

Social Determinants of Health Among Solid Organ Transplant Candidates, Recipients and Living Donors in 2022

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Executive Summary

This report presents data on social determinants of health (SDOH) for adult transplant candidates ever waiting in 2022, adult transplant recipients in 2022, and adult living donors who donated to adult recipients in 2022. Measures of SDOH in this report include estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI).

Transplant Candidates and Recipients

- Median estimated individual annual income was \$66,000 for candidates and \$68,000 for recipients. In general, estimated individual annual income was lower among Black non-Hispanic, Hispanic/Latino, and younger candidates.
- For kidney, kidney-pancreas, heart, and lung, greater proportions of recipients were insured by Medicare relative to candidates.
- Distributions of estimated annual individual income, neighborhood median household income, educational attainment, and neighborhood disadvantage as measured by the ADI were generally similar between candidates and recipients.

Waiting List Mortality

- Waiting list mortality rates for kidney, liver, and heart candidates were significantly higher for candidates insured by Medicare relative to candidates with private insurance or Medicaid. In contrast, there were no significant differences in waiting list mortality by health insurance type for pancreas, kidney-pancreas, or lung candidates.
- Lower estimated individual annual income and lower neighborhood median household income were associated with higher waiting list mortality rates for liver candidates. In contrast, there was no clear association between individual or neighborhood income and waiting list mortality for candidates waiting for other organs.
- Increasing neighborhood disadvantage as measured by the ADI was associated with increasing waiting list mortality for liver candidates, but decreasing waiting list mortality for heart candidates. There were no significant differences in waiting list mortality by ADI quartiles for candidates waiting for other organs.

Deceased Donor Transplant Rates

- There were significant differences in deceased donor transplant rates by health insurance type for all organs except pancreas, but no clear trend across organs. For kidney and kidney-pancreas, deceased donor transplant rates were highest for candidates insured by Medicare; for liver, candidates with Medicaid and private insurance had significantly higher deceased donor transplant rates than candidates with Medicare or other insurance; and for heart and lung, transplant rates were highest for candidates with insurance other than private insurance, Medicare, or Medicaid.
- Increasing estimated individual annual income, neighborhood median household income, and education were associated with decreasing deceased donor transplant rates for kidney. Increasing neighborhood median household income was also associated with decreasing deceased donor transplant rates for liver. This directionality may be attributable to differences in SDOH between recipients of living versus deceased donor transplants.
- Increasing neighborhood disadvantage as measured by the ADI was associated with decreasing deceased donor transplant rates for heart, but increasing deceased donor transplant rates for kidney and liver. This directionality for kidney and liver may be attributable to differences in SDOH between recipients of living versus deceased donor transplants.

Living Donors

- Median estimated individual annual income was \$80,000 for living kidney donors and \$75,000 for living liver donors. In general, estimated individual annual income was lower among Black non-Hispanic and younger

living donors.

- Median neighborhood household income was \$85,181 for living kidney donors and \$84,359 for living liver donors. In general, median neighborhood household income was lower among Black non-Hispanic, Hispanic/Latino, and younger living donors.
- The majority of living donors had a college degree or higher (kidney: 57.05%; liver: 59.79%). Hispanic/Latino donors were less likely than donors of other racial/ethnic groups to have a college degree.
- Over 90% of living kidney and liver donors had health insurance at donation; 5.04% of living kidney donors and 2.5% of living liver donors did not have health insurance at donation.
- The median ADI was 39 (IQR: 21-61) for living kidney donors and 42 (IQR: 23-61) for living liver donors. Median ADI values were highest for Black non-Hispanic donors and lowest for Asian non-Hispanic donors. Median ADI decreased with increasing donor age at donation.

Background/Purpose

Social Determinants of Health

Social determinants of health (SDOH) are the conditions in the environments where people are born, live, learn, work, and age that affect a wide range of quality-of-life and health outcomes.¹ SDOH are not related to an individual's biology or genetic makeup; instead, they are factors of one's own culture, living environment, and community. The Centers for Disease Control and Prevention recognize five key domains of SDOH: (1) Economic Stability; (2) Education Access and Quality; (3) Health Care Access and Quality; (4) Neighborhood and Built Environment; and (5) Social and Community Context.¹ Examples within each domain can be seen in **Figure 1** below. However, the domains of SDOH can influence each other, with a deficit in one domain impacting other domains. Additionally, some SDOH fall under multiple domains, further emphasizing the overlapping and reinforcing nature of SDOH and their impact on an individual's overall health.

Figure 1. Examples of Social Determinants of Health by Domain. Adapted from Healthy People 2030²



Significance

Understanding the relationship between SDOH, waitlist, and post-transplant outcomes is essential to the creation of more equitable allocation systems. This report assesses SDOH from multiple domains for candidates ever waiting in 2022, transplant recipients in 2022, and living donors in 2022.

Methods

Data Sources

This report used data reported to the Organ Procurement and Transplantation Network (OPTN). Candidate data were obtained from the OPTN Waiting List and Transplant Candidate Registration (TCR) forms. Recipient and transplant data were obtained from Transplant Recipient Registration (TRR) forms. Living donor data were obtained from Living Donor Registration (LDR) forms. Deceased donor data were obtained from the OPTN Donor Data and Matching System and Deceased Donor Registration (DDR) forms. This report is based on OPTN data as of August 23, 2024. Data are subject to change based on future submission or correction.

Patients' residential addresses and individual-level SDOH were obtained from LexisNexis, a commercial data source that uses a proprietary algorithm to combine data from multiple sources, including credit checks and government records.³ OPTN data, including patient name, social security number (SSN), date of birth, age, and home residence zip code were securely transmitted to LexisNexis and used to merge OPTN data with data from LexisNexis. Patients' residential addresses from LexisNexis were used to link OPTN data with area-level SDOH from the 2022 American Community Survey (ACS)⁴ and the 2021 Area Deprivation Index (ADI).⁵

SDOH Measures

Highest education level and health insurance type, measures of education access and quality and health care access and quality, respectively, were obtained from OPTN data. Estimated individual annual income, a measure of economic stability, was obtained from LexisNexis. For reference, according to the U.S. Bureau of Labor Statistics, the mean individual annual income for employed individuals in the U.S. in 2022 was \$70,346.⁶

Data on neighborhood median household income, a measure of social and community context, were obtained from the ACS, an annual nationwide survey conducted by the U.S. Census Bureau that collects information on social, economic, housing, and demographic characteristics of the U.S. population.⁴ For reference, according to the U.S. Census Bureau, median household income in 2022 was \$74,580.⁷

The ADI is a measure created by the Health Resources and Services Administration (HRSA) that ranks neighborhoods by level of socioeconomic disadvantage.⁵ Factors are included from the theoretical domains of income, education, employment, and housing quality. This measure helped to operationalize the neighborhood and built environment SDOH domain. ADI data were obtained from Neighborhood Atlas.⁵ The ADI values in this report are national percentile rankings at the census block group level, with higher ADI values indicating higher levels of socioeconomic disadvantage (e.g., a value of 1 indicates a census block group with the lowest level of socioeconomic disadvantage, while a value of 100 indicates the highest).

Cohort

Transplant candidates: Analyses of transplant candidates in this report are based on a cohort of adult (age 18+ at listing) candidates ever waiting during 2022. "Ever waiting" includes candidates who were on the OPTN waiting list at the beginning of 2022 as well as candidates who were added to the waiting list at any point during the year. Analyses were limited to U.S. citizens or U.S. residents with a valid SSN in the OPTN database. Of note: Data from LexisNexis are only available for adult (age 18+), U.S. citizens or U.S. residents with a valid SSN. Kidney, kidney-pancreas, pancreas, liver, heart, and lung registrations were included in the analysis. For candidates with multiple registrations for the same organ type, only the earliest registration was included.

Transplant recipients: Analyses of transplant recipients in this report are based on a cohort of adult (age 18+ at transplant) recipients of living or deceased donor transplants in 2022. Analyses were limited to U.S. citizens or U.S. residents with a valid SSN in the OPTN database. Kidney, kidney-pancreas, pancreas, liver, heart, and lung transplant recipients were included in the analysis. Recipients of multiorgan transplants were included (e.g., a patient who received a simultaneous liver-kidney transplant would be included in both the kidney and the liver chapters).

Living donors: Analyses of living donors in this report include all adult (age 18+ at donation) living donors in 2022 who were U.S. citizens or U.S. residents with a valid SSN in the OPTN database, and whose recipients were

also adults (age 18+ at listing), U.S. citizens or U.S. residents, with a valid SSN.

Statistical Analyses

Waiting list mortality rates were calculated as the number of deaths on the waiting list or within 14 days after removal from the waiting list, divided by the total amount of the time on the waiting list (active or inactive) for registrations ever waiting during the study period. This metric takes into account both the number of people that experience an event (death on the waiting list) and the amount of time spent waiting without experiencing the event. This is important because the waiting list is dynamic and candidates are added and removed at different points in time. Rate calculations enable comparison across populations that may vary in size and/or duration of time waiting. Waiting list mortality rates are presented as deaths per 100 patient years. “Patient years” represent the total amount of time patients spent on the waiting list in 2022. For example, 100 patients each waiting 1 year would amount to 100 patient years; 10 patients each waiting for 10 years would also amount to 100 patient years.

Deceased donor transplant rates were calculated as the number of waiting list removals for deceased donor transplant divided by the total amount of the time on the waiting list in active status for registrations ever waiting during the study period. This metric takes into account both the number of people that experience an event (deceased donor transplant) and the amount of time spent waiting without experiencing the event. Transplant rates are presented as transplants per 100 active patient years. “Active patient years” represent the total amount of time patients spent with an active registration on the waiting list in 2022. Inactive time is not included in the denominator for deceased donor transplant rates as candidates only receive offers if they have an active registration.

Results: Transplant Candidates and Recipients

Overall

Results Summary

This section describes social determinants of health (SDOH) for adult candidates ever waiting in 2022 and adult transplant recipients in 2022 by organ (kidney, kidney-pancreas, pancreas, liver, heart, and lung). Results are summarized below.

Estimated individual annual income: The overall median estimated individual income was \$66,000 for candidates and \$68,000 for recipients. For both candidates and recipients, median estimated individual income was lowest for kidney-pancreas (\$64,000 for both candidates and recipients) and highest for lung (candidates: \$73,000; recipients: \$74,000; **Figure 2** and **Table 1**). For reference, mean individual annual income for employed individuals in the U.S. in 2022 was \$70,346.⁶

Neighborhood median household income: Overall median neighborhood household income was slightly higher for recipients (\$75,114) than candidates (\$73,611). Similar to estimated individual annual income, median neighborhood household income was lowest for kidney-pancreas (candidates: \$69,620; recipients: \$67,883) and highest for lung (candidates: \$80,360; recipients: \$80,859; **Figure 3** and **Table 2**). For reference, median household income in the U.S. in 2022 was \$74,580.⁷

Education: Overall, 29.8% of candidates and 32% of recipients had a college degree. The proportion of candidates and recipients with a college degree was lowest for kidney-pancreas and highest for lung (**Figure 4** and **Table 3**).

Health insurance type: The proportion of candidates with private health insurance was lowest for lung (42.21%) and highest for liver (52.49%; **Figure 5** and **Table 4**). The proportion of candidates with Medicare was lowest for liver (24.84%) and highest for lung (45.92%). For recipients, the proportion with private health insurance was lowest for kidney (32.18%) and highest for liver (52.4%). The proportion of recipients with Medicare was lowest for liver (27.31%) and highest for kidney (59.85%).

Area deprivation index (ADI): For candidates, median ADI was lowest for lung (43) and highest for kidney-pancreas (52; **Figure 6** and **Table 5**). Similarly, lung recipients had the lowest median ADI (44) and kidney-pancreas recipients had the highest median ADI (55).

Estimated Individual Annual Income

Figure 2 and **Table 1** show estimated individual annual income for adult candidates ever waiting in 2022 and adult transplant recipients in 2022 by organ. Overall median estimated individual income was \$66,000 for candidates and \$68,000 for recipients. For both candidates and recipients, median estimated individual income was lowest for kidney-pancreas (\$64,000 for both candidates and recipients) and highest for lung (candidates: \$73,000; recipients: \$74,000). For reference, mean individual annual income for employed individuals in 2022 was \$70,346.⁶

Figure 2. Estimated Individual Annual Income for Adult Candidates and Recipients in 2022 by Organ



Estimated individual income data were obtained from LexisNexis.

Table 1. Estimated Individual Annual Income for Adult Candidates and Recipients in 2022 by Organ

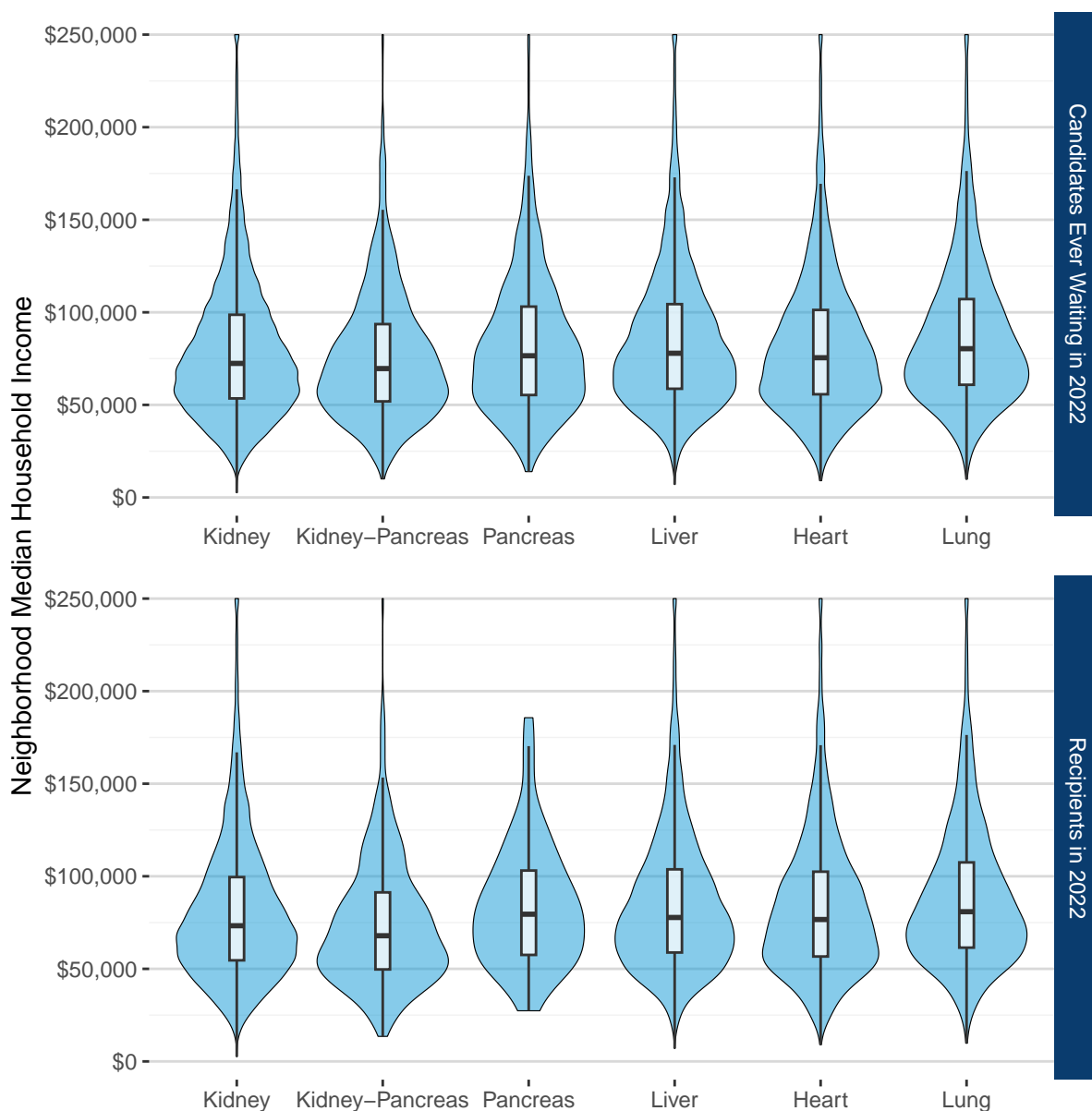
Est. Individual Income	Kidney	Kidney-Pancreas	Pancreas	Liver	Heart	Lung
Candidates Ever Waiting in 2022						
Q1 (<=\$40,000)	29,417 (26.19%)	888 (29.42%)	242 (22.16%)	4,292 (19.79%)	1,569 (22.47%)	657 (17.14%)
Q2 (>\$40,000 - \$66,000)	27,544 (24.52%)	729 (24.16%)	259 (23.72%)	5,396 (24.88%)	1,759 (25.19%)	924 (24.11%)
Q3 (>\$66,000 - \$87,000)	27,720 (24.68%)	765 (25.35%)	294 (26.92%)	5,825 (26.85%)	1,746 (25%)	1,030 (26.87%)
Q4 (>\$87,000)	25,931 (23.09%)	590 (19.55%)	283 (25.92%)	5,824 (26.85%)	1,781 (25.5%)	1,171 (30.55%)
Not Reported	1,713 (1.53%)	46 (1.52%)	14 (1.28%)	354 (1.63%)	128 (1.83%)	51 (1.33%)
Total	112,325 (100%)	3,018 (100%)	1,092 (100%)	21,691 (100%)	6,983 (100%)	3,833 (100%)
Recipients in 2022						
Q1 (<=\$42,000)	6,240 (27.96%)	244 (32.19%)	23 (24.47%)	1,826 (21.72%)	848 (24.58%)	481 (18.99%)
Q2 (>\$42,000 - \$68,000)	5,365 (24.04%)	186 (24.54%)	22 (23.4%)	2,155 (25.63%)	798 (23.13%)	611 (24.12%)
Q3 (>\$68,000 - \$89,000)	5,353 (23.98%)	175 (23.09%)	26 (27.66%)	2,162 (25.71%)	836 (24.23%)	662 (26.14%)
Q4 (>\$89,000)	4,999 (22.4%)	141 (18.6%)	20 (21.28%)	2,130 (25.33%)	899 (26.06%)	746 (29.45%)
Not Reported	364 (1.63%)	12 (1.58%)	3 (3.19%)	135 (1.61%)	69 (2%)	33 (1.3%)
Total	22,321 (100%)	758 (100%)	94 (100%)	8,408 (100%)	3,450 (100%)	2,533 (100%)

Estimated individual income data were obtained from LexisNexis.

Neighborhood Median Household Income

Figure 3 and **Table 2** show the distribution of neighborhood median household income for adult candidates ever waiting in 2022 and adult transplant recipients in 2022 by organ. For both candidates and recipients, median neighborhood income was lowest for kidney-pancreas (candidates: \$69,620; recipients: \$67,883) and highest for lung (candidates: \$80,360; recipients: \$80,859). For reference, according to the U.S. Census Bureau, median household income in 2022 was \$74,580.⁷

Figure 3. Distribution of Neighborhood Median Household Income for Adult Candidates and Recipients in 2022 by Organ



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Table 2. Distribution of Neighborhood Median Household Income for Adult Candidates and Recipients in 2022 by Organ

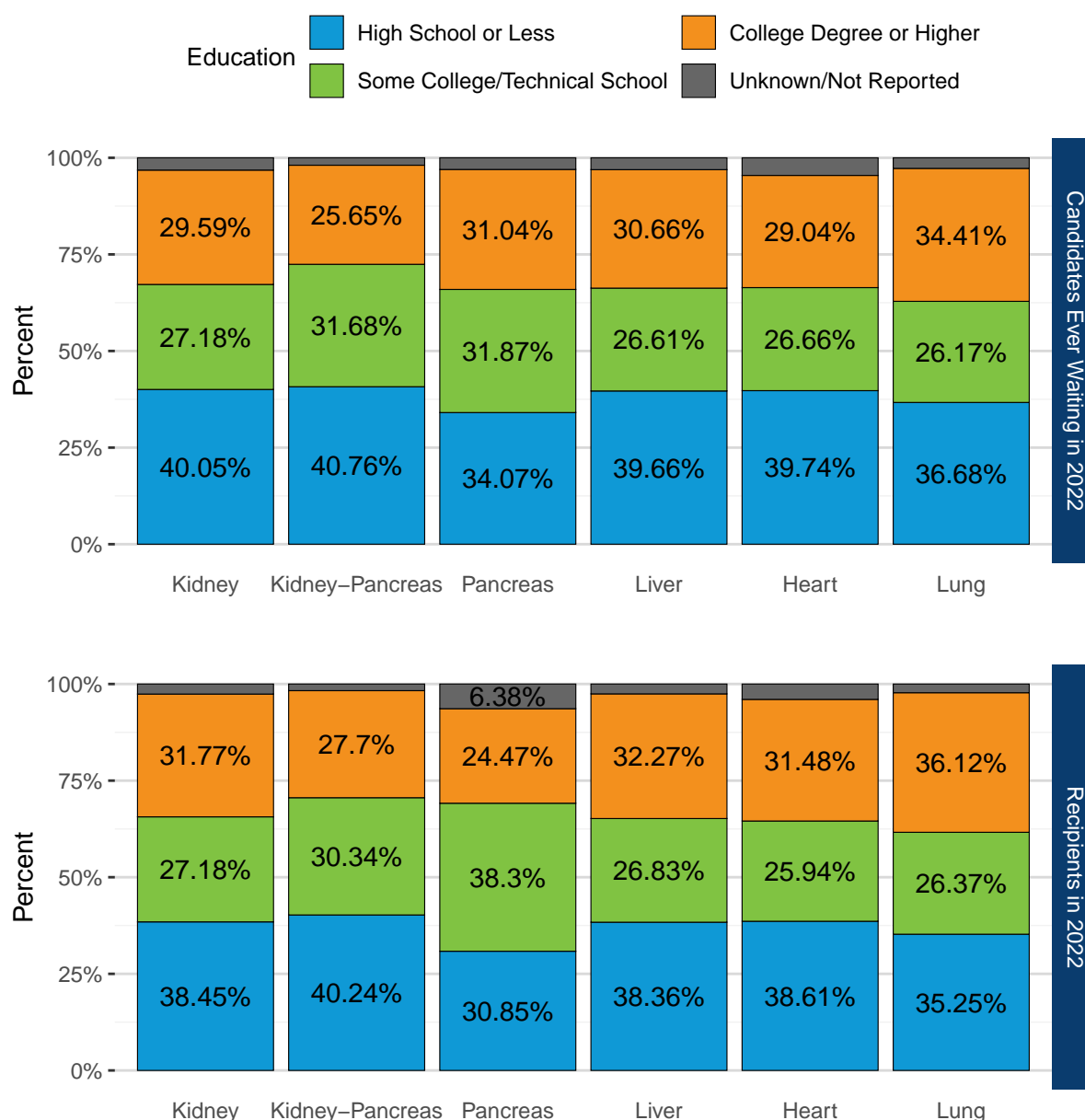
Organ	N	Missing	Min	P25	Median	P75	Max
Candidates Ever Waiting in 2022							
Kidney	112,325	756	\$2,499	\$53,494	\$72,409	\$98,688	\$250,001
Kidney-Pancreas	3,018	17	\$10,000	\$51,885	\$69,620	\$93,630	\$250,001
Pancreas	1,092	7	\$13,944	\$55,333	\$76,533	\$103,084	\$250,001
Liver	21,691	98	\$6,964	\$58,718	\$77,894	\$104,423	\$250,001
Heart	6,983	44	\$9,036	\$55,729	\$75,469	\$101,296	\$250,001
Lung	3,833	18	\$9,795	\$60,873	\$80,360	\$107,143	\$250,001
Recipients in 2022							
Kidney	22,321	151	\$2,499	\$54,592	\$73,281	\$99,548	\$250,001
Kidney-Pancreas	758	2	\$13,508	\$49,684	\$67,883	\$91,292	\$250,001
Pancreas	94	0	\$27,352	\$57,513	\$79,507	\$103,094	\$185,645
Liver	8,408	40	\$6,964	\$58,828	\$77,738	\$103,750	\$250,001
Heart	3,450	26	\$9,036	\$56,669	\$76,644	\$102,478	\$250,001
Lung	2,533	10	\$9,795	\$61,458	\$80,859	\$107,490	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Education

Figure 4 and **Table 3** show education level for adult candidates ever waiting in 2022 and adult transplant recipients in 2022 by organ. Overall, 29.8% of candidates and 32% of recipients had a college degree. The proportion of candidates with a college degree ranged from 25.65% for kidney-pancreas to 34.41% for lung. The proportion of recipients with a college degree ranged from 24.47% for pancreas to 36.12% for lung. For reference, of the U.S. adult population aged 25 and older in 2022, 37% had a college degree according to the U.S. Census Bureau.⁸

Figure 4. Highest Education Level for Adult Candidates and Recipients in 2022 by Organ



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Table 3. Highest Education Level for Adult Candidates and Recipients in 2022 by Organ

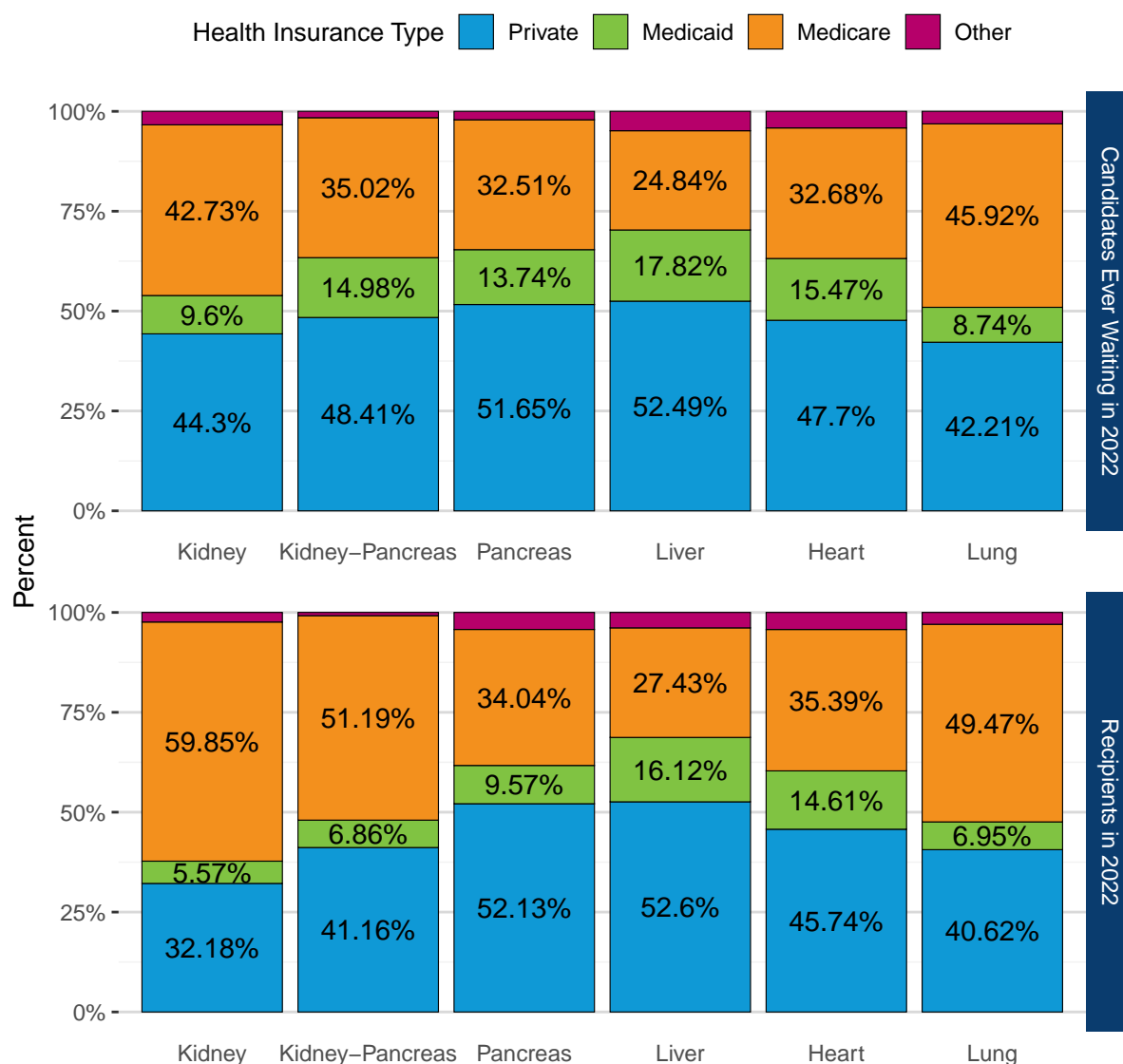
Education	Kidney	Kidney-Pancreas	Pancreas	Liver	Heart	Lung
Candidates Ever Waiting in 2022						
High School or Less	44,984 (40.05%)	1,230 (40.76%)	372 (34.07%)	8,602 (39.66%)	2,775 (39.74%)	1,406 (36.68%)
Some College/Technical School	30,526 (27.18%)	956 (31.68%)	348 (31.87%)	5,773 (26.61%)	1,862 (26.66%)	1,003 (26.17%)
College Degree or Higher	33,239 (29.59%)	774 (25.65%)	339 (31.04%)	6,650 (30.66%)	2,028 (29.04%)	1,319 (34.41%)
Unknown/Not Reported	3,576 (3.18%)	58 (1.92%)	33 (3.02%)	666 (3.07%)	318 (4.55%)	105 (2.74%)
Total	112,325 (100%)	3,018 (100%)	1,092 (100%)	21,691 (100%)	6,983 (100%)	3,833 (100%)
Recipients in 2022						
High School or Less	8,582 (38.45%)	305 (40.24%)	29 (30.85%)	3,225 (38.36%)	1,332 (38.61%)	893 (35.25%)
Some College/Technical School	6,067 (27.18%)	230 (30.34%)	36 (38.3%)	2,256 (26.83%)	895 (25.94%)	668 (26.37%)
College Degree or Higher	7,092 (31.77%)	210 (27.7%)	23 (24.47%)	2,713 (32.27%)	1,086 (31.48%)	915 (36.12%)
Unknown/Not Reported	580 (2.6%)	13 (1.72%)	6 (6.38%)	214 (2.55%)	137 (3.97%)	57 (2.25%)
Total	22,321 (100%)	758 (100%)	94 (100%)	8,408 (100%)	3,450 (100%)	2,533 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Health Insurance Type

Figure 5 and **Table 4** show health insurance type for adult candidates ever waiting in 2022 and adult transplant recipients in 2022 by organ. For candidates, the proportion with private health insurance ranged from 42.21% for lung to 52.49% for liver. For recipients, the proportion with private health insurance ranged from 32.18% for kidney to 52.6% for liver; the proportion with Medicare ranged from 27.31% for liver to 59.85% for kidney.

Figure 5. Health Insurance Type for Adult Candidates and Recipients in 2022 by Organ



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Table 4. Health Insurance Type for Adult Candidates and Recipients in 2022 by Organ

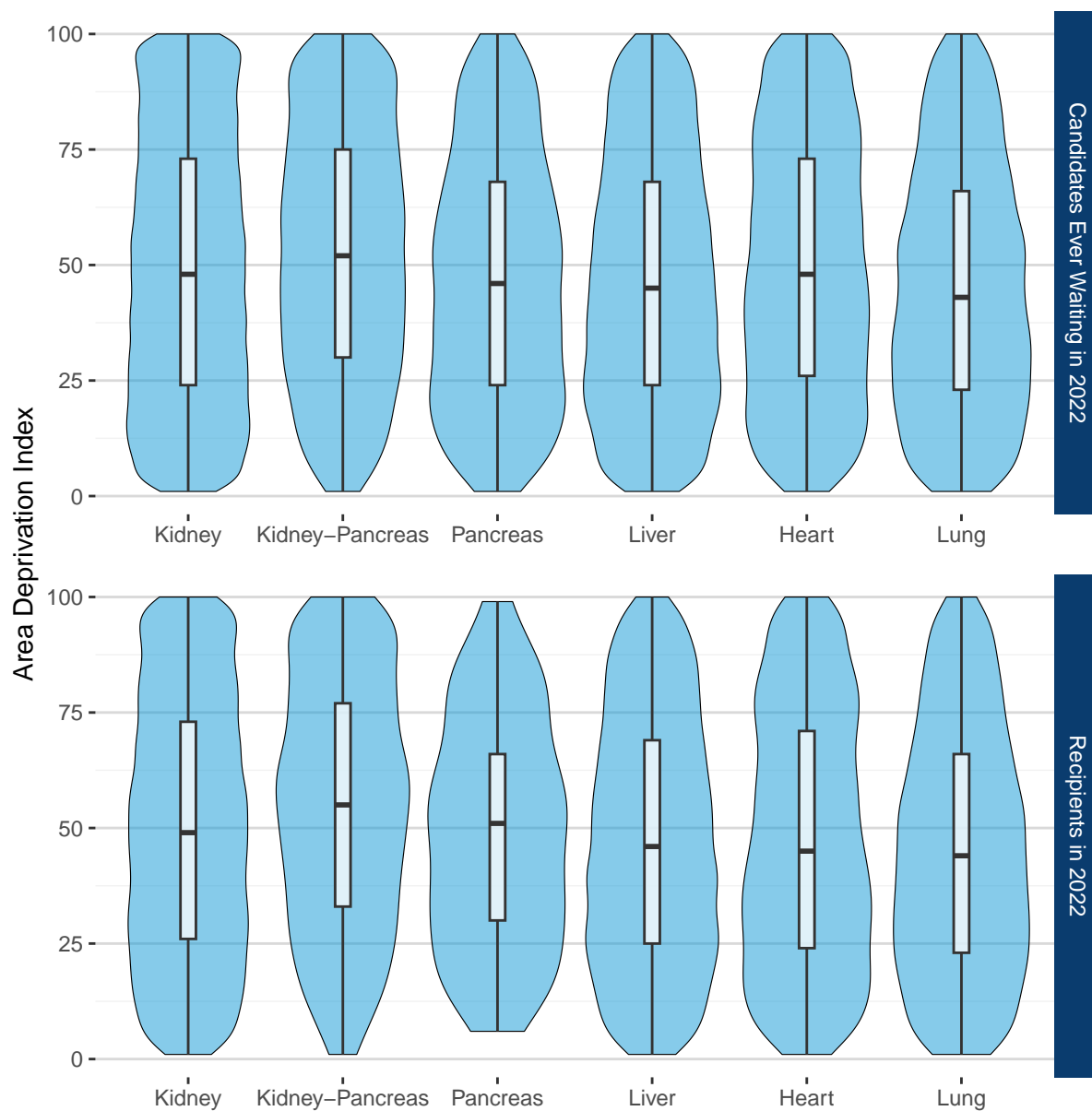
Health Insurance Type	Kidney	Kidney-Pancreas	Pancreas	Liver	Heart	Lung
Candidates Ever Waiting in 2022						
Private	49,764 (44.3%)	1,461 (48.41%)	564 (51.65%)	11,385 (52.49%)	3,331 (47.7%)	1,618 (42.21%)
Medicaid	10,783 (9.6%)	452 (14.98%)	150 (13.74%)	3,866 (17.82%)	1,080 (15.47%)	335 (8.74%)
Medicare	47,993 (42.73%)	1,057 (35.02%)	355 (32.51%)	5,387 (24.84%)	2,282 (32.68%)	1,760 (45.92%)
Other	3,785 (3.37%)	48 (1.59%)	23 (2.11%)	1,053 (4.85%)	290 (4.15%)	120 (3.13%)
Total	112,325 (100%)	3,018 (100%)	1,092 (100%)	21,691 (100%)	6,983 (100%)	3,833 (100%)
Recipients in 2022						
Private	7,183 (32.18%)	312 (41.16%)	49 (52.13%)	4,423 (52.6%)	1,578 (45.74%)	1,029 (40.62%)
Medicaid	1,243 (5.57%)	52 (6.86%)	9 (9.57%)	1,355 (16.12%)	504 (14.61%)	176 (6.95%)
Medicare	13,360 (59.85%)	388 (51.19%)	32 (34.04%)	2,306 (27.43%)	1,221 (35.39%)	1,253 (49.47%)
Other	535 (2.4%)	6 (0.79%)	4 (4.26%)	324 (3.85%)	147 (4.26%)	75 (2.96%)
Total	22,321 (100%)	758 (100%)	94 (100%)	8,408 (100%)	3,450 (100%)	2,533 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Area Deprivation Index

Figure 6 and **Table 5** show the distribution of area deprivation index (ADI) for adult candidates ever waiting in 2022 and transplant recipients in 2022 by organ. For candidates, median ADI ranged from 43 for lung to 52 for kidney-pancreas. For recipients, median ADI ranged from 44 for lung to 55 for kidney-pancreas.

Figure 6. Distribution of Area Deprivation Index for Adult Candidates and Recipients in 2022 by Organ



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Table 5. Distribution of Area Deprivation Index for Adult Candidates and Recipients in 2022 by Organ

Organ	N	Missing	Min	P25	Median	P75	Max
Candidates Ever Waiting in 2022							
Kidney	112,325	756	1	24	48	73	100
Kidney-Pancreas	3,018	17	1	30	52	75	100
Pancreas	1,092	7	1	24	46	68	100
Liver	21,691	98	1	24	45	68	100
Heart	6,983	44	1	26	48	73	100
Lung	3,833	18	1	23	43	66	100
Recipients in 2022							
Kidney	22,321	151	1	26	49	73	100
Kidney-Pancreas	758	2	1	33	55	77	100
Pancreas	94	0	6	30	51	66	99
Liver	8,408	40	1	25	46	69	100
Heart	3,450	26	1	24	45	71	100
Lung	2,533	10	1	23	44	66	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Kidney

Kidney - Results Summary

This section describes social determinants of health (SDOH) for adult kidney candidates ever waiting in 2022 and adult recipients of kidney transplants from living or deceased donors in 2022. Notable findings are summarized below.

Estimated individual annual income: Median estimated individual annual income was \$65,000 for candidates and \$66,000 for recipients (**Figure KI-1** and **Table KI-1**). In general, estimated individual annual income was lower among Black non-Hispanic (**Figure KI-2** and **Table KI-2**) and younger candidates (**Figure KI-3** and **Table KI-3**), and lower estimated individual annual income was associated with longer time on dialysis at listing (**Figure KI-4** and **Table KI-4**). There were significant differences but no clear trend in waiting list mortality by estimated individual annual income: waiting list mortality was highest for candidates in the lowest income quartile, and lowest for candidates in the second income quartile (**Figure KI-21** and **Table KI-21**). Deceased donor transplant rates decreased as individual income increased (**Figure KI-22** and **Figure KI-22**).

Neighborhood median household income: Median neighborhood household income was \$72,404 for candidates and slightly higher for recipients at \$73,281 (**Figure KI-5** and **Table KI-5**). In general, neighborhood median household income was highest among Asian non-Hispanic candidates (**Figure KI-6** and **Table KI-6**), and increased as age at listing increased (**Figure KI-7** and **Table KI-7**). Lower neighborhood median household income was associated with longer time on dialysis at listing (**Figure KI-8** and **Table KI-8**). Similar to estimated individual annual income, deceased donor transplant rates decreased as neighborhood median household income increased (**Figure KI-22** and **Figure KI-22**). There were no significant differences in waiting list mortality by neighborhood median household income (**Figure KI-21** and **Table KI-21**).

Education: Kidney candidates and recipients had similar distributions of educational attainment, with approximately 40% having a high school education or less and approximately 30% with a college degree or higher (**Figure KI-9** and **Table KI-9**). Asian non-Hispanic (43.63%), White non-Hispanic (35.71%), and candidates 65 years and older (36.29%) were more likely to have a college degree or higher (**Figures KI-10 & KI-11** and **Tables KI-10 & KI-11**). Higher education level was associated with higher likelihood of preemptive listing (**Figure KI-12** and **Table KI-12**). Waiting list mortality rates and deceased donor transplant rates both decreased as education level increased (**Figures KI-21 & KI-22** and **Tables KI-21 & KI-22**).

Health insurance type: Similar proportions of kidney candidates had private health insurance and Medicare (44.32% and 42.71%, respectively; **Figure KI-13** and **Table KI-13**). In contrast, a greater proportion of kidney recipients had Medicare (59.85%) and a smaller proportion had private insurance (32.18%). Most (72.99%) candidates aged 65 years and older were on Medicare, compared with 36.13% of candidates aged 50-64 years (**Figure KI-15** and **Table KI-15**). Most (75.62%) candidates on dialysis for 3 or more years at listing were on Medicare (**Figure KI-16** and **Table KI-16**). Candidates insured by Medicare had higher waiting list mortality and higher deceased donor transplant rates than candidates with private insurance or Medicaid (**Figures KI-21 & KI-22** and **Tables KI-21 & KI-22**).

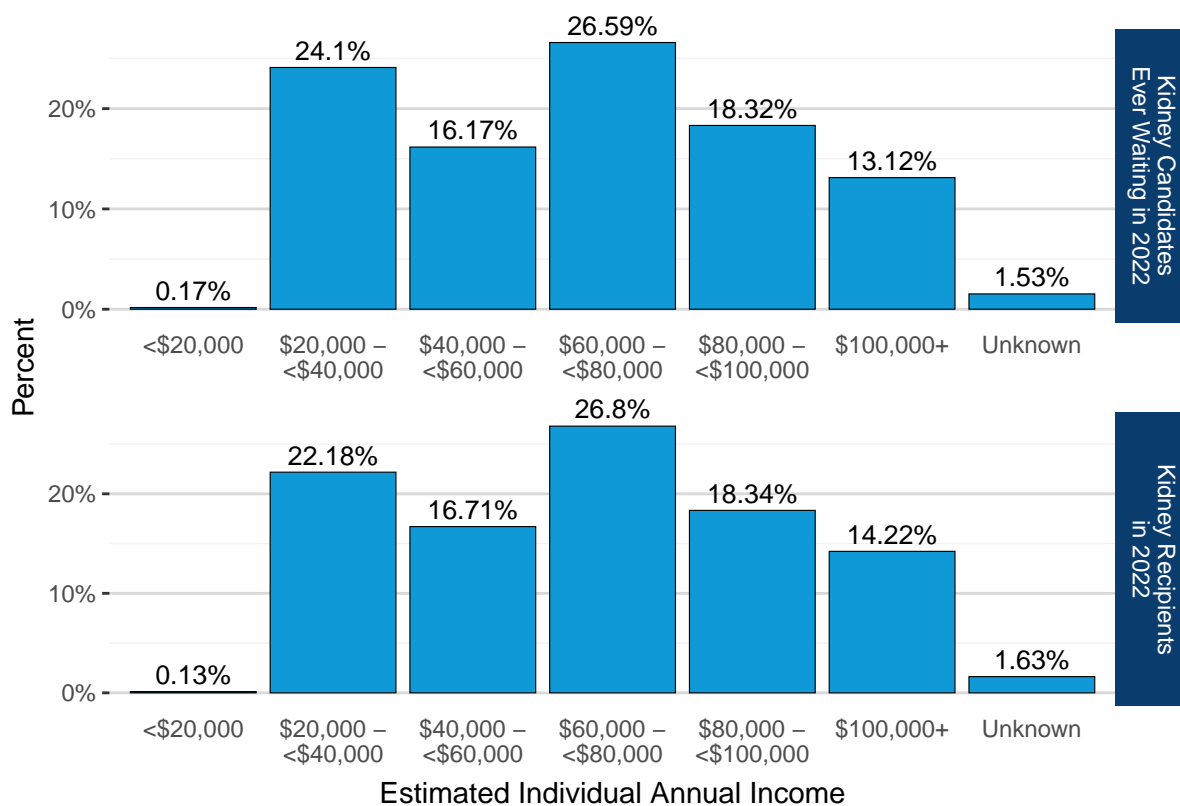
Area deprivation index (ADI): The median ADI was similar for kidney candidates and recipients at 48 and 49, respectively (**Figure KI-17** and **Table KI-17**). The median ADI ranged from 18 for Asian non-Hispanic candidates to 61 for Black non-Hispanic candidates (**Figure KI-18** and **Table KI-18**). The median ADI decreased with increasing age (**Figure KI-19** and **Table KI-19**) and increased as time on dialysis at listing increased (**Figure KI-20** and **Table KI-20**). There was no clear trend in waiting list mortality rates by ADI quartile (**Figure KI-21** and **Table 21**). Deceased donor transplant rates increased as ADI increased (**Figure KI-22** and **Table KI-22**).

SDOH for Recipients of Living vs Deceased Donor Transplants: Compared with recipients of deceased donor transplants, recipients of living donor transplants were more likely to have higher estimated individual annual income, higher neighborhood median household income, a college degree or higher, private insurance, and reside in census block groups with lower ADI (**Figure KI-23** and **Table KI-23**).

