

## Supplementary Online Content

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

**eTable 1.** Sensitivity analysis: Cox regression model results

The tables below show the **A)** crude LDKT estimates by race/ethnicity and time cohort and the adjusted hazard ratios (HRs) from Cox models: **B)** comparing LDKT in recent candidate cohorts to the earliest time cohort (1995-1999) by race/ethnicity and **C)** comparing racial/ethnic disparities in LDKT by time cohort. Inferences obtained from Cox models are similar to inferences obtained from competing risk models.

**A. Crude LDKT Estimates**

Listing Year	Crude Number of LDKTs (Total Denominator; % of Denominator)			
	White	Black	Hispanic	Asian
1995-1999	5472 (42210; 13.0)	1351 (22855; 5.9)	999 (8937; 11.2)	316 (3771; 8.4)
2000-2004	9096 (46633, 19.5)	2445 (28794; 8.5)	1963 (14549; 13.5)	605 (5727; 10.6)
2005-2009	12293 (61768; 19.9)	2718 (39006; 7.0)	2628 (21918; 12.0)	834 (8563; 9.7)
2010-2014	12648 (66429; 19.0)	2412 (44678; 5.4)	2767 (26508; 10.4)	969 (10816; 9.0)

**B. Temporal Changes in LDKT – Adjusted Hazard Ratios\***

Listing Year	Cox Model - Adjusted Hazard Ratios (95% CI)			
	White	Black	Hispanic	Asian
1995-1999	Reference	Reference	Reference	Reference
2000-2004	1.53 (1.48-1.58)	1.48 (1.38-1.58)	1.24 (1.15-1.34)	1.35 (1.18-1.55)
2005-2009	1.73 (1.67-1.78)	1.38 (1.29-1.47)	1.27 (1.18-1.37)	1.42 (1.25-1.62)
2010-2014	1.59 (1.54-1.64)	1.05 (0.98-1.13)	1.08 (1.00-1.16)	1.30 (1.15-1.48)

C. Racial/Ethnic Disparities in LDKT Over Time – Adjusted Hazard Ratios\*

Listing Year	Cox Model - Adjusted Hazard Ratios (95% CI)			
	White	Black	Hispanic	Asian
1995-1999	Reference	0.41 (0.38-0.43)	0.76 (0.71-0.81)	0.49 (0.44-0.55)
2000-2004	Reference	0.40 (0.38-0.41)	0.62 (0.59-0.65)	0.44 (0.40-0.47)
2005-2009	Reference	0.33 (0.31-0.34)	0.56 (0.54-0.58)	0.41 (0.38-0.44)
2010-2014	Reference	0.27 (0.26-0.28)	0.51 (0.49-0.54)	0.40 (0.38-0.43)

LDKT = live donor kidney transplantation; ESRD = end stage renal disease.

\*Cox regression models were adjusted for differences in biologically-plausible confounders, including age (continuous), sex (male, female), body mass index ( $\leq 30$  kg/m<sup>2</sup>,  $>30$  kg/m<sup>2</sup>, missing), panel reactive antibody (continuous), ESRD etiology (diabetes, hypertension, other), and ABO blood type (O, A, B, AB).

**eTable 2.** Sensitivity analysis: models stratified by age categories, neighborhood poverty, education, and health insurance type

The tables below show the crude LDKT estimates by race/ethnicity and time cohort and the adjusted hazard ratios (HRs) from Cox models stratified by: age categories, neighborhood poverty levels, educational levels, and health insurance type. Inferences obtained from these models demonstrate the robustness of inferences from our primary models.

