.49 (0.48, 0.51)
For-profit, independent dialysis facility	-10.2% (-10.8%, - 9.6%)	-10.2% (-10.9%, -9.5%)	-9.7% (-10.4%, -9.0%)	0.52 (0.50, 0.54)	0.54 (0.51, 0.56)	0.53 (0.50, 0.55)	0.53 (0.51, 0.56)
All nonprofit facilities	reference	reference	reference	reference [1]	reference [1]	reference [1]	reference [1]
All for-profit facilities	-22.9% (-23.3%, -22.5%)	-23.9% (-24.3%, -23.5%)	-23.9% (-24.3%, -23.5%)	0.29 (0.29, 0.30)	0.31 (0.30, 0.31)	0.31 (0.31, 0.32)	0.33 (0.32, 0.33)

	3-year Cumulative Incidence Difference, % (95% CI) ^b	5-year Cumulative Incidence Difference, % (95% CI) ^b	10-year Cumulative Incidence Difference, % (95% CI) ^b	Crude Model (N=454,726)	Adjusted for ^d :		
					Demographics ^e (N=454,726)	+ Clinical ^f (N=454,726)	+ Socioeconomic and geographic ^g (N=454,726)
				HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Receipt of a living donor kidney transplant (n=18,890)</i>							
Nonprofit, small dialysis facility chain	reference	reference	reference	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, independent dialysis facility	3.2% (2.8%, 3.6%)	3.9% (3.4%, 4.3%)	4.4% (3.9%, 4.8%)	1.41 (1.32, 1.51)	1.37 (1.28, 1.46)	1.32 (1.23, 1.41)	1.11 (1.04, 1.18)
For-profit large chain - 1	-2.6% (-2.9%, -2.4%)	-2.9% (-3.2%, -2.6%)	-2.9% (-3.2%, -2.7%)	0.51 (0.48, 0.54)	0.56 (0.53, 0.59)	0.57 (0.54, 0.61)	0.58 (0.54, 0.61)
For-profit large chain - 2	-2.6% (-2.9%, -2.3%)	-2.9% (-3.2%, -2.6%)	-3.0% (-3.3%, -2.7%)	0.53 (0.50, 0.57)	0.57 (0.53, 0.60)	0.61 (0.57, 0.64)	0.58 (0.55, 0.62)
For-profit, small dialysis facility chain	-3.0% (-3.3%, -2.7%)	-3.3% (-3.6%, -3.0%)	-3.4% (-3.8%, -3.1%)	0.45 (0.42, 0.49)	0.51 (0.48, 0.55)	0.53 (0.50, 0.57)	0.59 (0.55, 0.64)
For-profit, independent dialysis facility	-2.3% (-2.6%, -2.0%)	-2.6% (-3.0%, -2.2%)	-2.7% (-3.0%, -2.3%)	0.58 (0.53, 0.63)	0.67 (0.62, 0.73)	0.69 (0.63, 0.76)	0.69 (0.64, 0.76)
All nonprofit facilities	reference	reference	reference	reference [1]	reference [1]	reference [1]	reference [1]
All for-profit facilities	-4.2% (-4.4%, -4.0%)	-4.8% (-5.0%, -4.6%)	-5.1% (-5.4%, -4.9%)	0.43 (0.41, 0.44)	0.47 (0.46, 0.49)	0.51 (0.49, 0.53)	0.56 (0.54, 0.58)

	3-year Cumulative Incidence Difference, % (95% CI) ^b	5-year Cumulative Incidence Difference, % (95% CI) ^b	10-year Cumulative Incidence Difference, % (95%CI) ^b	Crude Model (N=454,726)	Adjusted for ^d :		
					Demographics ^e (N=454,726)	+ Clinical ^f (N=454,726)	+ Socioeconomic and geographic ^g (N=454,726)
					HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Receipt of a deceased donor kidney transplant (n=38,210)</i>							
Nonprofit, small dialysis facility chain	reference	reference	reference	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, independent dialysis facility	3.1% (2.7%, 3.5%)	7.4% (6.9%, 8.0%)	13.5% (12.8%, 14.1%)	1.37 (0.26, 1.48)	1.36 (1.25, 1.47)	1.45 (1.34, 1.58)	1.35 (1.25, 1.47)
For-profit large chain - 1	-2.9% (-3.1%, -2.6%)	-4.9% (-5.2%, -4.5%)	-6.2% (-6.6%, -5.8%)	0.53 (0.49, 0.57)	0.57 (0.53, 0.62)	0.57 (0.53, 0.62)	0.57 (0.53, 0.61)
For-profit large chain - 2	-2.8% (-3.1%, -2.5%)	-4.9% (-5.3%, -4.6%)	-6.9% (-7.3%, -6.5%)	0.58 (0.54, 0.62)	0.60 (0.55, 0.64)	0.63 (0.59, 0.68)	0.61 (0.56, 0.65)
For-profit, small dialysis facility chain	-3.0% (-3.2%, -2.7%)	-5.1% (-5.5%, -4.7%)	-6.9% (-7.4%, -6.4%)	0.53 (0.49, 0.58)	0.59 (0.54, 0.64)	0.59 (.54, 0.64)	0.61 (0.56, 0.67)
For-profit, independent dialysis facility	-3.1% (-3.4%, -2.8%)	-5.3% (-5.8%, -4.9%)	-6.1% (-6.6%, -5.5%)	0.49 (0.44, 0.55)	0.56 (0.50, 0.63)	0.58 (0.52, 0.65)	0.60 (0.53, 0.67)