Kidney - Estimated Individual Annual Income

Figure KI-1 and **Table KI-1** show estimated individual annual income for adult kidney candidates ever waiting in 2022 and adult kidney transplant recipients in 2022. Median estimated individual annual income was similar for candidates and recipients at \$65,000 and \$66,000, respectively. For reference, mean individual annual income for employed individuals in 2022 was \$70,346 according to the U.S. Bureau of Labor Statistics⁶ and median household income in 2022 was \$74,580 according to the U.S. Census Bureau.⁷

Figure KI-1. Estimated Individual Annual Income for Adult Kidney Candidates and Recipients in 2022



Estimated individual income data were obtained from LexisNexis.

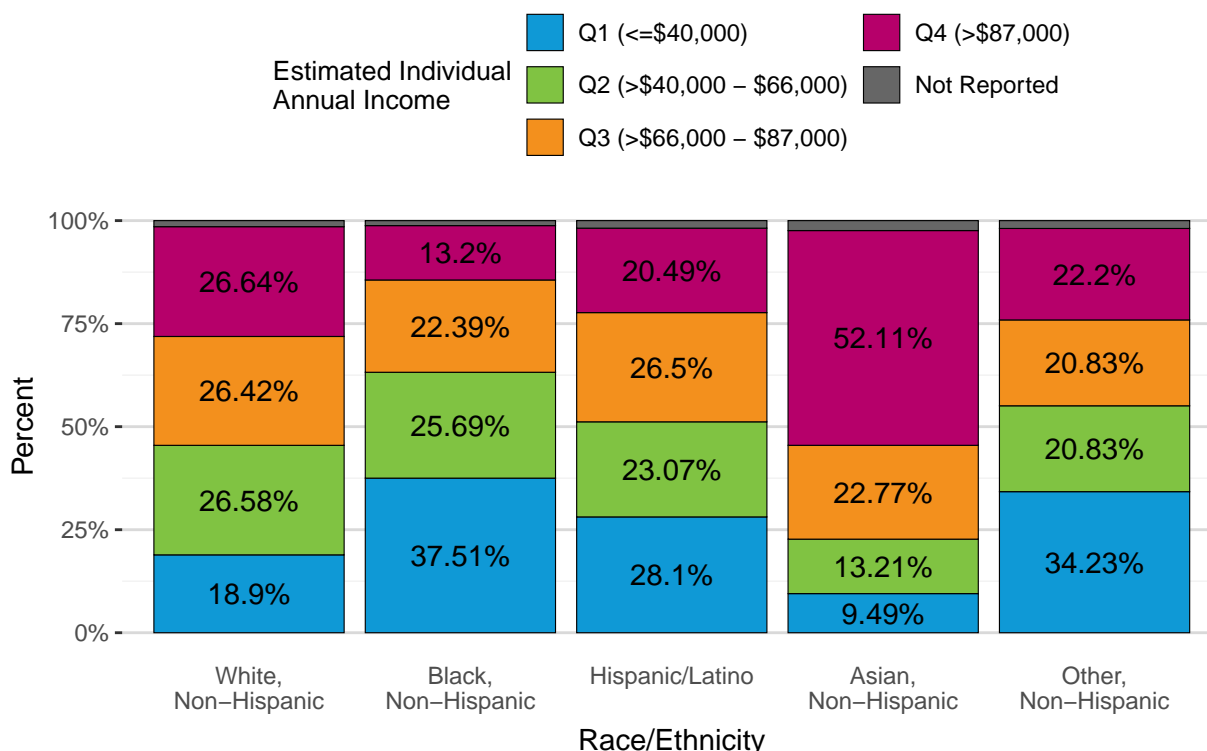
Table KI-1. Estimated Individual Annual Income for Adult Kidney Candidates and Recipients in 2022

Est. Individual Income	Kidney Candidates Ever Waiting in 2022		Kidney Recipients in 2022	
	N	Percent	N	Percent
<\$20,000	187	0.17%	28	0.13%
\$20,000 - <\$40,000	27,072	24.1%	4,950	22.18%
\$40,000 - <\$60,000	18,164	16.17%	3,729	16.71%
\$60,000 - <\$80,000	29,869	26.59%	5,983	26.8%
\$80,000 - <\$100,000	20,579	18.32%	4,093	18.34%
\$100,000+	14,741	13.12%	3,174	14.22%
Unknown	1,713	1.53%	364	1.63%
Total	112,325	100%	22,321	100%

Estimated individual income data were obtained from LexisNexis.

Figure KI-2 and **Table KI-2** show estimated individual annual income for adult kidney candidates ever waiting in 2022 by race/ethnicity. Black non-Hispanic candidates had the highest proportion in the lowest income quartile (37.51%) and the lowest proportion in the highest income quartile (13.2%), while Asian non-Hispanic candidates had the lowest proportion in the lowest income quartile (9.49%) and the highest proportion in the highest income quartile (52.11%).

Figure KI-2. Adult Kidney Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity



Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

Table KI-2. Adult Kidney Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity

Est. Individual Income	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Q1 (<=\$40,000)	8,549 (18.9%)	13,975 (37.51%)	5,149 (28.1%)	842 (9.49%)	902 (34.23%)
Q2 (>\$40,000 - \$66,000)	12,024 (26.58%)	9,571 (25.69%)	4,228 (23.07%)	1,172 (13.21%)	549 (20.83%)
Q3 (>\$66,000 - \$87,000)	11,952 (26.42%)	8,343 (22.39%)	4,856 (26.5%)	2,020 (22.77%)	549 (20.83%)
Q4 (>\$87,000)	12,053 (26.64%)	4,916 (13.2%)	3,755 (20.49%)	4,622 (52.11%)	585 (22.2%)
Not Reported	665 (1.47%)	449 (1.21%)	335 (1.83%)	214 (2.41%)	50 (1.9%)
Total	45,243 (100%)	37,254 (100%)	18,323 (100%)	8,870 (100%)	2,635 (100%)

Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

Figure KI-3 and **Table KI-3** show estimated individual annual income for adult kidney candidates ever waiting in 2022 by age at listing. A greater proportion of candidates aged 18-34 were in the lowest quartile of individual income compared with candidates over age 34; there was little difference in the distribution of individual income between the 35-49, 50-64, and 65+ age groups.

Figure KI-3. Adult Kidney Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing

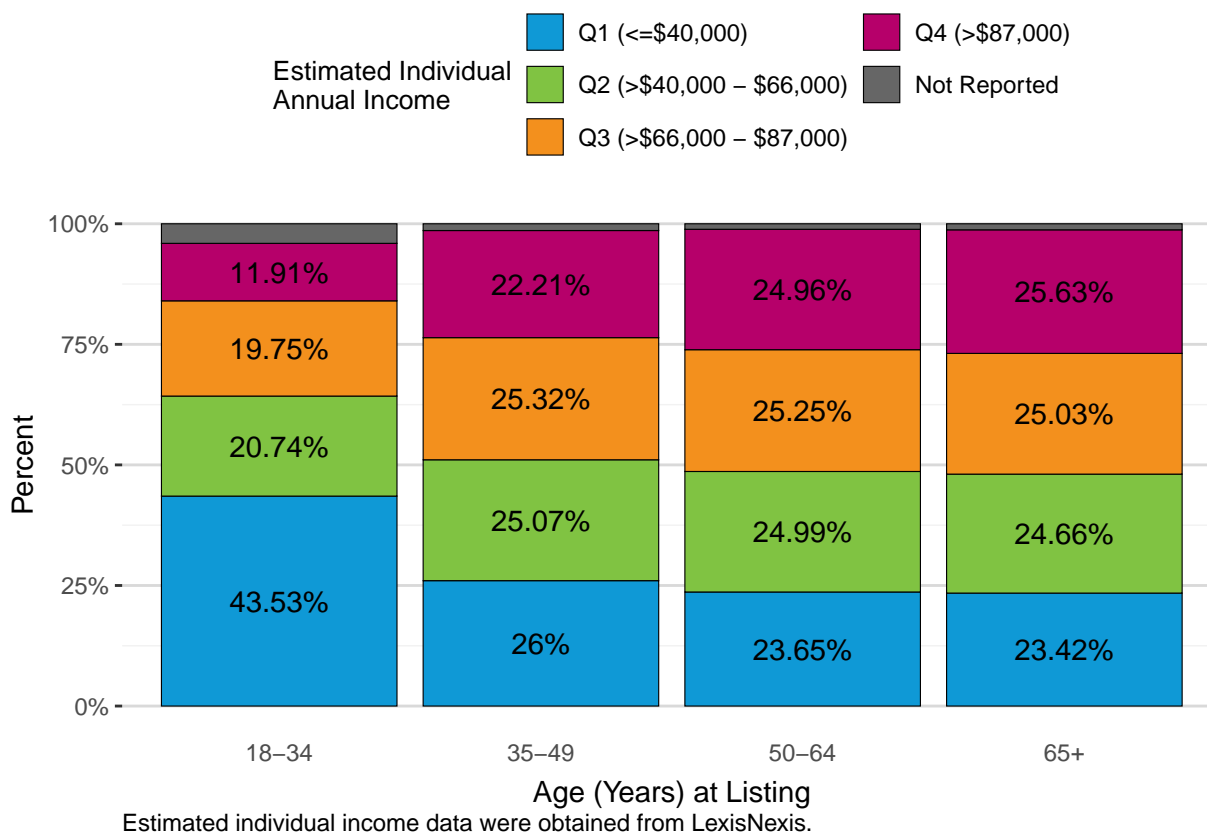


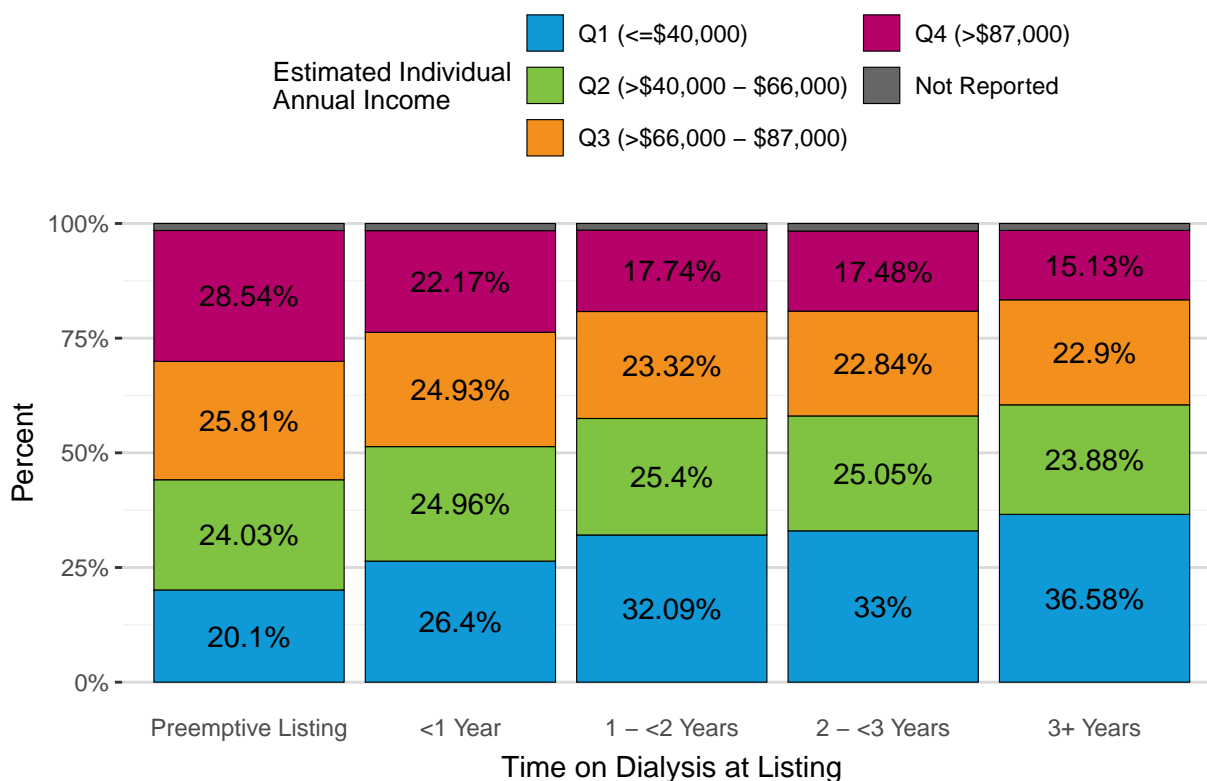
Table KI-3. Adult Kidney Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing

Est. Individual Income	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Q1 (<=\$40,000)	4,856 (43.53%)	7,625 (26%)	11,485 (23.65%)	5,451 (23.42%)
Q2 (>\$40,000 - \$66,000)	2,314 (20.74%)	7,352 (25.07%)	12,138 (24.99%)	5,740 (24.66%)
Q3 (>\$66,000 - \$87,000)	2,203 (19.75%)	7,427 (25.32%)	12,265 (25.25%)	5,825 (25.03%)
Q4 (>\$87,000)	1,329 (11.91%)	6,514 (22.21%)	12,124 (24.96%)	5,964 (25.63%)
Not Reported	453 (4.06%)	411 (1.4%)	557 (1.15%)	292 (1.25%)
Total	11,155 (100%)	29,329 (100%)	48,569 (100%)	23,272 (100%)

Estimated individual income data were obtained from LexisNexis.

Figure KI-4 and **Table KI-4** show estimated individual annual income for adult kidney candidates ever waiting in 2022 by time on dialysis at listing. Overall, the proportion of candidates in the lowest income quartiles increased as time on dialysis at listing increased. Candidates who were preemptively listed had the lowest proportion in the lowest income quartile (20.1%), while candidates with 3+ years of dialysis time had the greatest proportion in the lowest income quartile (36.66%).

Figure KI-4. Adult Kidney Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Time on Dialysis at Listing



Estimated individual income data were obtained from LexisNexis.
N=32 candidates missing dialysis start date were excluded.

Table KI-4. Adult Kidney Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Time on Dialysis at Listing

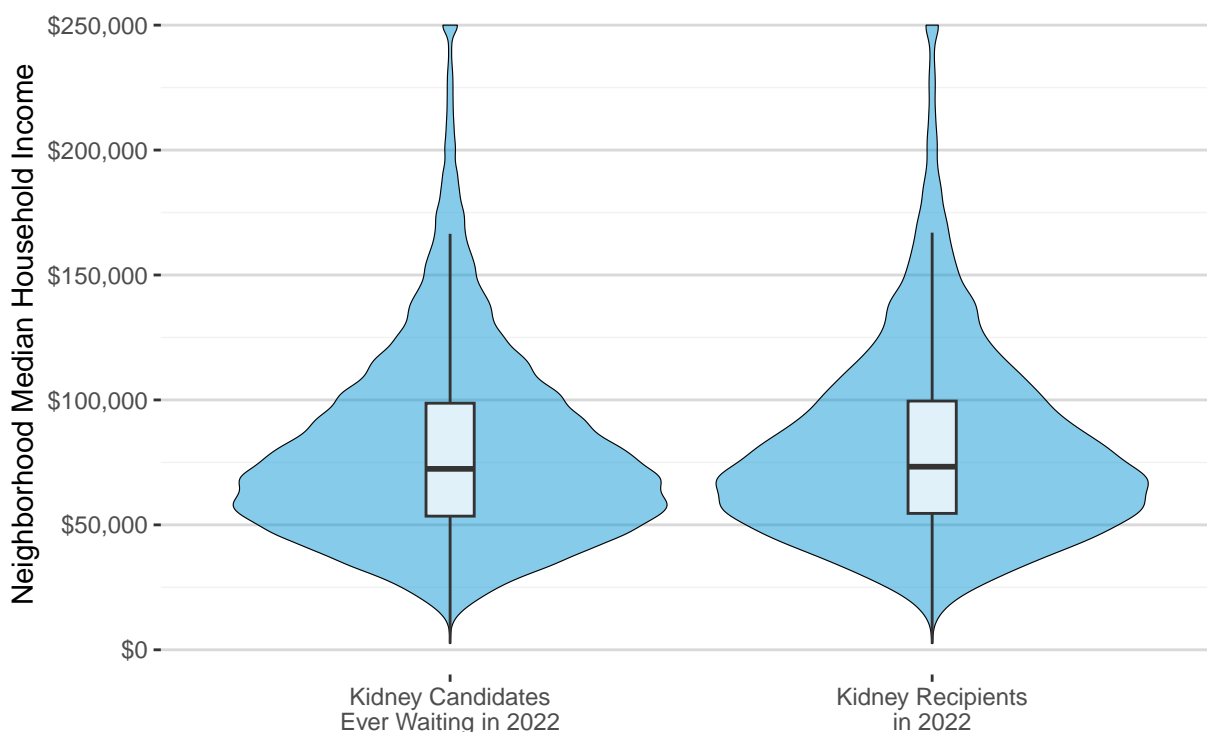
Est. Individual Income	Time on Dialysis at Listing				
	Preemptive Listing	<1 Year	1 - <2 Years	2 - <3 Years	3+ Years
Q1 (<=\$40,000)	9,579 (20.1%)	7,129 (26.4%)	5,705 (32.09%)	2,615 (33%)	4,367 (36.58%)
Q2 (>\$40,000 - \$66,000)	11,448 (24.03%)	6,740 (24.96%)	4,515 (25.4%)	1,985 (25.05%)	2,851 (23.88%)
Q3 (>\$66,000 - \$87,000)	12,296 (25.81%)	6,732 (24.93%)	4,146 (23.32%)	1,810 (22.84%)	2,733 (22.9%)
Q4 (>\$87,000)	13,599 (28.54%)	5,986 (22.17%)	3,154 (17.74%)	1,385 (17.48%)	1,806 (15.13%)
Not Reported	726 (1.52%)	419 (1.55%)	257 (1.45%)	130 (1.64%)	180 (1.51%)
Total	47,648 (100%)	27,006 (100%)	17,777 (100%)	7,925 (100%)	11,937 (100%)

Estimated individual income data were obtained from LexisNexis.
N=32 candidates missing dialysis start date were excluded.

Kidney - Neighborhood Median Household Income

Figure KI-5 and **Table KI-5** show the distribution of neighborhood median household income for adult kidney candidates ever waiting in 2022. Median neighborhood household income was \$72,411 for candidates and slightly higher for recipients at \$73,281. For reference, median household income in 2022 according to the U.S. Census Bureau was \$74,580.⁷

Figure KI-5. Distribution of Neighborhood Median Household Income for Adult Kidney Candidates and Recipients in 2022



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

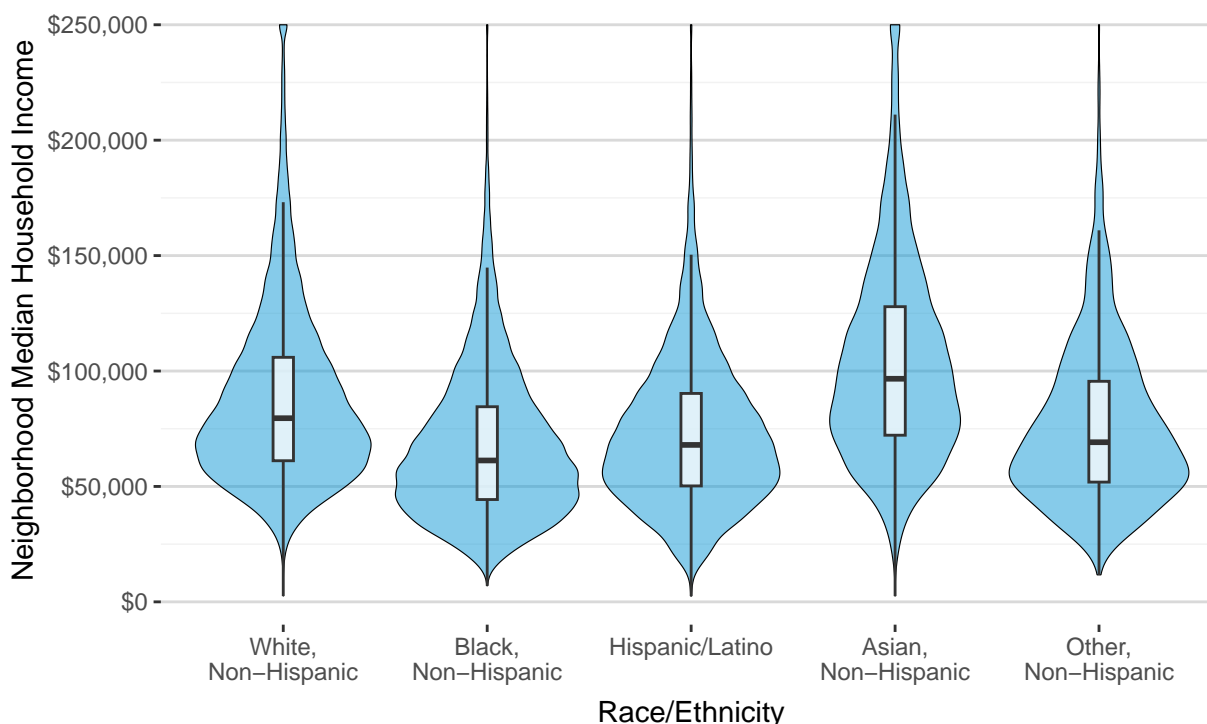
Table KI-5. Distribution of Neighborhood Median Household Income for Adult Kidney Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Kidney Candidates Ever Waiting in 2022	112,325	756	\$2,499	\$53,494	\$72,409	\$98,688	\$250,001
Kidney Recipients in 2022	22,321	151	\$2,499	\$54,592	\$73,281	\$99,548	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure KI-6 and **Table KI-6** show the distribution of neighborhood median household income for adult kidney candidates ever waiting in 2022 by race/ethnicity. Median neighborhood household income was highest for Asian non-Hispanic candidates at \$96,650 and lowest for Black non-Hispanic candidates at \$61,250.

Figure KI-6. Distribution of Neighborhood Median Household Income for Adult Kidney Candidates Ever Waiting in 2022 by Race/Ethnicity



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

Table KI-6. Distribution of Neighborhood Median Household Income for Adult Kidney Candidates Ever Waiting in 2022 by Race/Ethnicity

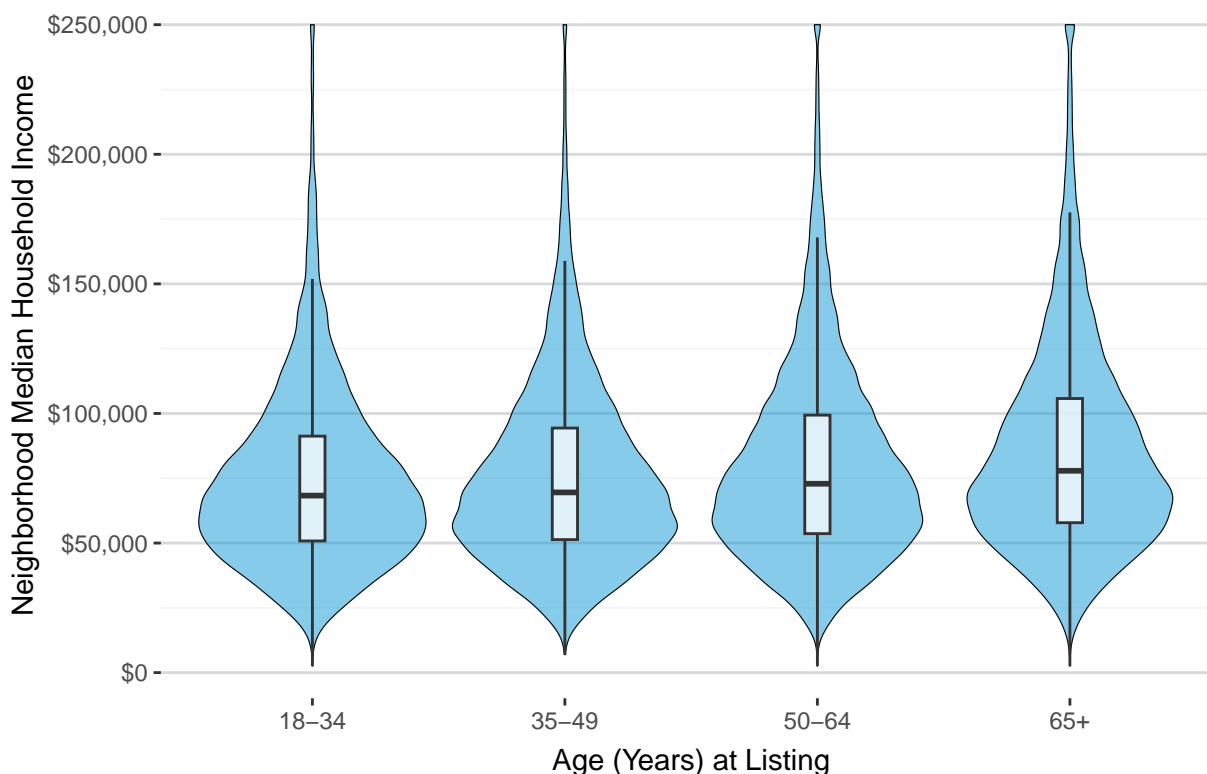
Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
White, Non-Hispanic	45,243	218	\$2,499	\$61,135	\$79,554	\$105,938	\$250,001
Black, Non-Hispanic	37,254	257	\$6,955	\$44,322	\$61,250	\$84,525	\$250,001
Hispanic/Latino	18,323	151	\$2,499	\$50,230	\$67,989	\$90,292	\$250,001
Asian, Non-Hispanic	8,870	94	\$2,499	\$72,185	\$96,650	\$127,870	\$250,001
Other, Non-Hispanic	2,635	36	\$11,692	\$51,875	\$69,152	\$95,550	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

Figure KI-7 and **Table KI-7** show the distribution of neighborhood median household income for adult kidney candidates ever waiting in 2022 by age at listing. Median neighborhood household income increased as candidate age increased: the median was lowest for candidates aged 18-34 (\$68,307) and highest for candidates aged 65+ (\$77,877).

Figure KI-7. Distribution of Neighborhood Median Household Income for Adult Kidney Candidates Ever Waiting in 2022 by Age at Listing



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

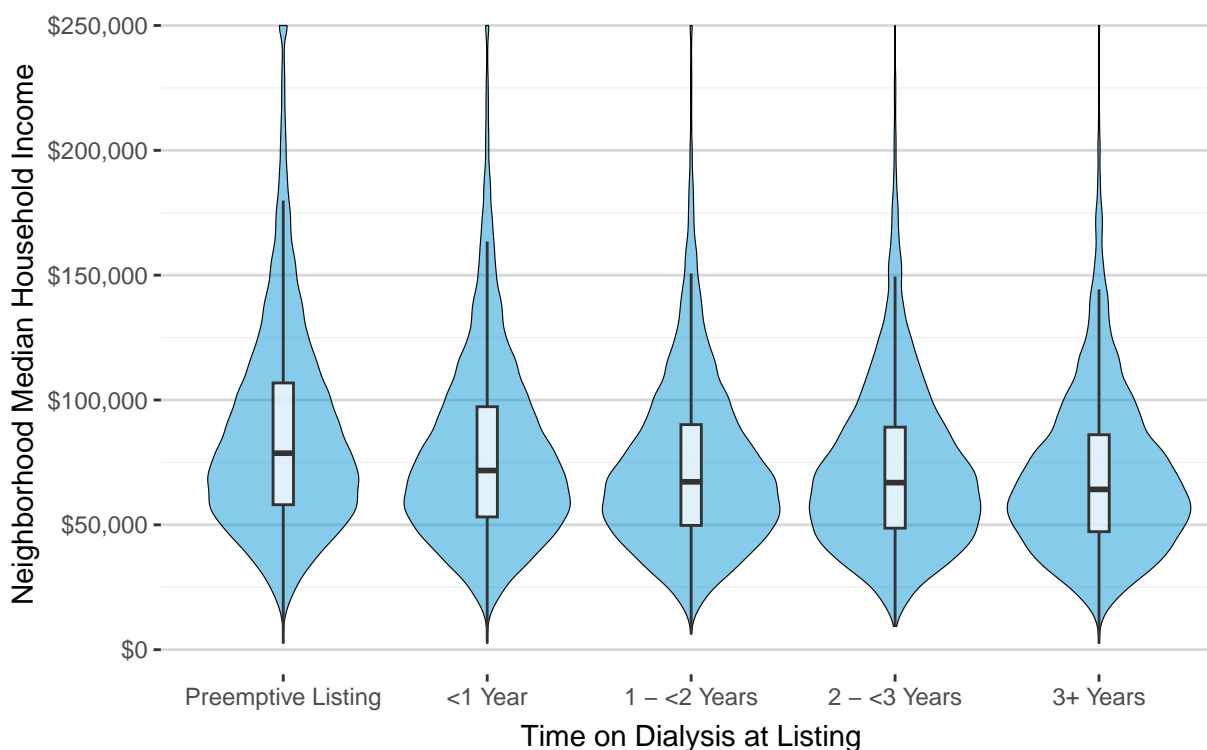
Table KI-7. Distribution of Neighborhood Median Household Income for Adult Kidney Candidates Ever Waiting in 2022 by Age at Listing

Age at Listing	N	Missing	Min	P25	Median	P75	Max
18-34	11,155	202	\$2,499	\$50,804	\$68,307	\$91,250	\$250,001
35-49	29,329	186	\$6,955	\$51,321	\$69,534	\$94,375	\$250,001
50-64	48,569	252	\$2,499	\$53,629	\$72,879	\$99,359	\$250,001
65+	23,272	116	\$2,499	\$57,844	\$77,877	\$105,762	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure KI-8 and **Table KI-8** show the distribution of neighborhood median household income for adult kidney candidates ever waiting in 2022 by time on dialysis at listing. Median neighborhood household income decreased as time on dialysis increased: the median was highest for candidates who were preemptively listed (\$78,691) and lowest for candidates with 3+ years on dialysis at listing (\$64,201).

Figure KI-8. Distribution of Neighborhood Median Household Income for Adult Kidney Candidates Ever Waiting in 2022 by Time on Dialysis at Listing



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

N=32 candidates missing dialysis start date were excluded.

Table KI-8. Distribution of Neighborhood Median Household Income for Adult Kidney Candidates Ever Waiting in 2022 by Time on Dialysis at Listing

Time on Dialysis	N	Missing	Min	P25	Median	P75	Max
Preemptive Listing	47,648	296	\$2,499	\$58,055	\$78,693	\$106,822	\$250,001
<1 Year	27,006	178	\$2,499	\$53,173	\$71,763	\$97,314	\$250,001
1 - <2 Years	17,777	130	\$6,185	\$49,772	\$67,234	\$90,133	\$250,001
2 - <3 Years	7,925	54	\$9,323	\$48,662	\$66,902	\$89,118	\$250,001
3+ Years	11,937	97	\$2,499	\$47,255	\$64,192	\$86,081	\$250,001

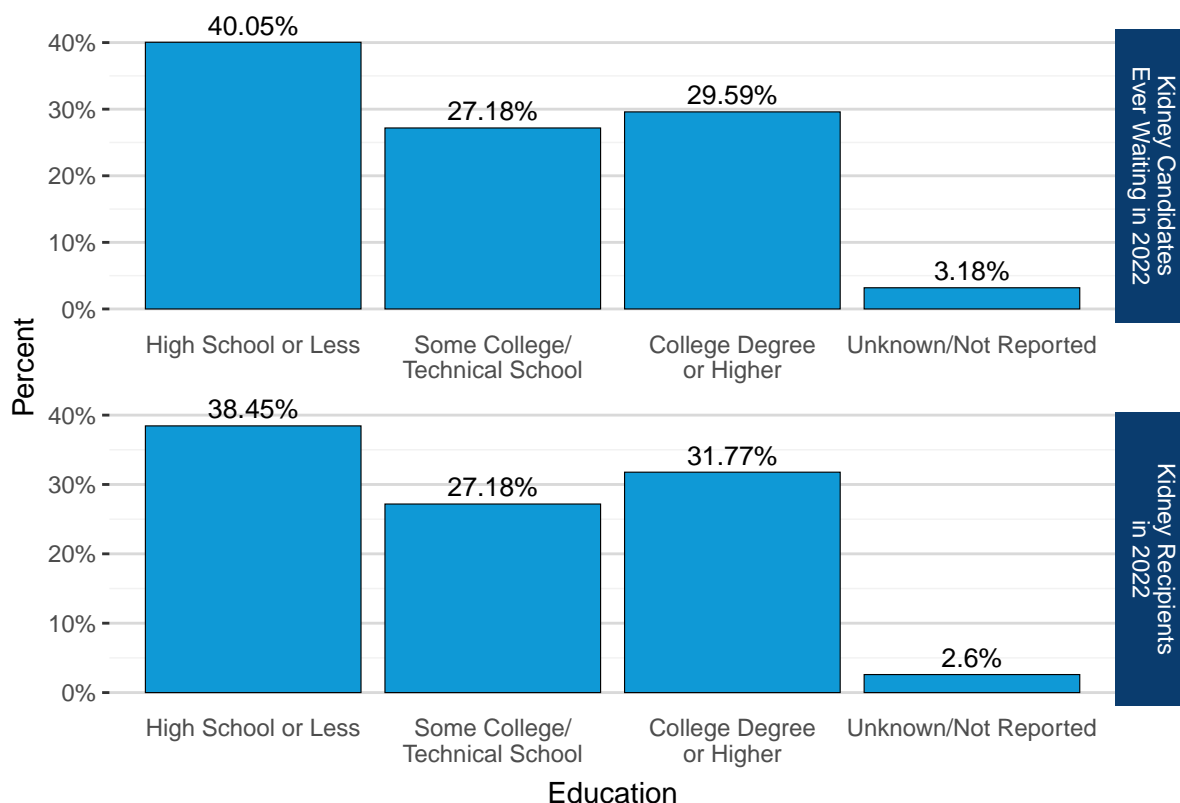
Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

N=32 candidates missing dialysis start date were excluded.

Kidney - Education

Figure KI-9 and **Table KI-9** show the highest education level reported for adult kidney candidates ever waiting in 2022 and adult kidney transplant recipients in 2022. The distribution of education level was similar for candidates and recipients, with approximately 40% having a high school education or less and approximately 30% having a college degree or higher.

Figure KI-9. Highest Education Level for Adult Kidney Candidates and Recipients in 2022



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

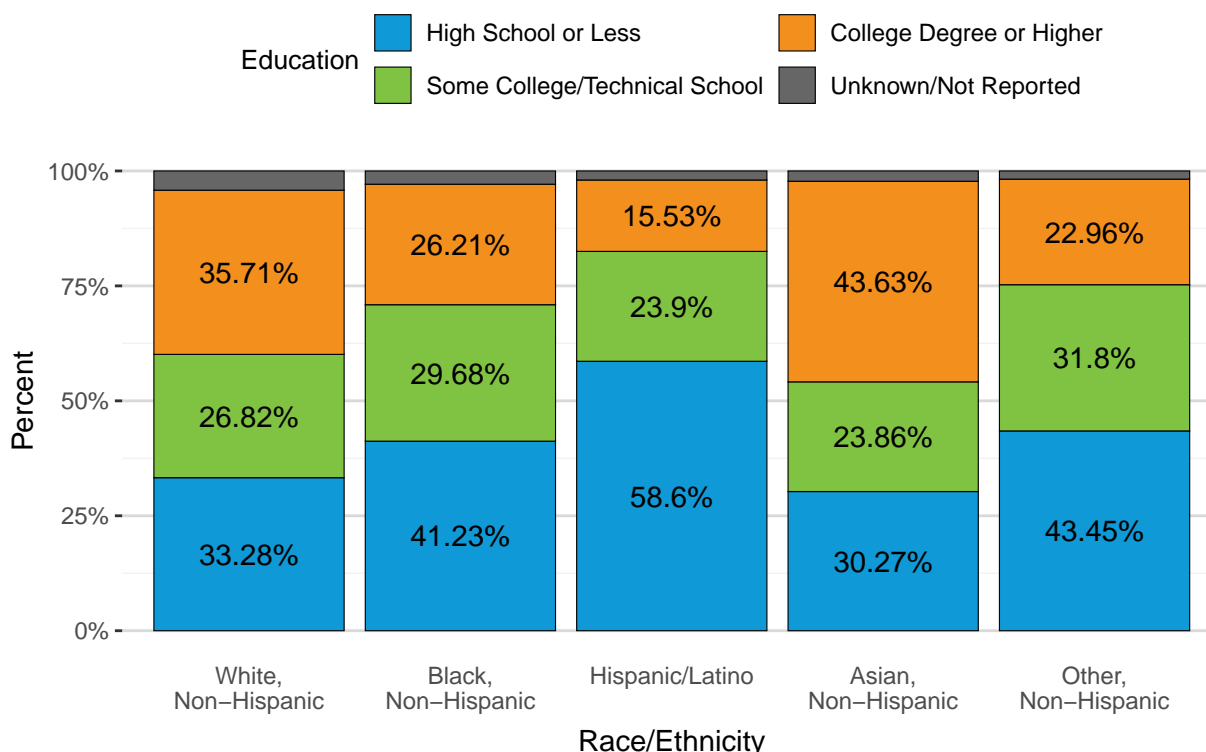
Table KI-9. Highest Education Level for Adult Kidney Candidates and Recipients in 2022

Education	Kidney Candidates Ever Waiting in 2022		Kidney Recipients in 2022	
	N	Percent	N	Percent
High School or Less	44,984	40.05%	8,582	38.45%
Some College/Technical School	30,526	27.18%	6,067	27.18%
College Degree or Higher	33,239	29.59%	7,092	31.77%
Unknown/Not Reported	3,576	3.18%	580	2.6%
Total	112,325	100%	22,321	100%

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure KI-10 and **Table KI-10** show education level for adult kidney candidates ever waiting in 2022 by race/ethnicity. The percentage of candidates with a college degree or higher ranged from 15.53% for Hispanic/Latino candidates to 43.63% for Asian non-Hispanic candidates.

Figure KI-10. Adult Kidney Candidates Ever Waiting in 2022 by Education and Race/Ethnicity



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.
Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

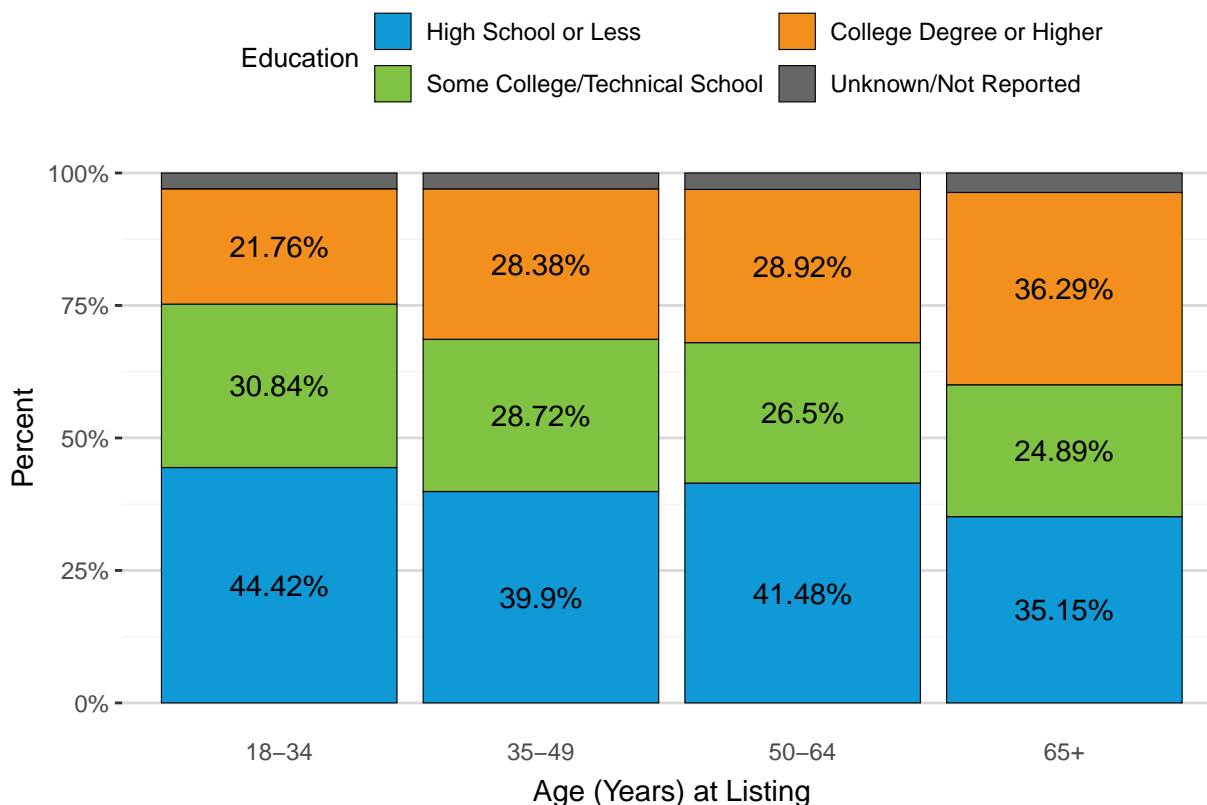
Table KI-10. Adult Kidney Candidates Ever Waiting in 2022 by Education and Race/Ethnicity

Education	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
High School or Less	15,058 (33.28%)	15,358 (41.23%)	10,738 (58.6%)	2,685 (30.27%)	1,145 (43.45%)
Some College/Technical School	12,135 (26.82%)	11,058 (29.68%)	4,379 (23.9%)	2,116 (23.86%)	838 (31.8%)
College Degree or Higher	16,156 (35.71%)	9,763 (26.21%)	2,845 (15.53%)	3,870 (43.63%)	605 (22.96%)
Unknown/Not Reported	1,894 (4.19%)	1,075 (2.89%)	361 (1.97%)	199 (2.24%)	47 (1.78%)
Total	45,243 (100%)	37,254 (100%)	18,323 (100%)	8,870 (100%)	2,635 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.
Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

Figure KI-11 and **Table KI-11** show the education level for adult kidney candidates ever waiting in 2022 by candidate age at listing. Candidates aged 65+ had the greatest proportion with a college degree or higher (36.29%), while candidates aged 18-34 had the lowest proportion (21.76%).

Figure KI-11. Adult Kidney Candidates Ever Waiting in 2022 by Education and Age at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

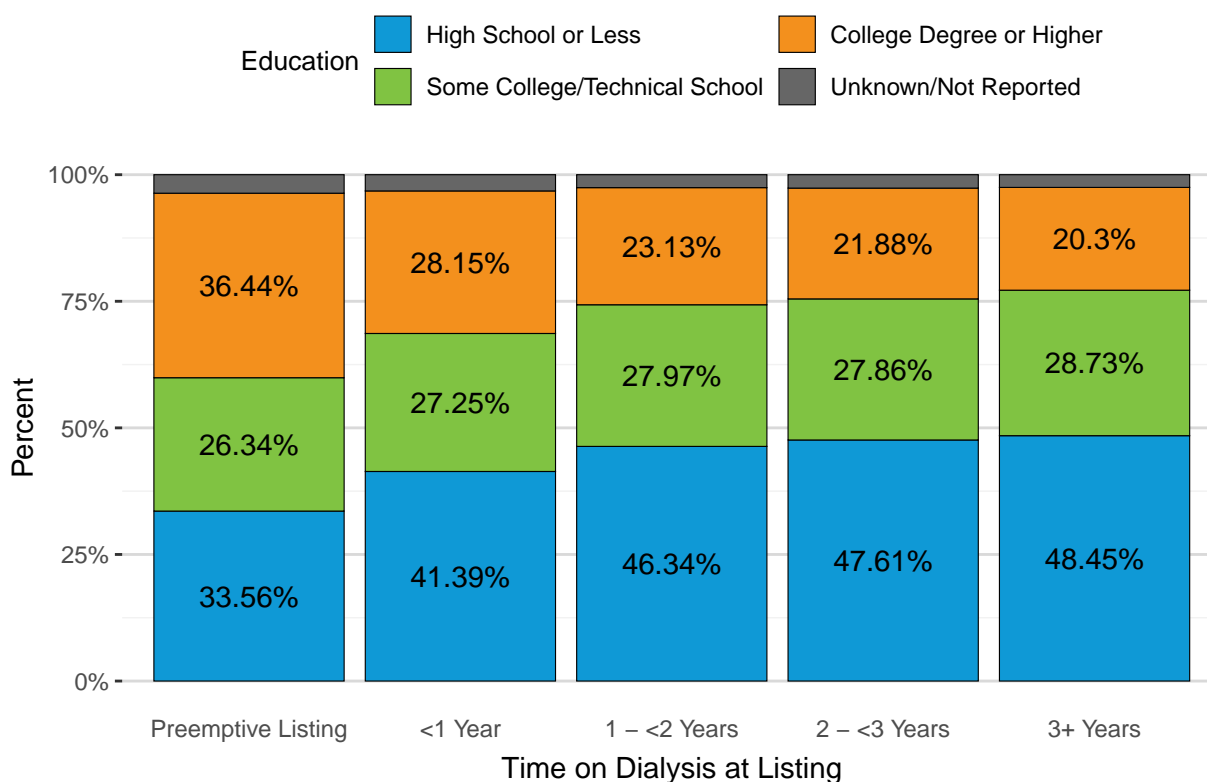
Table KI-11. Adult Kidney Candidates Ever Waiting in 2022 by Education and Age at Listing

Education	Age (Years) at Listing			
	18-34	35-49	50-64	65+
High School or Less	4,955 (44.42%)	11,701 (39.9%)	20,148 (41.48%)	8,180 (35.15%)
Some College/Technical School	3,440 (30.84%)	8,424 (28.72%)	12,870 (26.5%)	5,792 (24.89%)
College Degree or Higher	2,427 (21.76%)	8,323 (28.38%)	14,044 (28.92%)	8,445 (36.29%)
Unknown/Not Reported	333 (2.99%)	881 (3%)	1,507 (3.1%)	855 (3.67%)
Total	11,155 (100%)	29,329 (100%)	48,569 (100%)	23,272 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure KI-12 and **Table KI-12** show education level for adult kidney candidates ever waiting in 2022 by time on dialysis at listing. Candidates who were preemptively listed had the greatest proportion with a college degree or higher (36.44%), while candidates with 3+ years on dialysis had the lowest proportion (20.3%).