**Models Stratified by Age Categories**

**Table A.** Racial/Ethnic Disparities in LDKT Over Time – Age 18-44 Years

Listing Year	Adjusted Hazard Ratios (95% CI)			
	White	Black	Hispanic	Asian
1995-1999	Reference	0.40 (0.37-0.43)	0.81 (0.74-0.89)	0.47 (0.40-0.55)
2000-2004	Reference	0.38 (0.35-0.40)	0.68 (0.63-0.73)	0.48 (0.43-0.54)
2005-2009	Reference	0.32 (0.30-0.34)	0.60 (0.56-0.64)	0.43 (0.39-0.48)
2010-2014	Reference	0.25 (0.24-0.27)	0.54 (0.51-0.58)	0.44 (0.40-0.49)

**Table A.** Crude LDKT Estimates – Age 18-44 Years

Listing Year	Crude Number of LDKTs (Total Denominator; % of Denominator)			
	White	Black	Hispanic	Asian
1995-1999	2753 (16014; 17.2)	778 (10149; 7.7)	622 (3893; 16.0)	177 (1552; 11.4)
2000-2004	3492 (12243; 28.5)	1181 (10764; 11.0)	1079 (5270; 20.5)	322 (1889; 17.0)
2005-2009	4157 (13314; 31.2)	1253 (12805; 9.8)	1371 (7172; 19.1)	396 (2392; 16.6)
2010-2014	4102 (13019; 31.5)	999 (13301; 7.5)	1367 (7981; 17.1)	452 (2779; 16.3)

**Table B. Racial/Ethnic Disparities in LDKT Over Time – Age 45-60 Years**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.38 (0.35-0.42)	0.65 (0.58-0.74)	0.47 (0.39-0.57)
2000-2004	Reference	0.39 (0.36-0.42)	0.54 (0.50-0.59)	0.38 (0.33-0.43)
2005-2009	Reference	0.31 (0.29-0.33)	0.49 (0.46-0.53)	0.40 (0.36-0.45)
2010-2014	Reference	0.27 (0.26-0.29)	0.46 (0.43-0.50)	0.38 (0.34-0.42)

**Table B. Crude LDKT Estimates – Age 45-60 Years**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	2135 (18095; 11.8)	449 (9814; 4.6)	307 (3784; 8.1)	109 (1665; 6.5)
2000-2004	3994 (21527; 18.5)	950 (13119; 7.2)	665 (6420; 10.4)	206 (2545; 8.1)
2005-2009	5379 (27376; 19.6)	1047 (17915; 5.8)	896 (9750; 9.2)	315 (3661; 8.6)
2010-2014	5136 (27350; 18.8)	983 (20368; 4.8)	989 (12179; 8.1)	340 (4449; 7.6)

**Table C. Racial/Ethnic Disparities in LDKT Over Time – Age >60 Years**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.56 (0.46-0.68)	0.72 (0.56-0.92)	0.66 (0.46-0.96)
2000-2004	Reference	0.50 (0.44-0.56)	0.59 (0.51-0.68)	0.43 (0.34-0.54)
2005-2009	Reference	0.39 (0.35-0.43)	0.56 (0.50-0.62)	0.34 (0.28-0.41)
2010-2014	Reference	0.30 (0.27-0.34)	0.52 (0.47-0.57)	0.36 (0.31-0.42)

**Table C. Crude LDKT Estimates – Age >60 Years**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	584 (8101; 7.2)	124 (2892; 4.3)	70 (1260; 5.6)	30 (554; 5.4)
2000-2004	1610 (12863; 12.5)	314 (4911; 6.4)	219 (2859; 7.7)	77 (1293; 6.0)
2005-2009	2757 (21078; 13.1)	418 (8286; 5.0)	361 (4996; 7.2)	123 (2510; 4.9)
2010-2014	3410 (26060; 13.1)	430 (11009; 3.9)	411 (6348; 6.5)	177 (3588; 4.9)

**Sensitivity Analysis: Models Stratified by Neighborhood Poverty Levels**

**Table A. Racial/Ethnic Disparities in LDKT Over Time – Neighborhood Poverty Level <5%**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.54 (0.42-0.70)	1.04 (0.74-1.46)	0.49 (0.39-0.62)
2000-2004	Reference	0.49 (0.40-0.58)	0.80 (0.63-1.02)	0.44 (0.37-0.51)
2005-2009	Reference	0.44 (0.38-0.51)	0.79 (0.66-0.96)	0.43 (0.38-0.48)
2010-2014	Reference	0.38 (0.33-0.45)	0.77 (0.65-0.91)	0.42 (0.37-0.47)