	3-year Cumulative Incidence Difference, % (95% CI) ^b	5-year Cumulative Incidence Difference, % (95% CI) ^b	10-year Cumulative Incidence Difference, % (95%CI) ^b	Crude Model (N=454,726)	Adjusted for ^d :		
					Demographics ^e (N=454,726)	+ Clinical ^f (N=454,726)	+ Socioeconomic and geographic ^g (N=454,726)
				HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Receipt of a deceased donor kidney transplant (n=38,210)</i>							
All nonprofit facilities	reference	reference	reference	reference [1]	reference [1]	reference [1]	reference [1]
All for-profit facilities	-4.4% (-4.6%, -4.2%)	-8.5% (-8.8%, -8.3%)	-13.1% (-13.4%, -12.7%)	0.46 (0.44, 0.48)	0.50 (0.47, 0.52)	0.49 (0.47, 0.52)	0.51 (0.48, 0.53)

Abbreviations:CI, confidence interval; HR, hazard ratio

^aPatients were assigned to the last dialysis facility from which they were receiving treatment when the outcome event of interest occurred

^bIdeal kidney transplant candidate cohort excluded patients age>65 years, and diagnosed with peripheral vascular disease, coronary heart failure, cerebrovascular disease, or reported by dialysis facility staff to not be assessed for transplantation (via CMS-2728 form) due to medical reasons.

^cAdjusted for age, gender, and race reported at the time of dialysis start; Events of interest (placement on the deceased donor waitlist, receipt of a living donor kidney transplant and receipt of a deceased donor kidney transplant) and person-time (in 100,000 person-years) were summed up by covariate patterns. Negative binomial model were performed to calculate the risk difference and its 95% confidence intervals between types of facilities

^dEach model is adjusted for the covariates in the previous model in addition to the stated covariates

^eDemographic variables include: age, gender, and race reported at the time of dialysis start

^fClinical variables include: BMI>35 kg/m², attributed cause of ESRD, congestive heart failure, atherosclerotic heart disease, other cardiac disease, cerebrovascular disease, peripheral vascular disease, hypertension, diabetes, chronic obstructive pulmonary disease, tobacco use, cancer, and dialysis type

^gSocioeconomic variables include: ESRD Network geographic region of assigned facility, pre-ESRD nephrology care reported at the time of dialysis start, insurance type reported at the time of dialysis start, facility rural-urban classification, and distance from assigned dialysis facility to the nearest transplant center; Multiple imputation was used to handle missing data: Insurance coverage: 17,990 (4.0%); Type of dialysis: 4,374 (1.0%); Distance from assigned dialysis facility to nearest transplant center: 96,273 (21.1%); Rural-urban classification: 3,411 (0.8%)

eTable 4. Fully adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant by patient-level and facility-level characteristics, stratified by end stage renal disease network region, 2000-2016.