Figure KI-12. Adult Kidney Candidates Ever Waiting in 2022 by Education and Time on Dialysis at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.
N=32 candidates missing dialysis start date were excluded.

Table KI-12. Adult Kidney Candidates Ever Waiting in 2022 by Education and Time on Dialysis at Listing

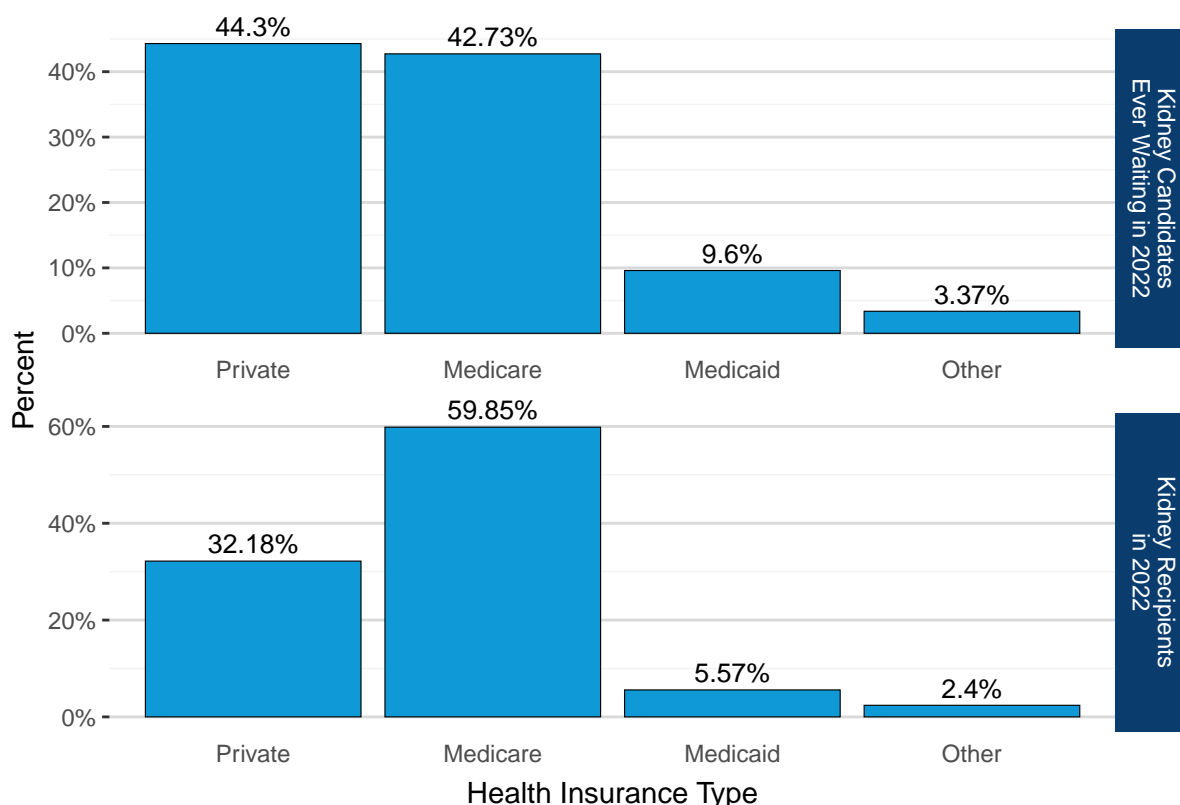
Education	Time on Dialysis at Listing				
	Preemptive Listing	<1 Year	1 - <2 Years	2 - <3 Years	3+ Years
High School or Less	15,993 (33.56%)	11,177 (41.39%)	8,238 (46.34%)	3,773 (47.61%)	5,784 (48.45%)
Some College/Technical School	12,550 (26.34%)	7,360 (27.25%)	4,973 (27.97%)	2,208 (27.86%)	3,430 (28.73%)
College Degree or Higher	17,363 (36.44%)	7,603 (28.15%)	4,112 (23.13%)	1,734 (21.88%)	2,423 (20.3%)
Unknown/Not Reported	1,742 (3.66%)	866 (3.21%)	454 (2.55%)	210 (2.65%)	300 (2.51%)
Total	47,648 (100%)	27,006 (100%)	17,777 (100%)	7,925 (100%)	11,937 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.
N=32 candidates missing dialysis start date were excluded.

Kidney - Health Insurance Type

Figure KI-13 and **Table KI-13** show health insurance type for adult kidney candidates ever waiting in 2022 and adult kidney transplant recipients in 2022. Compared with candidates ever waiting in 2022, transplant recipients were more likely to have Medicare (59.85% vs 42.73%).

Figure KI-13. Health Insurance Type for Adult Kidney Candidates and Recipients in 2022



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

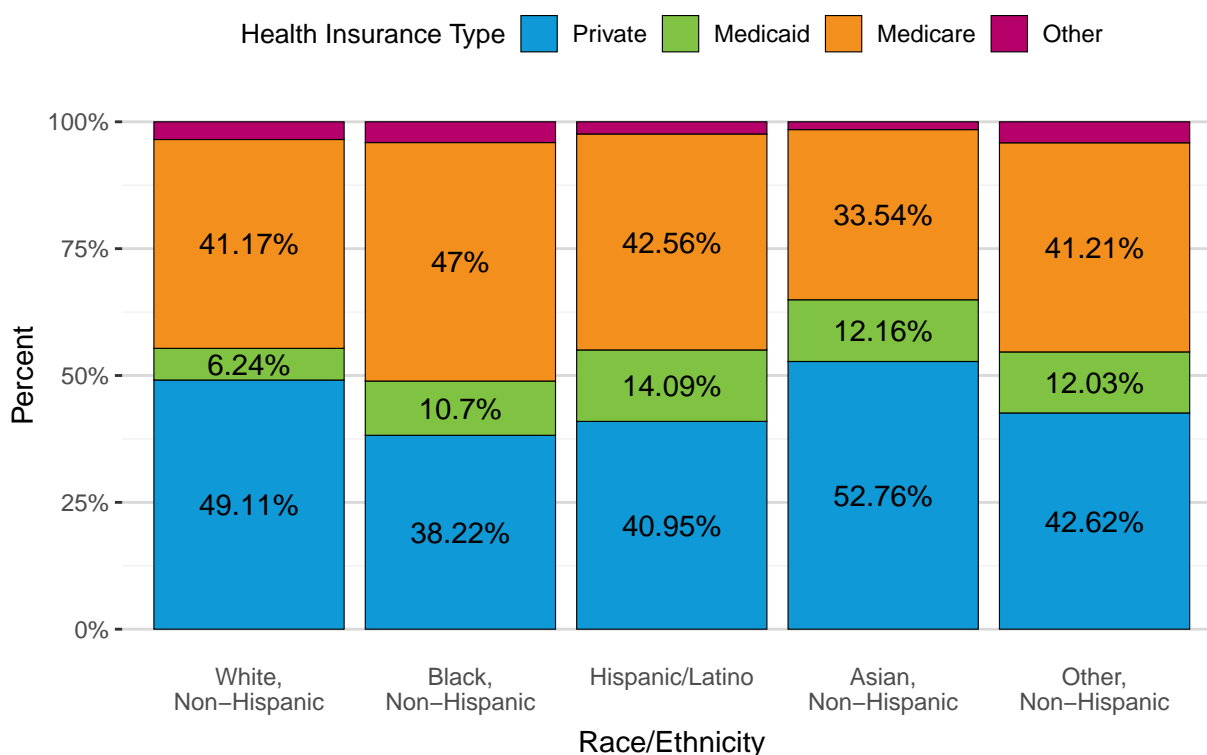
Table KI-13. Health Insurance Type for Adult Kidney Candidates and Recipients in 2022

Health Insurance	Kidney Candidates Ever Waiting in 2022		Kidney Recipients in 2022	
	N	Percent	N	Percent
Private	49,764	44.3%	7,183	32.18%
Medicaid	10,783	9.6%	1,243	5.57%
Medicare	47,993	42.73%	13,360	59.85%
Other	3,785	3.37%	535	2.4%
Total	112,325	100%	22,321	100%

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure KI-14 and **Table KI-14** show health insurance type for adult kidney candidates ever waiting in 2022 by race/ethnicity. The proportion of candidates with private insurance ranged from 38.22% for Black non-Hispanic candidates to 52.76% for Asian non-Hispanic candidates; the proportion with Medicare ranged from 33.54% for Asian non-Hispanic candidates to 47% for Black non-Hispanic candidates.

Figure KI-14. Adult Kidney Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

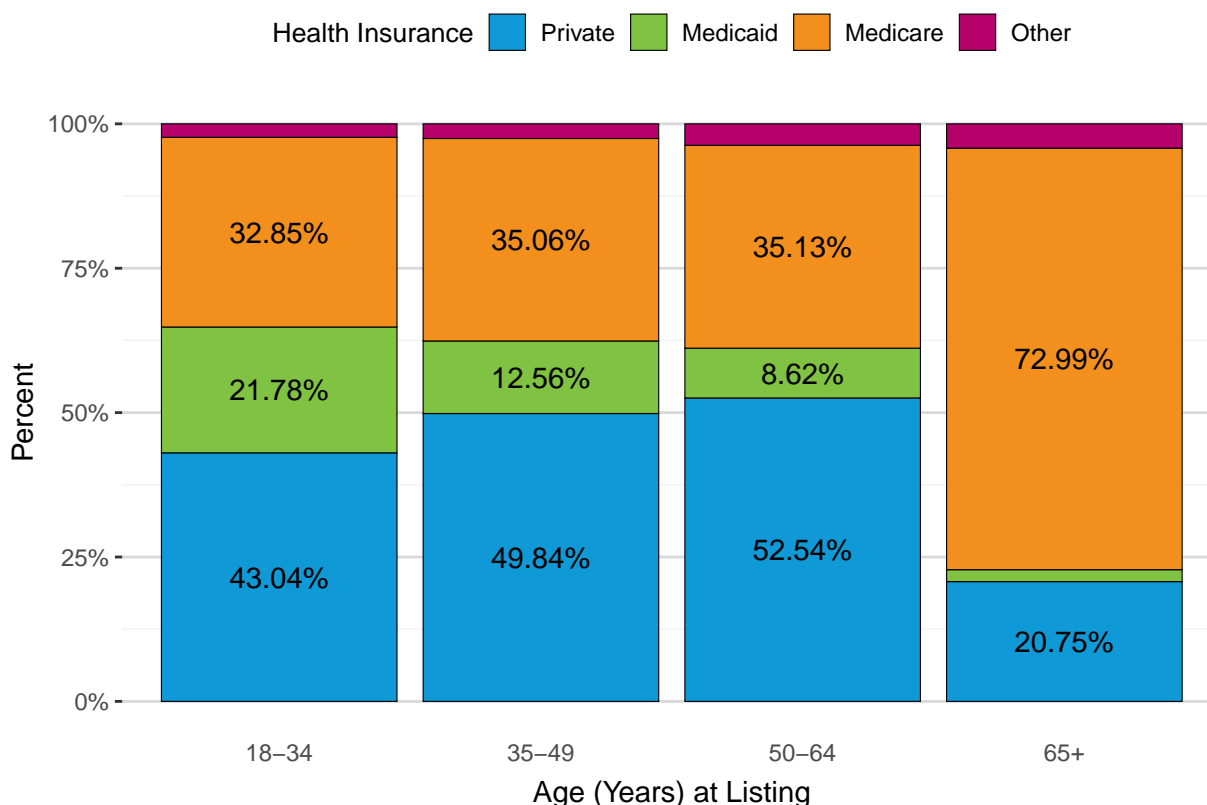
Table KI-14. Adult Kidney Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity

Health Insurance	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Private	22,220 (49.11%)	14,237 (38.22%)	7,504 (40.95%)	4,680 (52.76%)	1,123 (42.62%)
Medicaid	2,821 (6.24%)	3,985 (10.7%)	2,581 (14.09%)	1,079 (12.16%)	317 (12.03%)
Medicare	18,625 (41.17%)	17,509 (47%)	7,798 (42.56%)	2,975 (33.54%)	1,086 (41.21%)
Other	1,577 (3.49%)	1,523 (4.09%)	440 (2.4%)	136 (1.53%)	109 (4.14%)
Total	45,243 (100%)	37,254 (100%)	18,323 (100%)	8,870 (100%)	2,635 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

Figure KI-15 and **Table KI-15** show health insurance type for adult kidney candidates ever waiting in 2022 by candidate age at listing. Private insurance was the most common insurance type for candidates under age 65, while the majority of candidates aged 65+ had Medicare.

Figure KI-15. Adult Kidney Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

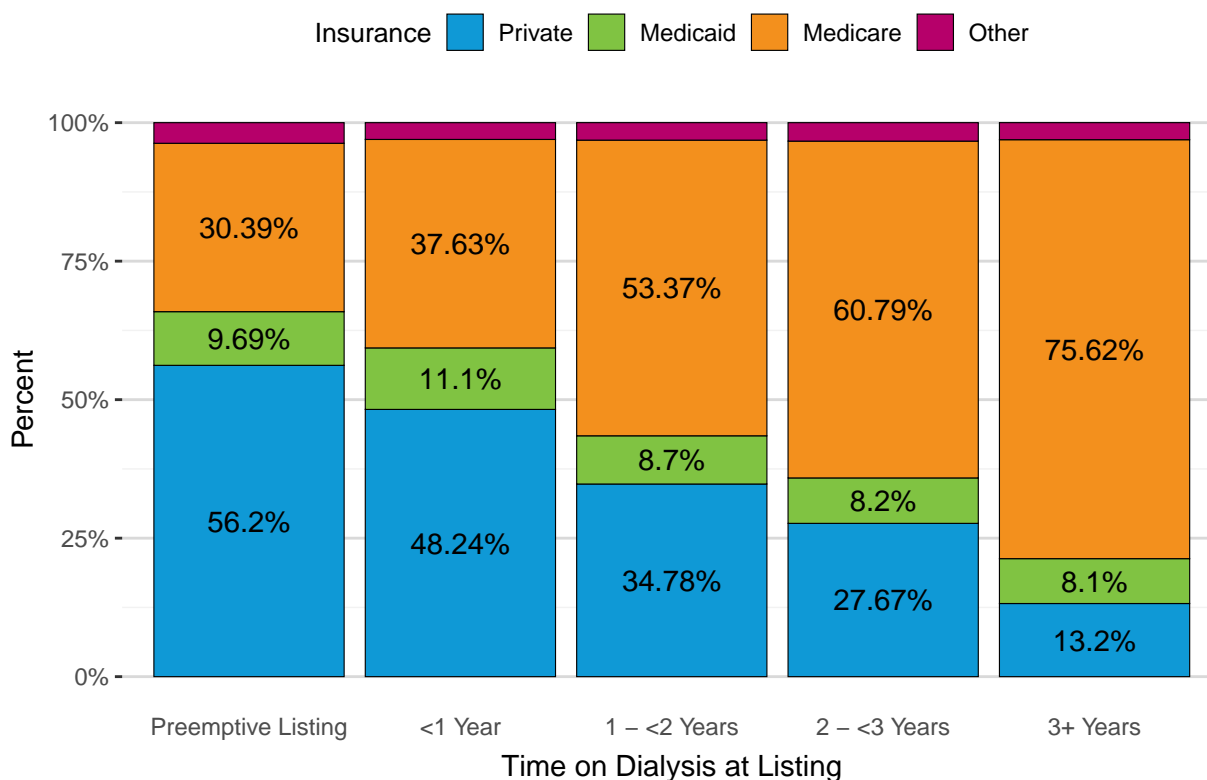
Table KI-15. Adult Kidney Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing

Health Insurance	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Private	4,801 (43.04%)	14,618 (49.84%)	25,517 (52.54%)	4,828 (20.75%)
Medicaid	2,430 (21.78%)	3,685 (12.56%)	4,189 (8.62%)	479 (2.06%)
Medicare	3,664 (32.85%)	10,283 (35.06%)	17,060 (35.13%)	16,986 (72.99%)
Other	260 (2.33%)	743 (2.53%)	1,803 (3.71%)	979 (4.21%)
Total	11,155 (100%)	29,329 (100%)	48,569 (100%)	23,272 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure 16 and **Table 16** show health insurance type for kidney candidates ever waiting in 2022 by time on dialysis at listing. Overall, the proportion of candidates with private insurance decreased and the proportion with Medicare increased as time on dialysis increased.

Figure KI-16. Adult Kidney Candidates Ever Waiting in 2022 by Health Insurance Type and Time on Dialysis at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. N=32 candidates missing dialysis start date were excluded.

Table KI-16. Adult Kidney Candidates Ever Waiting in 2022 by Health Insurance Type and Time on Dialysis at Listing

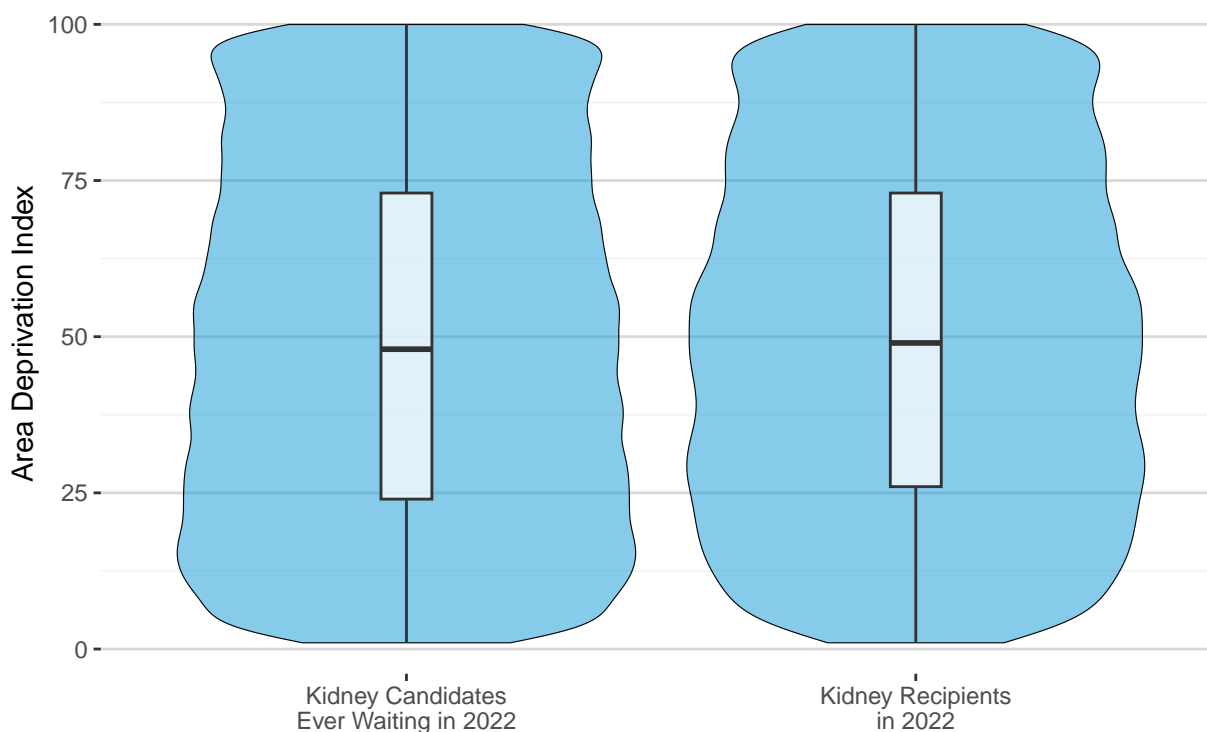
Insurance	Time on Dialysis at Listing				
	Preemptive Listing	<1 Year	1 - <2 Years	2 - <3 Years	3+ Years
Private	26,777 (56.2%)	13,027 (48.24%)	6,182 (34.78%)	2,193 (27.67%)	1,576 (13.2%)
Medicaid	4,617 (9.69%)	2,999 (11.1%)	1,547 (8.7%)	650 (8.2%)	967 (8.1%)
Medicare	14,481 (30.39%)	10,162 (37.63%)	9,487 (53.37%)	4,818 (60.79%)	9,027 (75.62%)
Other	1,773 (3.72%)	818 (3.03%)	561 (3.16%)	264 (3.33%)	367 (3.07%)
Total	47,648 (100%)	27,006 (100%)	17,777 (100%)	7,925 (100%)	11,937 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. N=32 candidates missing dialysis start date were excluded.

Kidney - Area Deprivation Index

Figure KI-17 and **Table KI-17** show the distribution of area deprivation index (ADI) for adult kidney candidates ever waiting in 2022 and adult kidney transplant recipients in 2022. The median ADI for candidates and recipients was comparable (48 vs 49).

Figure KI-17. Distribution of Area Deprivation Index for Adult Kidney Candidates and Recipients in 2022



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

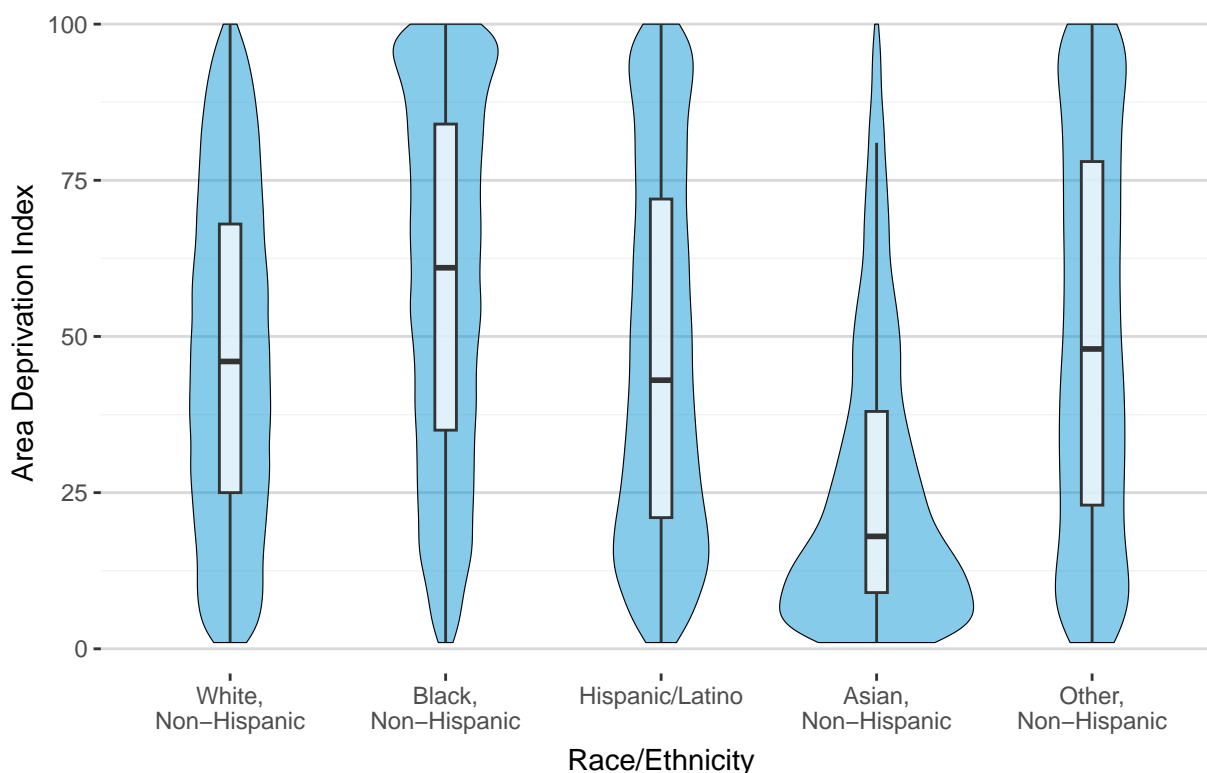
Table KI-17. Distribution of Area Deprivation Index for Adult Kidney Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Kidney Candidates Ever Waiting in 2022	112,325	2,526	1	24	48	73	100
Kidney Recipients in 2022	22,321	524	1	26	49	73	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure KI-18 and **Table KI-18** show the distribution of area deprivation index for adult kidney candidates ever waiting in 2022 by race/ethnicity. Median ADI ranged from 18 for Asian non-Hispanic candidates to 61 for Black non-Hispanic candidates.

Figure KI-18. Distribution of Area Deprivation Index for Adult Kidney Candidates Ever Waiting in 2022 by Race/Ethnicity



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.

Table KI-18. Distribution of Area Deprivation Index for Adult Kidney Candidates Ever Waiting in 2022 by Race/Ethnicity

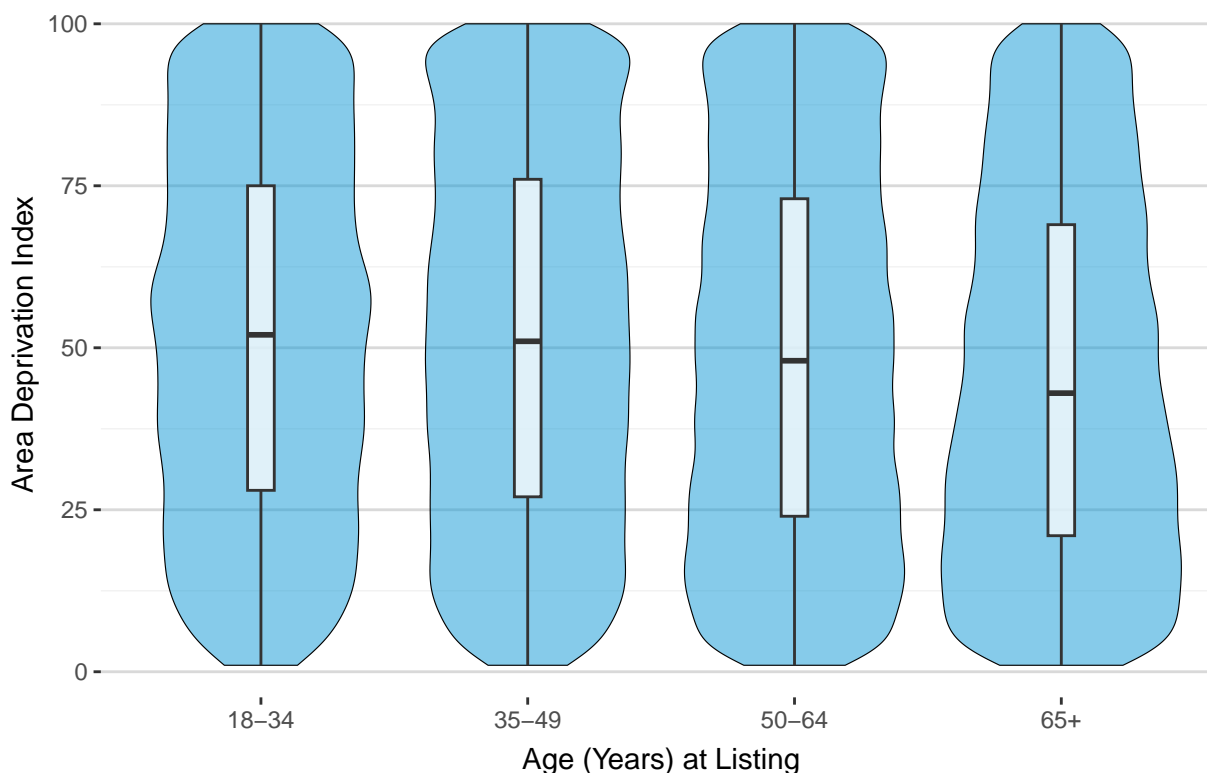
Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
White, Non-Hispanic	45,243	1,026	1	25	46	68	100
Black, Non-Hispanic	37,254	862	1	35	61	84	100
Hispanic/Latino	18,323	388	1	21	43	72	100
Asian, Non-Hispanic	8,870	181	1	9	18	38	100
Other, Non-Hispanic	2,635	69	1	23	48	78	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Other, NH includes N=1043 American Indian/Alaska Native, NH; N=978 Multiracial, NH; and N=614 Native Hawaiian/other Pacific Islander, NH candidates.

Figure KI-19 and **Table KI-19** show the distribution of area deprivation index for adult kidney candidates ever waiting in 2022 by candidate age at listing. Median ADI was highest for candidates aged 18-34 and lowest for candidates aged 65+.

Figure KI-19. Distribution of Area Deprivation Index for Adult Kidney Candidates Ever Waiting in 2022 by Age at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.

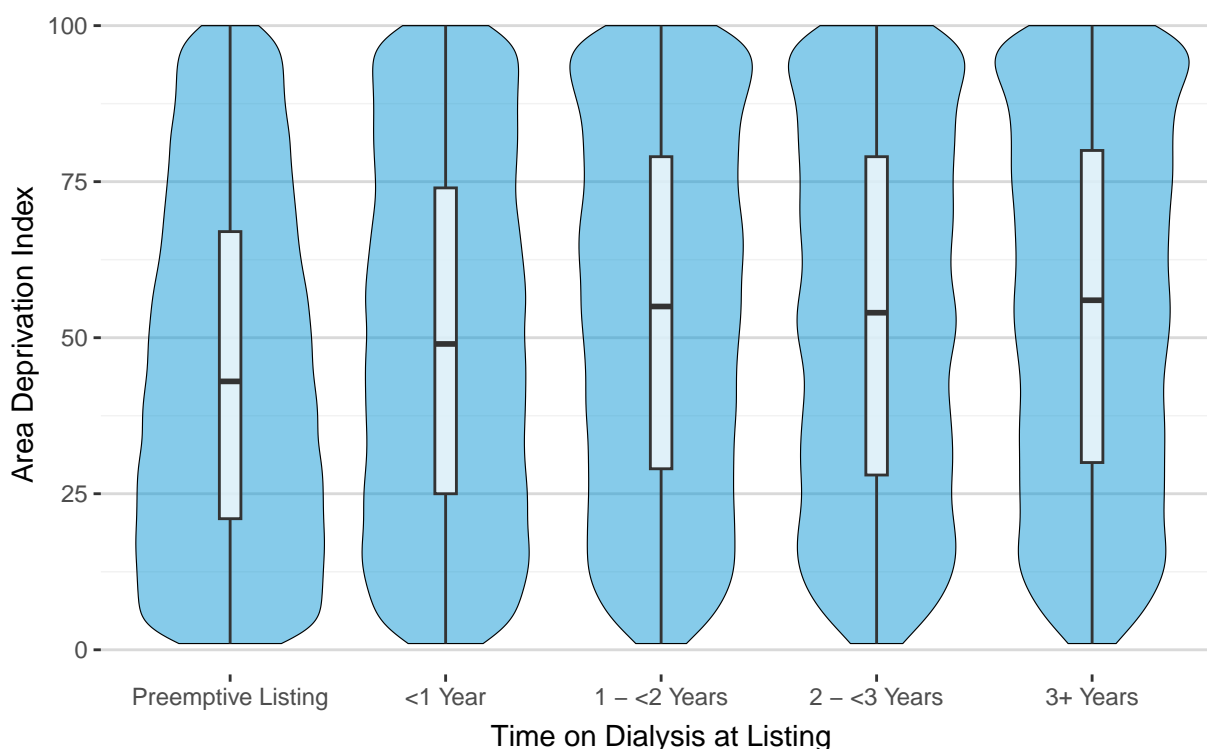
Table KI-19. Distribution of Area Deprivation Index for Adult Kidney Candidates Ever Waiting in 2022 by Age at Listing

Age at Listing	N	Missing	Min	P25	Median	P75	Max
18-34	11,155	371	1	28	52	75	100
35-49	29,329	639	1	27	51	76	100
50-64	48,569	1,049	1	24	48	73	100
65+	23,272	467	1	21	43	69	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure KI-20 and **Table KI-20** show the distribution of area deprivation index for adult kidney candidates ever waiting in 2022 by time on dialysis at listing. Median ADI was lowest for candidates who were preemptively listed, and highest for candidates with 3+ years of dialysis time at listing.

Figure KI-20. Distribution of Area Deprivation Index for Adult Kidney Candidates Ever Waiting in 2022 by Time on Dialysis at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.
N=32 candidates missing dialysis start date were excluded.

Table KI-20. Distribution of Area Deprivation Index for Adult Kidney Candidates Ever Waiting in 2022 by Time on Dialysis at Listing

Time on Dialysis	N	Missing	Min	P25	Median	P75	Max
Preemptive Listing	47,648	1,143	1	21	43	67	100
<1 Year	27,006	653	1	25	49	74	100
1 - <2 Years	17,777	336	1	29	55	79	100
2 - <3 Years	7,925	143	1	28	54	79	100
3+ Years	11,937	250	1	30	56	80	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.
N=32 candidates missing dialysis start date were excluded.

Kidney - Waiting List Mortality Rates by SDOH

Figure KI-21 and **Table KI-21** show waiting list mortality rates for adult kidney candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). Overall waiting list mortality was 5.51 (95% confidence interval (CI): 5.35-5.67) deaths per 100 patient years.

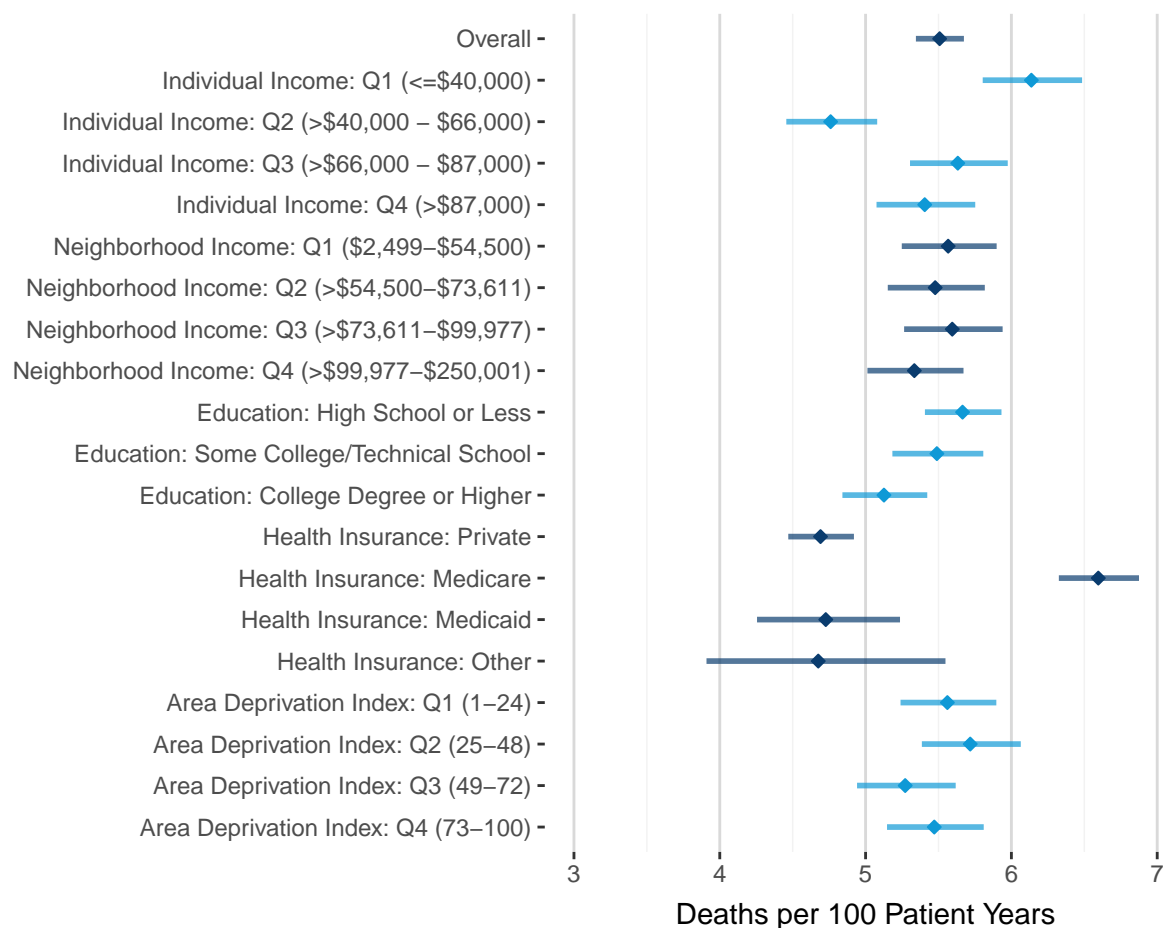
Estimated individual annual income: Waiting list mortality was highest for candidates in the lowest income quartile ($\leq \$40,000$) at 6.14 (95% CI: 5.80-6.48) deaths per 100 patient years and lowest for candidates in the second income quartile ($> \$40,000$ - $\$66,000$) at 4.76 (95% CI: 4.46-5.08) deaths per 100 patient years; this difference was statistically significant.

Neighborhood median household income: There were no significant differences in waiting list mortality by neighborhood median household income.

Education: Waiting list mortality decreased as education level increased, although differences were not statistically significant. Waiting list mortality was highest for candidates with a high school education or less at 5.66 (95% CI: 5.41-5.93) deaths per 100 patient years and lowest for candidates with a college degree or higher at 5.13 (95% CI: 4.84-5.42) deaths per 100 patient years.

Health insurance type: Candidates insured by Medicare experienced significantly higher waiting list mortality than candidates with private insurance, Medicaid, or other insurance (6.60 deaths per 100 patient years vs approximately 4.7 deaths per 100 patient years).

ADI: There were no significant differences in waiting list mortality by ADI quartiles.

Figure KI-21. Waiting List Mortality Rates for Adult Kidney Candidates Ever Waiting in 2022 by SDOH

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey.

Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table KI-21. Waiting List Mortality Rates for Adult Kidney Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deaths	Deaths per 100 PY	95% CI
Overall	112,288	4,333	5.51	(5.35, 5.67)
Individual Income: Q1 (\leq \$40,000)	29,482	1,264	6.14	(5.80, 6.48)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	27,640	912	4.76	(4.46, 5.08)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	27,865	1,102	5.63	(5.30, 5.97)
Individual Income: Q4 ($>$ \$87,000)	26,045	996	5.41	(5.08, 5.75)
Individual Income: Not Reported	1,719	64	5.63	(4.33, 7.19)
Neighborhood Income: Q1 (\$2,499-\$54,500)	29,400	1,142	5.57	(5.25, 5.90)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	27,911	1,058	5.48	(5.15, 5.82)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	27,271	1,071	5.59	(5.26, 5.94)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	26,956	1,023	5.33	(5.01, 5.67)
Neighborhood Income: Not Reported	758	41	7.88	(5.66, 10.69)
Education: High School or Less	45,595	1,810	5.66	(5.41, 5.93)
Education: Some College/Technical School	31,737	1,209	5.49	(5.18, 5.81)
Education: College Degree or Higher	34,134	1,210	5.13	(4.84, 5.42)
Education: Unknown/Not Reported	3,854	173	6.48	(5.55, 7.52)
Health Insurance: Private	50,395	1,688	4.69	(4.47, 4.92)
Health Insurance: Medicare	50,449	2,236	6.60	(6.33, 6.88)
Health Insurance: Medicaid	10,993	367	4.73	(4.26, 5.24)
Health Insurance: Other	4,049	131	4.68	(3.91, 5.55)
Area Deprivation Index: Q1 (1-24)	27,518	1,118	5.56	(5.24, 5.90)
Area Deprivation Index: Q2 (25-48)	27,830	1,108	5.72	(5.39, 6.06)
Area Deprivation Index: Q3 (49-72)	26,101	949	5.27	(4.94, 5.62)
Area Deprivation Index: Q4 (73-100)	28,318	1,063	5.47	(5.15, 5.81)
Area Deprivation Index: Not Reported	2,529	97	5.51	(4.47, 6.73)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Kidney - Deceased Donor Transplant Rates by SDOH

Figure KI-22 and **Table KI-22** show deceased donor transplant rates for adult kidney candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). The overall deceased donor transplant rate was 38.94 (95% confidence interval (CI): 38.36-39.53) transplants per 100 active patient years.

Estimated individual annual income: The deceased donor transplant rate decreased as individual income increased: the rate was highest for candidates in the lowest income quartile (<\$40,000) at 42.20 (95% CI: 41.01-43.43) transplants per 100 active patient years and lowest for candidates in the highest income quartile (>\$87,000) at 33.14 (95% CI: 32.05-34.25) transplants per 100 active patient years.

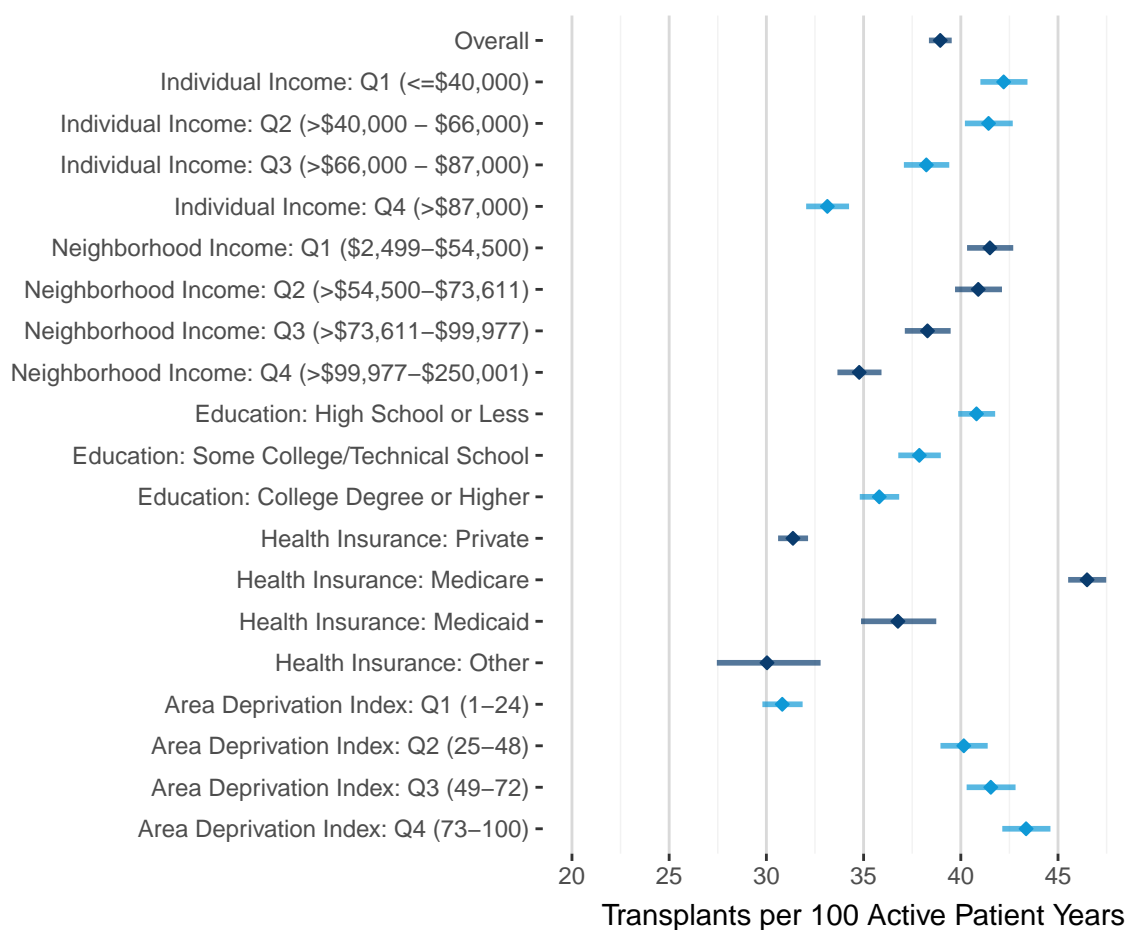
Neighborhood median household income: The deceased donor transplant rate decreased as neighborhood income increased: the rate was highest for candidates in the lowest quartile of neighborhood median household income (\$2,499-\$54,500) at 41.50 (95% CI: 40.32-42.70) transplants per 100 active patient years and lowest for candidates in the highest quartile (>\$99,980-\$250,001) at 34.77 (33.66-35.92) transplants per 100 active patient years.