**Table A. Crude LDKT Estimates – Neighborhood Poverty <5%**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	1263 (8075; 15.6)	61 (647; 9.4)	35 (203; 17.2)	76 (785; 9.7)
2000-2004	2085 (9299; 22.4)	123 (966; 12.7)	65 (312; 20.8)	160 (1321; 12.1)
2005-2009	3073 (12911; 23.8)	177 (1522; 11.6)	111 (531; 20.9)	263 (2162; 12.2)
2010-2014	3314 (14671; 22.6)	184 (1973; 9.3)	140 (733; 19.1)	305 (2782; 11.0)

**Table B. Racial/Ethnic Disparities in LDKT Over Time – Neighborhood Poverty Level 5-19%**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.51 (0.46-0.56)	0.91 (0.81-1.02)	0.49 (0.42-0.57)
2000-2004	Reference	0.50 (0.47-0.54)	0.71 (0.65-0.77)	0.45 (0.40-0.50)
2005-2009	Reference	0.42 (0.39-0.45)	0.68 (0.64-0.73)	0.39 (0.35-0.43)
2010-2014	Reference	0.35 (0.33-0.38)	0.65 (0.61-0.70)	0.43 (0.39-0.46)

**Table B. Crude LDKT Estimates – Neighborhood Poverty 5-19%**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	3626 (28867; 12.6)	424 (5791; 7.3)	317 (2460; 12.9)	168 (2067; 8.1)
2000-2004	6267 (32561; 19.2)	852 (7877; 10.8)	639 (4152; 15.4)	341 (3212; 10.6)
2005-2009	8311 (43469; 19.1)	1057 (12089; 8.7)	924 (6507; 14.2)	428 (4818; 8.9)
2010-2014	8428 (46408; 18.2)	982 (14597; 6.7)	1028 (8127; 12.6)	528 (5922; 8.9)

**Table C. Racial/Ethnic Disparities in LDKT Over Time – Neighborhood Poverty Level ≥20%**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.45 (0.40-0.51)	0.84 (0.74-0.96)	0.49 (0.36-0.66)
2000-2004	Reference	0.44 (0.40-0.49)	0.75 (0.68-0.83)	0.42 (0.33-0.53)
2005-2009	Reference	0.32 (0.30-0.36)	0.60 (0.55-0.66)	0.39 (0.32-0.48)
2010-2014	Reference	0.26 (0.24-0.28)	0.53 (0.48-0.58)	0.32 (0.26-0.39)

**Table C. Crude LDKT Estimates – Neighborhood Poverty Level  $\geq 20\%$**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	351 (3293; 10.7)	808 (15353; 5.3)	585 (5828; 10.0)	48 (711; 6.8)
2000-2004	558 (3606; 15.5)	1406 (19150; 7.3)	1192 (9559; 12.5)	83 (997; 8.3)
2005-2009	693 (4170; 16.6)	1407 (24491; 5.7)	1512 (14360; 10.5)	115 (1401; 8.2)
2010-2014	710 (4315; 16.5)	1200 (27259; 4.4)	1537 (17202; 8.9)	121 (1930; 6.3)

**Sensitivity Analysis: Models Stratified by Educational Status**

**Table A. Racial/Ethnic Disparities in LDKT Over Time – No College Degree**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.41 (0.38-0.44)	0.74 (0.68-0.81)	0.52 (0.44-0.61)
2000-2004	Reference	0.39 (0.37-0.41)	0.64 (0.60-0.68)	0.40 (0.35-0.45)
2005-2009	Reference	0.32 (0.30-0.34)	0.59 (0.56-0.62)	0.40 (0.36-0.44)
2010-2014	Reference	0.26 (0.25-0.28)	0.54 (0.52-0.57)	0.34 (0.31-0.38)