	Fully Adjusted Model ^a	Fully adjusted model stratified by End Stage Renal Disease Network, U.S. Geographic Region			
		Northeast ^b (n=238,682)	South ^c (n=608,050)	Midwest ^d (n=333,802)	West ^e (n=298,030)
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Placement on the deceased donor kidney transplant waiting list (n=121,680)</i>					
Nonprofit, small dialysis facility chain	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, independent owned dialysis facility	2.36 (2.31, 2.42)	2.85 (2.63, 3.08)	1.88 (1.80, 1.96)	2.69 (2.55, 2.83)	4.15 (3.92, 4.40)
For-profit large chain - 1	0.57 (0.56, 0.58)	0.90 (0.83, 0.98)	0.30 (0.29, 0.31)	0.47 (0.45, 0.50)	0.86 (0.82, 0.91)
For-profit large chain - 2	0.54 (0.53, 0.55)	0.84 (0.78, 0.92)	0.31 (0.30, 0.33)	0.47 (0.44, 0.49)	0.77 (0.72, 0.81)
For-profit, small dialysis facility chain	0.56 (0.54, 0.57)	0.87 (0.79, 0.96)	0.31 (0.30, 0.33)	0.43 (0.39, 0.47)	0.84 (0.80, 0.89)
For-profit independent dialysis facility chain	0.60 (0.58, 0.61)	0.79 (0.72, 0.87)	0.30 (0.28, 0.32)	0.91 (0.84, 0.98)	0.66 (0.60, 0.71)
All nonprofit facilities	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
All for-profit facilities	0.36 (0.35, 0.36)	0.36 (0.35, 0.38)	0.24 (0.23, 0.24)	0.28 (0.27, 0.28)	0.45 (0.44, 0.47)
<i>Receipt of a living donor kidney transplant (n=23,762)</i>					
Nonprofit, small dialysis facility chain	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, independent owned dialysis facility	1.33 (1.26, 1.40)	1.42 (1.21, 1.67)	1.18 (1.05, 1.33)	1.02 (0.92, 1.12)	1.65 (1.43, 1.90)
For-profit large chain - 1	0.61 (0.58, 0.63)	0.84 (0.71, 0.99)	0.51 (0.46, 0.56)	0.48 (0.44, 0.52)	0.68 (0.61, 0.76)
For-profit large chain - 2	0.60 (0.57, 0.63)	0.75 (0.64, 0.89)	0.53 (0.48, 0.58)	0.46 (0.42, 0.51)	0.74 (0.65, 0.84)

For-profit, small dialysis facility chain	0.61 (0.58, 0.64)	0.80 (0.66, 0.97)	0.49 (0.44, 0.54)	0.35 (0.30, 0.42)	0.86 (0.76, 0.97)
---	----------------------	----------------------	----------------------	----------------------	----------------------

	Fully Adjusted Model ^a	Fully adjusted model stratified by End Stage Renal Disease Network, U.S. Geographic Region			
		Northeast ^b (n=238,682)	South ^c (n=608,050)	Midwest ^d (n=333,802)	West ^e (n=298,030)
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Receipt of a living donor kidney transplant (n=23,762)</i>					
For-profit independent dialysis facility chain	0.70 (0.65, 0.74)	0.85 (0.70, 1.03)	0.50 (0.43, 0.58)	0.81 (0.71, 0.92)	0.77 (0.64, 0.93)
All nonprofit facilities	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
All for-profit facilities	0.52 (0.51, 0.54)	0.61 (0.56, 0.65)	0.48 (0.45, 0.51)	0.48 (0.45, 0.51)	0.61 (0.57, 0.67)
<i>Receipt of a deceased donor kidney transplant (n=49,290)</i>					
Nonprofit, small dialysis facility chain	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, independent owned dialysis facility	1.71 (1.66, 1.77)	2.31 (1.81, 2.94)	1.60 (1.43, 1.79)	1.64 (1.43, 1.89)	1.14 (0.94, 1.39)
For-profit large chain - 1	0.60 (0.58, 0.62)	1.08 (0.85, 1.38)	0.41 (0.37, 0.45)	0.71 (0.62, 0.80)	0.65 (0.57, 0.75)
For-profit large chain - 2	0.59 (0.57, 0.61)	0.97 (0.76, 1.24)	0.46 (0.42, 0.50)	0.71 (0.63, 0.81)	0.64 (0.54, 0.75)
For-profit, small dialysis facility chain	0.60 (0.58, 0.62)	1.00 (0.76, 1.33)	0.44 (0.40, 0.49)	0.71 (0.58, 0.87)	0.81 (0.70, 0.94)
For-profit independent dialysis facility chain	0.59 (0.56, 0.62)	0.79 (0.59, 1.07)	0.41 (0.35, 0.48)	0.92 (0.76, 1.12)	0.64 (0.50, 0.81)

	Fully Adjusted Model ^a	Fully adjusted model stratified by End Stage Renal Disease Network, U.S. Geographic Region			
		Northeast ^b (n=238,682)	South ^c (n=608,050)	Midwest ^d (n=333,802)	West ^e (n=298,030)
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Receipt of a deceased donor kidney transplant (n=49,290)</i>					
All nonprofit facilities	reference [1]	reference [1]	reference [1]	reference [1]	reference [1]
All for-profit facilities	0.44 (0.44, 0.45)	0.50 (0.45, 0.55)	0.36 (0.33, 0.38)	0.53 (0.49, 0.57)	0.66 (0.60, 0.74)