Education: The deceased donor transplant rate decreased as education level increased: the rate was highest for candidates with a high school education or less at 40.81 (95% CI: 39.86-41.77) transplants per 100 active patient years and lowest for candidates with a college degree or higher at 35.81 (95% CI: 34.80-36.83) transplants per 100 active patient years.

Health insurance type: The deceased donor transplant rate was highest for candidates insured by Medicare at 46.49 (95% CI: 45.52-47.48) transplants per 100 active patient years, followed by candidates with Medicaid at 36.76 (95% CI: 34.87-38.74) transplants per 100 active patient years, then candidates with private insurance at 31.37 (95% CI: 30.60-32.14) transplants per 100 active patient years. Candidates with a primary payer other than Medicare, Medicaid or private insurance had the lowest transplant rate at 30.03 (95% CI: 27.45-32.79) transplants per 100 active patient years.

ADI: The deceased donor transplant rate increased as ADI increased: the rate was lowest for candidates in the lowest ADI quartile (1-24) at 30.82 (95% CI: 29.80-31.86) transplants per 100 active patient years and highest for candidates in the highest ADI quartile (73-100) at 43.36 (95% CI: 42.13-44.61) transplants per 100 active patient years.

Figure KI-22. Deceased Donor Transplant Rates for Adult Kidney Candidates Ever Waiting in 2022 by SDOH



Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey.

Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table KI-22. Deceased Donor Transplant Rates for Adult Kidney Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deceased Donor Transplants	TX per 100 Active PY	95% CI
Overall	79,473	17,004	38.94	(38.36, 39.53)
Individual Income: Q1 (\leq \$40,000)	20,642	4,701	42.20	(41.01, 43.43)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	19,741	4,385	41.43	(40.21, 42.67)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	19,698	4,153	38.23	(37.07, 39.41)
Individual Income: Q4 ($>$ \$87,000)	18,405	3,492	33.14	(32.05, 34.25)
Individual Income: Not Reported	1,239	273	42.84	(37.91, 48.23)
Neighborhood Income: Q1 (\$2,499-\$54,500)	20,962	4,724	41.50	(40.32, 42.70)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	20,067	4,439	40.90	(39.70, 42.12)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	19,346	4,082	38.29	(37.12, 39.48)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	18,571	3,647	34.77	(33.66, 35.92)
Neighborhood Income: Not Reported	529	112	40.51	(33.36, 48.75)
Education: High School or Less	31,861	7,110	40.81	(39.86, 41.77)
Education: Some College/Technical School	22,510	4,641	37.87	(36.78, 38.97)
Education: College Degree or Higher	24,609	4,832	35.81	(34.80, 36.83)
Education: Unknown/Not Reported	2,448	421	32.64	(29.60, 35.92)
Health Insurance: Private	35,744	6,397	31.37	(30.60, 32.14)
Health Insurance: Medicare	36,120	8,707	46.49	(45.52, 47.48)
Health Insurance: Medicaid	7,060	1,404	36.76	(34.87, 38.74)
Health Insurance: Other	2,942	498	30.03	(27.45, 32.79)
Area Deprivation Index: Q1 (1-24)	18,701	3,439	30.82	(29.80, 31.86)
Area Deprivation Index: Q2 (25-48)	19,530	4,230	40.15	(38.95, 41.38)
Area Deprivation Index: Q3 (49-72)	18,963	4,218	41.54	(40.30, 42.82)
Area Deprivation Index: Q4 (73-100)	20,600	4,745	43.36	(42.13, 44.61)
Area Deprivation Index: Not Reported	1,683	372	42.51	(38.30, 47.06)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

TX = transplants; PY = patient years; CI = confidence interval.

Kidney - SDOH for Recipients of Living vs Deceased Donor Transplants

Figure KI-23 and **Table KI-23** show the distributions of estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI) for adult kidney transplant recipients in 2022 by donor type. Compared with recipients of deceased donor transplants, recipients of living donor transplants were more likely to have higher estimated individual annual income, higher neighborhood median household income, a college degree or higher, private insurance, and reside in census block groups with lower ADI scores.

Figure KI-23. Adult Kidney Transplant Recipients in 2022 by Donor Type and SDOH



Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey.

Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table KI-23. Adult Kidney Transplant Recipients in 2022 by Donor Type and SDOH

SDOH	Living Donor	Deceased Donor
Estimated Individual		
Annual Income		
Q1 (<=\$42,000)	874 (16.54%)	5366 (31.5%)
Q2 (>\$42,000 - \$68,000)	1167 (22.09%)	4198 (24.64%)
Q3 (>\$68,000 - \$89,000)	1358 (25.7%)	3995 (23.45%)
Q4 (>\$89,000)	1796 (33.99%)	3203 (18.8%)
Not Reported	89 (1.68%)	275 (1.61%)
Neighborhood Median		
Household Income		
Q1 (\$2,499-\$56,042)	877 (16.6%)	5109 (29.99%)
Q2 (>\$56,042-\$75,114)	1212 (22.94%)	4357 (25.57%)
Q3 (>\$75,114-\$101,310)	1411 (26.7%)	3940 (23.13%)
Q4 (>\$101,310-\$250,001)	1746 (33.04%)	3518 (20.65%)
Not Reported	38 (0.72%)	113 (0.66%)
Education		
High School or Less	1458 (27.59%)	7124 (41.81%)
Some College/Technical School	1419 (26.85%)	4648 (27.28%)
College Degree or Higher	2248 (42.54%)	4844 (28.43%)
Unknown/Not Reported	159 (3.01%)	421 (2.47%)
Insurance		
Private	2880 (54.5%)	4303 (25.26%)
Medicaid	243 (4.6%)	1000 (5.87%)
Medicare	2048 (38.76%)	11312 (66.4%)
Other	113 (2.14%)	422 (2.48%)
Area Deprivation Index		
Q1 (1-26)	1721 (32.57%)	3789 (22.24%)
Q2 (27-48)	1386 (26.23%)	3901 (22.9%)
Q3 (49-71)	1153 (21.82%)	4088 (23.99%)
Q4 (72-100)	874 (16.54%)	4885 (28.67%)
Not Reported	150 (2.84%)	374 (2.2%)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Pancreas and Kidney-Pancreas

Pancreas and Kidney-Pancreas - Results Summary

This section describes social determinants of health (SDOH) for adult pancreas and kidney-pancreas candidates ever waiting in 2022 and adult pancreas and kidney-pancreas recipients transplanted in 2022. Notable findings are summarized below.

Estimated individual annual income: For pancreas, median estimated individual annual income was \$68,000 for candidates and \$69,000 for recipients; for kidney-pancreas, median estimated individual annual income was \$64,000 for both candidates and recipients (**Figure PA-1 and Table PA-1**). Estimated individual annual income for both pancreas and kidney-pancreas candidates was highest for Asian non-Hispanic candidates (**Figure PA-2 and Table PA-2**) and candidates aged 65 years or older (**Figure PA-3 and Table PA-3**). There were no statistically significant differences in waiting list mortality rates (**Figure PA-21 and Table PA-21**) or deceased donor transplant rates (**Figure PA-22 and Table PA-22**) by individual income for pancreas or kidney-pancreas candidates.

Neighborhood median household income: For pancreas, median neighborhood household income was \$76,533 for candidates and slightly higher for recipients at \$79,507; for kidney-pancreas, median neighborhood household income was \$69,620 for candidates and slightly lower for recipients at \$67,883 (**Figure PA-5 and Table PA-5**). Median neighborhood household income for both pancreas and kidney-pancreas candidates was highest for Asian non-Hispanic candidates (**Figure PA-6 and Table PA-6**), and increased with increasing candidate age (**Figure PA-7 and Table PA-7**). There were no statistically significant differences in waiting list mortality rates (**Figure PA-21 and Table PA-21**) or deceased donor transplant rates (**Figure PA-22 and Table PA-22**) by neighborhood median household income for pancreas or kidney-pancreas candidates.

Education: Educational attainment for pancreas and kidney-pancreas candidates and recipients was largely similar. High school education or less was reported for approximately 34% and 32% of pancreas candidates and recipients, respectively, and college or higher education was reported for 31% and 24% of pancreas candidates and recipients, respectively. Approximately 40% of kidney-pancreas candidates and recipients had a high school education or less, and approximately 27% had a college degree or higher (**Figure PA-9 and Table PA-9**). For both pancreas and kidney-pancreas candidates, college degree or higher education was more prevalent for Asian non-Hispanic and White non-Hispanic candidates (**Figure PA-10 and Table PA-10**). There were no statistically significant differences in waiting list mortality rates (**Figure PA-21 and Table PA-21**) or deceased donor transplant rates (**Figure PA-22 and Table PA-22**) by educational attainment for pancreas or kidney-pancreas candidates.

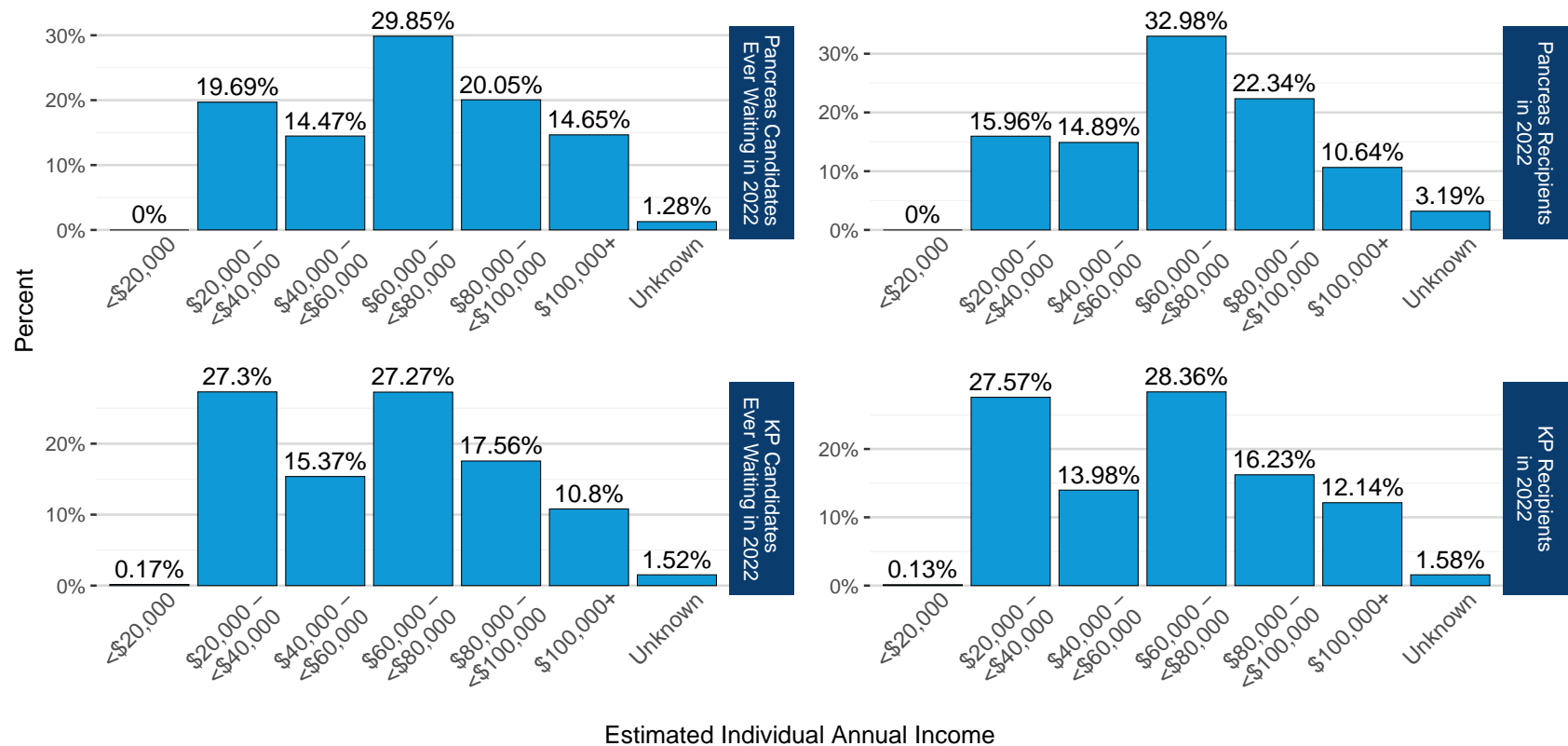
Health insurance: Health insurance coverage was similar for pancreas candidates and recipients, with approximately 52% being privately insured. For kidney-pancreas, more candidates than recipients were privately insured (48% and 41%, respectively) and more recipients than candidates were insured by Medicare (51% and 35%, respectively; **Figure PA-13 and Table PA-13**). For both pancreas and kidney-pancreas, private health insurance was more prevalent for White non-Hispanic and Asian non-Hispanic candidates (**Figure PA-14 and Table PA-14**). All pancreas and kidney-pancreas candidates aged 65 years or older were insured by Medicare, and Medicaid coverage was more prevalent for pancreas and kidney-pancreas candidates aged 18-34 (**Figure PA-15 and Table PA-15**). There were no statistically significant differences in waiting list mortality rates by health insurance type for pancreas or kidney-pancreas candidates (**Figure PA-21 and Table PA-21**). For pancreas, deceased donor transplant rates did not differ significantly by health insurance. For kidney-pancreas, the deceased donor transplant rates for candidates privately insured and with Medicare coverage were significantly higher than the rate for candidates insured by Medicaid (**Figure PA-22 and Table PA-22**).

Area deprivation index (ADI): For pancreas, the median ADI was 46 for candidates and 51 for recipients; for kidney-pancreas, the median ADI was 52 for candidates and 55 for recipients (**Figure PA-17 and Table PA-17**). For pancreas candidates, median ADI ranged from 19 for Asian non-Hispanic candidates to 51 for Black non-Hispanic candidates. For kidney-pancreas candidates, median ADI ranged from 29 for Asian non-Hispanic candidates to 63 for Black non-Hispanic candidates (**Figure PA-18 and Table PA-18**). There were no significant differences in waiting list mortality rates (**Figure PA-21 and Table PA-21**) or deceased donor transplant rates (**Figure PA-22 and Table PA-22**) by ADI quartile for pancreas or kidney-pancreas candidates.

Pancreas and Kidney-Pancreas - Estimated Individual Annual Income

Figure PA-1 and **Table PA-1** show estimated individual annual income for adult pancreas and kidney-pancreas candidates ever waiting in 2022 and adult pancreas and kidney-pancreas transplant recipients in 2022. Median estimated individual annual income was similar for pancreas candidates and recipients at \$68,000 and \$69,000, respectively. Median estimated individual annual income was identical for kidney-pancreas candidates and recipients at \$64,000. For reference, mean individual annual income for employed individuals in 2022 was \$70,346 according to the U.S. Bureau of Labor Statistics⁶ and median household income in 2022 was \$74,580 according to the U.S. Census Bureau.⁷

Figure PA-1. Estimated Individual Annual Income for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022



Estimated individual income data were obtained from LexisNexis.

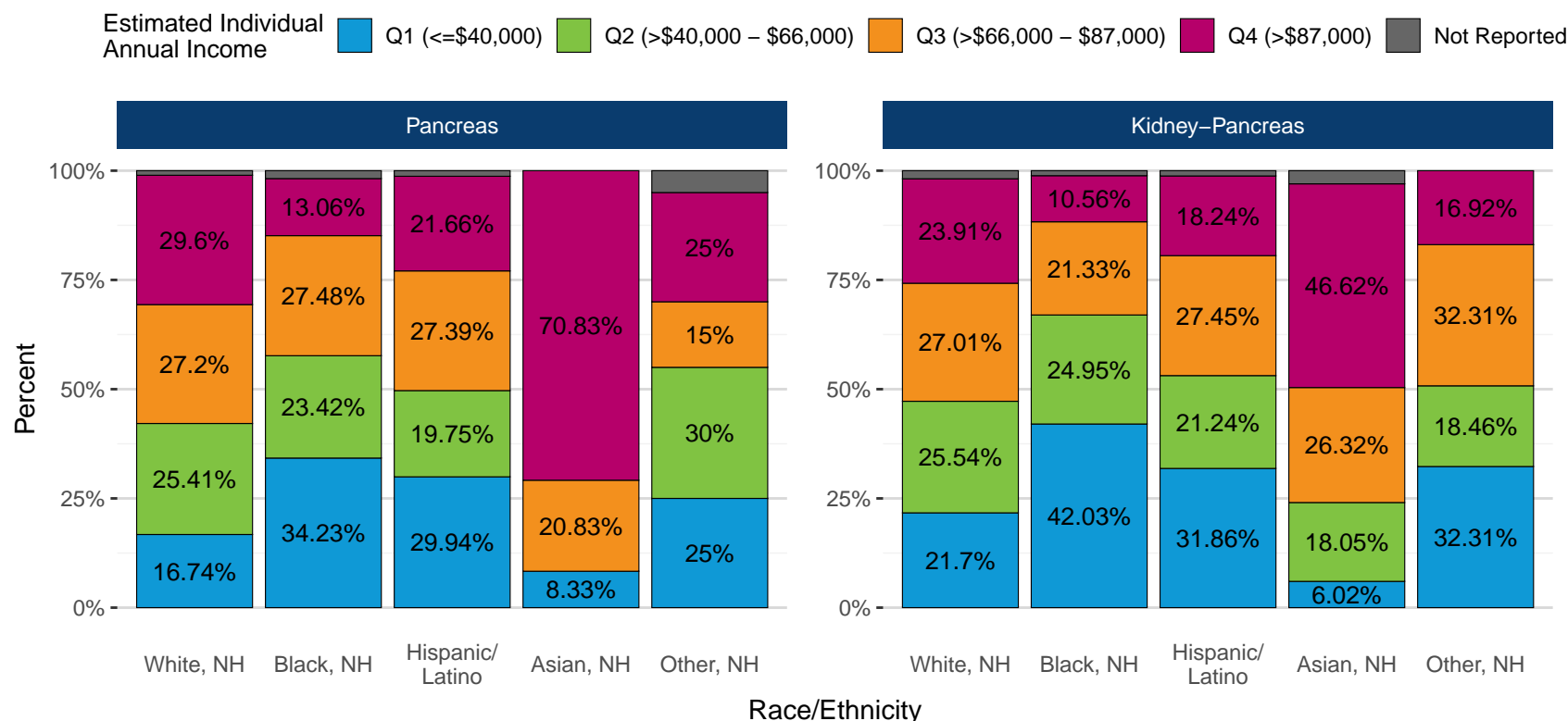
Table PA-1. Estimated Individual Annual Income for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022

Est. Individual Income	Candidates Ever Waiting in 2022		Recipients in 2022	
	N	Percent	N	Percent
Pancreas				
<\$20,000	0	0%	0	0%
\$20,000 - <\$40,000	215	19.69%	15	15.96%
\$40,000 - <\$60,000	158	14.47%	14	14.89%
\$60,000 - <\$80,000	326	29.85%	31	32.98%
\$80,000 - <\$100,000	219	20.05%	21	22.34%
\$100,000+	160	14.65%	10	10.64%
Unknown	14	1.28%	3	3.19%
Total	1,092	100%	94	100%
Kidney-Pancreas				
<\$20,000	5	0.17%	1	0.13%
\$20,000 - <\$40,000	824	27.3%	209	27.57%
\$40,000 - <\$60,000	464	15.37%	106	13.98%
\$60,000 - <\$80,000	823	27.27%	215	28.36%
\$80,000 - <\$100,000	530	17.56%	123	16.23%
\$100,000+	326	10.8%	92	12.14%
Unknown	46	1.52%	12	1.58%
Total	3,018	100%	758	100%

Estimated individual income data were obtained from LexisNexis.

Figure PA-2 and **Table PA-2** show estimated individual annual income for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by race/ethnicity. For both pancreas and kidney-pancreas candidates, Black, non-Hispanic candidates had the highest proportion in the lowest income quartile (34.23% and 42.03%, respectively) and Asian, non-Hispanic candidates had the highest proportion in the highest income quartile (70.83% and 46.62%, respectively).

Figure PA-2. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity



Estimated individual income data were obtained from LexisNexis.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Table PA-2. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity

Est. Individual Income	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Pancreas					
Q1 (<=\$40,000)	112 (16.74%)	76 (34.23%)	47 (29.94%)	2 (8.33%)	5 (25%)
Q2 (>\$40,000 - \$66,000)	170 (25.41%)	52 (23.42%)	31 (19.75%)	0 (0%)	6 (30%)
Q3 (>\$66,000 - \$87,000)	182 (27.2%)	61 (27.48%)	43 (27.39%)	5 (20.83%)	3 (15%)
Q4 (>\$87,000)	198 (29.6%)	29 (13.06%)	34 (21.66%)	17 (70.83%)	5 (25%)
Not Reported	7 (1.05%)	4 (1.8%)	2 (1.27%)	0 (0%)	1 (5%)
Total	669 (100%)	222 (100%)	157 (100%)	24 (100%)	20 (100%)
Kidney-Pancreas					
Q1 (<=\$40,000)	294 (21.7%)	406 (42.03%)	159 (31.86%)	8 (6.02%)	21 (32.31%)
Q2 (>\$40,000 - \$66,000)	346 (25.54%)	241 (24.95%)	106 (21.24%)	24 (18.05%)	12 (18.46%)
Q3 (>\$66,000 - \$87,000)	366 (27.01%)	206 (21.33%)	137 (27.45%)	35 (26.32%)	21 (32.31%)
Q4 (>\$87,000)	324 (23.91%)	102 (10.56%)	91 (18.24%)	62 (46.62%)	11 (16.92%)
Not Reported	25 (1.85%)	11 (1.14%)	6 (1.2%)	4 (3.01%)	0 (0%)
Total	1,355 (100%)	966 (100%)	499 (100%)	133 (100%)	65 (100%)

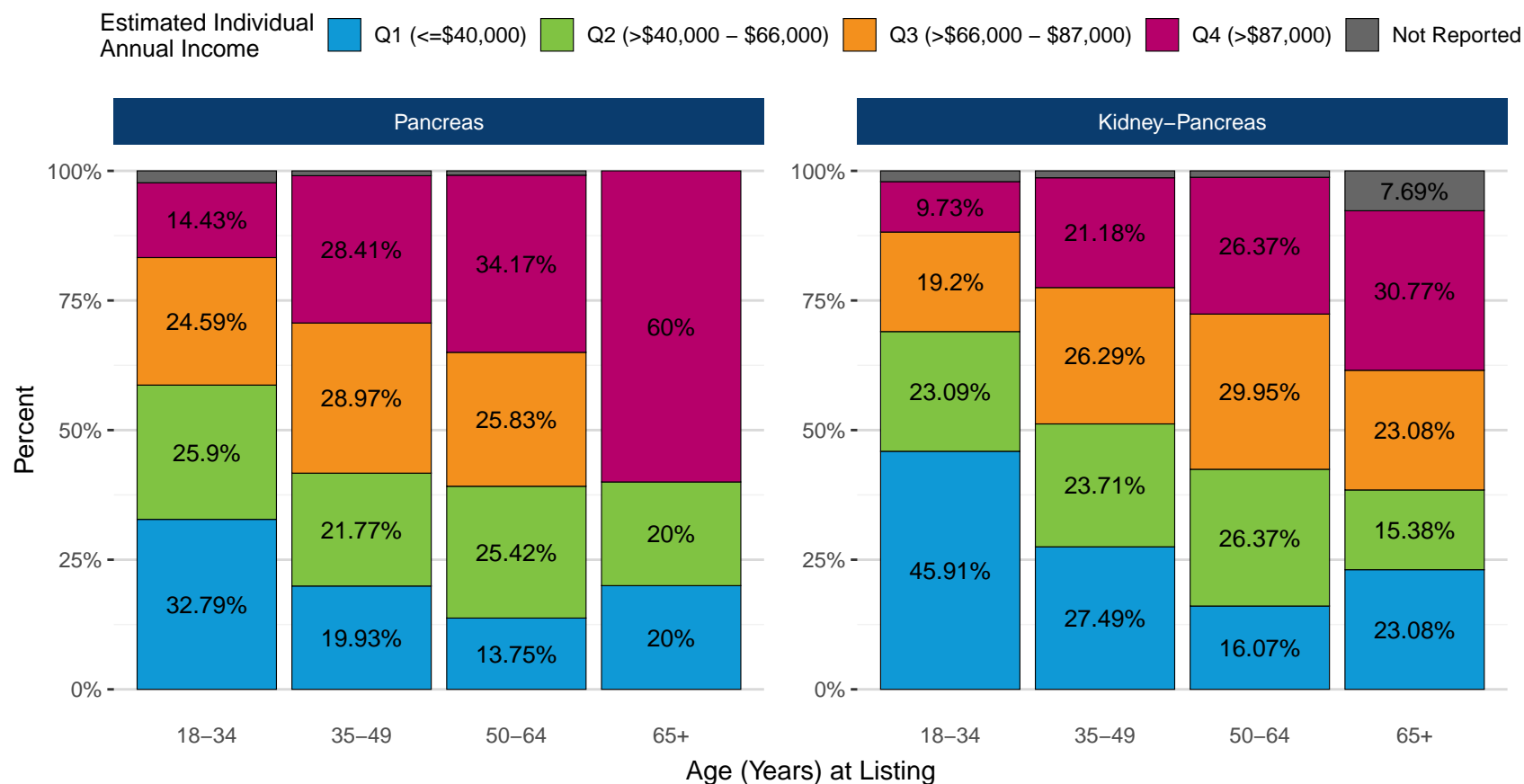
Estimated individual income data were obtained from LexisNexis.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Figure PA-3 and **Table PA-3** show estimated individual annual income for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by age at listing. A greater proportion of both pancreas and kidney-pancreas candidates aged 18-34 were in the lowest income quartile (32.79% and 45.91%, respectively). Pancreas and kidney-pancreas candidates aged 50-64 years had the lowest proportion in the lowest income quartile. There were very few pancreas or kidney-pancreas candidates aged 65 years or older.

Figure PA-3. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing



Estimated individual income data were obtained from LexisNexis.

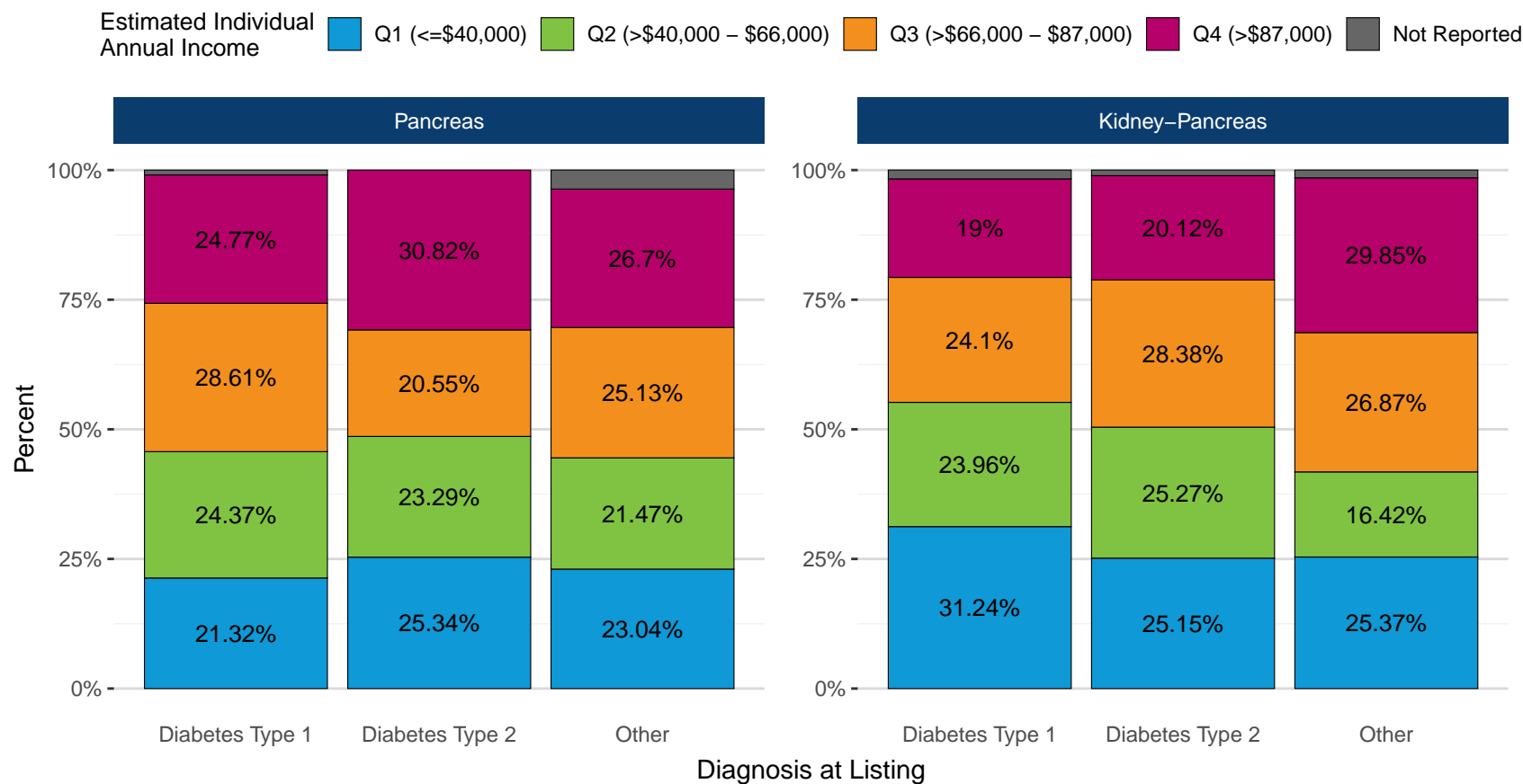
Table PA-3. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing

Est. Individual Income	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Pancreas				
Q1 (<=\$40,000)	100 (32.79%)	108 (19.93%)	33 (13.75%)	1 (20%)
Q2 (>\$40,000 - \$66,000)	79 (25.9%)	118 (21.77%)	61 (25.42%)	1 (20%)
Q3 (>\$66,000 - \$87,000)	75 (24.59%)	157 (28.97%)	62 (25.83%)	0 (0%)
Q4 (>\$87,000)	44 (14.43%)	154 (28.41%)	82 (34.17%)	3 (60%)
Not Reported	7 (2.3%)	5 (0.92%)	2 (0.83%)	0 (0%)
Total	305 (100%)	542 (100%)	240 (100%)	5 (100%)
Kidney-Pancreas				
Q1 (<=\$40,000)	354 (45.91%)	414 (27.49%)	117 (16.07%)	3 (23.08%)
Q2 (>\$40,000 - \$66,000)	178 (23.09%)	357 (23.71%)	192 (26.37%)	2 (15.38%)
Q3 (>\$66,000 - \$87,000)	148 (19.2%)	396 (26.29%)	218 (29.95%)	3 (23.08%)
Q4 (>\$87,000)	75 (9.73%)	319 (21.18%)	192 (26.37%)	4 (30.77%)
Not Reported	16 (2.08%)	20 (1.33%)	9 (1.24%)	1 (7.69%)
Total	771 (100%)	1,506 (100%)	728 (100%)	13 (100%)

Estimated individual income data were obtained from LexisNexis.

Figure PA-4 and **Table PA-4** show estimated individual annual income for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by diagnosis at listing. For both pancreas and kidney-pancreas candidates, estimated individual annual income was similar by diagnosis at listing.

Figure PA-4. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Diagnosis at Listing



Estimated individual income data were obtained from LexisNexis.

Table PA-4. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Diagnosis at Listing

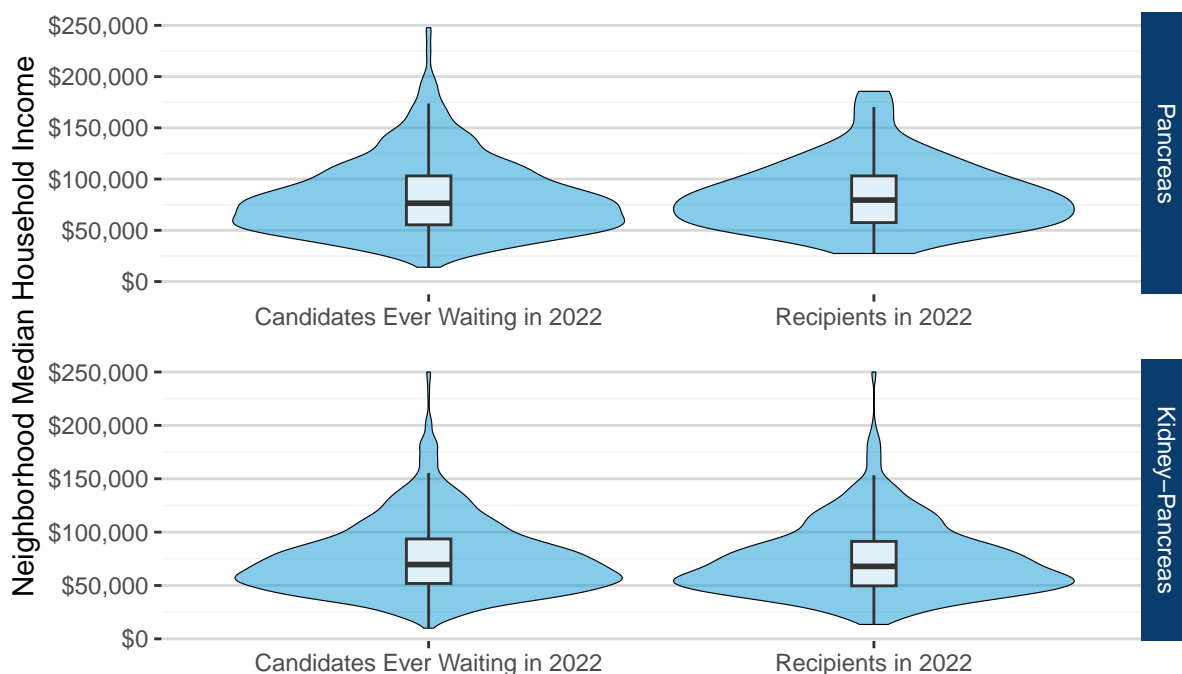
Est. Individual Income	Diagnosis at Listing		
	Diabetes Type 1	Diabetes Type 2	Other
Pancreas			
Q1 (<=\$40,000)	161 (21.32%)	37 (25.34%)	44 (23.04%)
Q2 (>\$40,000 - \$66,000)	184 (24.37%)	34 (23.29%)	41 (21.47%)
Q3 (>\$66,000 - \$87,000)	216 (28.61%)	30 (20.55%)	48 (25.13%)
Q4 (>\$87,000)	187 (24.77%)	45 (30.82%)	51 (26.7%)
Not Reported	7 (0.93%)	0 (0%)	7 (3.66%)
Total	755 (100%)	146 (100%)	191 (100%)
Kidney-Pancreas			
Q1 (<=\$40,000)	661 (31.24%)	210 (25.15%)	17 (25.37%)
Q2 (>\$40,000 - \$66,000)	507 (23.96%)	211 (25.27%)	11 (16.42%)
Q3 (>\$66,000 - \$87,000)	510 (24.1%)	237 (28.38%)	18 (26.87%)
Q4 (>\$87,000)	402 (19%)	168 (20.12%)	20 (29.85%)
Not Reported	36 (1.7%)	9 (1.08%)	1 (1.49%)
Total	2,116 (100%)	835 (100%)	67 (100%)

Estimated individual income data were obtained from LexisNexis.

Pancreas and Kidney-Pancreas - Neighborhood Median Household Income

Figure PA-5 and **Table PA-5** show the distribution of neighborhood median household income for adult pancreas and kidney-pancreas candidates ever waiting in 2022 and adult pancreas and kidney-pancreas transplant recipients in 2022. For pancreas, median neighborhood household income was \$76,533 for candidates and slightly higher for recipients at \$79,507. For kidney-pancreas, median neighborhood household income was \$69,620 for candidates and slightly lower for recipients at \$67,883. For reference, median household income in 2022 according to the U.S. Census Bureau was \$74,580.⁷

Figure PA-5. Distribution of Neighborhood Median Household Income for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

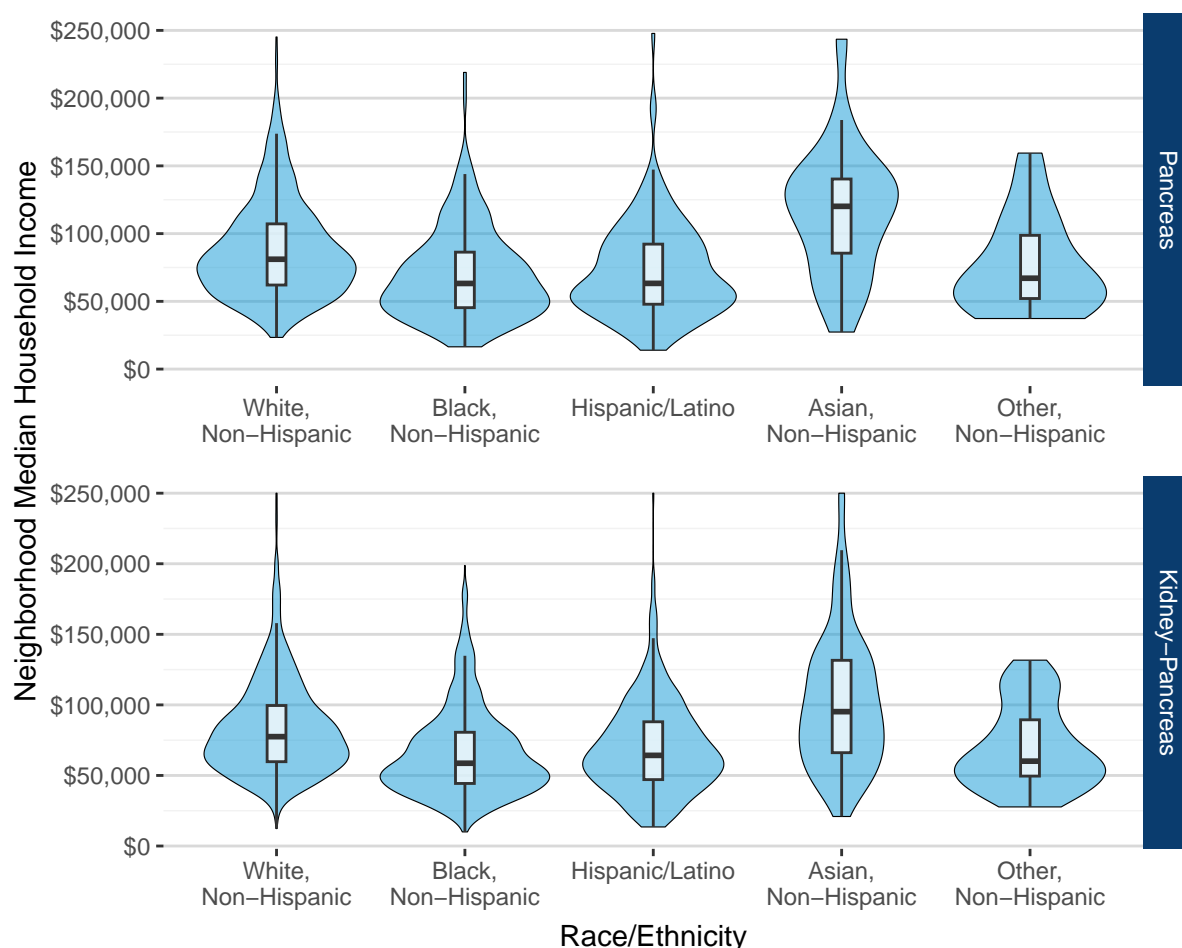
Table PA-5. Distribution of Neighborhood Median Household Income for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Pancreas							
Candidates Ever Waiting in 2022	1,092	7	\$13,944	\$55,333	\$76,533	\$103,084	\$250,001
Recipients in 2022	94	0	\$27,352	\$57,513	\$79,507	\$103,094	\$185,645
Kidney-Pancreas							
Candidates Ever Waiting in 2022	3,018	17	\$10,000	\$51,885	\$69,620	\$93,630	\$250,001
Recipients in 2022	758	2	\$13,508	\$49,684	\$67,883	\$91,292	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure PA-6 and **Table PA-6** show the distribution of neighborhood median household income for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by race/ethnicity. For pancreas candidates, neighborhood median household income was highest for Asian, non-Hispanic candidates (median: \$120,140) and lowest for Black, non-Hispanic candidates (median: \$63,218) and Hispanic/Latino candidates (median: \$63,723). For kidney-pancreas candidates, neighborhood median household income was highest for Asian, non-Hispanic candidates (median: \$95,208) and lowest for Black, non-Hispanic candidates (median: \$58,654).

Figure PA-6. Distribution of Neighborhood Median Household Income for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Race/Ethnicity



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Table PA-6. Distribution of Neighborhood Median Household Income for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Race/Ethnicity

Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
Pancreas							
White, Non-Hispanic	669	2	\$23,393	\$62,058	\$81,087	\$107,205	\$245,139
Black, Non-Hispanic	222	3	\$16,441	\$45,330	\$63,218	\$86,314	\$218,988
Hispanic/Latino	157	0	\$13,944	\$48,023	\$63,723	\$92,357	\$250,001
Asian, Non-Hispanic	24	0	\$27,351	\$85,563	\$120,140	\$140,298	\$243,482
Other, Non-Hispanic	20	2	\$37,333	\$52,085	\$67,072	\$98,716	\$159,432
Kidney-Pancreas							
White, Non-Hispanic	1,355	5	\$12,381	\$59,741	\$77,492	\$99,554	\$250,001
Black, Non-Hispanic	966	11	\$10,000	\$44,334	\$58,654	\$80,588	\$198,766
Hispanic/Latino	499	1	\$13,508	\$47,047	\$64,224	\$88,026	\$250,001
Asian, Non-Hispanic	133	0	\$20,908	\$66,138	\$95,208	\$131,596	\$250,001
Other, Non-Hispanic	65	0	\$27,693	\$49,539	\$60,132	\$89,425	\$131,701

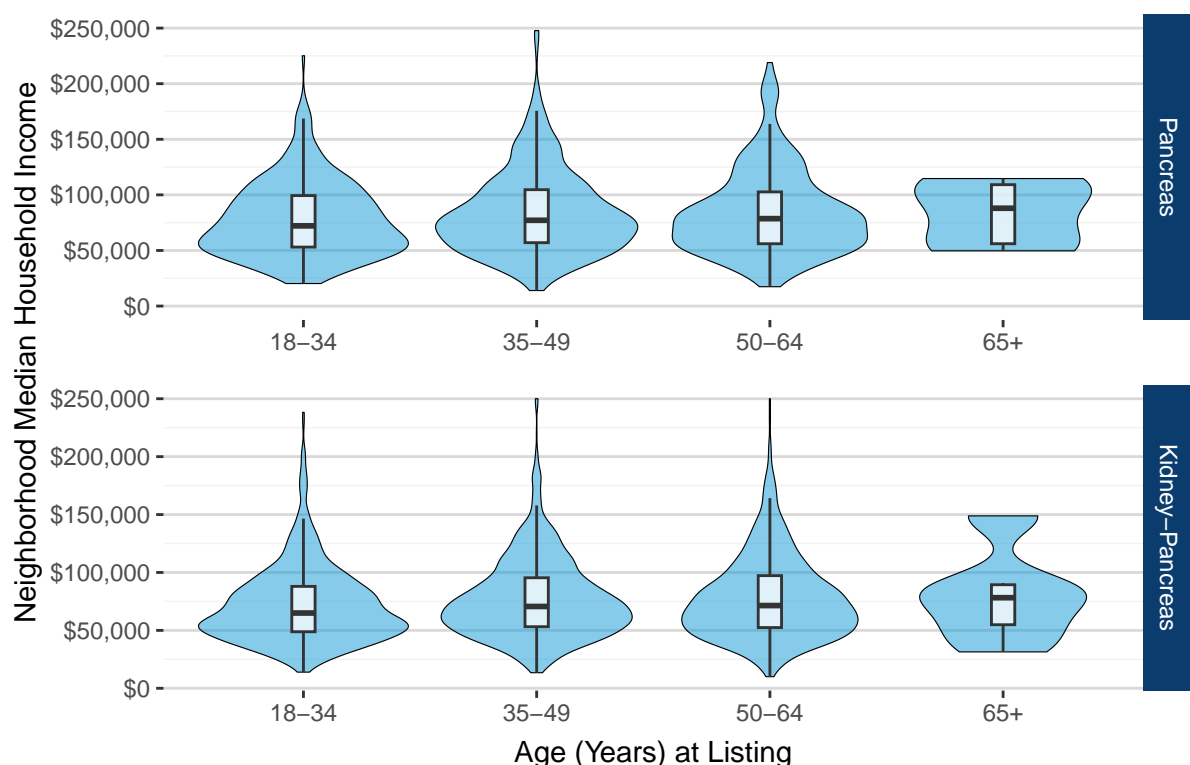
Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Figure PA-7 and **Table PA-7** show the distribution of neighborhood median household income for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by age at listing. For both pancreas and kidney-pancreas candidates, median neighborhood household income increased with increasing age and was highest for candidates aged 65 years or older.