**Table A. Crude LDKT Estimates – No College Degree**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	3006 (24519; 12.3)	849 (15124; 5.6)	640 (6212; 10.3)	148 (1765; 8.4)
2000-2004	5233 (28244; 18.5)	1500 (19243; 7.8)	1369 (10621; 12.9)	292 (3197; 9.1)
2005-2009	7164 (39070; 18.3)	1734 (28053; 6.2)	1979 (17380; 11.4)	422 (4838; 8.7)
2010-2014	7434 (42996; 17.3)	1572 (33520; 4.7)	2204 (22494; 9.8)	423 (6176; 6.8)



**Table B. Racial/Ethnic Disparities in LDKT Over Time – College Degree**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.44 (0.37-0.53)	1.02 (0.82-1.27)	0.46 (0.36-0.60)
2000-2004	Reference	0.42 (0.37-0.48)	0.57 (0.47-0.69)	0.41 (0.34-0.50)
2005-2009	Reference	0.38 (0.35-0.42)	0.59 (0.51-0.67)	0.38 (0.33-0.44)
2010-2014	Reference	0.29 (0.26-0.32)	0.57 (0.51-0.64)	0.43 (0.38-0.48)

**Table B. Crude LDKT Estimates – College Degree**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	874 (5512; 15.9)	147 (1819; 8.1)	88 (519; 17.0)	66 (633; 10.4)
2000-2004	1590 (6429; 24.7)	316 (2579; 12.3)	122 (759; 16.1)	103 (800; 12.9)
2005-2009	2494 (10278; 24.3)	491 (4645; 10.6)	238 (1414; 16.8)	208 (1809; 11.5)
2010-2014	3195 (13633; 23.4)	495 (6639; 7.5)	340 (2194; 15.5)	329 (2778; 11.8)

**Sensitivity Analysis: Models Stratified by Health Insurance Type****Table A. Racial/Ethnic Disparities in LDKT Over Time – Private Health Insurance**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.47 (0.43-0.51)	0.87 (0.79-0.96)	0.53 (0.46-0.61)
2000-2004	Reference	0.47 (0.44-0.49)	0.72 (0.67-0.77)	0.42 (0.38-0.47)
2005-2009	Reference	0.38 (0.36-0.40)	0.65 (0.61-0.69)	0.40 (0.37-0.44)
2010-2014	Reference	0.32 (0.30-0.34)	0.60 (0.57-0.63)	0.42 (0.38-0.45)

**Table A. Crude LDKT Estimates – Private Health Insurance**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	3746 (21600; 17.3)	657 (7211; 9.1)	436 (2582; 16.9)	207 (1706; 12.1)
2000-2004	6311 (25062; 25.2)	1357 (10390; 13.1)	955 (4646; 20.6)	399 (2921; 13.7)
2005-2009	8697 (33537; 25.9)	1574 (14787; 10.6)	1342 (7347; 18.3)	591 (4579; 12.9)
2010-2014	8812 (34418; 25.6)	1405 (16381; 8.6)	1475 (9068; 16.3)	689 (5458; 12.6)

**Table B. Racial/Ethnic Disparities in LDKT Over Time – Medicare Insurance**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.47 (0.43-0.52)	0.86 (0.77-0.97)	0.48 (0.38-0.61)
2000-2004	Reference	0.41 (0.38-0.45)	0.68 (0.63-0.75)	0.49 (0.41-0.58)
2005-2009	Reference	0.34 (0.32-0.37)	0.66 (0.61-0.71)	0.44 (0.37-0.51)
2010-2014	Reference	0.28 (0.26-0.30)	0.58 (0.54-0.62)	0.41 (0.36-0.47)

**Table B. Crude LDKT Estimates – Medicare Insurance**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	1396 (17370; 8.0)	544 (12744; 4.3)	380 (4879; 7.8)	69 (1375; 5.0)
2000-2004	2257 (18166; 12.4)	810 (14688; 5.5)	670 (7416; 9.0)	138 (1927; 7.2)
2005-2009	2945 (24056; 12.2)	891 (19977; 4.5)	926 (10995; 8.4)	171 (2791; 6.1)
2010-2014	3286 (27732; 11.8)	797 (23302; 3.4)	966 (13859; 7.0)	212 (3981; 5.3)