Abbreviations: CI, confidence interval; ESRD, end stage renal disease; HR, hazard ratio

^aFully adjusted models is adjusted for dialysis facility organization, and patient-level demographics (age, gender, race reported at the time of dialysis start), clinical characteristics (BMI>35 kg/m², attributed cause of end stage renal disease, congestive heart failure, atherosclerotic heart disease, other cardiac disease, cerebrovascular disease, peripheral vascular disease, hypertension, diabetes, chronic obstructive pulmonary disease, tobacco use, cancer reported at the time of dialysis start), and socioeconomic variables (ESRD Network geographic region, distance from assigned dialysis facility to the nearest transplant center, not informed of transplant due to medical reasons, urban/rural designation, and insurance type)

^bESRD Network Geographic Region Northeast: ESRD Network 1 (Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont), ESRD Network 2 (New York; ESRD Network 3: New Jersey), ESRD Network 4 (Delaware, Pennsylvania)

^cESRD Network Geographic Region South: ESRD Network 5 (District of Columbia, Maryland, Virginia, West Virginia), ESRD Network 6 (Georgia, North Carolina, South Carolina), ESRD Network 7 (Florida), ESRD Network 8 (Alabama, Mississippi, Tennessee; ESRD Network 13: Arkansas, Louisiana, Oklahoma; ESRD Network 14: Texas)

^dESRD Network Geographic Region Midwest: (ESRD Network 9/10: Illinois, Indiana, Kentucky, Ohio), ESRD Network 11 (Michigan, Minnesota, North Dakota, South Dakota, Wisconsin); ESRD Network 12: Iowa, Kansas, Missouri, Nebraska)

^eESRD Network Geographic Region West: ESRD Network 15 (Arizona, Colorado, Nevada, New Mexico, Utah, Wyoming), ESRD Network 16 (Alaska, Idaho, Montana, Oregon, Washington), ESRD Network 17 (Hawaii, Northern California), ESRD Network 18 (Southern California)

eTable 5. Crude and adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant by patient-level and facility-level characteristics for dialysis facilities that are (vs. are not) affiliated with transplant centers^a, 2000-2016.

	Crude Model	Adjusted for ^b :		
		Demographics ^c	+ Clinical ^d	+ Socioeconomic and geographic ^e
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Placement on the deceased donor kidney transplant waiting list (n=121,680)</i>				
Nonprofit, transplant center affiliated	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, not transplant center affiliated	0.05 (0.05, 0.06)	0.08 (0.08, 0.08)	0.09 (0.09, 0.09)	0.10 (0.09, 0.10)
For-profit, transplant center affiliated	0.68 (0.63, 0.72)	0.75 (0.71, 0.81)	0.75 (0.70, 0.80)	0.81 (0.76, 0.87)
For-profit, not transplant center affiliated	0.05 (0.04, 0.05)	0.07 (0.07, 0.07)	0.07 (0.07, 0.07)	0.08 (0.08, 0.08)
<i>Receipt of a living donor kidney transplant (n=23,762)</i>				
Nonprofit, transplant-center affiliated	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, not transplant center affiliated	0.18 (0.17, 0.19)	0.30 (0.28, 0.32)	0.36 (0.34, 0.38)	0.43 (0.41, 0.46)
For-profit, transplant center affiliated	1.33 (1.15, 1.54)	1.73 (1.50, 2.01)	1.87 (1.62, 2.17)	1.76 (1.51, 2.04)
For-profit, not transplant center affiliated	0.12 (0.12, 0.13)	0.22 (0.21, 0.23)	0.26 (0.25, 0.27)	0.32 (0.31, 0.34)
<i>Receipt of a deceased donor kidney transplant (n=49,290)</i>				
Nonprofit, transplant-center affiliated	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, not transplant center affiliated	0.17 (0.16, 0.18)	0.27 (0.26, 0.29)	0.29 (0.27, 0.31)	0.34 (0.32, 0.37)
For-profit, transplant center affiliated	0.68 (0.53, 0.86)	0.85 (0.67, 1.07)	0.88 (0.69, 1.12)	0.86 (0.67, 1.09)
For-profit, not transplant center affiliated	0.13 (0.12, 0.13)	0.21 (0.20, 0.22)	0.22 (0.21, 0.23)	0.25 (0.24, 0.26)