Figure PA-7. Distribution of Neighborhood Median Household Income for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Age at Listing



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Table PA-7. Distribution of Neighborhood Median Household Income for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Age at Listing

Age (Years) at Listing	N	Missing	Min	P25	Median	P75	Max
Pancreas							
18-34	305	3	\$20,272	\$53,056	\$72,148	\$99,369	\$225,125
35-49	542	3	\$13,944	\$57,027	\$77,343	\$104,764	\$250,001
50-64	240	1	\$17,410	\$56,034	\$78,611	\$102,670	\$218,988
65+	5	0	\$49,663	\$56,061	\$87,957	\$109,169	\$114,681
Kidney-Pancreas							
18-34	771	9	\$13,944	\$48,814	\$64,995	\$87,991	\$238,304
35-49	1,506	4	\$13,466	\$53,177	\$70,652	\$95,427	\$250,001
50-64	728	2	\$10,000	\$52,433	\$71,427	\$97,266	\$250,001
65+	13	2	\$31,411	\$54,875	\$78,203	\$89,407	\$148,864

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure PA-8 and **Table PA-8** show the distribution of neighborhood median household income for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by diagnosis at listing. For pancreas and kidney-pancreas candidates, neighborhood median household income was highest for candidates diagnosed with Diabetes Type 1 (medians: \$76,896 and \$70,188, respectively).

Figure PA-8. Distribution of Neighborhood Median Household Income for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Diagnosis at Listing



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Table PA-8. Distribution of Neighborhood Median Household Income for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Diagnosis at Listing

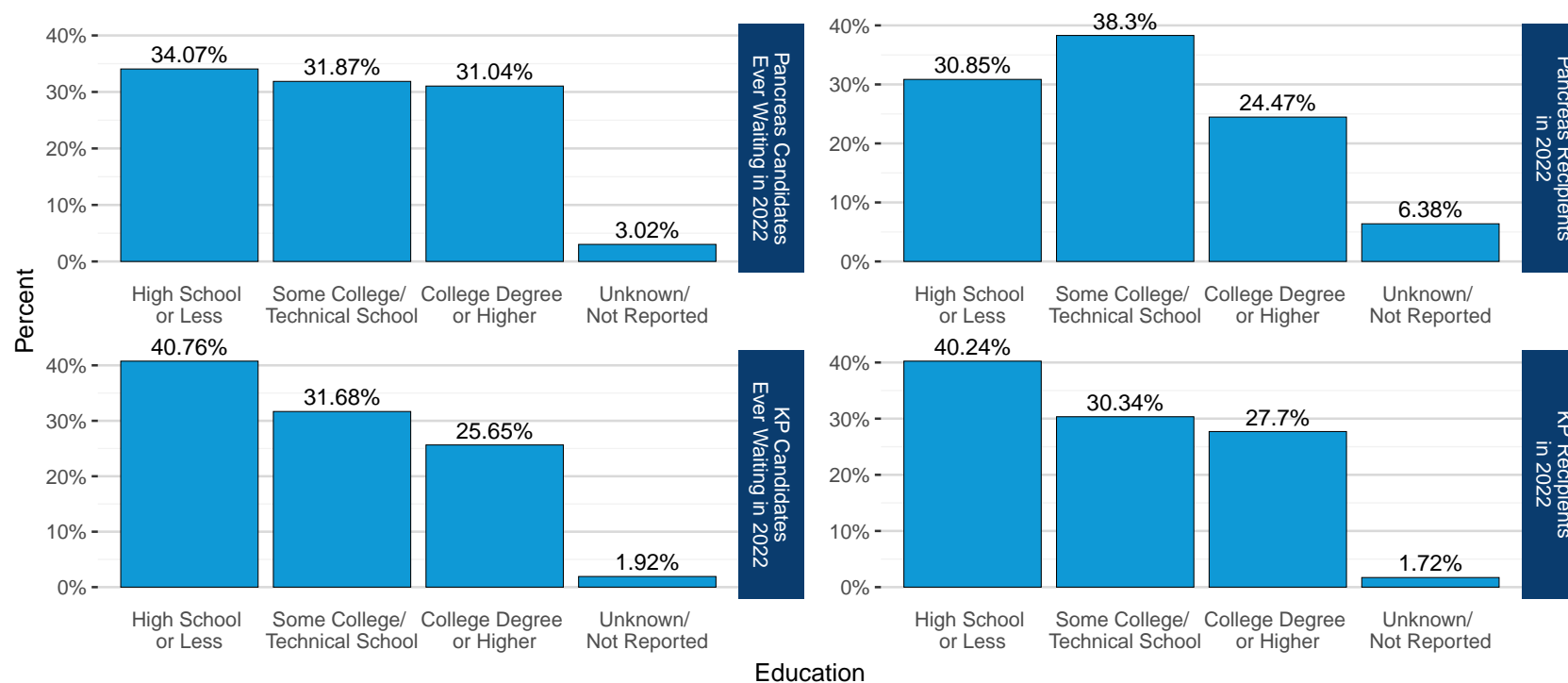
Diagnosis	N	Missing	Min	P25	Median	P75	Max
Pancreas							
Diabetes Type 1	755	5	\$13,944	\$55,928	\$76,896	\$103,489	\$247,750
Diabetes Type 2	146	0	\$25,780	\$53,423	\$73,758	\$101,531	\$250,001
Other	191	2	\$17,410	\$54,224	\$76,048	\$100,551	\$206,106
Kidney-Pancreas							
Diabetes Type 1	2,116	12	\$10,000	\$52,691	\$70,188	\$93,242	\$247,063
Diabetes Type 2	835	5	\$12,381	\$49,944	\$68,255	\$93,456	\$250,001
Other	67	0	\$17,410	\$50,438	\$66,776	\$94,090	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Pancreas and Kidney-Pancreas - Education

Figure PA-9 and **Table PA-9** show the highest education level reported for adult pancreas and kidney-pancreas candidates ever waiting in 2022 and adult pancreas and kidney-pancreas transplant recipients in 2022. For pancreas, 34.07% of candidates and 30.85% of recipients had a high school education or less, while 31.04% of candidates and 24.47% of recipients had a college degree or higher. For kidney-pancreas, approximately 40% of candidates and recipients had a high school education or less, and 25.65% of candidates and 27.7% of recipients had a college degree or higher.

Figure PA-9. Highest Education Level for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

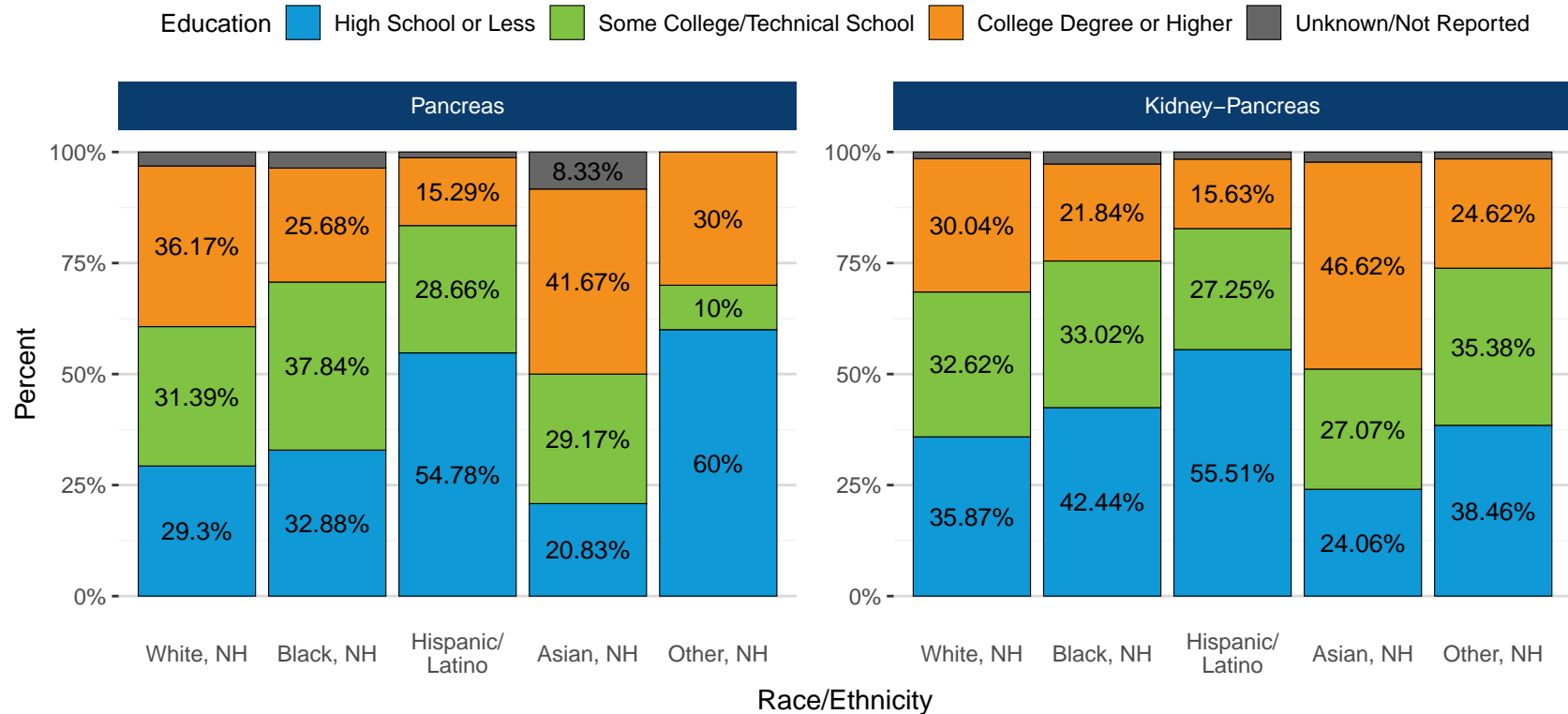
Table PA-9. Highest Education Level for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022

Education	Candidates Ever Waiting in 2022		Recipients in 2022	
	N	Percent	N	Percent
Pancreas				
High School or Less	372	34.07%	29	30.85%
Some College/Technical School	348	31.87%	36	38.3%
College Degree or Higher	339	31.04%	23	24.47%
Unknown/Not Reported	33	3.02%	6	6.38%
Total	1,092	100%	94	100%
Kidney-Pancreas				
High School or Less	1,230	40.76%	305	40.24%
Some College/Technical School	956	31.68%	230	30.34%
College Degree or Higher	774	25.65%	210	27.7%
Unknown/Not Reported	58	1.92%	13	1.72%
Total	3,018	100%	758	100%

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure PA-10 and **Table PA-10** show education level for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by race/ethnicity. For pancreas, Asian, non-Hispanic (41.67%) and White, non-Hispanic (36.17%) candidates had the greatest proportion with a college degree or higher, while Other, non-Hispanic (60%) and Hispanic/Latino (54.78%) had the highest proportion with a high school education or less. For kidney-pancreas, Asian, non-Hispanic (46.62%) candidates had the highest proportion with a college degree or more, and Hispanic/Latino (55.51%) candidates had the highest proportion with a high school degree or less.

Figure PA-10. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Education and Race/Ethnicity



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Table PA-10. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Education and Race/Ethnicity

Education	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Pancreas					
High School or Less	196 (29.3%)	73 (32.88%)	86 (54.78%)	5 (20.83%)	12 (60%)
Some College/Technical School	210 (31.39%)	84 (37.84%)	45 (28.66%)	7 (29.17%)	2 (10%)
College Degree or Higher	242 (36.17%)	57 (25.68%)	24 (15.29%)	10 (41.67%)	6 (30%)
Unknown/Not Reported	21 (3.14%)	8 (3.6%)	2 (1.27%)	2 (8.33%)	0 (0%)
Total	669 (100%)	222 (100%)	157 (100%)	24 (100%)	20 (100%)
Kidney-Pancreas					
High School or Less	486 (35.87%)	410 (42.44%)	277 (55.51%)	32 (24.06%)	25 (38.46%)
Some College/Technical School	442 (32.62%)	319 (33.02%)	136 (27.25%)	36 (27.07%)	23 (35.38%)
College Degree or Higher	407 (30.04%)	211 (21.84%)	78 (15.63%)	62 (46.62%)	16 (24.62%)
Unknown/Not Reported	20 (1.48%)	26 (2.69%)	8 (1.6%)	3 (2.26%)	1 (1.54%)
Total	1,355 (100%)	966 (100%)	499 (100%)	133 (100%)	65 (100%)

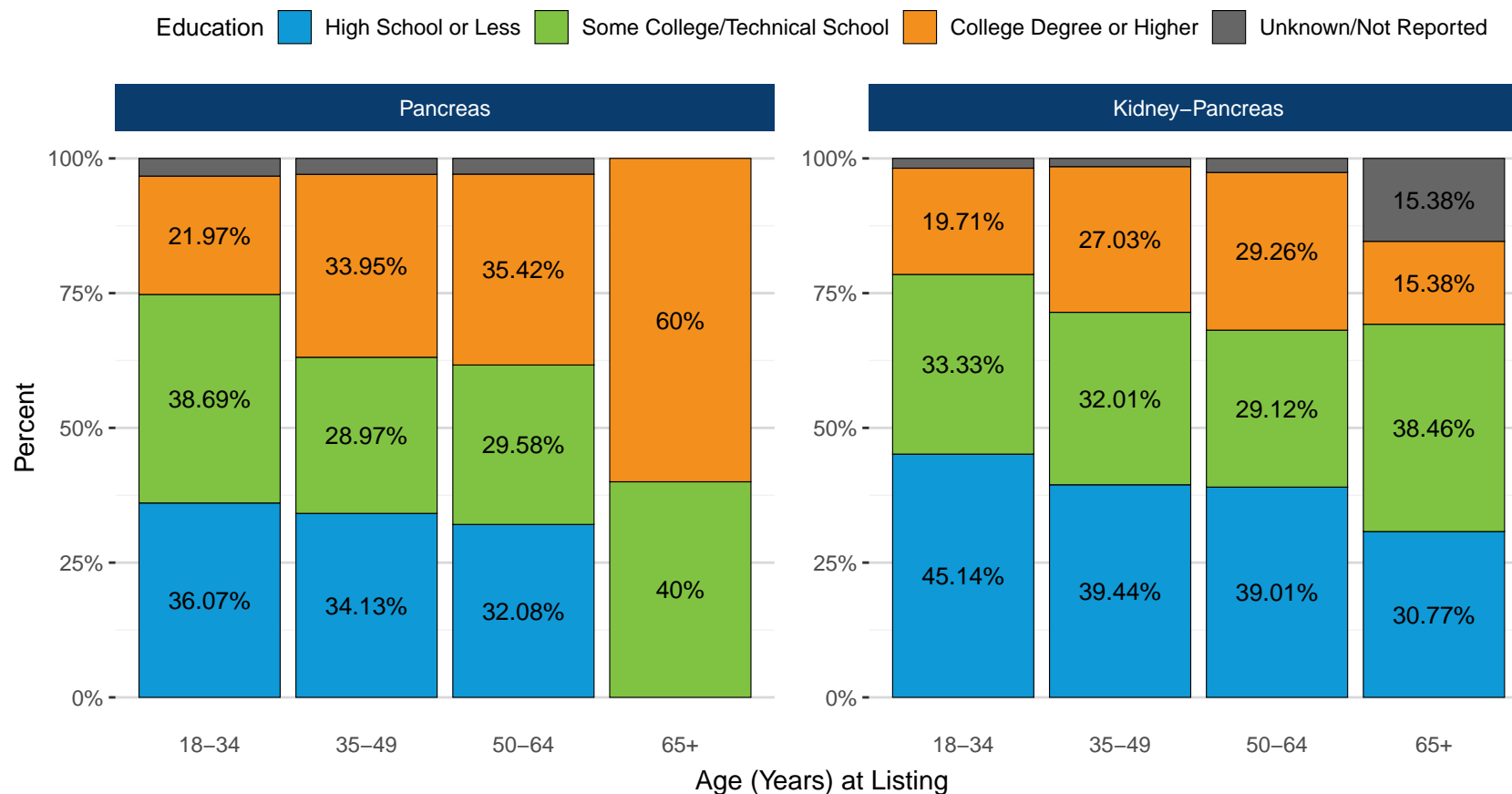
Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Figure PA-11 and **Table PA-11** show the education level for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by candidate age at listing. For both pancreas and kidney-pancreas, candidates aged 18-34 years had the highest proportion with a high school education or less (36.07% and 45.14%, respectively), and candidates aged 50-64 years had the highest proportion of having a college degree or higher (35.42% and 29.26%, respectively). There were very few pancreas or kidney-pancreas candidates aged 65 years or older.

Figure PA-11. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Education and Age at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

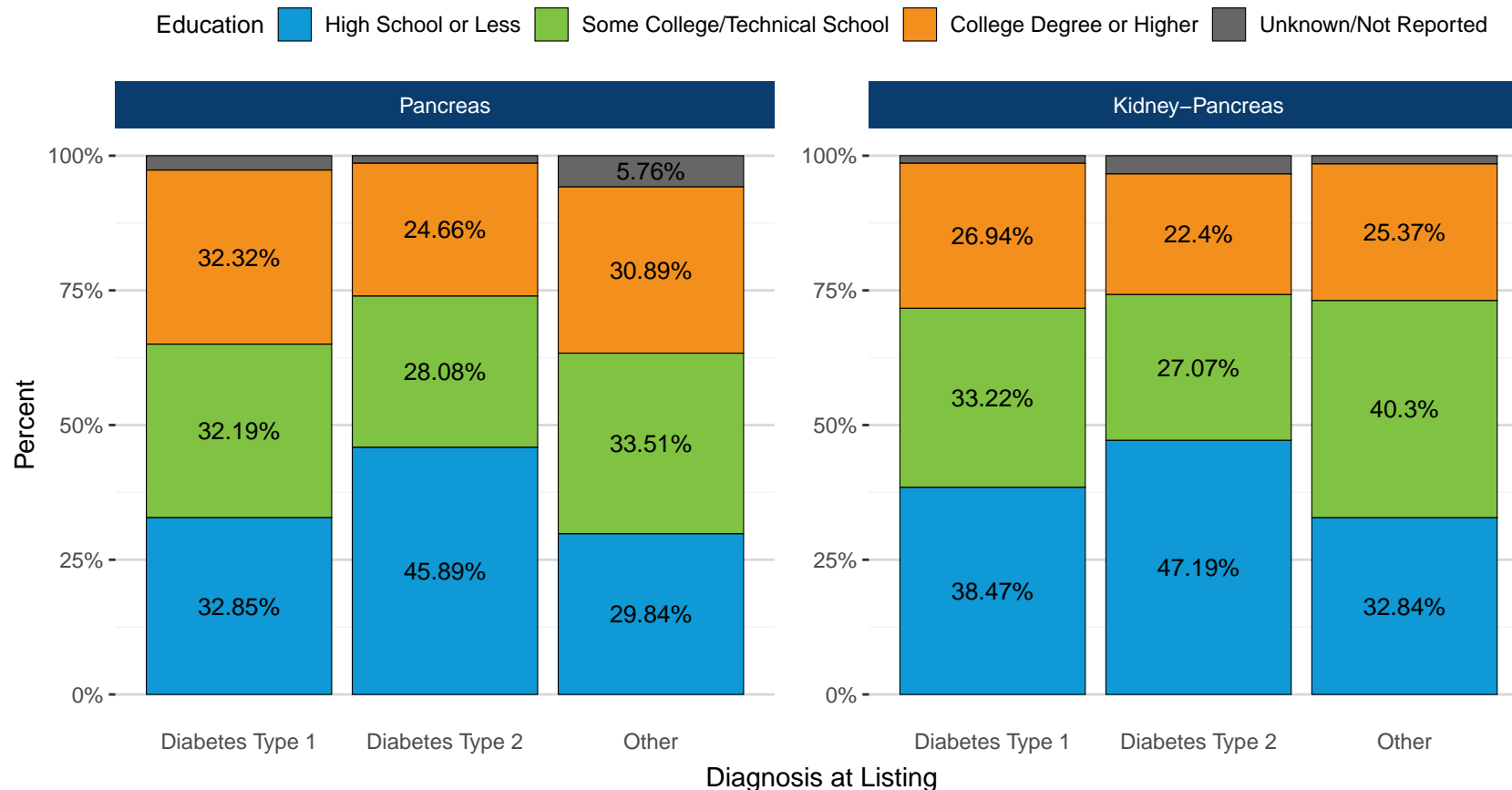
Table PA-11. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Education and Age at Listing

Education	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Pancreas				
High School or Less	110 (36.07%)	185 (34.13%)	77 (32.08%)	0 (0%)
Some College/Technical School	118 (38.69%)	157 (28.97%)	71 (29.58%)	2 (40%)
College Degree or Higher	67 (21.97%)	184 (33.95%)	85 (35.42%)	3 (60%)
Unknown/Not Reported	10 (3.28%)	16 (2.95%)	7 (2.92%)	0 (0%)
Total	305 (100%)	542 (100%)	240 (100%)	5 (100%)
Kidney-Pancreas				
High School or Less	348 (45.14%)	594 (39.44%)	284 (39.01%)	4 (30.77%)
Some College/Technical School	257 (33.33%)	482 (32.01%)	212 (29.12%)	5 (38.46%)
College Degree or Higher	152 (19.71%)	407 (27.03%)	213 (29.26%)	2 (15.38%)
Unknown/Not Reported	14 (1.82%)	23 (1.53%)	19 (2.61%)	2 (15.38%)
Total	771 (100%)	1,506 (100%)	728 (100%)	13 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure PA-12 and **Table PA-12** show education level for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by diagnosis at listing. Pancreas and kidney-pancreas candidates diagnosed with Diabetes Type II had the highest proportion with a high school education or less (45.89% and 47.19%, respectively).

Figure PA-12. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Education and Diagnosis at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Table PA-12. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Education and Diagnosis at Listing

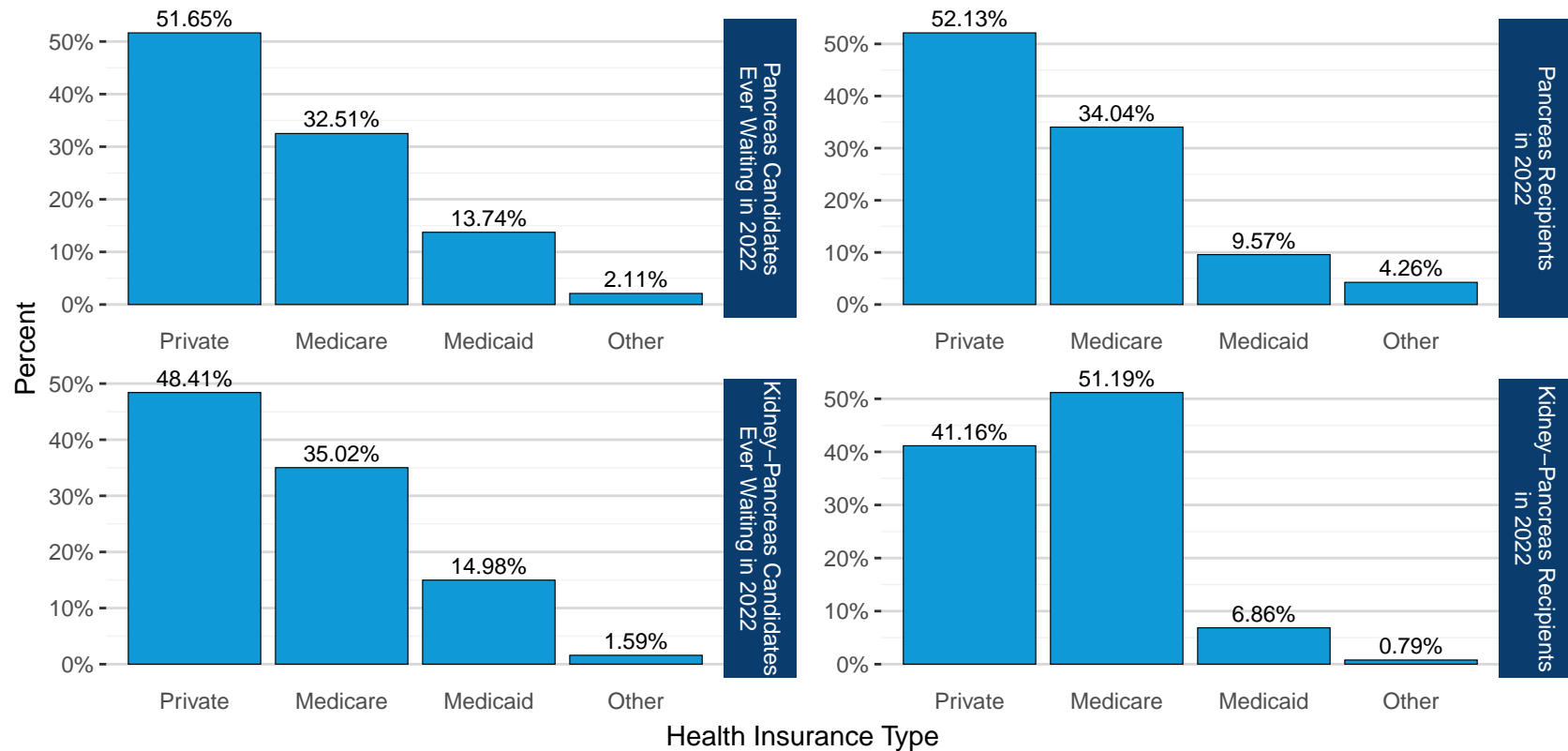
Education	Diagnosis at Listing		
	Diabetes Type 1	Diabetes Type 2	Other
Pancreas			
High School or Less	248 (32.85%)	67 (45.89%)	57 (29.84%)
Some College/Technical School	243 (32.19%)	41 (28.08%)	64 (33.51%)
College Degree or Higher	244 (32.32%)	36 (24.66%)	59 (30.89%)
Unknown/Not Reported	20 (2.65%)	2 (1.37%)	11 (5.76%)
Total	755 (100%)	146 (100%)	191 (100%)
Kidney-Pancreas			
High School or Less	814 (38.47%)	394 (47.19%)	22 (32.84%)
Some College/Technical School	703 (33.22%)	226 (27.07%)	27 (40.3%)
College Degree or Higher	570 (26.94%)	187 (22.4%)	17 (25.37%)
Unknown/Not Reported	29 (1.37%)	28 (3.35%)	1 (1.49%)
Total	2,116 (100%)	835 (100%)	67 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Pancreas and Kidney-Pancreas - Health Insurance Type

Figure PA-13 and **Table PA-13** show health insurance type for adult pancreas and kidney-pancreas candidates ever waiting in 2022 and adult pancreas and kidney-pancreas transplant recipients in 2022. Approximately 52% of pancreas candidates and recipients had private insurance, and approximately one-third had Medicare coverage. Compared to kidney-pancreas candidates, recipients were more likely to have Medicare coverage (51.19%), and less likely to have private health insurance (41.16%) or Medicaid coverage (6.86%).

Figure PA-13. Health Insurance Type for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

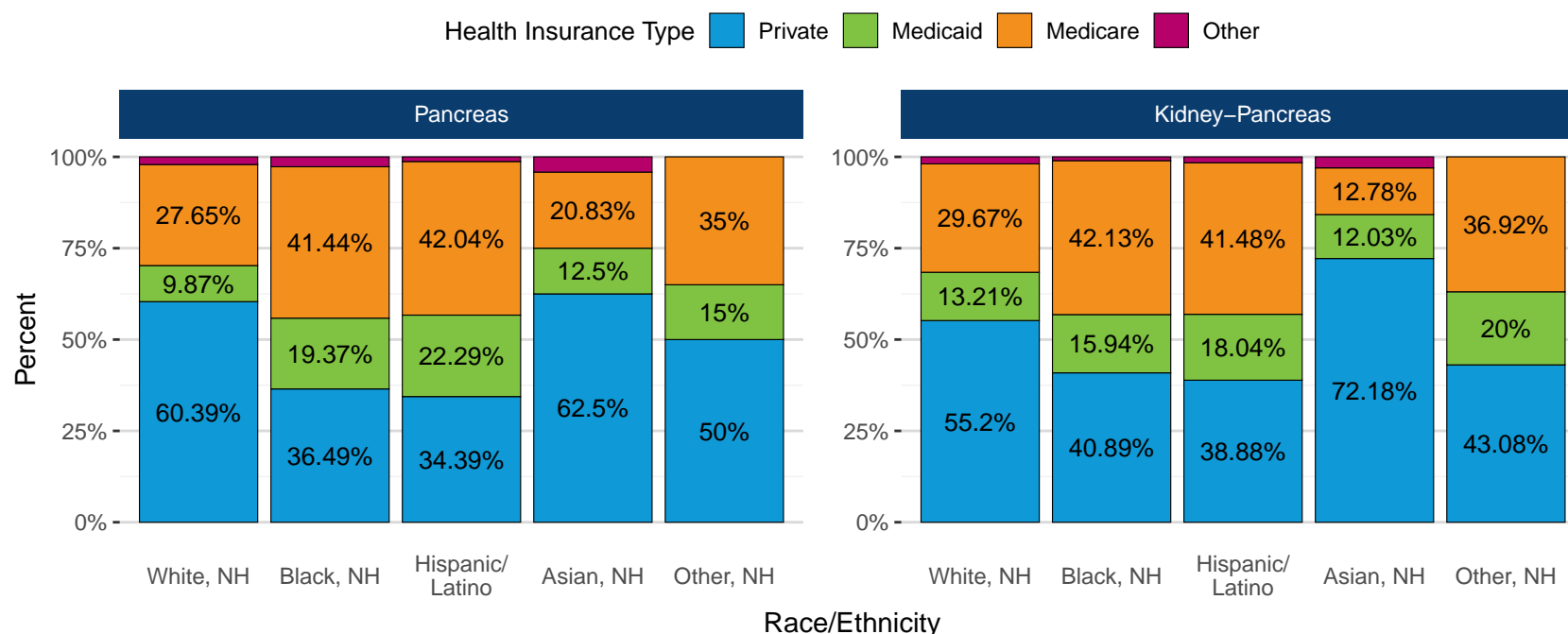
Table PA-13. Health Insurance Type for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022

Health Insurance Type	Candidates Ever Waiting in 2022		Recipients in 2022	
	N	Percent	N	Percent
Pancreas				
Private	564	51.65%	49	52.13%
Medicaid	150	13.74%	9	9.57%
Medicare	355	32.51%	32	34.04%
Other	23	2.11%	4	4.26%
Total	1,092	100%	94	100%
Kidney-Pancreas				
Private	1,461	48.41%	312	41.16%
Medicaid	452	14.98%	52	6.86%
Medicare	1,057	35.02%	388	51.19%
Other	48	1.59%	6	0.79%
Total	3,018	100%	758	100%

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure PA-14 and **Table PA-14** show health insurance type for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by race/ethnicity. For pancreas candidates, private health insurance was most prevalent for Asian, non-Hispanic candidates (62.5%), followed by White, non-Hispanic (60.39%), other, non-Hispanic (50%), Black, non-Hispanic (36.49%), and Hispanic/Latino (34.39%) candidates. For kidney-pancreas candidates, Asian, non-Hispanic (72.18%) candidates had the highest proportion of private health insurance, followed by White, non-Hispanic (55.2%), other, non-Hispanic (43.08%), Black, non-Hispanic (40.89%), and Hispanic/Latino (38.88%) candidates. For both pancreas and kidney-pancreas candidates, Medicare coverage Black, non-Hispanic and Hispanic/Latino candidates had higher proportions of Medicare coverage.

Figure PA-14. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.
 Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.
 Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Table PA-14. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity

Health Insurance	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Pancreas					
Private	404 (60.39%)	81 (36.49%)	54 (34.39%)	15 (62.5%)	10 (50%)
Medicaid	66 (9.87%)	43 (19.37%)	35 (22.29%)	3 (12.5%)	3 (15%)
Medicare	185 (27.65%)	92 (41.44%)	66 (42.04%)	5 (20.83%)	7 (35%)
Other	14 (2.09%)	6 (2.7%)	2 (1.27%)	1 (4.17%)	0 (0%)
Total	669 (100%)	222 (100%)	157 (100%)	24 (100%)	20 (100%)
Kidney-Pancreas					
Private	748 (55.2%)	395 (40.89%)	194 (38.88%)	96 (72.18%)	28 (43.08%)
Medicaid	179 (13.21%)	154 (15.94%)	90 (18.04%)	16 (12.03%)	13 (20%)
Medicare	402 (29.67%)	407 (42.13%)	207 (41.48%)	17 (12.78%)	24 (36.92%)
Other	26 (1.92%)	10 (1.04%)	8 (1.6%)	4 (3.01%)	0 (0%)
Total	1,355 (100%)	966 (100%)	499 (100%)	133 (100%)	65 (100%)

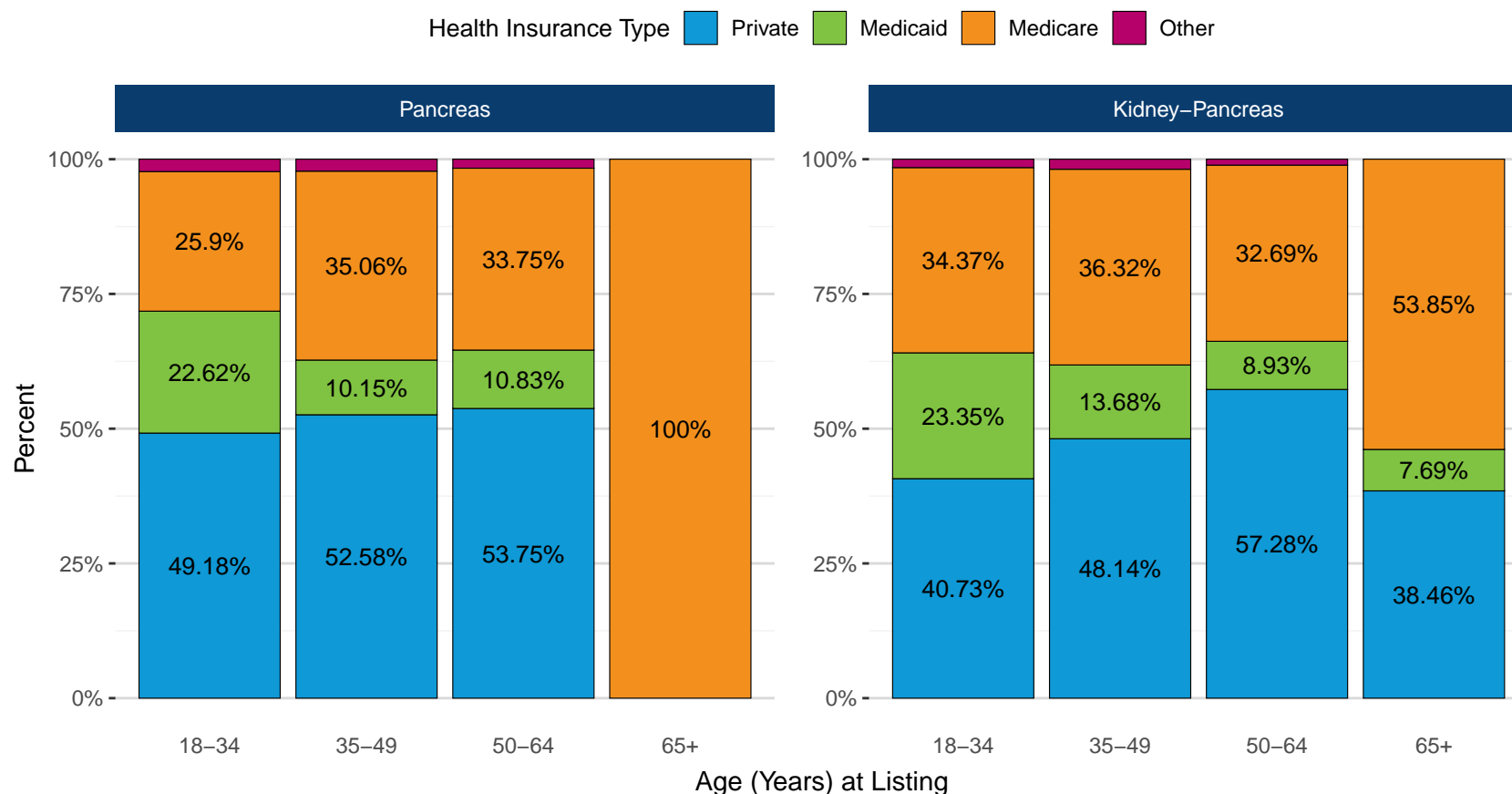
Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Figure PA-15 and **Table PA-15** show health insurance type for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by candidate age at listing. For both pancreas and kidney-pancreas candidates, private health insurance was the most common insurance type for candidates aged 18 to 64 years. Pancreas and kidney-pancreas candidates aged 18 to 34 years had the highest proportion of Medicaid coverage (22.62% and 23.35%, respectively). The majority of pancreas and kidney-pancreas candidates aged 65 years or older were insured by Medicare (100% and 53.85%, respectively); this trend is expected as Medicare coverage is reserved for adults aged 65 years or older or younger individuals with certain health conditions or disabilities.⁹

Figure PA-15. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

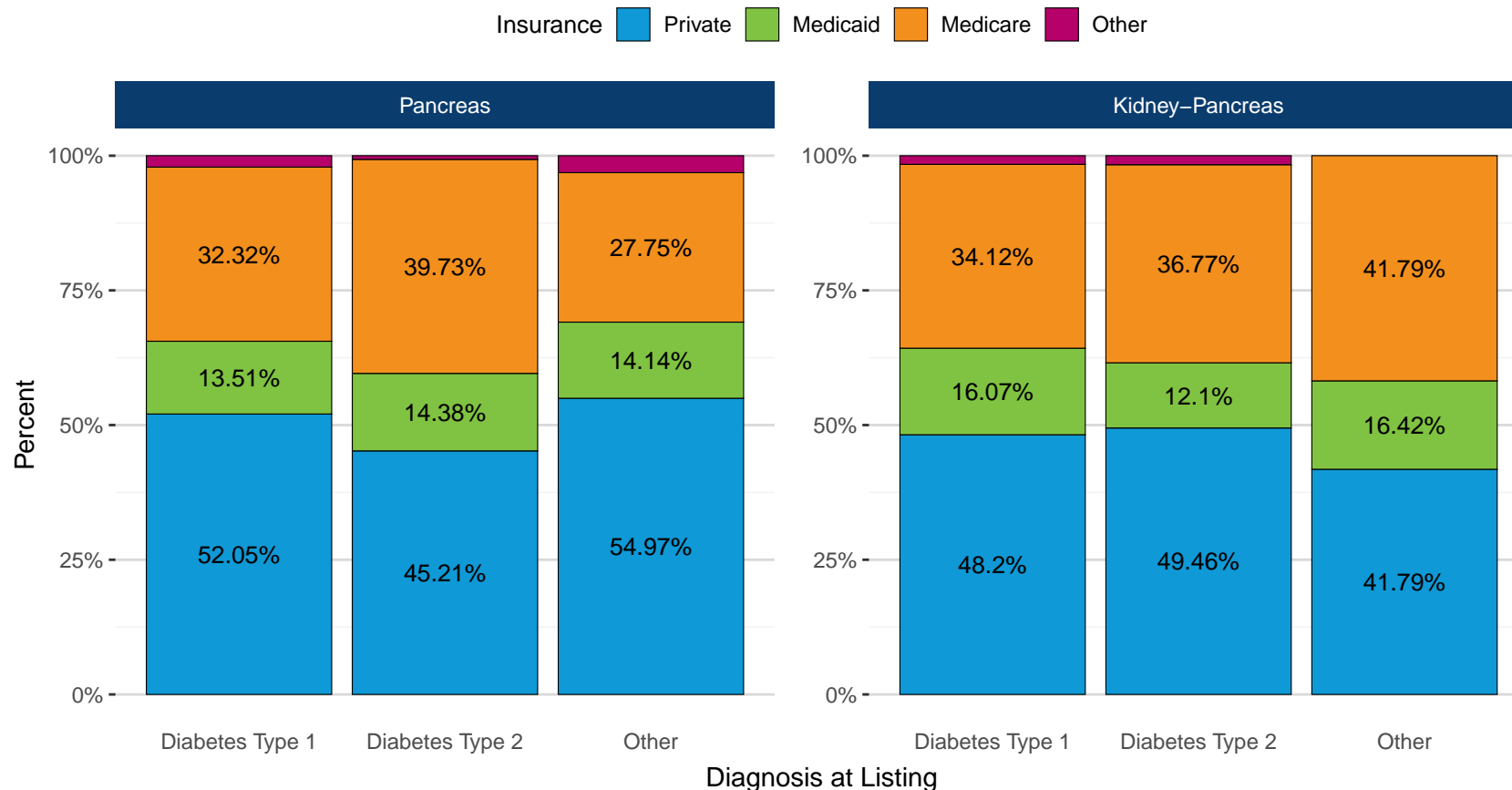
Table PA-15. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing

Health Insurance	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Pancreas				
Private	150 (49.18%)	285 (52.58%)	129 (53.75%)	0 (0%)
Medicaid	69 (22.62%)	55 (10.15%)	26 (10.83%)	0 (0%)
Medicare	79 (25.9%)	190 (35.06%)	81 (33.75%)	5 (100%)
Other	7 (2.3%)	12 (2.21%)	4 (1.67%)	0 (0%)
Total	305 (100%)	542 (100%)	240 (100%)	5 (100%)
Kidney-Pancreas				
Private	314 (40.73%)	725 (48.14%)	417 (57.28%)	5 (38.46%)
Medicaid	180 (23.35%)	206 (13.68%)	65 (8.93%)	1 (7.69%)
Medicare	265 (34.37%)	547 (36.32%)	238 (32.69%)	7 (53.85%)
Other	12 (1.56%)	28 (1.86%)	8 (1.1%)	0 (0%)
Total	771 (100%)	1,506 (100%)	728 (100%)	13 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure PA-16 and **Table PA-16** show health insurance type for pancreas and kidney-pancreas candidates ever waiting in 2022 by diagnosis at listing. For both pancreas and kidney-pancreas candidates, approximately 40-50% had private health insurance and approximately 30-40% were covered by Medicare across all diagnosis groups.