**Table C. Racial/Ethnic Disparities in LDKT Over Time – Medicaid Insurance or Uninsured**

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.47 (0.37-0.59)	1.20 (0.97-1.47)	0.45 (0.31-0.67)
2000-2004	Reference	0.50 (0.41-0.60)	0.92 (0.78-1.09)	0.46 (0.34-0.62)
2005-2009	Reference	0.32 (0.27-0.38)	0.58 (0.50-0.67)	0.36 (0.27-0.47)
2010-2014	Reference	0.33 (0.27-0.40)	0.64 (0.55-0.75)	0.37 (0.28-0.48)

**Table C. Crude LDKT Estimates – Medicaid Insurance or Uninsured**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	208 (2100; 9.9)	118 (2275; 5.2)	165 (1307; 12.6)	29 (557; 5.2)
2000-2004	267 (2020; 13.2)	184 (2601; 7.1)	290 (2241; 12.9)	49 (749; 6.5)
2005-2009	424 (2741; 15.5)	173 (3181; 5.4)	311 (3187; 9.8)	61 (1043; 5.8)
2010-2014	373 (2746; 13.6)	162 (3654; 4.4)	289 (3205; 9.0)	62 (1215; 5.1)

LDKT = live donor kidney transplantation; HR = hazard ratio; ESRD = end stage renal disease.

\*Cox regression models were adjusted for differences in biologically-plausible confounders, including age (continuous), sex (male, female), body mass index ( $\leq 30$  kg/m<sup>2</sup>,  $>30$  kg/m<sup>2</sup>, missing), panel reactive antibody (continuous), ESRD etiology (diabetes, hypertension, other), and ABO blood type (O, A, B, AB).

**eTable 3.** Sensitivity analysis: contemporary reference cohort

The tables below show the **A)** crude LDKT estimates by race/ethnicity and time cohort and the adjusted hazard ratios (HRs) from Cox models: **B)** comparing LDKT access in recent cohorts to a contemporary reference cohort (2000-2002) by race/ethnicity and **C)** comparing racial/ethnic disparities in LDKT by time cohort. Inferences obtained from these models are similar to inferences obtained from our primary models.

**A. Crude LDKT Estimates**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
2000-2002	5044 (27010; 18.7)	1344 (16451; 8.2)	1057 (7753; 13.6)	334 (3086; 10.8)
2003-2005	6415 (30968; 20.7)	1632 (19228; 8.5)	1368 (10548; 13.0)	431 (4225; 10.2)
2006-2008	7259 (37473; 19.4)	1614 (23678; 6.8)	1571 (13242; 11.9)	493 (5152; 9.6)
2009-2011	7760 (39100; 19.8)	1591 (25742; 6.2)	1674 (14735; 11.4)	531 (5737; 9.3)
2012-2014	7559 (40279; 18.8)	1394 (27379; 5.1)	1688 (16697; 10.1)	619 (6906; 9.0)

**B. Temporal Changes in LDKT Access – Adjusted Hazard Ratios\***

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
2000-2002	Reference	Reference	Reference	Reference
2003-2005	1.21 (1.17-1.26)	1.12 (1.05-1.21)	1.03 (0.95-1.12)	1.05 (0.91-1.21)
2006-2008	1.18 (1.14-1.23)	0.97 (0.91-1.05)	1.04 (0.96-1.12)	1.06 (0.92-1.22)
2009-2011	1.17 (1.13-1.21)	0.87 (0.81-0.93)	0.97 (0.90-1.05)	1.01 (0.88-1.16)
2012-2014	1.10 (1.07-1.14)	0.71 (0.66-0.77)	0.85 (0.79-0.92)	0.98 (0.86-1.12)