Abbreviations: CI, confidence interval; HR, hazard ratio

^aDialysis facility affiliation with transplant centers was captured using the United Network of Organ Sharing transplant center id provided within the United States Renal Data Systems 2017 crosswalk file

^bEach model is adjusted for the covariates in the previous model in addition to the stated covariates

^cDemographic variables include age, gender, and race reported at the time of dialysis start

^dClinical variables include BMI>35 kg/m², attributable cause of ESRD, congestive heart failure, atherosclerotic heart disease, other cardiac disease, cerebrovascular disease, peripheral vascular disease, hypertension, diabetes, chronic obstructive pulmonary disease, tobacco use, cancer reported at the time of dialysis start, and dialysis type

^eSocioeconomic and geographic variables include: ESRD Network geographic region of assigned facility, insurance type reported at the time of dialysis start, facility rural-urban classification, distance from assigned dialysis facility to the nearest transplant center, and not informed of transplant due to medical reasons

eTable 6. Crude and adjusted hierarchical Cox proportional hazard ratios between placement on the deceased donor kidney transplant waitlist, receipt of a living donor kidney transplant, or deceased donor kidney transplant by patient-level and facility-level characteristics for dialysis facilities that are (vs. are not) affiliated with hospitals^a, 2000-2016

	Crude Model	Adjusted for ^b :		
		Demographics ^c	+ Clinical ^d	+ Socioeconomic and geographic ^e
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
<i>Placement on the deceased donor kidney transplant waiting list (n=121,680)</i>				
Nonprofit, hospital-affiliated	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, not hospital-affiliated	0.11 (0.10, 0.11)	0.14 (0.13, 0.14)	0.16 (0.15, 0.16)	0.17 (0.17, 0.18)
For-profit, hospital-affiliated	0.88 (0.82, 0.93)	0.89 (0.83, 0.95)	0.91 (0.85, 0.97)	0.93 (0.87, 0.99)
For-profit, not hospital-affiliated	0.09 (0.09, 0.09)	0.11 (0.11, 0.12)	0.13 (0.12, 0.13)	0.14, 0.13, 0.14)
<i>Receipt of a living donor kidney transplant (n=23,762)</i>				
Nonprofit, hospital-affiliated	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, not hospital-affiliated	0.24 (0.23, 0.26)	0.36 (0.34, 0.38)	0.43 (0.40, 0.45)	0.51 (0.48, 0.54)
For-profit, hospital-affiliated	1.42 (1.23, 1.64)	1.72 (1.49, 1.98)	1.85 (1.60, 2.13)	1.72 (1.49, 1.98)
For-profit, not hospital-affiliated	0.17 (0.17, 0.18)	0.27 (0.26, 0.28)	0.31 (0.30, 0.33)	0.37 (0.36, 0.39)
<i>Receipt of a deceased donor kidney transplant (n=49,290)</i>				
Nonprofit, hospital-affiliated	reference [1]	reference [1]	reference [1]	reference [1]
Nonprofit, not hospital-affiliated	0.25 (0.23, 0.26)	0.35 (0.32, 0.37)	0.38 (0.35, 0.41)	0.43 (0.40, 0.47)
For-profit, hospital-affiliated	0.79 (0.63, 0.99)	0.92 (0.74, 1.15)	1.01 (0.81, 1.26)	0.96 (0.77, 0.120)
For-profit, not hospital-affiliated	0.18 (0.18, 0.19)	0.27 (0.26, 0.28)	0.28 (0.27, 0.30)	0.31 (0.29, 0.32)

Abbreviations: CI, confidence interval; HR, hazard ratio

^aDialysis facility affiliation with transplant centers was captured using the UNOS transplant center id provided within the USRDS 2017 crosswalk file

^bEach model is adjusted for the covariates in the previous model in addition to the stated covariates

^cDemographic variables include age, gender, race reported at the time of dialysis start

^dClinical variables include BMI>35 kg/m², attributable cause of ESRD, congestive heart failure, atherosclerotic heart disease, other cardiac disease, cerebrovascular disease, peripheral vascular disease, hypertension, diabetes, chronic obstructive pulmonary disease, tobacco use, cancer reported at the time of dialysis start, and dialysis modality

^eSocioeconomic and geographic variables include: ESRD Network geographic region of assigned facility, insurance type reported at the time of dialysis start, facility rural-urban classification, distance from assigned dialysis facility to the nearest transplant center, and not informed of transplant

due to medical reasons