Figure PA-16. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Health Insurance Type and Diagnosis at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Table PA-16. Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Health Insurance Type and Diagnosis at Listing

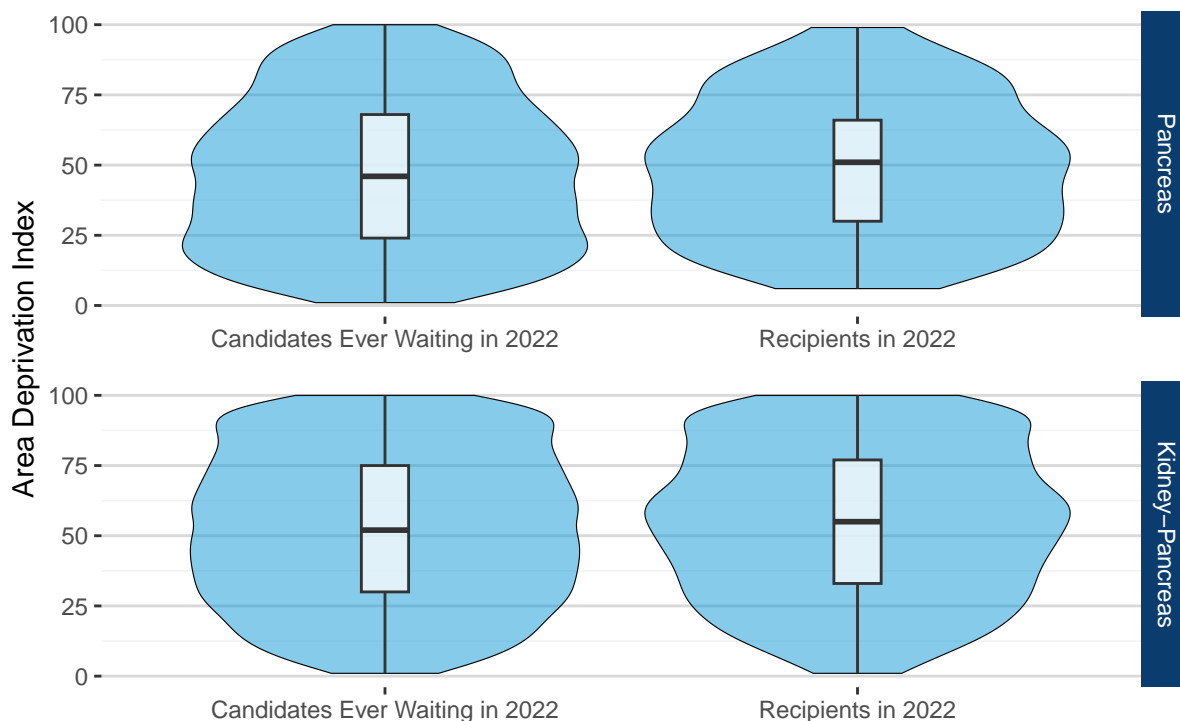
Insurance	Diagnosis at Listing		
	Diabetes Type 1	Diabetes Type 2	Other
Pancreas			
Private	393 (52.05%)	66 (45.21%)	105 (54.97%)
Medicaid	102 (13.51%)	21 (14.38%)	27 (14.14%)
Medicare	244 (32.32%)	58 (39.73%)	53 (27.75%)
Other	16 (2.12%)	1 (0.68%)	6 (3.14%)
Total	755 (100%)	146 (100%)	191 (100%)
Kidney-Pancreas			
Private	1,020 (48.2%)	413 (49.46%)	28 (41.79%)
Medicaid	340 (16.07%)	101 (12.1%)	11 (16.42%)
Medicare	722 (34.12%)	307 (36.77%)	28 (41.79%)
Other	34 (1.61%)	14 (1.68%)	NA
Total	2,116 (100%)	835 (100%)	67 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Pancreas and Kidney-Pancreas - Area Deprivation Index

Figure PA-17 and **Table PA-17** show the distribution of area deprivation index (ADI) for adult pancreas and kidney-pancreas candidates ever waiting in 2022 and adult pancreas and kidney-pancreas transplant recipients in 2022. For pancreas, the median ADI for candidates was 46, and slightly higher for recipients at 51. For kidney-pancreas candidates and recipients, median ADI was 52 and 55, respectively.

Figure PA-17. Distribution of Area Deprivation Index for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

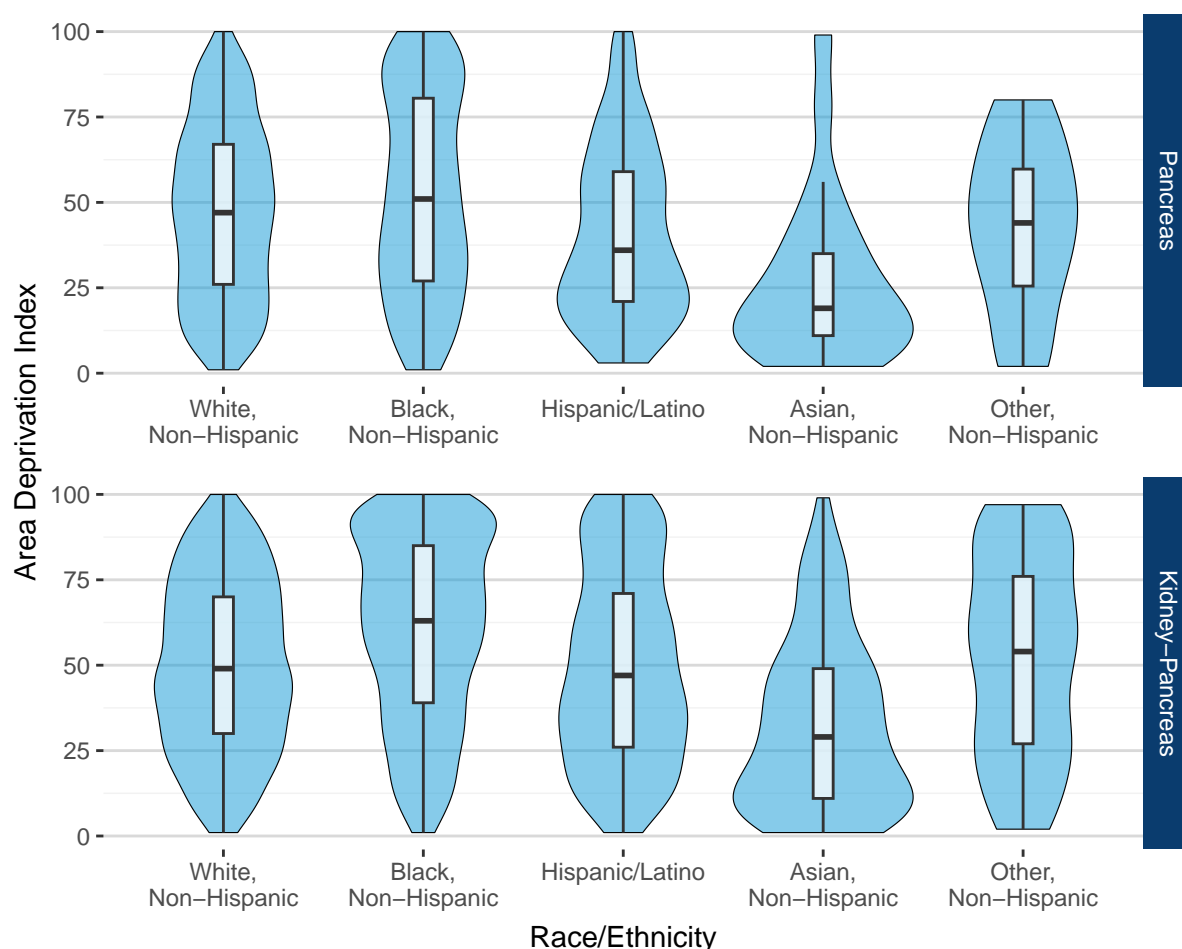
Table PA-17. Distribution of Area Deprivation Index for Adult Pancreas and Kidney-Pancreas Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Pancreas							
Candidates Ever Waiting in 2022	1,092	29	1	24	46	68	100
Recipients in 2022	94	5	6	30	51	66	99
Kidney-Pancreas							
Candidates Ever Waiting in 2022	3,018	34	1	30	52	75	100
Recipients in 2022	758	7	1	33	55	77	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure PA-18 and **Table PA-18** show the distribution of area deprivation index for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by race/ethnicity. For both pancreas and kidney-pancreas candidates, ADI values were highest for Black, non-Hispanic candidates (median: 51 and 63, respectively), and lowest for Asian, non-Hispanic candidates (median: 19 and 29, respectively).

Figure PA-18. Distribution of Area Deprivation Index for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Race/Ethnicity



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Table PA-18. Distribution of Area Deprivation Index for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Race/Ethnicity

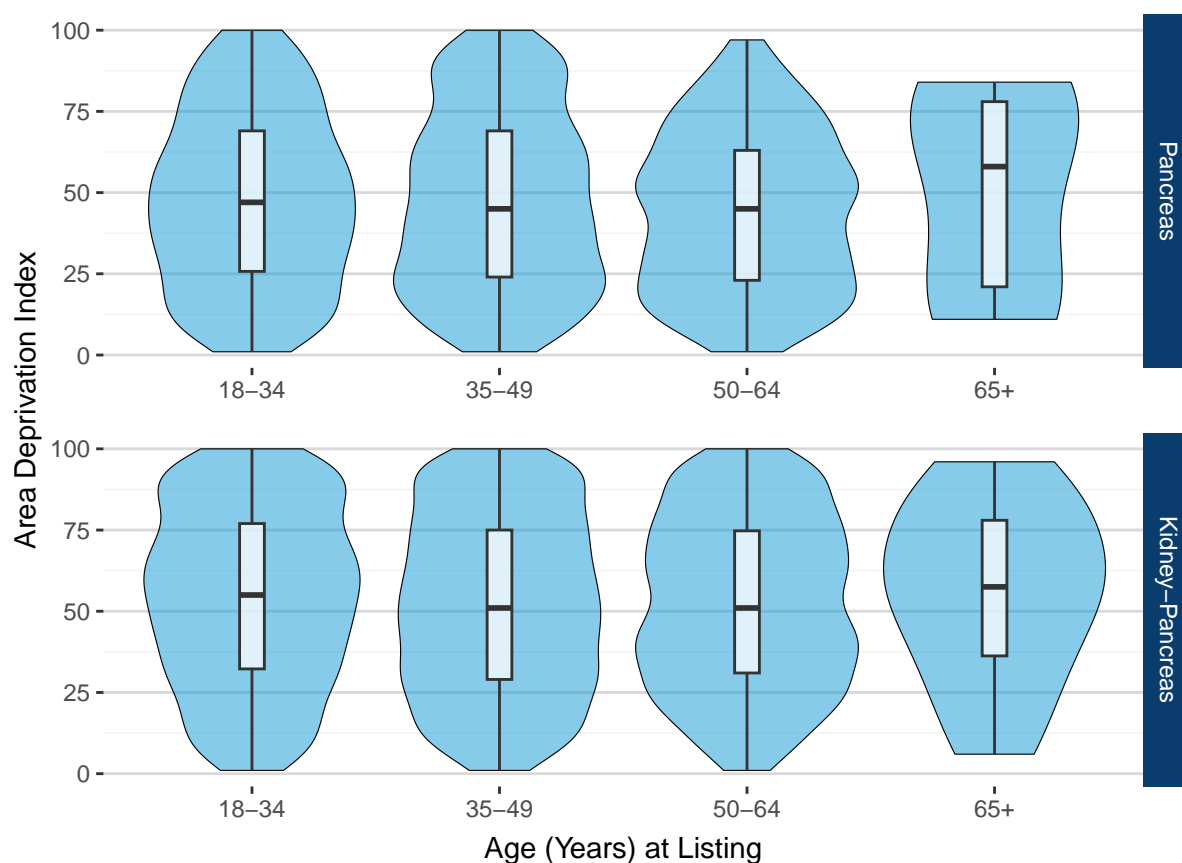
Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
Pancreas							
White, Non-Hispanic	669	16	1	26	47	67	100
Black, Non-Hispanic	222	6	1	27	51	80	100
Hispanic/Latino	157	4	3	21	36	59	100
Asian, Non-Hispanic	24	1	2	11	19	35	99
Other, Non-Hispanic	20	2	2	26	44	60	80
Kidney-Pancreas							
White, Non-Hispanic	1,355	15	1	30	49	70	100
Black, Non-Hispanic	966	14	1	39	63	85	100
Hispanic/Latino	499	5	1	26	47	71	100
Asian, Non-Hispanic	133	0	1	11	29	49	99
Other, Non-Hispanic	65	0	2	27	54	76	97

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Pancreas: Other, NH includes N=10 American Indian/Alaska Native, NH; N=9 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates. Kidney-Pancreas: Other, NH includes N=28 American Indian/Alaska Native, NH; N=28 Multiracial, NH; and N=9 Native Hawaiian/other Pacific Islander, NH candidates.

Figure PA-19 and **Table PA-19** show the distribution of area deprivation index for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by candidate age at listing. For pancreas, ADI was highest for candidates aged 65 years or older (median: 58) and lowest for candidates aged 35-49 years (median: 45) and 50-64 years (median: 45). For kidney-pancreas, ADI was highest for candidates aged 65 years or older (median: 58), and lowest for candidates aged 35-49 years (median: 51) and 50-64 years (median: 51).

Figure PA-19. Distribution of Area Deprivation Index for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Age at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

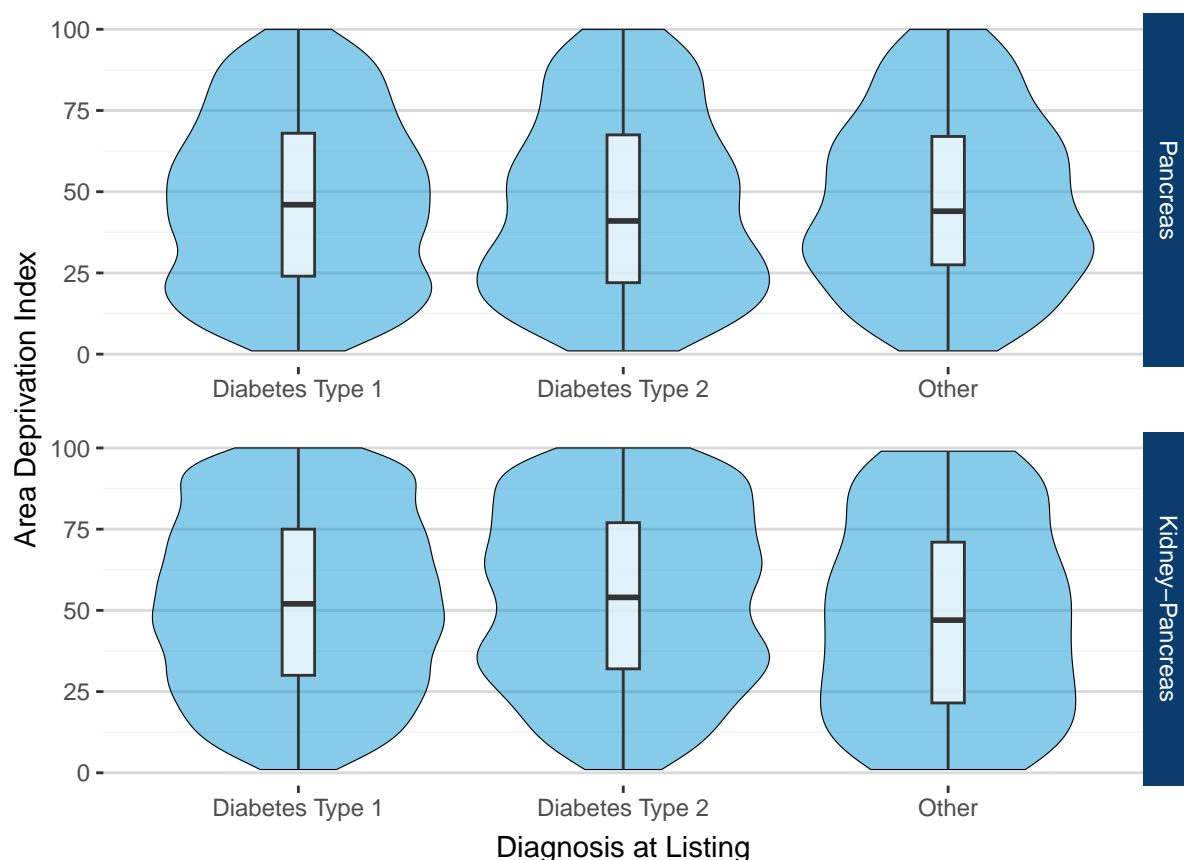
Table PA-19. Distribution of Area Deprivation Index for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Age at Listing

Age (Years) at Listing	N	Missing	Min	P25	Median	P75	Max
Pancreas							
18-34	305	9	1	26	47	69	100
35-49	542	17	1	24	45	69	100
50-64	240	3	1	23	45	63	97
65+	5	0	11	21	58	78	84
Kidney-Pancreas							
18-34	771	13	1	32	55	77	100
35-49	1,506	14	1	29	51	75	100
50-64	728	6	1	31	51	75	100
65+	13	1	6	36	58	78	96

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure PA-20 and **Table PA-20** show the distribution of area deprivation index for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by diagnosis at listing. For pancreas candidates, ADI was highest for candidates diagnosed with Diabetes Type I (median: 46) and for kidney-pancreas candidates, ADI was highest for candidates diagnosed with Diabetes Type II (median: 54).

Figure PA-20. Distribution of Area Deprivation Index for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Diagnosis at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Table PA-20. Distribution of Area Deprivation Index for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by Time on Dialysis at Listing

Diagnosis	N	Missing	Min	P25	Median	P75	Max
Pancreas							
Diabetes Type 1	755	22	1	24	46	68	100
Diabetes Type 2	146	3	1	22	41	68	100
Other	191	4	1	28	44	67	100
Kidney-Pancreas							
Diabetes Type 1	2,116	28	1	30	52	75	100
Diabetes Type 2	835	6	1	32	54	77	100
Other	67	0	1	22	47	71	99

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Pancreas and Kidney-Pancreas - Waiting List Mortality Rates by SDOH

Figure PA-21 and **Table PA-21** show waiting list mortality rates for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). For pancreas candidates, overall waiting list mortality was 3.11 (95% confidence interval (CI): 1.99-4.63) deaths per 100 patient years. For kidney-pancreas candidates, overall waiting list mortality was 5.11 (95% confidence interval (CI): 4.12-6.27) deaths per 100 patient years.

Estimated individual annual income: There were no statistically significant differences in waiting list mortality by estimated individual annual income for pancreas or kidney-pancreas.

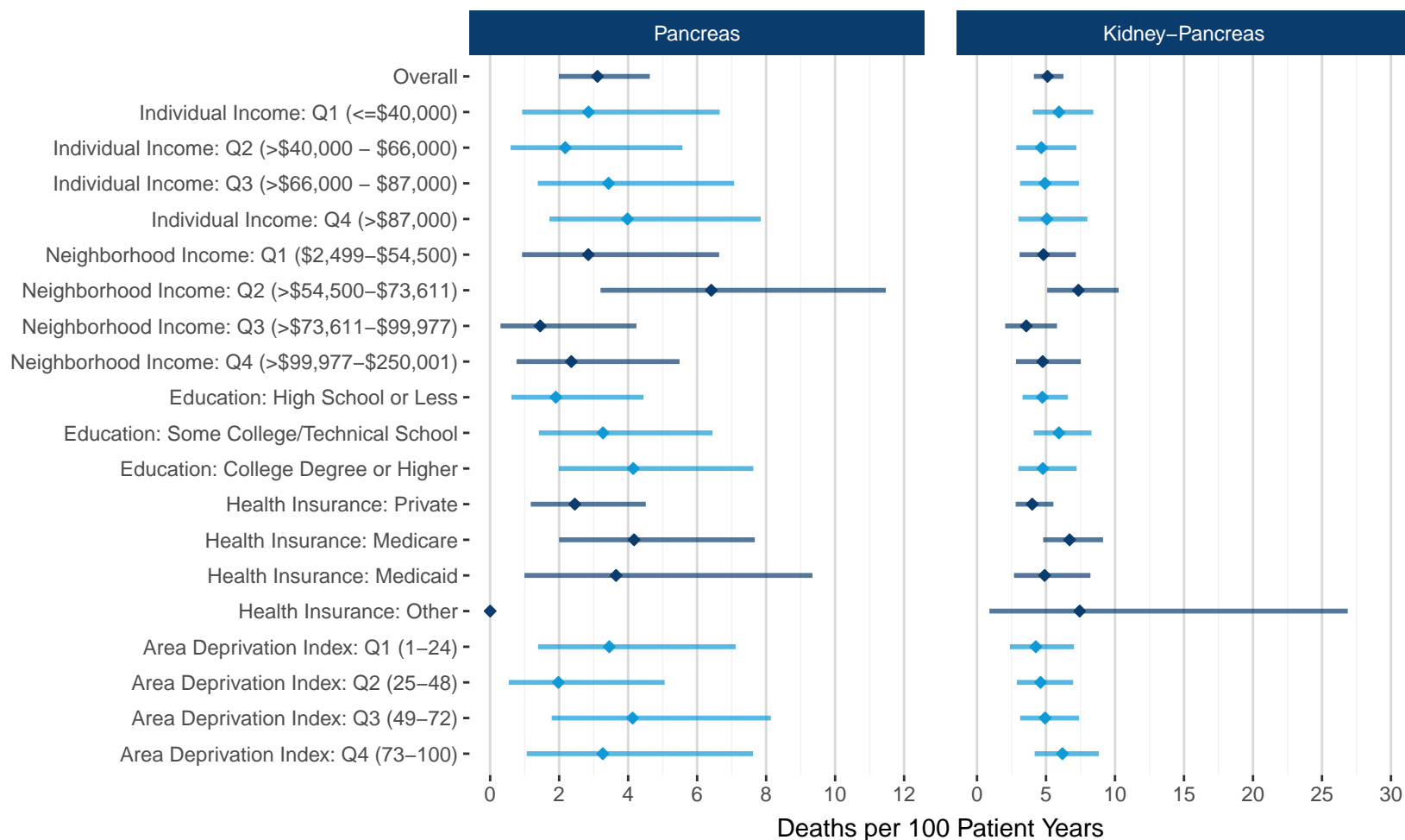
Neighborhood median household income: There were no statistically significant differences in waiting list mortality by neighborhood median household income for pancreas or kidney-pancreas.

Education: For pancreas candidates, waiting list mortality increased slightly with increasing educational attainment; however, these differences were not statistically significant. For kidney-pancreas candidates, waiting list mortality was highest for candidates with some college/technical school and lowest for candidates with a high school education or less; these differences were also not statistically significant.

Health insurance: There were no statistically significant differences in waiting list mortality for pancreas or kidney-pancreas by health insurance coverage. There were no deaths on the waiting list for pancreas candidates who were otherwise insured (not private, Medicare or Medicaid coverage).

ADI: There were no statistically significant differences in waiting list mortality by ADI quartile for pancreas or kidney-pancreas.

Figure PA-21. Waiting List Mortality Rates for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by SDOH



Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table PA-21. Waiting List Mortality Rates for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deaths	Deaths per 100 PY	95% CI
Pancreas				
Overall	1,092	24	3.11	(1.99, 4.63)
Individual Income: Q1 (\leq \$40,000)	243	5	2.85	(0.93, 6.65)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	259	4	2.18	(0.59, 5.57)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	295	7	3.43	(1.38, 7.07)
Individual Income: Q4 ($>$ \$87,000)	283	8	3.98	(1.72, 7.84)
Individual Income: Not Reported	14	0	0.00	–
Neighborhood Income: Q1 (\$2,499-\$54,500)	261	5	2.84	(0.92, 6.64)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	247	11	6.41	(3.20, 11.47)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	286	3	1.45	(0.30, 4.24)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	291	5	2.35	(0.76, 5.49)
Neighborhood Income: Not Reported	7	0	0.00	–
Education: High School or Less	372	5	1.90	(0.62, 4.44)
Education: Some College/Technical School	350	8	3.27	(1.41, 6.45)
Education: College Degree or Higher	343	10	4.15	(1.99, 7.63)
Education: Unknown/Not Reported	33	1	3.99	(0.10, 22.25)
Health Insurance: Private	565	10	2.45	(1.18, 4.51)
Health Insurance: Medicare	358	10	4.17	(2.00, 7.67)
Health Insurance: Medicaid	153	4	3.65	(0.99, 9.34)
Health Insurance: Other	23	0	0.00	–
Area Deprivation Index: Q1 (1-24)	272	7	3.45	(1.39, 7.12)
Area Deprivation Index: Q2 (25-48)	290	4	1.98	(0.54, 5.06)
Area Deprivation Index: Q3 (49-72)	287	8	4.13	(1.78, 8.14)
Area Deprivation Index: Q4 (73-100)	214	5	3.27	(1.06, 7.62)
Area Deprivation Index: Not Reported	29	0	0.00	–
Kidney-Pancreas				
Overall	3,018	92	5.11	(4.12, 6.27)
Individual Income: Q1 (\leq \$40,000)	889	31	5.94	(4.03, 8.43)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	730	20	4.66	(2.85, 7.20)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	767	23	4.92	(3.12, 7.39)
Individual Income: Q4 ($>$ \$87,000)	591	18	5.06	(3.00, 8.00)
Individual Income: Not Reported	46	0	0.00	–
Neighborhood Income: Q1 (\$2,499-\$54,500)	873	24	4.82	(3.09, 7.17)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	774	34	7.35	(5.09, 10.27)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	738	16	3.57	(2.04, 5.80)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	616	18	4.76	(2.82, 7.52)
Neighborhood Income: Not Reported	17	0	0.00	–
Education: High School or Less	1,239	35	4.74	(3.30, 6.59)
Education: Some College/Technical School	967	34	5.93	(4.11, 8.29)
Education: College Degree or Higher	784	22	4.77	(2.99, 7.22)
Education: Unknown/Not Reported	58	1	2.43	(0.06, 13.55)
Health Insurance: Private	1,468	36	4.00	(2.80, 5.54)
Health Insurance: Medicare	1,081	40	6.71	(4.79, 9.14)
Health Insurance: Medicaid	455	14	4.90	(2.68, 8.22)
Health Insurance: Other	49	2	7.44	(0.90, 26.87)
Area Deprivation Index: Q1 (1-24)	560	15	4.26	(2.38, 7.03)
Area Deprivation Index: Q2 (25-48)	793	22	4.60	(2.88, 6.97)
Area Deprivation Index: Q3 (49-72)	806	23	4.93	(3.13, 7.40)
Area Deprivation Index: Q4 (73-100)	825	30	6.19	(4.18, 8.84)

Area Deprivation Index: Not Reported	34	2	10.20	(1.24, 36.84)
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Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Pancreas and Kidney-Pancreas - Deceased Donor Transplant Rates by SDOH

Figure PA-22 and **Table PA-22** show deceased donor transplant rates for adult pancreas and kidney-pancreas candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). For pancreas, the overall deceased donor transplant rate was 62.02 (95% confidence interval (CI): 50.00-76.07) transplants per 100 active patient years. For kidney-pancreas, the overall deceased donor transplant rate was 91.34 (95% CI: 84.96-98.06) transplants per 100 active patient years.

Estimated individual annual income: For pancreas, the deceased donor transplant rate was highest for candidates in the third income quartile (>\$66,000-\$87,000) and lowest for candidates in the highest income quartile (>\$87,000). For kidney-pancreas, the deceased donor transplant rate was highest for candidates in the lowest income quartile (<=\$40,000) and lowest for candidates in the third income quartile (>\$66,000-\$87,000). Differences in deceased donor transplant rates by estimated individual annual income for pancreas and kidney-pancreas candidates were not statistically significant.

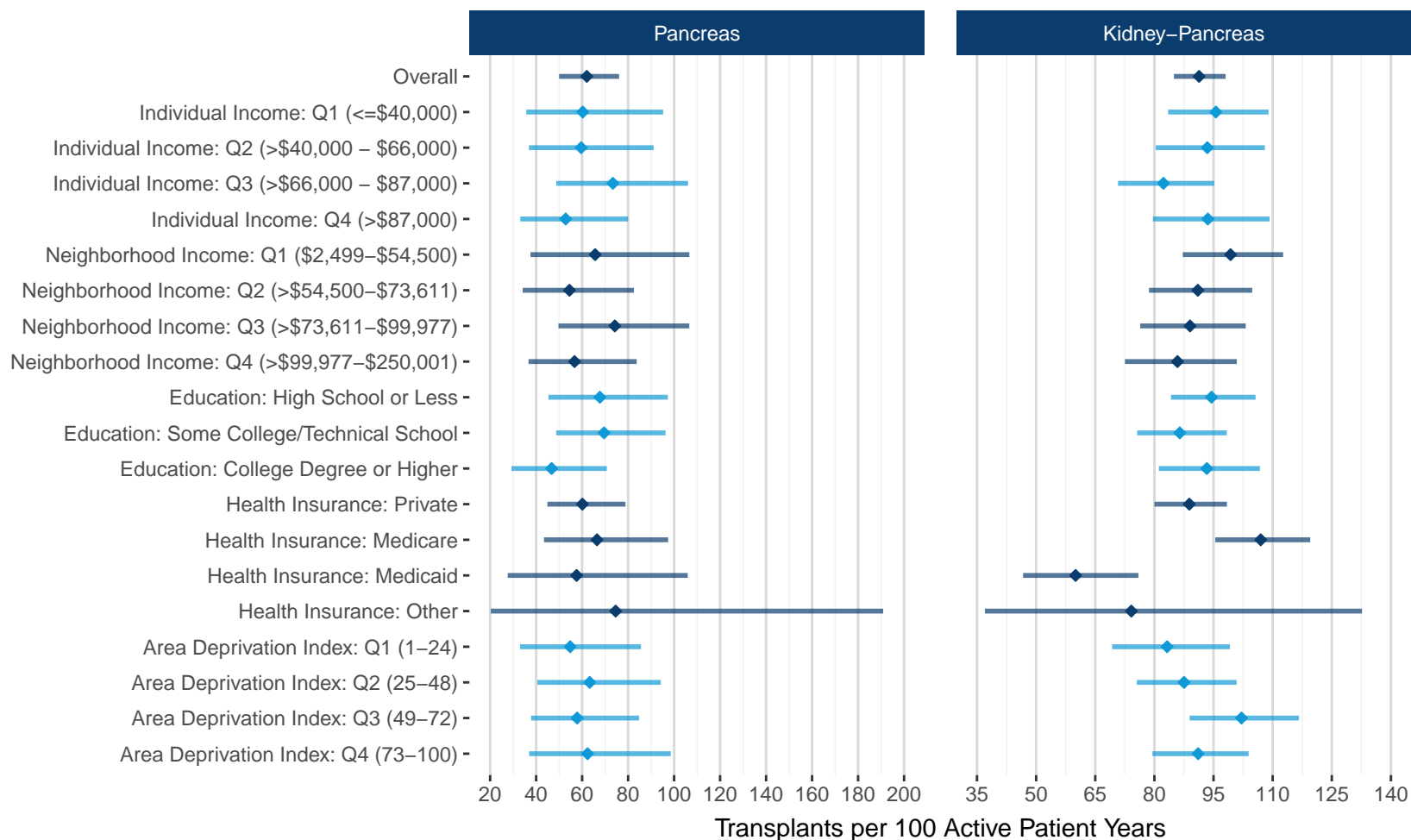
Neighborhood median household income: For kidney-pancreas candidates, the deceased donor transplant rate decreased as neighborhood median household income increased, but these differences were not statistically significant. For pancreas, the deceased donor rate was highest for candidates in the third neighborhood income quartile (>\$73,611-\$99,977) and lowest for candidates in the second quartile (>\$54,500-\$73,611), but these differences were also not statistically significant.

Education: There were no statistically significant differences in the deceased donor transplant rate by educational attainment for pancreas or kidney-pancreas.

Health insurance: For kidney-pancreas, the deceased donor transplant rate was lowest for candidates insured by Medicaid, and this was significantly lower than the rates for candidates privately insured or insured by Medicare. There were no statistically significant differences in the deceased donor transplant rate by health insurance for pancreas.

ADI: There were no statistically significant differences in the deceased donor transplant rates by ADI for pancreas or kidney-pancreas.

Figure PA-22. Deceased Donor Transplant Rates for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by SDOH



Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table PA-22. Deceased Donor Transplant Rates for Adult Pancreas and Kidney-Pancreas Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deceased Donor Transplants	TX per 100 Active PY	95% CI
Pancreas				
Overall	361	92	62.02	(50.00, 76.07)
Individual Income: Q1 (\leq \$40,000)	79	18	60.25	(35.71, 95.22)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	81	21	59.58	(36.88, 91.07)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	93	28	73.38	(48.76, 106.06)
Individual Income: Q4 ($>$ \$87,000)	103	22	52.84	(33.12, 80.00)
Individual Income: Not Reported	6	3	87.81	(18.11, 256.62)
Neighborhood Income: Q1 (\$2,499-\$54,500)	72	16	65.66	(37.53, 106.63)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	92	22	54.50	(34.15, 82.51)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	100	29	74.22	(49.71, 106.59)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	96	25	56.70	(36.69, 83.70)
Neighborhood Income: Not Reported	1	0	0.00	–
Education: High School or Less	100	29	67.72	(45.35, 97.25)
Education: Some College/Technical School	129	36	69.53	(48.70, 96.26)
Education: College Degree or Higher	121	22	46.72	(29.28, 70.73)
Education: Unknown/Not Reported	14	6	89.79	(32.95, 195.44)
Health Insurance: Private	207	52	60.12	(44.90, 78.84)
Health Insurance: Medicare	107	26	66.47	(43.42, 97.39)
Health Insurance: Medicaid	37	10	57.60	(27.62, 105.93)
Health Insurance: Other	11	4	74.57	(20.32, 190.92)
Area Deprivation Index: Q1 (1-24)	80	19	54.81	(33.00, 85.59)
Area Deprivation Index: Q2 (25-48)	95	24	63.29	(40.55, 94.18)
Area Deprivation Index: Q3 (49-72)	104	26	57.84	(37.78, 84.75)
Area Deprivation Index: Q4 (73-100)	75	18	62.36	(36.96, 98.55)
Area Deprivation Index: Not Reported	7	5	258.87	(84.05, 604.11)
Kidney-Pancreas				
Overall	2,105	761	91.34	(84.96, 98.06)
Individual Income: Q1 (\leq \$40,000)	615	224	95.59	(83.48, 108.96)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	506	182	93.42	(80.34, 108.03)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	541	182	82.29	(70.77, 95.15)
Individual Income: Q4 ($>$ \$87,000)	415	160	93.56	(79.62, 109.23)
Individual Income: Not Reported	31	13	106.32	(56.61, 181.81)
Neighborhood Income: Q1 (\$2,499-\$54,500)	634	242	99.32	(87.20, 112.65)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	538	193	91.02	(78.63, 104.81)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	502	177	89.04	(76.40, 103.16)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	420	147	85.85	(72.53, 100.90)
Neighborhood Income: Not Reported	11	2	26.75	(3.24, 96.63)
Education: High School or Less	855	307	94.48	(84.21, 105.67)
Education: Some College/Technical School	668	230	86.43	(75.62, 98.36)
Education: College Degree or Higher	558	211	93.30	(81.13, 106.77)
Education: Unknown/Not Reported	41	13	61.15	(32.56, 104.58)
Health Insurance: Private	1,019	369	88.86	(80.02, 98.40)
Health Insurance: Medicare	805	312	106.98	(95.43, 119.53)
Health Insurance: Medicaid	272	69	60.01	(46.69, 75.95)
Health Insurance: Other	34	11	74.15	(37.01, 132.67)
Area Deprivation Index: Q1 (1-24)	360	125	83.23	(69.28, 99.16)
Area Deprivation Index: Q2 (25-48)	540	191	87.52	(75.55, 100.85)
Area Deprivation Index: Q3 (49-72)	578	216	102.10	(88.94, 116.66)

Area Deprivation Index: Q4 (73-100)	606	222	91.10	(79.51, 103.90)
Area Deprivation Index: Not Reported	21	7	73.57	(29.58, 151.58)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

TX = transplants; PY = patient years; CI = confidence interval.

Liver

Liver - Results Summary

This section describes social determinants of health (SDOH) for adult liver candidates ever waiting in 2022 and adult recipients of liver transplants from living or deceased donors in 2022. Notable findings are summarized below.

Estimated individual annual income: Median estimated individual annual income was \$70,000 for both candidates and recipients (**Figure LI-1** and **Table LI-1**). Estimated individual annual income was lower in Black non-Hispanic, other non-Hispanic (**Figure LI-2** and **Table LI-2**) and younger candidates (**Figure LI-3** and **Table LI-3**). The waiting list mortality rate was significantly higher for candidates in the lowest individual annual income quartile (**Figure LI-26** and **Table LI-26**). There were no significant differences in deceased donor transplant rates by estimated individual annual income (**Figure LI-27** and **Table LI-27**).

Neighborhood median household income: Median neighborhood household income was \$77,894 for candidates and \$77,738 for recipients (**Figure LI-6** and **Table LI-6**). Median household income was highest for Asian, non-Hispanic candidates (**Figure LI-7** and **Table LI-7**). Median household income was also higher for candidates with a non-HCC exception (**Figure LI-9** and **Table LI-9**) and those with an allocation MELD score <15 among candidates without an approved exception (**Figure LI-10** and **Table LI-10**). The deceased donor transplant rate was significantly lower for candidates in the highest neighborhood income quartile compared to the rate for candidates in the lowest neighborhood income quartile (**Figure LI-27** and **Table LI-27**).

Education: Liver candidates and recipients had similar distributions of educational attainment. Approximately 40% of candidates and recipients had a high school education or less, and approximately 30% had a college degree or higher (**Figure LI-11** and **Table LI-11**). Asian non-Hispanic, White non-Hispanic, (**Figure LI-12** and **Table LI-12**) and candidates aged 35-49 (**Figure LI-13** and **Table LI-13**) were more likely to have a college degree or higher education. College education or higher was associated with having a non-HCC exception (**Figure LI-14** and **Table LI-14**). Waiting list mortality was highest for candidates with a high school education or less (**Figure LI-26** and **Table LI-26**). Deceased donor transplant rates increased as educational attainment increased though this increase was not statistically significant (**Figure LI-27** and **Table LI-27**).

Health insurance: The distribution of health insurance type was similar among candidates and recipients, though slightly more recipients were insured by Medicare (27.43%) compared to candidates (24.84%) (**Figure LI-16** and **Table LI-16**). Private health insurance coverage was more common among Asian, non-Hispanic and White, non-Hispanic candidates (**Figure LI-17** and **Table LI-17**). The majority (70.44%) of candidates aged 65 or older were covered by Medicare (**Figure LI-18** and **Table LI-18**). Waiting list mortality was significantly higher for candidates covered by Medicare (**Figure LI-26** and **Table LI-26**). The deceased donor transplant rate was highest for candidates covered by Medicaid, and was significantly higher than the rate for candidates with Medicare or other coverage (**Figure LI-27** and **Table LI-27**).

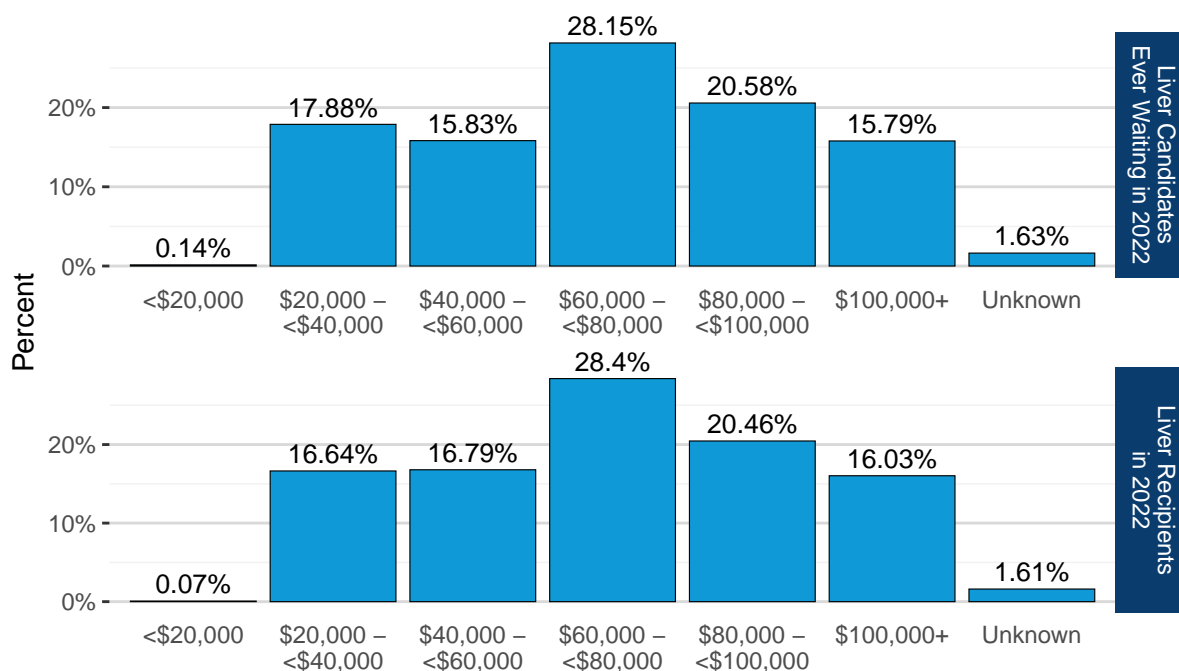
Area Deprivation Index (ADI): Median ADI values were similar for candidates ever waiting in 2022 and recipients transplanted in 2022, at 45 and 46, respectively (**Figure LI-21** and **Table LI-21**). Median ADI ranged from 20 for Asian, non-Hispanic candidates to 57 for other, non-Hispanic candidates (**Figure LI-22** and **Table LI-22**). Waiting list mortality was significantly higher for candidates in the highest ADI quartile compared to candidates in the lowest ADI quartile (**Figure LI-26** and **Table LI-26**). The deceased donor transplant rate was significantly lower for candidates in the lowest ADI quartile (**Figure LI-27** and **Table LI-27**).

SDOH for Recipients of Living vs Deceased Donor Transplants: Compared with recipients of deceased donor transplants, living donor transplant recipients were more likely to have higher estimated individual annual income, higher neighborhood median household income, a college degree or higher, private health insurance, and live in census block groups with lower ADI (**Figure LI-28** and **Table LI-28**).

Liver - Estimated Individual Annual Income

Figure LI-1 and **Table LI-1** show estimated individual annual income for adult liver candidates ever waiting in 2022 and adult liver transplant recipients in 2022. Median estimated individual annual income was the same for liver candidates and recipients at \$70,000. For reference, mean individual annual income for employed individuals in 2022 was \$70,346 according to the U.S. Bureau of Labor Statistics⁶ and median household income in 2022 was \$74,580 according to the U.S. Census Bureau.⁷

Figure LI-1. Estimated Individual Annual Income for Adult Liver Candidates and Recipients in 2022



Estimated Individual Annual Income

Estimated individual income data were obtained from LexisNexis.

Table LI-1. Estimated Individual Annual Income for Adult Liver Candidates and Recipients in 2022

Est. Individual Income	Liver Candidates Ever Waiting in 2022		Liver Recipients in 2022	
	N	Percent	N	Percent
<\$20,000	31	0.14%	6	0.07%
\$20,000 - <\$40,000	3,879	17.88%	1,399	16.64%
\$40,000 - <\$60,000	3,433	15.83%	1,412	16.79%
\$60,000 - <\$80,000	6,107	28.15%	2,388	28.4%
\$80,000 - <\$100,000	4,463	20.58%	1,720	20.46%
\$100,000+	3,424	15.79%	1,348	16.03%
Unknown	354	1.63%	135	1.61%
Total	21,691	100%	8,408	100%

Estimated individual income data were obtained from LexisNexis.

Figure LI-2 and **Table LI-2** show estimated individual annual income for adult liver candidates ever waiting in 2022 by race/ethnicity. Other, non-Hispanic (42.37%) and Black, non-Hispanic candidates (36.47%) had the highest proportion in the lowest income quartile, while Asian, non-Hispanic candidates (49.64%) had the highest proportion in the highest income quartile.

Figure LI-2. Adult Liver Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity



Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH and N=29 Native Hawaiian/other Pacific Islander, NH candidates.

N=1 candidate with unknown race/ethnicity was excluded.

Table LI-2. Adult Liver Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity

Est. Individual Income	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Q1 (<=\$40,000)	2,611 (16.72%)	512 (36.47%)	927 (26.74%)	81 (9.83%)	161 (42.37%)
Q2 (>\$40,000 - \$66,000)	4,074 (26.09%)	325 (23.15%)	798 (23.02%)	113 (13.71%)	86 (22.63%)
Q3 (>\$66,000 - \$87,000)	4,323 (27.68%)	311 (22.15%)	917 (26.45%)	200 (24.27%)	73 (19.21%)
Q4 (>\$87,000)	4,381 (28.06%)	231 (16.45%)	749 (21.6%)	409 (49.64%)	54 (14.21%)
Not Reported	226 (1.45%)	25 (1.78%)	76 (2.19%)	21 (2.55%)	6 (1.58%)
Total	15,615 (100%)	1,404 (100%)	3,467 (100%)	824 (100%)	380 (100%)

Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH; and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

Figure LI-3 and **Table LI-3** show estimated individual annual income for adult liver candidates ever waiting in 2022 by age at listing. Adult candidates aged 18-34 at listing had the highest proportion in the lowest income quartile (33.86%) and the lowest proportion in the highest income quartile (16.4%). The distributions of estimated individual annual income among candidates aged 35-49, 50-64 and 65+ were largely similar.