**C. Racial/Ethnic Disparities in LDKT Over Time – Adjusted Hazard Ratios\***

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
2000-2002	Reference	0.40 (0.38-0.43)	0.66 (0.61-0.70)	0.46 (0.41-0.52)
2003-2005	Reference	0.37 (0.35-0.39)	0.56 (0.53-0.59)	0.40 (0.36-0.44)
2006-2008	Reference	0.33 (0.31-0.35)	0.58 (0.54-0.61)	0.41 (0.38-0.45)
2009-2011	Reference	0.30 (0.28-0.31)	0.54 (0.52-0.57)	0.40 (0.37-0.44)
2012-2014	Reference	0.26 (0.25-0.28)	0.51 (0.48-0.53)	0.41 (0.38-0.45)

LDKT = live donor kidney transplantation; HR = hazard ratio; ESRD = end stage renal disease.

\* Cox regression models were adjusted for differences in biologically-plausible confounders, including age (continuous), sex (male, female), body mass index ( $\leq 30$  kg/m<sup>2</sup>,  $>30$  kg/m<sup>2</sup>, missing), panel reactive antibody (continuous), ESRD etiology (diabetes, hypertension, other), and ABO blood type (O, A, B, AB).

**eTable 4.** Sensitivity analysis: inclusion of non-waitlisted LDKT recipients

The tables below show results for both the waitlisted candidates and non-waitlisted LDKT recipients, including the **A)** crude LDKT estimates by race/ethnicity and time cohort and the adjusted hazard ratios (HRs) from competing risk models: **B)** comparing LDKT in recent cohorts to the earliest cohort (1995-1999) by race/ethnicity and **C)** comparing racial/ethnic disparities in LDKT by time cohort.

**A. Crude LDKT Estimates**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	11669 (48407; 24.1)	2406 (23910; 10.1)	1932 (9870; 19.6)	480 (3935; 12.2)
2000-2004	16232 (53769; 30.2)	3629 (29978; 12.1)	2936 (15522; 18.9)	847 (5969; 14.2)
2005-2009	16295 (65770; 24.8)	3407 (39695; 8.6)	3199 (22489; 14.2)	962 (8691; 11.1)
2010-2014	14051 (67832; 20.7)	2639 (44905; 5.9)	2963 (26704; 11.1)	1022 (10869; 9.4)

**B. Temporal Changes in LDKT – Adjusted Sub-Hazard Ratios\***

	<b>Competing Risk Model - Adjusted Sub-Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	Reference	Reference	Reference
2000-2004	1.39 (1.36-1.42)	1.31 (1.24-1.38)	1.04 (0.98-1.10)	1.31 (1.17-1.46)
2005-2009	1.24 (1.21-1.27)	1.04 (0.99-1.10)	0.87 (0.83-0.92)	1.15 (1.03-1.28)
2010-2014	1.02 (1.00-1.05)	0.72 (0.68-0.76)	0.67 (0.64-0.71)	0.98 (0.88-1.09)

C. Racial/Ethnic Disparities in LDKT Over Time – Adjusted Sub-Hazard Ratios\*

	<b>Competing Risk Model - Adjusted Sub-Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.40 (0.38-0.41)	0.78 (0.74-0.81)	0.43 (0.39-0.47)
2000-2004	Reference	0.37 (0.36-0.39)	0.58 (0.56-0.60)	0.40 (0.38-0.43)
2005-2009	Reference	0.33 (0.32-0.34)	0.55 (0.53-0.57)	0.40 (0.37-0.42)
2010-2014	Reference	0.28 (0.27-0.29)	0.51 (0.49-0.53)	0.41 (0.39-0.44)

LDKT = live donor kidney transplantation; ESRD = end stage renal disease.

\*Competing risk models were adjusted for differences in biologically-plausible confounders, including age (continuous), sex (male, female), body mass index ( $\leq 30$  kg/m<sup>2</sup>,  $>30$  kg/m<sup>2</sup>, missing), panel reactive antibody (continuous), ESRD etiology (diabetes, hypertension, other), and ABO blood type (O, A, B, AB).

**eTable 5.** Sensitivity analysis: restricted to active status waitlist candidates

The tables below show results for active status-only waitlist candidates, including the **A)** crude LDKT estimates by race/ethnicity and time cohort and the adjusted hazard ratios (HRs) from Cox models: **B)** comparing LDKT in recent cohorts to the earliest cohort (1995-1999) by race/ethnicity and **C)** comparing racial/ethnic disparities in LDKT by time cohort. Inferences obtained from these models are similar to inferences from our primary models.

**A. Crude LDKT Estimates**

	<b>Crude Number of LDKTs (Total Denominator; % of Denominator)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	5437 (42090; 12.9)	1351 (22817; 5.9)	986 (8934; 11.0)	315 (3783; 8.3)
2000-2004	8966 (45915; 19.5)	2411 (28313; 8.5)	1942 (14301; 13.6)	597 (5626; 10.6)
2005-2009	11378 (55990; 20.3)	2596 (34420; 7.5)	2482 (19590; 12.7)	774 (7934; 9.8)
2010-2014	11528 (58358; 19.8)	2311 (38889; 5.9)	2581 (23064; 11.2)	886 (9257; 9.6)

**B. Temporal Changes in LDKT Access (Active Status Candidates) – Adjusted Hazard Ratios\***

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	Reference	Reference	Reference
2000-2004	1.53 (1.48-1.59)	1.47 (1.38-1.58)	1.26 (1.17-1.37)	1.36 (1.19-1.56)
2005-2009	1.82 (1.76-1.88)	1.51 (1.42-1.62)	1.37 (1.28-1.48)	1.44 (1.26-1.64)
2010-2014	1.72 (1.67-1.78)	1.19 (1.12-1.28)	1.19 (1.11-1.28)	1.43 (1.26-1.63)



**C. Racial/Ethnic Disparities in LDKT Over Time (Active Status Candidates) – Adjusted Hazard Ratios\***

	<b>Adjusted Hazard Ratios (95% CI)</b>			
<b>Listing Year</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>	<b>Asian</b>
1995-1999	Reference	0.41 (0.39-0.44)	0.76 (0.71-0.81)	0.50 (0.44-0.56)
2000-2004	Reference	0.40 (0.38-0.41)	0.62 (0.59-0.65)	0.44 (0.41-0.48)
2005-2009	Reference	0.34 (0.33-0.36)	0.57 (0.55-0.60)	0.39 (0.36-0.42)
2010-2014	Reference	0.28 (0.27-0.30)	0.52 (0.50-0.55)	0.41 (0.38-0.44)

LDKT = live donor kidney transplantation; HR = hazard ratio; ESRD = end stage renal disease.

\*Cox regression models were adjusted for differences in biologically-plausible confounders, including age (continuous), sex (male, female), body mass index ( $\leq 30$  kg/m<sup>2</sup>,  $>30$  kg/m<sup>2</sup>, missing), panel reactive antibody (continuous), ESRD etiology (diabetes, hypertension, other), and ABO blood type (O, A, B, AB).