Figure LI-3. Adult Liver Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing

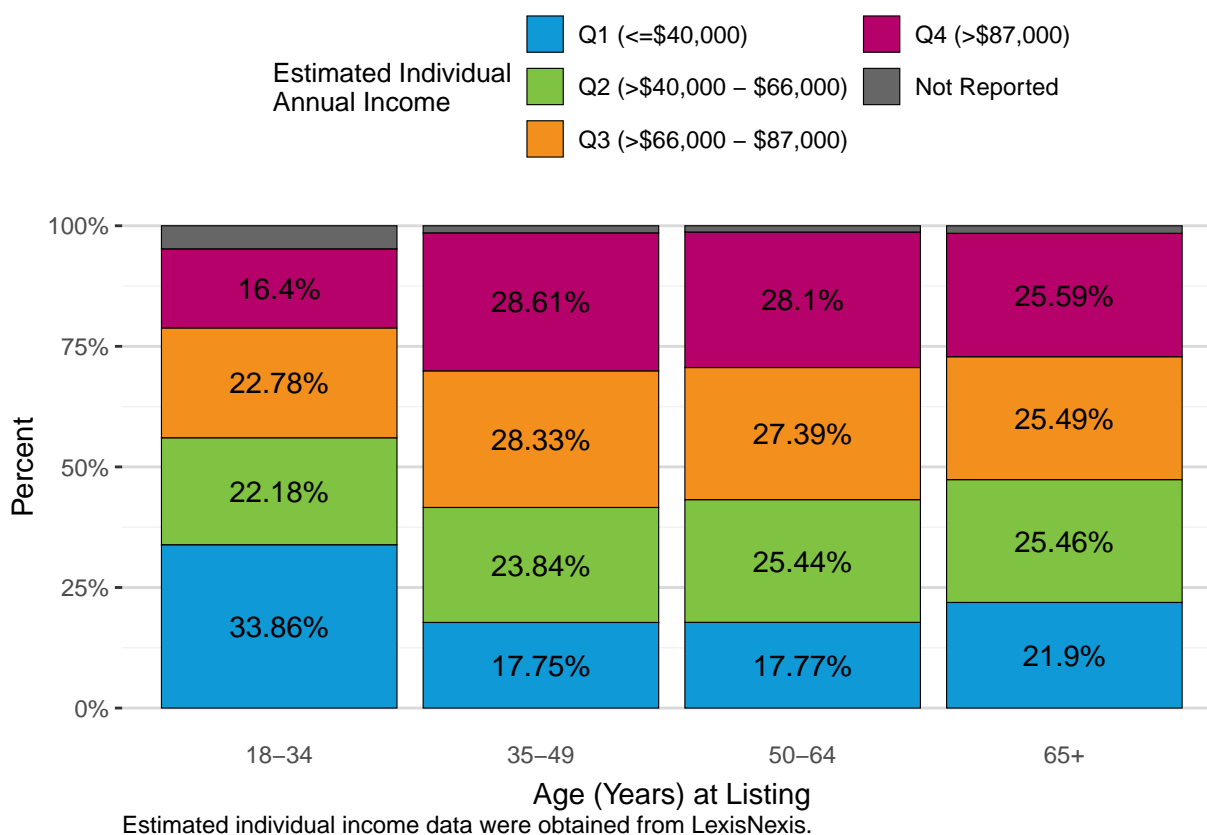


Table LI-3. Adult Liver Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing

Est. Individual Income	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Q1 ($\leq \$40,000$)	510 (33.86%)	819 (17.75%)	1,925 (17.77%)	1,038 (21.9%)
Q2 ($> \$40,000 - \$66,000$)	334 (22.18%)	1,100 (23.84%)	2,755 (25.44%)	1,207 (25.46%)
Q3 ($> \$66,000 - \$87,000$)	343 (22.78%)	1,307 (28.33%)	2,967 (27.39%)	1,208 (25.49%)
Q4 ($> \$87,000$)	247 (16.4%)	1,320 (28.61%)	3,044 (28.1%)	1,213 (25.59%)
Not Reported	72 (4.78%)	68 (1.47%)	140 (1.29%)	74 (1.56%)
Total	1,506 (100%)	4,614 (100%)	10,831 (100%)	4,740 (100%)

Estimated individual income data were obtained from LexisNexis.

Figure LI-4 and **Table LI-4** show estimated individual annual income for adult liver candidates ever waiting in 2022 by exception status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes whether candidates had an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. The distribution of estimated individual annual income was similar across groups, though there were slightly more candidates with a non-HCC exception (29.6%) in the highest income quartile.

Figure LI-4. Adult Liver Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Exception Status

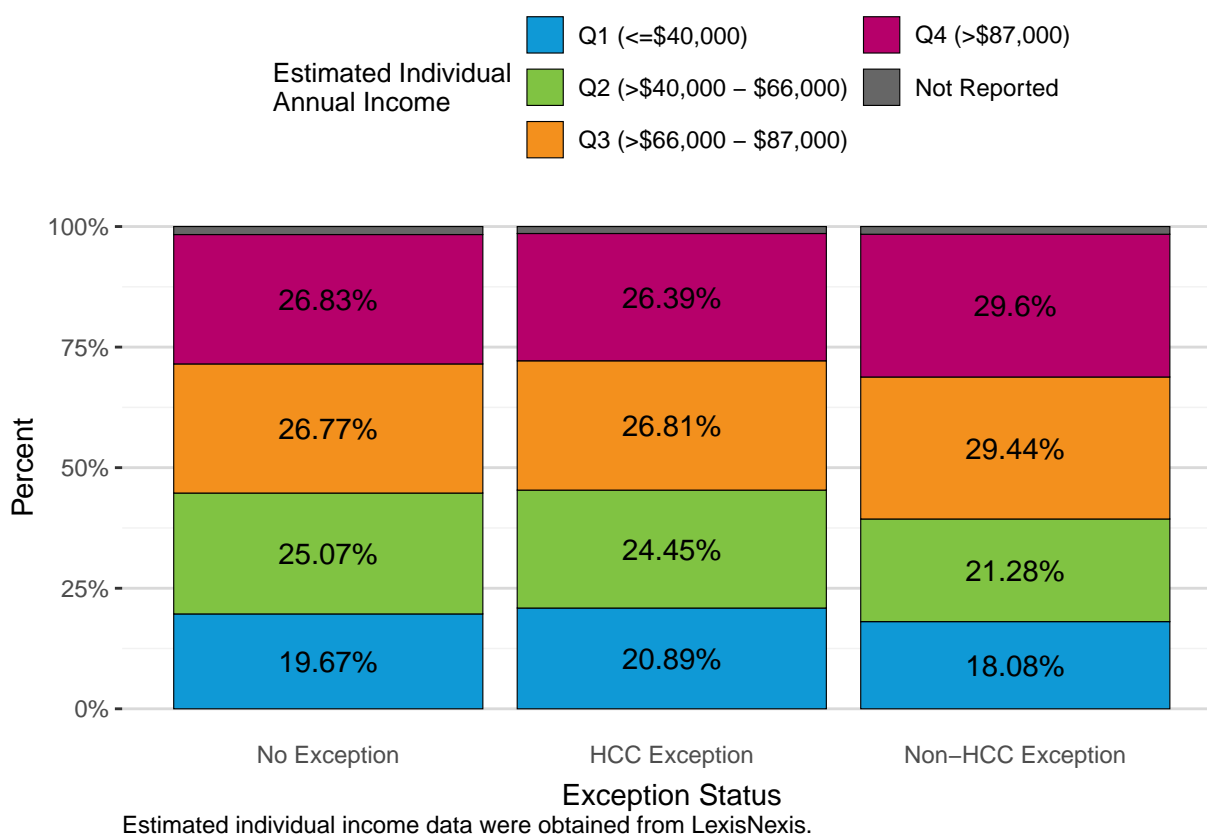


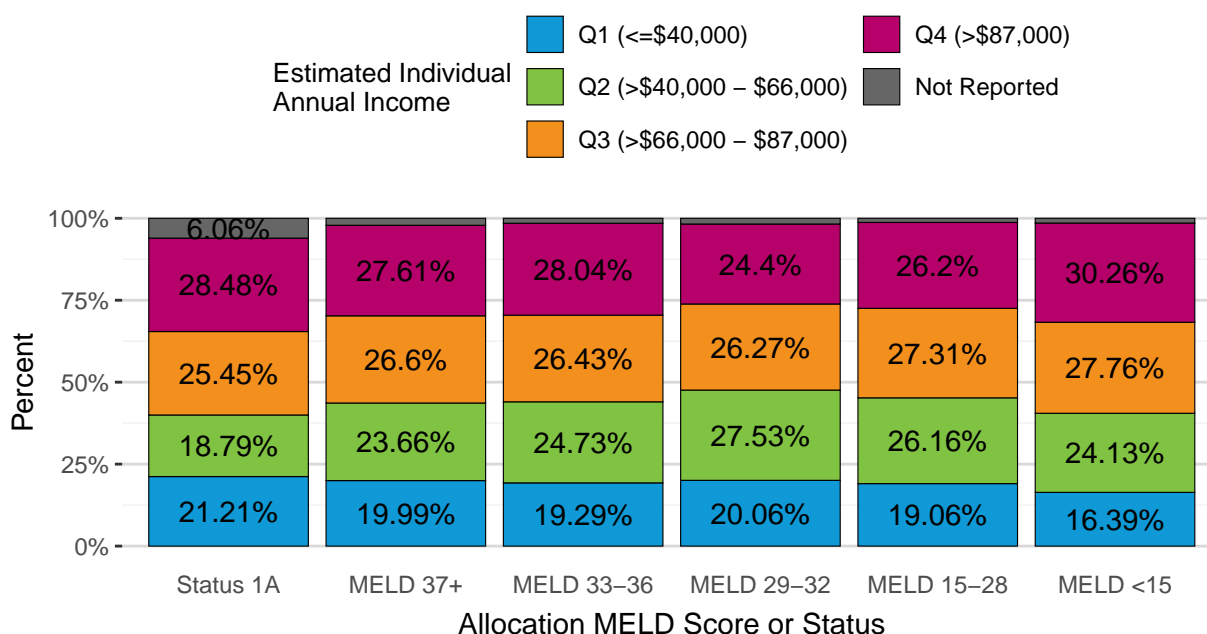
Table LI-4. Adult Liver Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Exception Status

Est. Individual Income	Exception Status		
	No Exception	HCC Exception	Non-HCC Exception
Q1 (<=\$40,000)	3,586 (19.67%)	593 (20.89%)	113 (18.08%)
Q2 (>\$40,000 - \$66,000)	4,569 (25.07%)	694 (24.45%)	133 (21.28%)
Q3 (>\$66,000 - \$87,000)	4,880 (26.77%)	761 (26.81%)	184 (29.44%)
Q4 (>\$87,000)	4,890 (26.83%)	749 (26.39%)	185 (29.6%)
Not Reported	303 (1.66%)	41 (1.44%)	10 (1.6%)
Total	18,228 (100%)	2,838 (100%)	625 (100%)

Estimated individual income data were obtained from LexisNexis.

Figure LI-5 and **Table LI-5** show estimated individual annual income for adult liver candidates ever waiting in 2022 without an approved exception by allocation MELD score or status. Exception scores for candidates on the waiting list are no longer known since the implementation of the median MELD at transplant (MMA^T) around the donor hospital policy on June 28, 2022¹⁰. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes candidates who did not have an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. There were slightly more candidates without an approved exception with an allocation MELD score of <15 (30.26%) in the highest income quartile. There was little difference in the distribution of estimated individual annual income among other groups.

Figure LI-5. Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Estimated Individual Annual Income and Allocation MELD Score or Status



Estimated individual income data were obtained from LexisNexis.
4959 temporarily inactive candidates were excluded.

Table LI-5. Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Estimated Individual Annual Income and Allocation MELD Score or Status

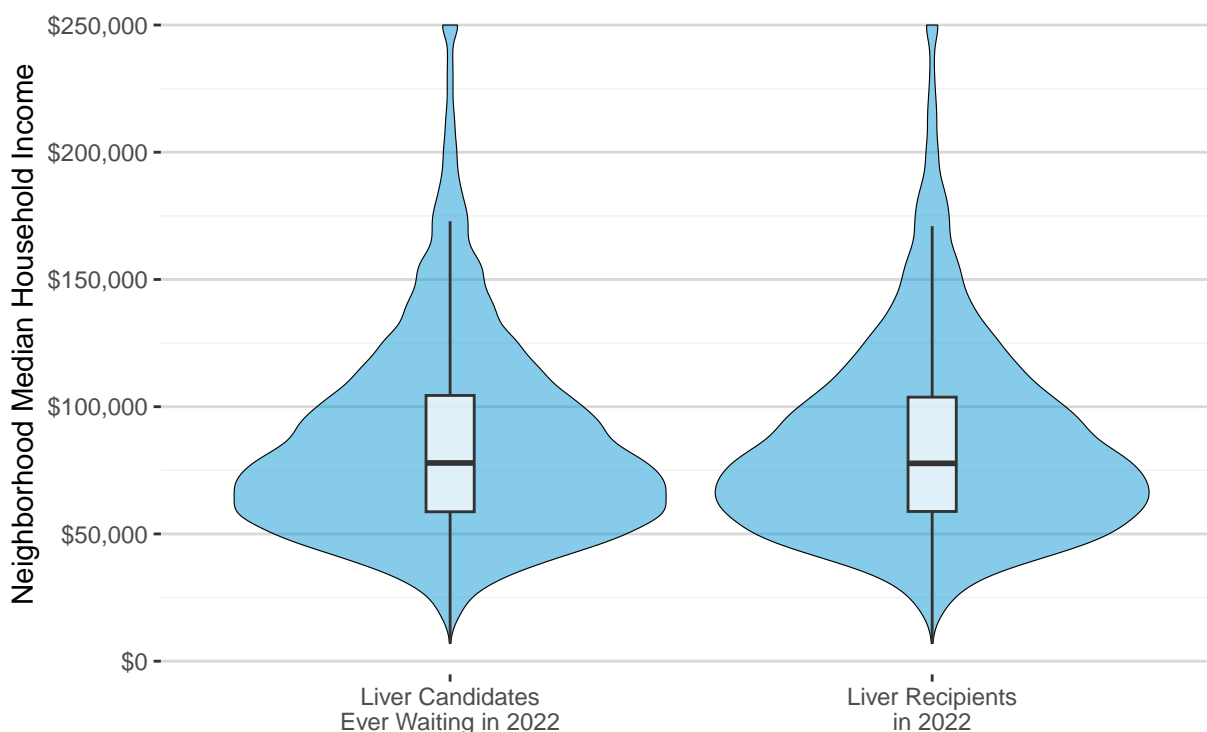
Est. Individual Income	Allocation MELD Score or Status					
	Status 1A	MELD 37+	MELD 33-36	MELD 29-32	MELD 15-28	MELD <15
Q1 (<=\$40,000)	35 (21.21%)	299 (19.99%)	216 (19.29%)	333 (20.06%)	964 (19.06%)	618 (16.39%)
Q2 (>\$40,000 - \$66,000)	31 (18.79%)	354 (23.66%)	277 (24.73%)	457 (27.53%)	1,323 (26.16%)	910 (24.13%)
Q3 (>\$66,000 - \$87,000)	42 (25.45%)	398 (26.6%)	296 (26.43%)	436 (26.27%)	1,381 (27.31%)	1,047 (27.76%)
Q4 (>\$87,000)	47 (28.48%)	413 (27.61%)	314 (28.04%)	405 (24.4%)	1,325 (26.2%)	1,141 (30.26%)
Not Reported	10 (6.06%)	32 (2.14%)	17 (1.52%)	29 (1.75%)	64 (1.27%)	55 (1.46%)
Total	165 (100%)	1,496 (100%)	1,120 (100%)	1,660 (100%)	5,057 (100%)	3,771 (100%)

Estimated individual income data were obtained from LexisNexis.
4959 temporarily inactive candidates were excluded.

Liver - Neighborhood Median Household Income

Figure LI-6 and **Table LI-6** show the distribution of neighborhood median household income for adult liver candidates ever waiting in 2022 and adult liver recipients transplanted in 2022 based on data from the American Community Survey. Median neighborhood household income was \$77,894 for liver candidates ever waiting in 2022 and \$77,738 for recipients transplanted in 2022. For reference, median household income in 2022 according to the U.S. Census Bureau was \$74,580.⁷

Figure LI-6. Distribution of Neighborhood Median Household Income for Adult Liver Candidates and Recipients in 2022



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

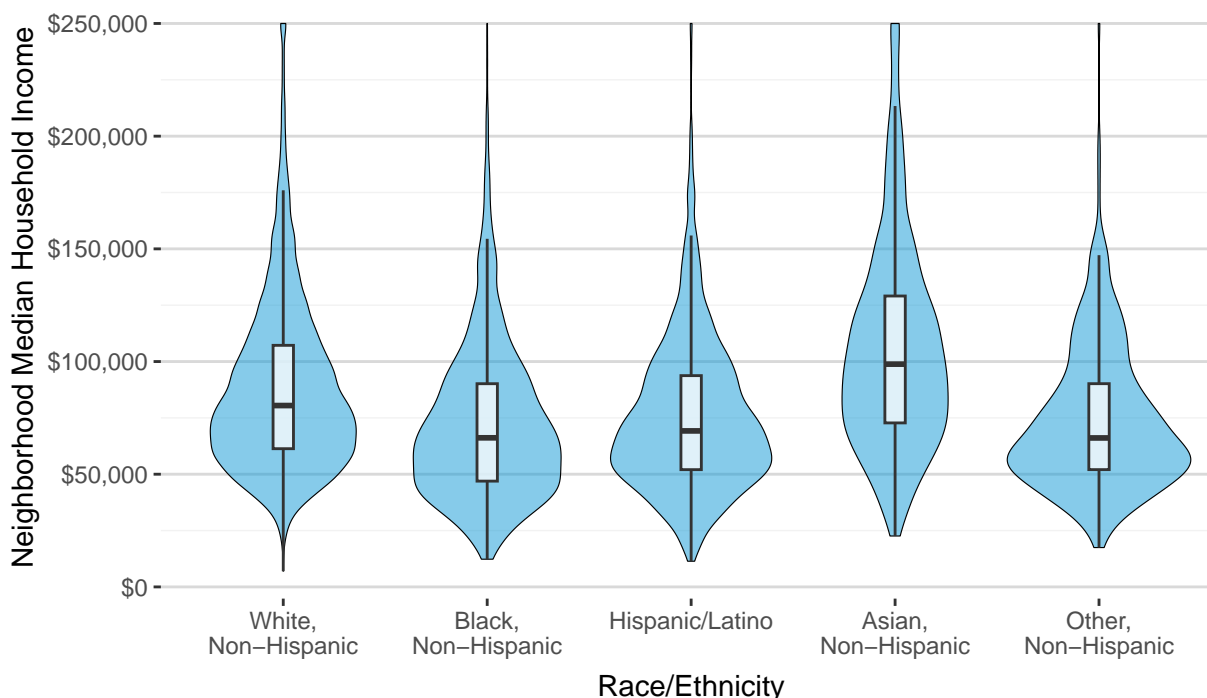
Table LI-6. Distribution of Neighborhood Median Household Income for Adult Liver Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Liver Candidates Ever Waiting in 2022	21,691	98	\$6,964	\$58,718	\$77,894	\$104,423	\$250,001
Liver Recipients in 2022	8,408	40	\$6,964	\$58,828	\$77,738	\$103,750	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure LI-7 and **Table LI-7** show the distribution of neighborhood median household income for adult liver candidates ever waiting in 2022 by race/ethnicity. Neighborhood median household income was highest for Asian, non-Hispanic candidates (median: \$98,846) and lowest for other, non-Hispanic candidates (median: \$66,101) and Black, non-Hispanic candidates (median: \$66,150).

Figure LI-7. Distribution of Neighborhood Median Household Income for Adult Liver Candidates Ever Waiting in 2022 by Race/Ethnicity



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

Table LI-7. Distribution of Neighborhood Median Household Income for Adult Liver Candidates Ever Waiting in 2022 by Race/Ethnicity

Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
White, Non-Hispanic	15,615	63	\$6,964	\$61,324	\$80,469	\$107,192	\$250,001
Black, Non-Hispanic	1,404	8	\$12,294	\$46,944	\$66,150	\$90,161	\$250,001
Hispanic/Latino	3,467	20	\$11,393	\$52,034	\$69,224	\$93,750	\$250,001
Asian, Non-Hispanic	824	4	\$22,592	\$72,765	\$98,846	\$129,080	\$250,001
Other, Non-Hispanic	380	3	\$17,471	\$52,042	\$66,101	\$90,174	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH; and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

Figure LI-8 and **Table LI-8** show the distribution of median household income for adult liver candidates ever waiting in 2022 by age at listing. Neighborhood median household income was largely similar among candidate age groups, but was slightly higher for candidates aged 65+ (median: \$79,338).

Figure LI-8. Distribution of Neighborhood Median Household Income for Adult Liver Candidates Ever Waiting in 2022 by Age at Listing

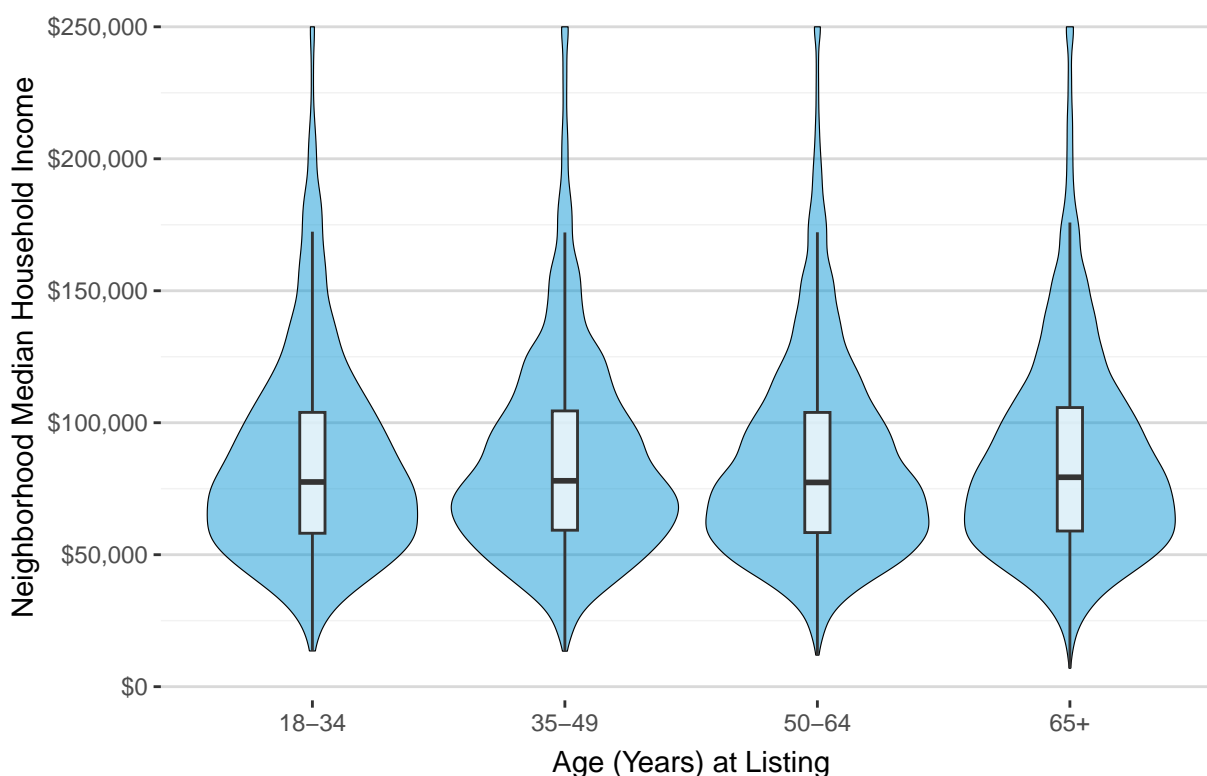


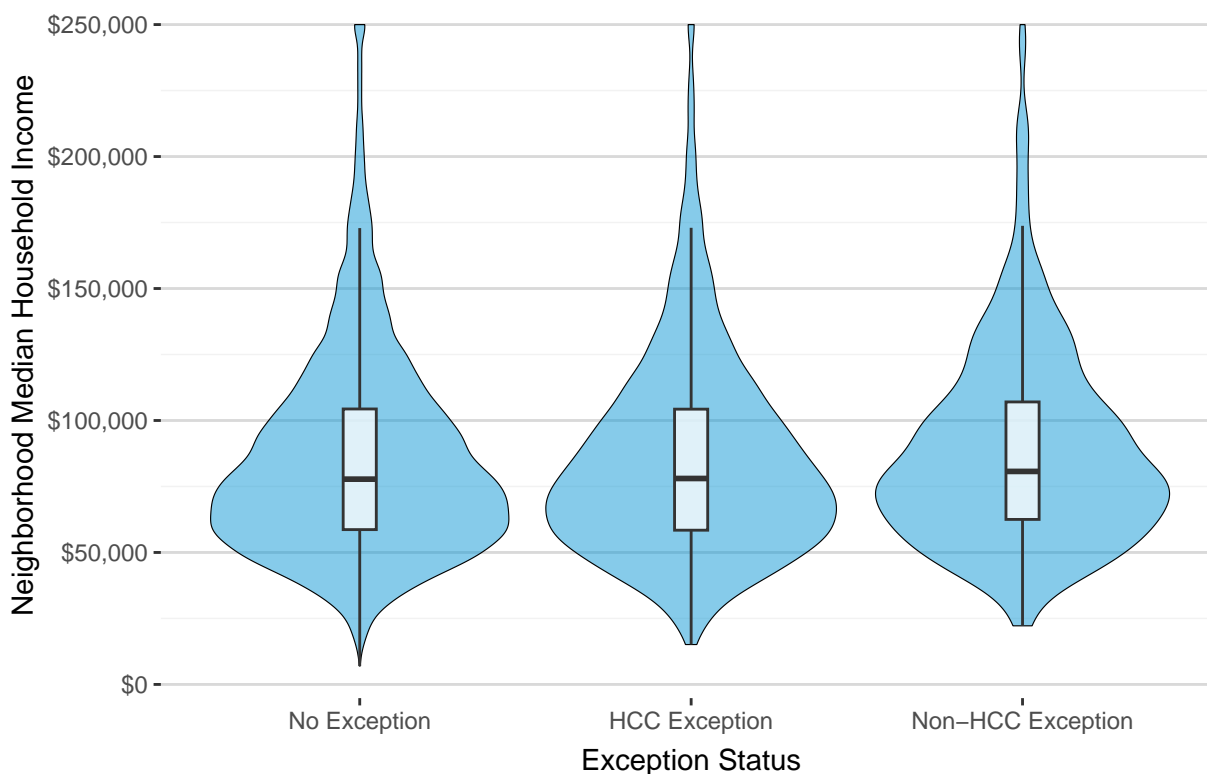
Table LI-8. Distribution of Neighborhood Median Household Income for Adult Liver Candidates Ever Waiting in 2022 by Age at Listing

Age (Years) at Listing	N	Missing	Min	P25	Median	P75	Max
18-34	1,506	22	\$13,529	\$58,118	\$77,550	\$103,917	\$250,001
35-49	4,614	15	\$13,447	\$59,276	\$77,989	\$104,472	\$250,001
50-64	10,831	42	\$11,935	\$58,380	\$77,379	\$103,895	\$250,001
65+	4,740	19	\$6,964	\$58,971	\$79,338	\$105,750	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure LI-9 and **Table LI-9** show the distribution of median household income for adult liver candidates ever waiting in 2022 by exception status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes whether candidates had an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. Neighborhood median household income was highest for candidates with an approved non-HCC exception (median: \$80,697).

Figure LI-9. Distribution of Neighborhood Median Household Income for Adult Liver Candidates Ever Waiting in 2022 by Exception Status



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Table LI-9. Distribution of Neighborhood Median Household Income for Adult Liver Candidates Ever Waiting in 2022 by Exception Status

Exception Status	N	Missing	Min	P25	Median	P75	Max
No Exception	18,228	83	\$6,964	\$58,660	\$77,766	\$104,364	\$250,001
HCC Exception	2,838	12	\$15,108	\$58,436	\$78,024	\$104,295	\$250,001
Non-HCC Exception	625	3	\$22,207	\$62,514	\$80,697	\$107,025	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure LI-10 and **Table LI-10** show the distribution of neighborhood median household income for adult liver candidates ever waiting in 2022 without an approved exception by allocation MELD score or status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes candidates who did not have an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. Neighborhood median household income was highest for candidates without an approved exception with an allocation MELD score of <15 (median: \$81,364). The distribution of neighborhood median household income among other allocation score groups was similar.

Figure LI-10. Distribution of Neighborhood Median Household Income for Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Allocation MELD Score or Status

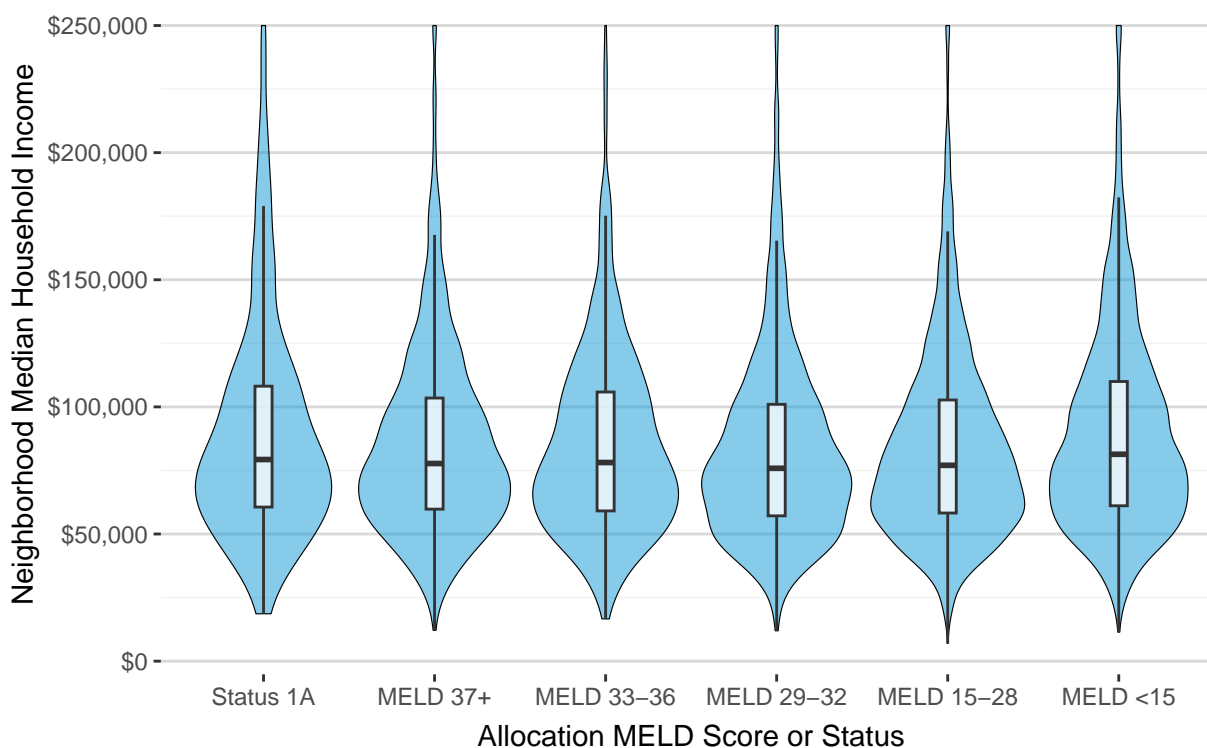


Table LI-10. Distribution of Neighborhood Median Household Income for Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Allocation MELD Score or Status

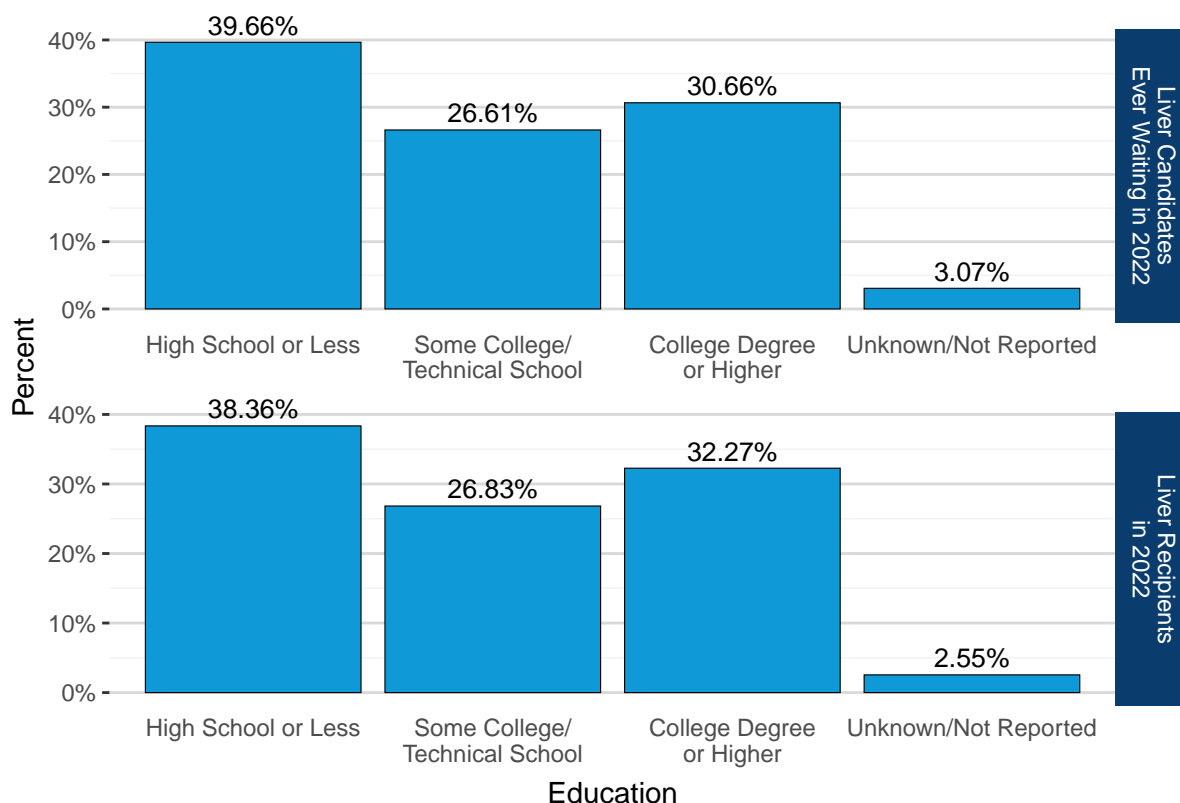
Allocation MELD Score or Status	N	Missing	Min	P25	Median	P75	Max
Status 1A	165	4	\$18,629	\$60,600	\$79,293	\$108,151	\$250,001
MELD 37+	1,496	4	\$12,110	\$59,778	\$77,738	\$103,486	\$250,001
MELD 33-36	1,120	9	\$16,607	\$59,091	\$78,125	\$105,852	\$250,001
MELD 29-32	1,660	10	\$11,935	\$57,146	\$75,850	\$101,013	\$250,001
MELD 15-28	5,057	17	\$6,964	\$58,260	\$77,018	\$102,715	\$250,001
MELD <15	3,771	12	\$11,393	\$61,110	\$81,364	\$109,992	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.
4959 temporarily inactive candidates were excluded.

Liver - Education

Figure LI-11 and **Table LI-11** show the highest education level reported for adult liver candidates ever waiting in 2022 and adult liver transplant recipients in 2022. Approximately 40% of candidates and recipients had a high school education or less. Slightly more transplant recipients (32.27%) had a college degree or higher compared to candidates (30.66%).

Figure LI-11. Highest Education Level for Adult Liver Candidates and Recipients in 2022



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

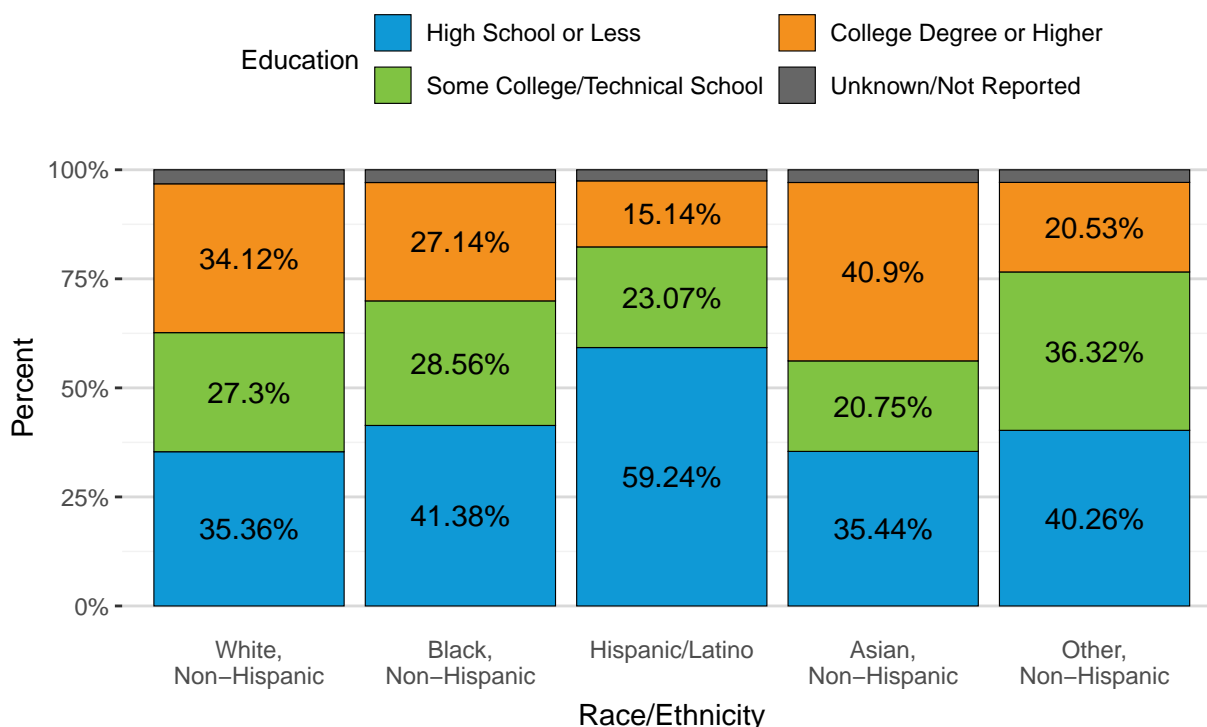
Table LI-11. Highest Education Level for Adult Liver Candidates and Recipients in 2022

Education	Liver Candidates Ever Waiting in 2022		Liver Recipients in 2022	
	N	Percent	N	Percent
High School or Less	8,602	39.66%	3,225	38.36%
Some College/Technical School	5,773	26.61%	2,256	26.83%
College Degree or Higher	6,650	30.66%	2,713	32.27%
Unknown/Not Reported	666	3.07%	214	2.55%
Total	21,691	100%	8,408	100%

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LI-12 and **Table LI-12** show education level for adult liver candidates ever waiting in 2022 by race/ethnicity. Asian, non-Hispanic candidates had the highest proportion with a college degree or higher (40.9%), and Hispanic/Latino candidates had the highest proportion with a high school degree or less (59.24%).

Figure LI-12. Adult Liver Candidates Ever Waiting in 2022 by Education and Race/Ethnicity



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

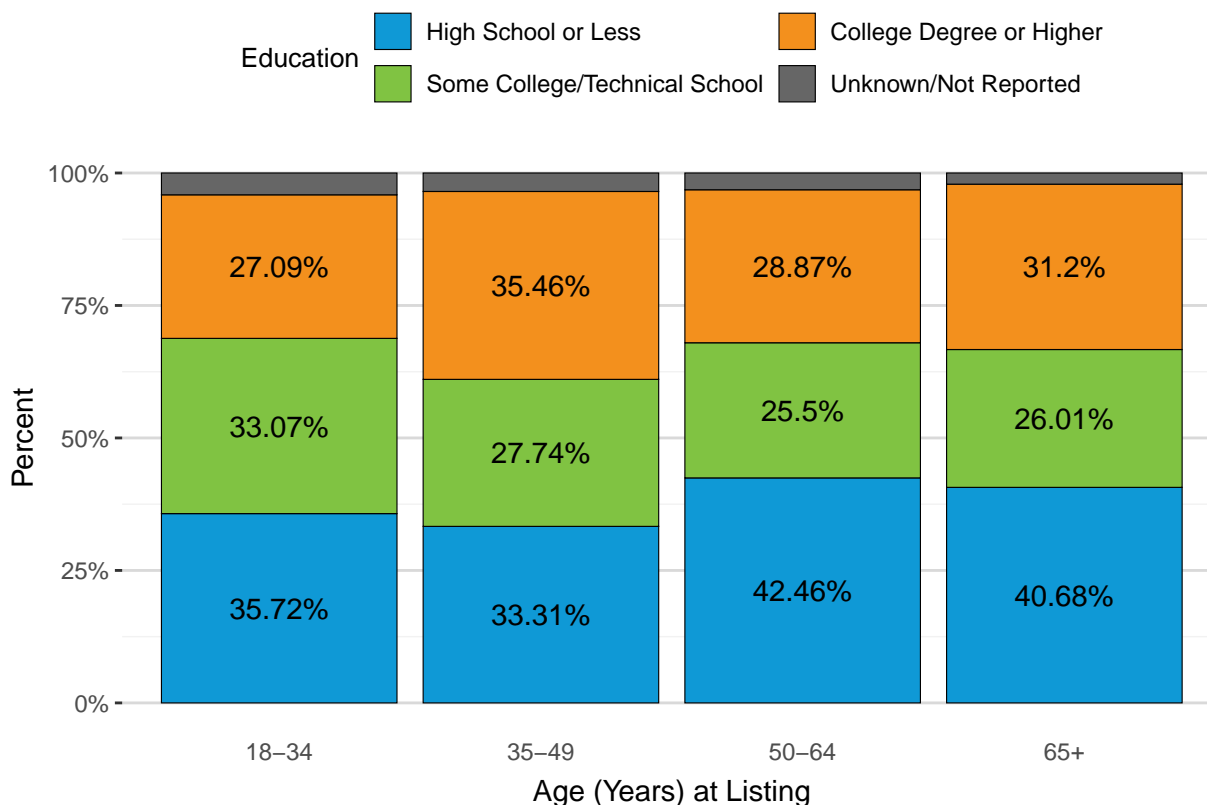
Table LI-12. Adult Liver Candidates Ever Waiting in 2022 by Education and Race/Ethnicity

Education	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
High School or Less	5,522 (35.36%)	581 (41.38%)	2,054 (59.24%)	292 (35.44%)	153 (40.26%)
Some College/Technical School	4,263 (27.3%)	401 (28.56%)	800 (23.07%)	171 (20.75%)	138 (36.32%)
College Degree or Higher	5,328 (34.12%)	381 (27.14%)	525 (15.14%)	337 (40.9%)	78 (20.53%)
Unknown/Not Reported	502 (3.21%)	41 (2.92%)	88 (2.54%)	24 (2.91%)	11 (2.89%)
Total	15,615 (100%)	1,404 (100%)	3,467 (100%)	824 (100%)	380 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH; and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

Figure LI-13 and **Table LI-13** show the education level for adult liver candidates ever waiting in 2022 by candidate age at listing. Candidates aged 35-49 at listing had the highest proportion with a college degree or higher (35.46%), followed by candidates aged 65+ (31.2%), 50-64 (28.87%), and 18-34 (27.09%).