**eTable 6.** Characteristics of LDKT recipients and donors by race/ethnicity, from 1995-1999 to 2010-2014\*

	White Recipients			Black Recipients			Hispanic Recipients			Asian Recipients		
	1995-1999	2000-2009	2010-2014	1995-1999	2000-2009	2010-2014	1995-1999	2000-2009	2010-2014	1995-1999	2000-2009	2010-2014
<b>LDKT Recipient Characteristics</b>												
<b>Total Ns:</b>	4,765	22,498	16,694	1,196	5,891	3,697	862	5,057	3,963	270	1,661	1,430
<b>Age ≥ 60 years, n (%)</b>	587 (12.3)	5388 (23.9)	5196 (31.1)	122 (10.2)	966 (16.4)	756 (20.4)	76 (8.8)	766 (15.1)	728 (18.4)	35 (13.0)	277 (16.7)	335 (23.4)
<b>Sex, male, n (%)</b>	2874 (60.3)	14036 (62.4)	10769 (64.5)	653 (54.6)	3236 (54.9)	2147 (58.1)	522 (60.6)	3102 (61.3)	2512 (63.4)	133 (49.3)	905 (54.5)	799 (55.9)
<b>College degree or higher, n (%)</b>	1078 (29.3)	6183 (32.2)	6335 (39.2)	178 (18.7)	1176 (24.1)	1132 (31.9)	98 (15.2)	500 (11.9)	648 (17.1)	92 (43.0)	544 (39.4)	711 (51.9)
<b>LDKT Candidate Type, n (%)</b>												
No Dialysis – Preemptive LDKT	1925 (40.4)	10,255 (45.6)	9384 (56.2)	267 (22.3)	1505 (25.5)	1234 (33.4)	209 (24.2)	1208 (23.9)	1276 (32.2)	92 (34.1)	567 (34.1)	678 (47.4)
Dialysis – DDKT waitlist	2840 (59.6)	12,243 (54.4)	7310 (43.8)	929 (77.7)	4386 (74.4)	2463 (66.6)	653 (75.7)	3849 (76.1)	2687 (67.8)	178 (65.9)	1094 (65.9)	752 (52.6)
<b>LDKT Donor Characteristics</b>												
<b>Total Ns:</b>	4,765	22,498	16,694	1,196	5,891	3,697	862	5,057	3,963	270	1,661	1,430
<b>Age ≥ 60 years, n (%)</b>	245 (5.1)	1319 (5.9)	1700 (10.2)	16 (1.3)	115 (1.9)	149 (4.0)	20 (2.3)	104 (2.1)	152 (3.8)	12 (4.4)	69 (4.1)	126 (8.8)
<b>Sex, male, n (%)</b>	1954 (41.0)	8942 (39.7)	6234 (37.3)	490 (41.0)	2436 (41.3)	1392 (37.6)	385 (44.8)	2141 (42.3)	1487 (37.5)	134 (49.6)	737 (44.4)	547 (38.2)
<b>Race/ethnicity</b>												
Same as recipient, n (%)	4575 (96.0)	21563 (95.8)	15749 (94.3)	1080 (90.3)	4972 (84.4)	2645 (71.5)	696 (80.7)	4292 (84.9)	3102 (78.3)	177 (65.6)	1156 (69.6)	860 (60.1)

	White Recipients			Black Recipients			Hispanic Recipients			Asian Recipients		
<b>Relationship to recipient, n (%)</b>												
Biological relative	3433 (73.0)	12651 (56.2)	7445 (44.6)	970 (81.9)	4027 (68.4)	1911 (51.7)	688 (80.4)	3562 (70.5)	2303 (58.1)	203 (75.5)	1032 (62.1)	671 (46.9)
Directed donation	692 (14.7)	3027 (13.5)	2237 (13.4)	112 (9.5)	643 (10.9)	439 (11.9)	99 (11.6)	634 (12.5)	548 (13.8)	35 (13.0)	239 (14.4)	224 (15.7)
Non-directed donation or kidney paired donation or domino donation	580 (12.3)	6817 (30.3)	7011 (42.0)	102 (8.6)	1220 (20.7)	1347 (36.4)	69 (8.0)	860 (17.0)	1111 (28.1)	31 (11.5)	390 (23.5)	535 (37.4)

LDKT = live donor kidney transplantation; DDKT = deceased donor kidney transplantation.

\*Results were calculated using data from LDKT recipients in 1995-1999, 2000-2009, and 2010-2014. There were statistically significant differences ( $p < 0.05$ ) in recipient and donor characteristics for all comparisons by time cohort in each racial/ethnic group.

Definitions: Directed donation occurs when a request is made by a donor or donor family to transplant a specific recipient. Non-directed donation occurs when there is no request for a specific transplant recipient made by a donor or donor family. Kidney paired donation occurs when a donor is incompatible with the recipient, and exchanges kidneys with another donor/recipient pair, resulting in two transplants. Domino donation occurs when a non-directed donor starts a chain of transplants, resulting in several transplants.