Figure LI-13. Adult Liver Candidates Ever Waiting in 2022 by Education and Age at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

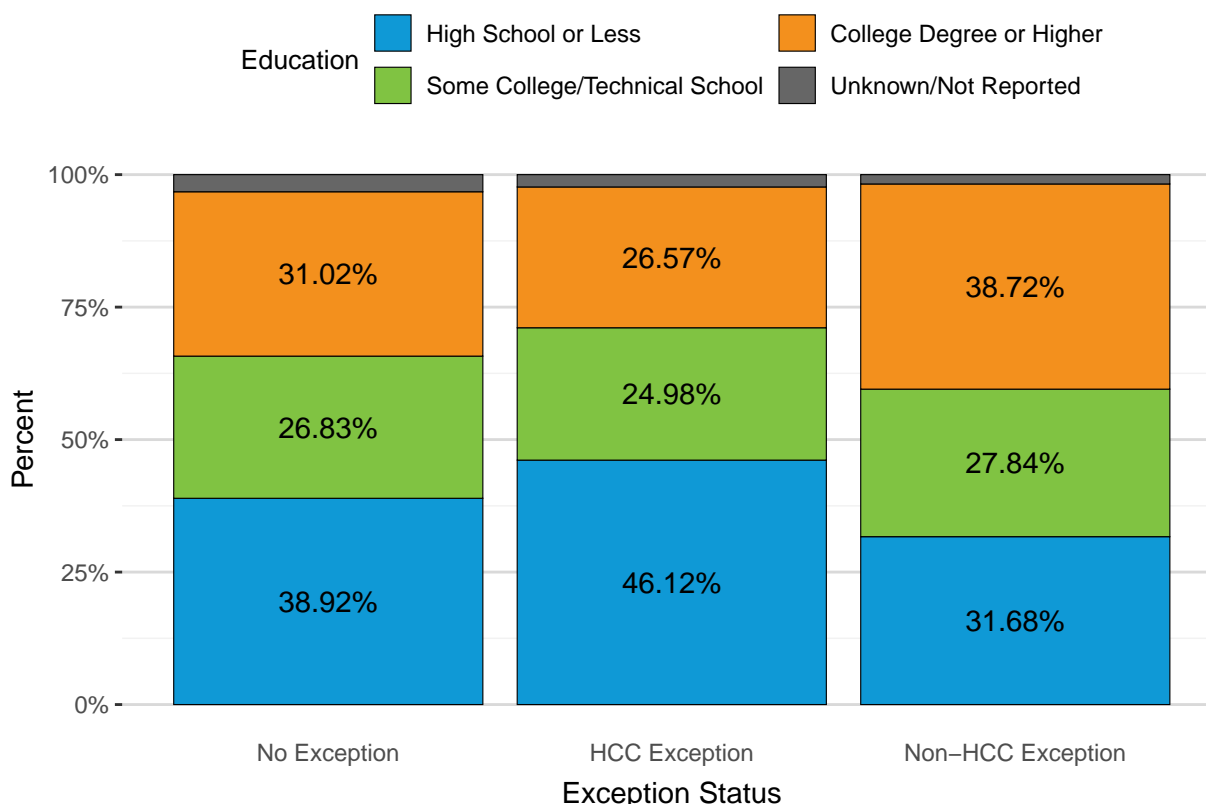
Table LI-13. Adult Liver Candidates Ever Waiting in 2022 by Education and Age at Listing

Education	Age (Years) at Listing			
	18-34	35-49	50-64	65+
High School or Less	538 (35.72%)	1,537 (33.31%)	4,599 (42.46%)	1,928 (40.68%)
Some College/Technical School	498 (33.07%)	1,280 (27.74%)	2,762 (25.5%)	1,233 (26.01%)
College Degree or Higher	408 (27.09%)	1,636 (35.46%)	3,127 (28.87%)	1,479 (31.2%)
Unknown/Not Reported	62 (4.12%)	161 (3.49%)	343 (3.17%)	100 (2.11%)
Total	1,506 (100%)	4,614 (100%)	10,831 (100%)	4,740 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LI-14 and **Table LI-14** show education level for adult liver candidates ever waiting in 2022 by exception status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes whether candidates had an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. Candidates with an approved non-HCC exception had the highest proportion with a college degree or higher (38.72%), and candidates with an approved HCC exception had the highest proportion with a high school education or less (46.12%).

Figure LI-14. Adult Liver Candidates Ever Waiting in 2022 by Education and Exception Status



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

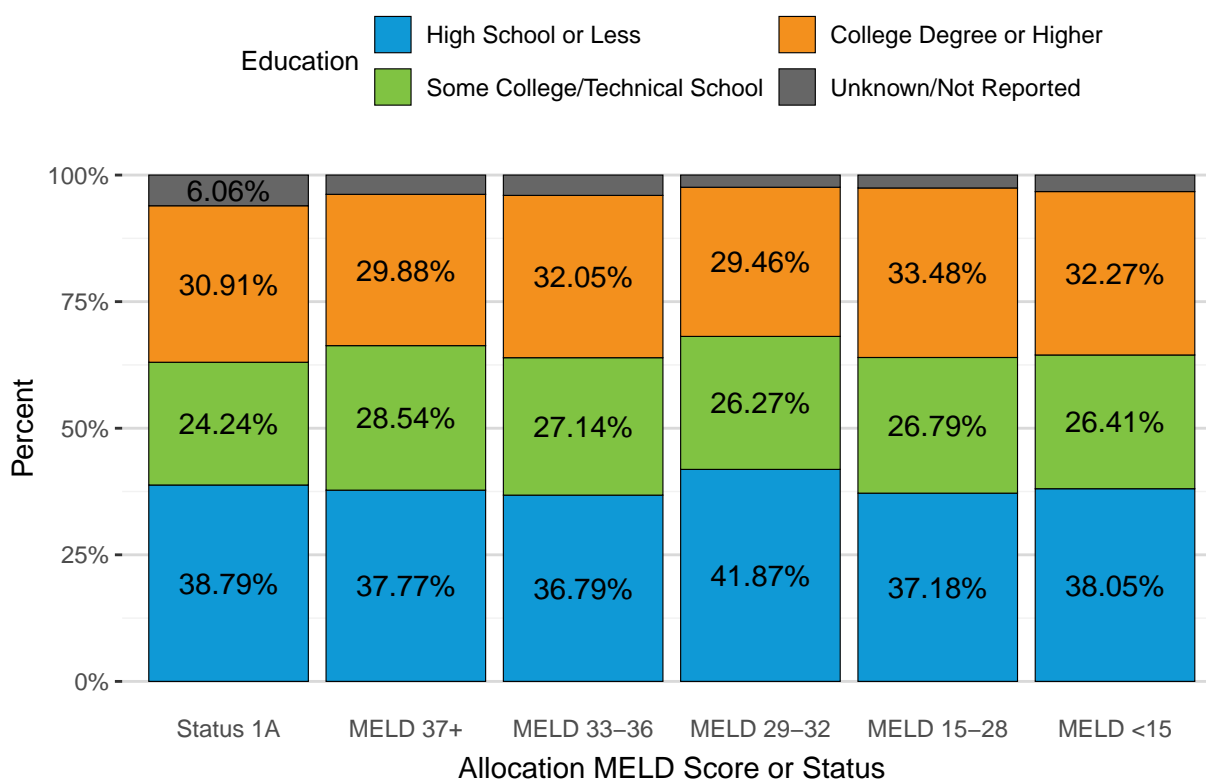
Table LI-14. Adult Liver Candidates Ever Waiting in 2022 by Education and Exception Status

Education	Exception Status		
	No Exception	HCC Exception	Non-HCC Exception
High School or Less	7,095 (38.92%)	1,309 (46.12%)	198 (31.68%)
Some College/Technical School	4,890 (26.83%)	709 (24.98%)	174 (27.84%)
College Degree or Higher	5,654 (31.02%)	754 (26.57%)	242 (38.72%)
Unknown/Not Reported	589 (3.23%)	66 (2.33%)	11 (1.76%)
Total	18,228 (100%)	2,838 (100%)	625 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LI-15 and **Table LI-15** show education level for adult liver candidates ever waiting in 2022 without an approved exception by allocation MELD score or status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes candidates who did not have an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. Candidates without an approved exception and with an allocation MELD score of 15-28 had the highest proportion with a college degree or higher (33.48%), and candidates with a MELD score of 29-32 had the highest proportion with a high school degree or less (41.87%).

Figure LI-15. Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Education and Allocation MELD Score or Status



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.
4959 temporarily inactive candidates were excluded.

Table LI-15. Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Education and Allocation MELD Score or Status

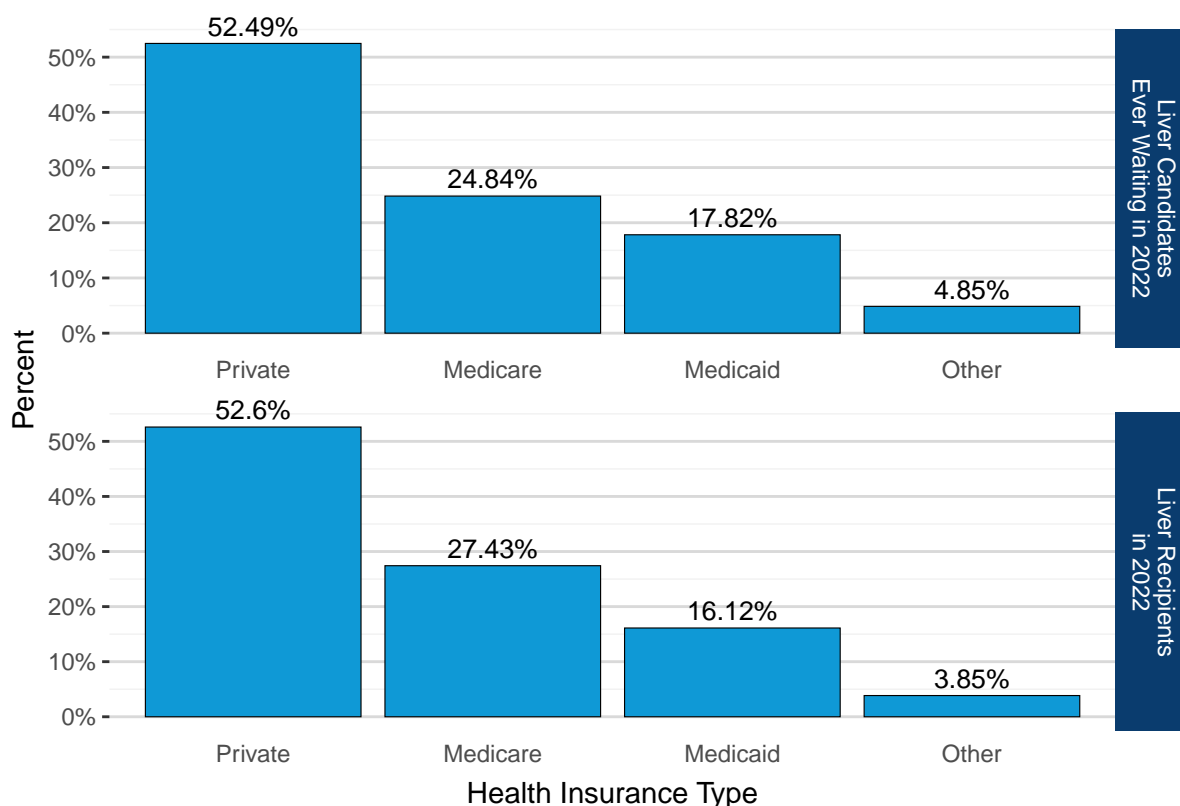
Education	Allocation MELD Score or Status					
	Status 1A	MELD 37+	MELD 33-36	MELD 29-32	MELD 15-28	MELD <15
High School or Less	64 (38.79%)	565 (37.77%)	412 (36.79%)	695 (41.87%)	1,880 (37.18%)	1,435 (38.05%)
Some College/Technical School	40 (24.24%)	427 (28.54%)	304 (27.14%)	436 (26.27%)	1,355 (26.79%)	996 (26.41%)
College Degree or Higher	51 (30.91%)	447 (29.88%)	359 (32.05%)	489 (29.46%)	1,693 (33.48%)	1,217 (32.27%)
Unknown/Not Reported	10 (6.06%)	57 (3.81%)	45 (4.02%)	40 (2.41%)	129 (2.55%)	123 (3.26%)
Total	165 (100%)	1,496 (100%)	1,120 (100%)	1,660 (100%)	5,057 (100%)	3,771 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.
4959 temporarily inactive candidates were excluded.

Liver - Health Insurance Type

Figure LI-16 and **Table LI-16** show health insurance type for adult liver candidates ever waiting in 2022 and adult liver transplant recipients in 2022. Approximately 52% of candidates and recipients were privately insured. More recipients were insured by Medicare (27.43%) compared to candidates (24.84%). The proportions of recipients and candidates insured by Medicaid were 16.12% and 17.82%, respectively.

Figure LI-16. Health Insurance Type for Adult Liver Candidates and Recipients in 2022



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

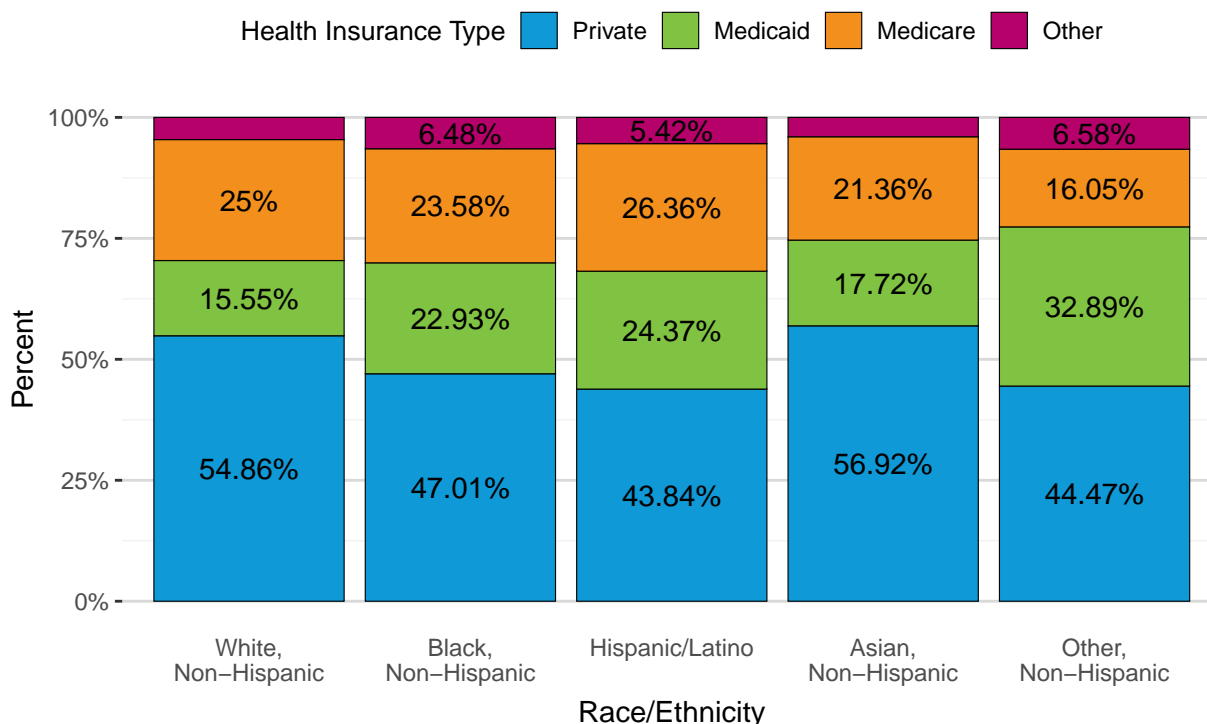
Table LI-16. Health Insurance Type for Adult Liver Candidates and Recipients in 2022

Health Insurance Type	Liver Candidates Ever Waiting in 2022		Liver Recipients in 2022	
	N	Percent	N	Percent
Private	11,385	52.49%	4,423	52.6%
Medicaid	3,866	17.82%	1,355	16.12%
Medicare	5,387	24.84%	2,306	27.43%
Other	1,053	4.85%	324	3.85%
Total	21,691	100%	8,408	100%

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LI-17 and **Table LI-17** show health insurance type for adult liver candidates ever waiting in 2022 by race/ethnicity. Asian, non-Hispanic candidates had the highest proportion of private insurance (56.92%), followed by White, non-Hispanic candidates (54.86%), Black, non-Hispanic candidates (47.01%), other, non-Hispanic candidates (44.47%) and Hispanic/Latino candidates (43.84%). Other, non-Hispanic candidates had the highest proportion of Medicaid coverage (32.89%), and Hispanic/Latino candidates had the highest proportion of Medicare coverage (26.36%).

Figure LI-17. Adult Liver Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

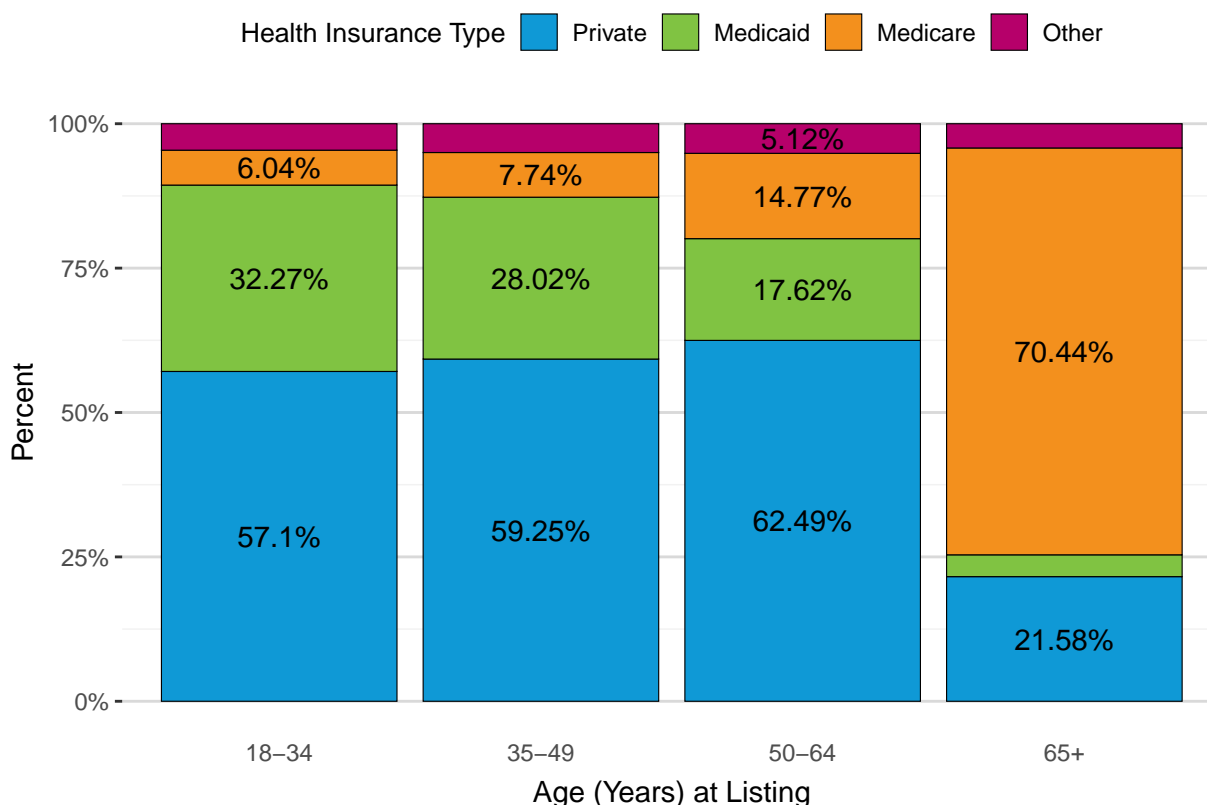
Table LI-17. Adult Liver Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity

Health Insurance Type	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Private	8,567 (54.86%)	660 (47.01%)	1,520 (43.84%)	469 (56.92%)	169 (44.47%)
Medicaid	2,428 (15.55%)	322 (22.93%)	845 (24.37%)	146 (17.72%)	125 (32.89%)
Medicare	3,904 (25%)	331 (23.58%)	914 (26.36%)	176 (21.36%)	61 (16.05%)
Other	716 (4.59%)	91 (6.48%)	188 (5.42%)	33 (4%)	25 (6.58%)
Total	15,615 (100%)	1,404 (100%)	3,467 (100%)	824 (100%)	380 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH; and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

Figure LI-18 and **Table LI-18** show health insurance type for adult liver candidates ever waiting in 2022 by candidate age at listing. Candidates aged 50-64 had the highest proportion of private insurance (62.49%), and candidates aged 18-34 had the highest proportion of Medicaid coverage (32.27%). The majority of candidates aged 65 or older were insured by Medicare (70.44%); this trend is expected as Medicare coverage is reserved for adults aged 65 or older or younger individuals with certain health conditions or disabilities.⁹

Figure LI-18. Adult Liver Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

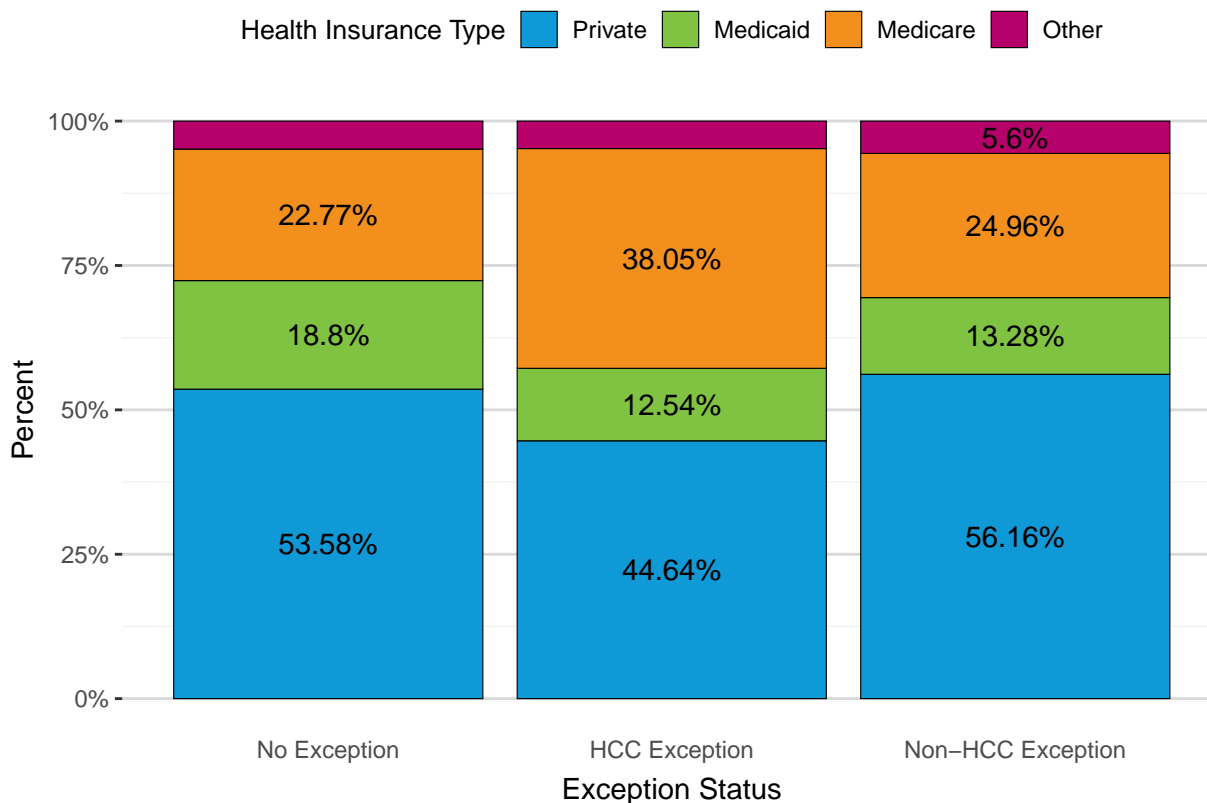
Table LI-18. Adult Liver Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing

Health Insurance Type	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Private	860 (57.1%)	2,734 (59.25%)	6,768 (62.49%)	1,023 (21.58%)
Medicaid	486 (32.27%)	1,293 (28.02%)	1,908 (17.62%)	179 (3.78%)
Medicare	91 (6.04%)	357 (7.74%)	1,600 (14.77%)	3,339 (70.44%)
Other	69 (4.58%)	230 (4.98%)	555 (5.12%)	199 (4.2%)
Total	1,506 (100%)	4,614 (100%)	10,831 (100%)	4,740 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LI-19 and **Table LI-19** show health insurance type for adult liver candidates ever waiting in 2022 by exception status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes whether candidates had an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. Private health insurance by exception status ranged from 44.64% for candidates with an approved HCC exception, 53.58% of candidates with no approved exception, and 56.16% of candidates with an approved non-HCC exception. Candidates with an approved HCC exception had the highest proportion of Medicare coverage (38.05%), and candidates with no approved exception had the highest proportion of Medicaid coverage (18.8%).

Figure LI-19. Adult Liver Candidates Ever Waiting in 2022 by Health Insurance Type and Exception Status



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

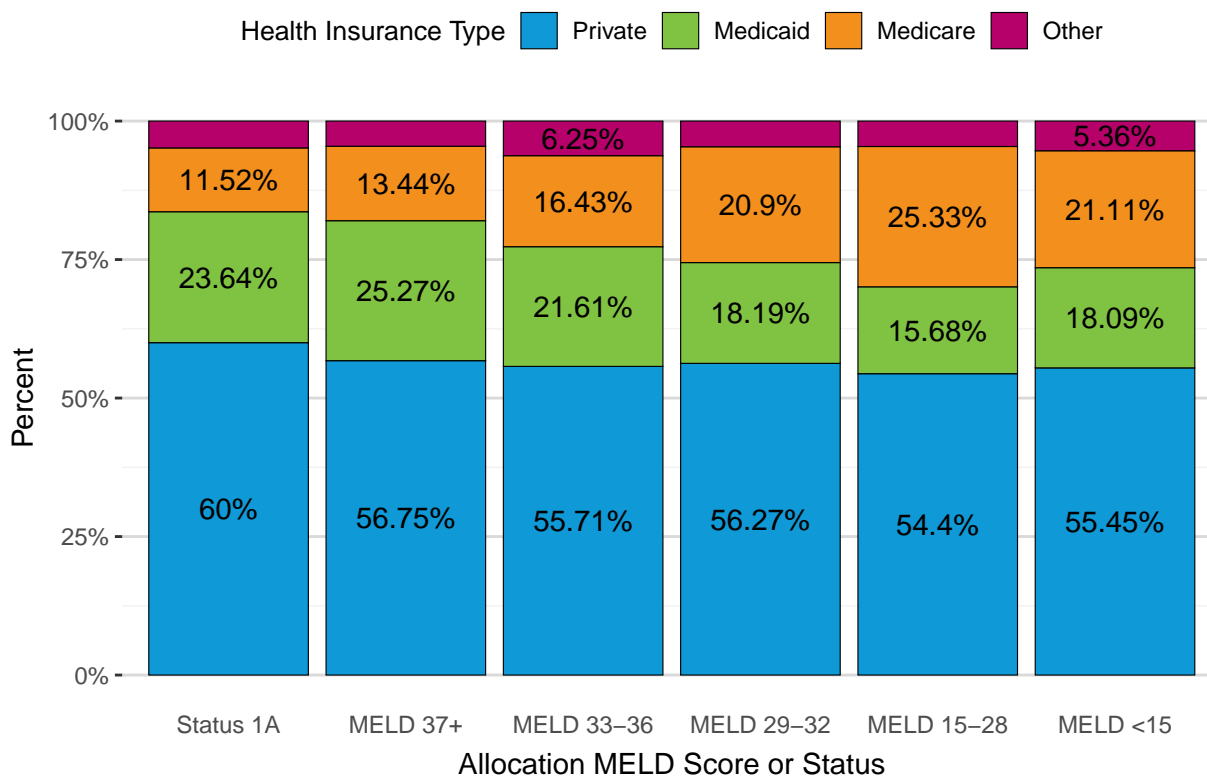
Table LI-19. Adult Liver Candidates Ever Waiting in 2022 by Health Insurance Type and Exception Status

Health Insurance Type	Exception Status		
	No Exception	HCC Exception	Non-HCC Exception
Private	9,767 (53.58%)	1,267 (44.64%)	351 (56.16%)
Medicaid	3,427 (18.8%)	356 (12.54%)	83 (13.28%)
Medicare	4,151 (22.77%)	1,080 (38.05%)	156 (24.96%)
Other	883 (4.84%)	135 (4.76%)	35 (5.6%)
Total	18,228 (100%)	2,838 (100%)	625 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LI-20 and **Table LI-20** show health insurance type for adult liver candidates ever waiting in 2022 without an approved exception by allocation MELD score or status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes candidates who did not have an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. Among candidates without approved exceptions, 50-60% of candidates in all allocation MELD score categories were privately insured. Medicare coverage ranged from 11.52% in Status 1A candidates to 25.33% in MELD 15-28 candidates, and Medicaid coverage ranged from 15.68% in MELD 15-28 candidates to 25.27% in MELD 37+ candidates.

Figure LI-20. Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Health Insurance Type and Allocation MELD Score or Status



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. 4959 temporarily inactive candidates were excluded.

Table LI-20. Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Health Insurance Type and Allocation MELD Score or Status

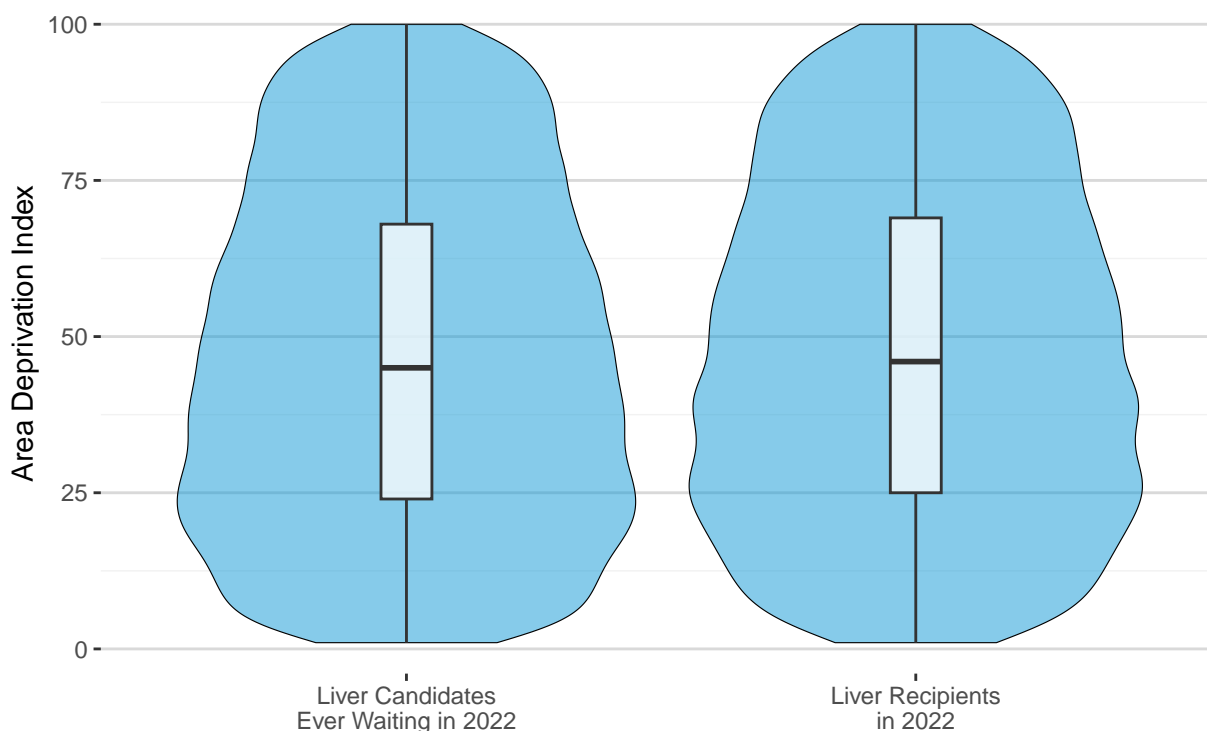
Health Insurance Type	Allocation MELD Score or Status					
	Status 1A	MELD 37+	MELD 33-36	MELD 29-32	MELD 15-28	MELD <15
Private	99 (60%)	849 (56.75%)	624 (55.71%)	934 (56.27%)	2,751 (54.4%)	2,091 (55.45%)
Medicaid	39 (23.64%)	378 (25.27%)	242 (21.61%)	302 (18.19%)	793 (15.68%)	682 (18.09%)
Medicare	19 (11.52%)	201 (13.44%)	184 (16.43%)	347 (20.9%)	1,281 (25.33%)	796 (21.11%)
Other	8 (4.85%)	68 (4.55%)	70 (6.25%)	77 (4.64%)	232 (4.59%)	202 (5.36%)
Total	165 (100%)	1,496 (100%)	1,120 (100%)	1,660 (100%)	5,057 (100%)	3,771 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. 4959 temporarily inactive candidates were excluded.

Liver - Area Deprivation Index

Figure LI-21 and **Table LI-21** show the distribution of area deprivation index for adult liver candidates ever waiting in 2022 and adult liver transplant recipients in 2022 based on data from the 2021 Neighborhood Atlas Area Deprivation Index (ADI). Median ADI values were similar for candidates ever waiting and recipients transplanted in 2022 at 45 and 46, respectively.

Figure LI-21. Distribution of Area Deprivation Index for Adult Liver Candidates and Recipients in 2022



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

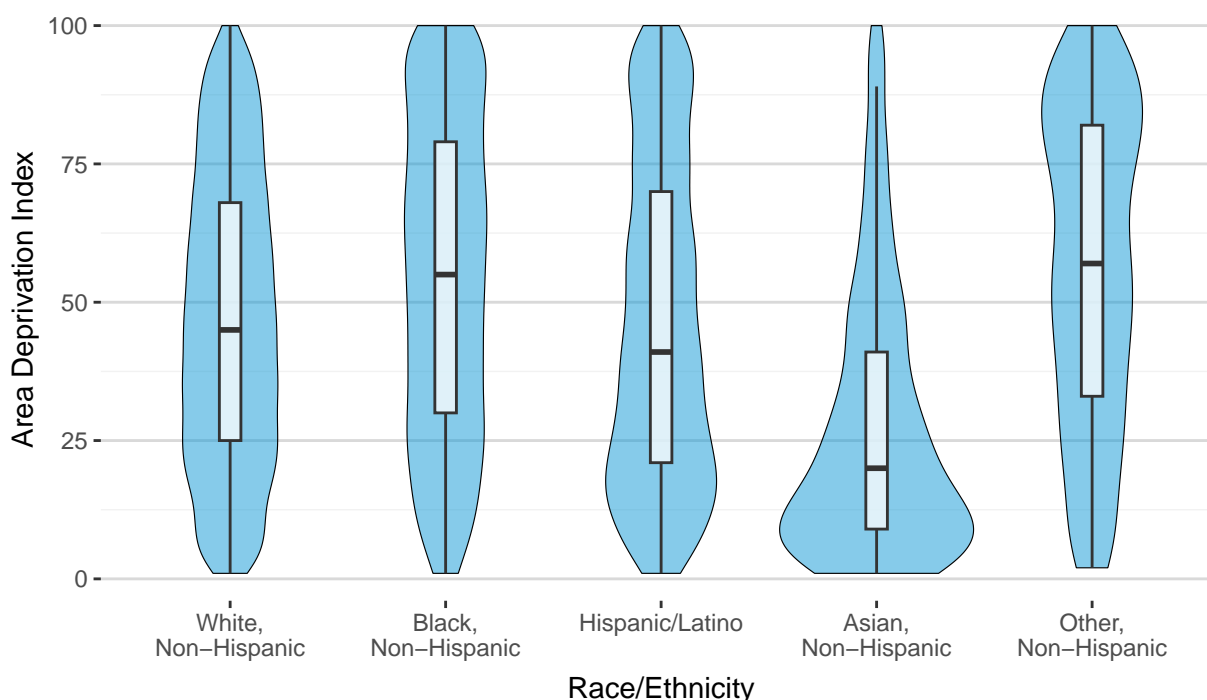
Table LI-21. Distribution of Area Deprivation Index for Adult Liver Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Liver Candidates Ever Waiting in 2022	21,691	515	1	24	45	68	100
Liver Recipients in 2022	8,408	167	1	25	46	69	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure LI-22 and **Table LI-22** show the distribution of area deprivation index for adult liver candidates ever waiting in 2022 by race/ethnicity. Median ADI was lowest for Asian, non-Hispanic candidates (20) and highest for other, non-Hispanic candidates (57).

Figure LI-22. Distribution of Area Deprivation Index for Adult Liver Candidates Ever Waiting in 2022 by Race/Ethnicity



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level. Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

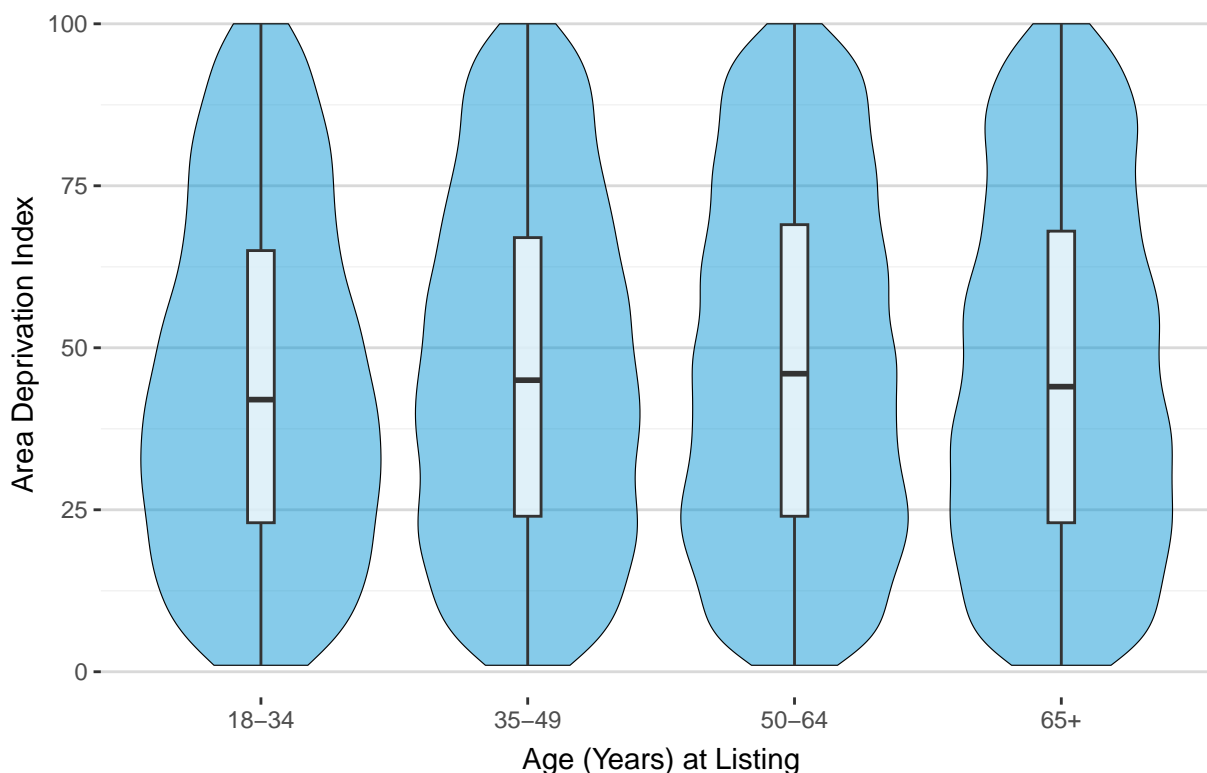
Table LI-22. Distribution of Area Deprivation Index for Adult Liver Candidates Ever Waiting in 2022 by Race/Ethnicity

Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
White, Non-Hispanic	15,615	370	1	25	45	68	100
Black, Non-Hispanic	1,404	32	1	30	55	79	100
Hispanic/Latino	3,467	81	1	21	41	70	100
Asian, Non-Hispanic	824	17	1	9	20	41	100
Other, Non-Hispanic	380	15	2	33	57	82	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level. Other, NH includes N=229 American Indian/Alaska Native, NH; N=122 Multiracial, NH; and N=29 Native Hawaiian/other Pacific Islander, NH candidates. N=1 candidate with unknown race/ethnicity was excluded.

Figure LI-23 and **Table LI-23** show the distribution of area deprivation index for adult liver candidates ever waiting in 2022 by candidate age at listing. There was little variation in neighborhood ADI between age groups, ranging from a median ADI of 42 for candidates aged 18-34 to a median ADI of 46 for candidates aged 50-64.

Figure LI-23. Distribution of Area Deprivation Index for Adult Liver Candidates Ever Waiting in 2022 by Age at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.

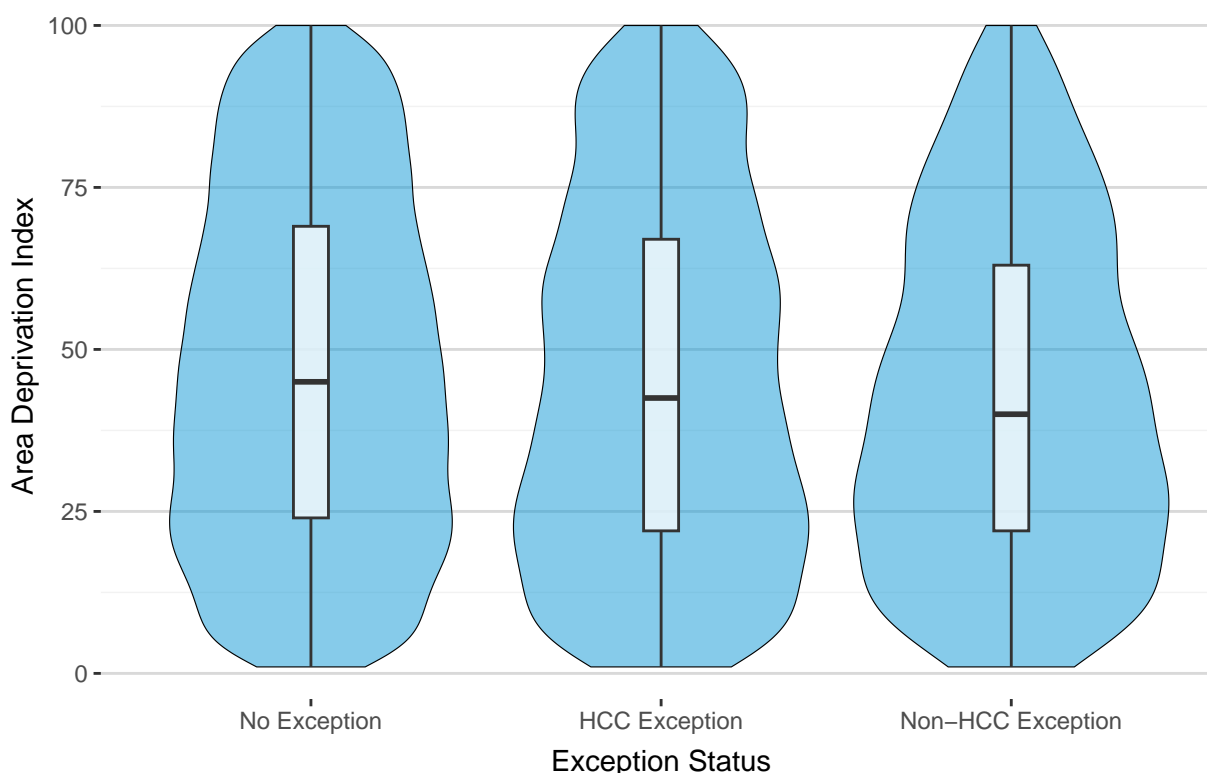
Table LI-23. Distribution of Area Deprivation Index for Adult Liver Candidates Ever Waiting in 2022 by Age at Listing

Age (Years) at Listing	N	Missing	Min	P25	Median	P75	Max
18-34	1,506	55	1	23	42	65	100
35-49	4,614	96	1	24	45	67	100
50-64	10,831	261	1	24	46	69	100
65+	4,740	103	1	23	44	68	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure LI-24 and **Table LI-24** show the distribution of area deprivation index for adult liver candidates ever waiting in 2022 by exception status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes whether candidates had an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. Median ADI values were similar for candidates by exception status, ranging from 40 for candidates with approved non-HCC exceptions to 45 for candidates with no exception.

Figure LI-24. Distribution of Area Deprivation Index for Adult Liver Candidates Ever Waiting in 2022 by Exception Status



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

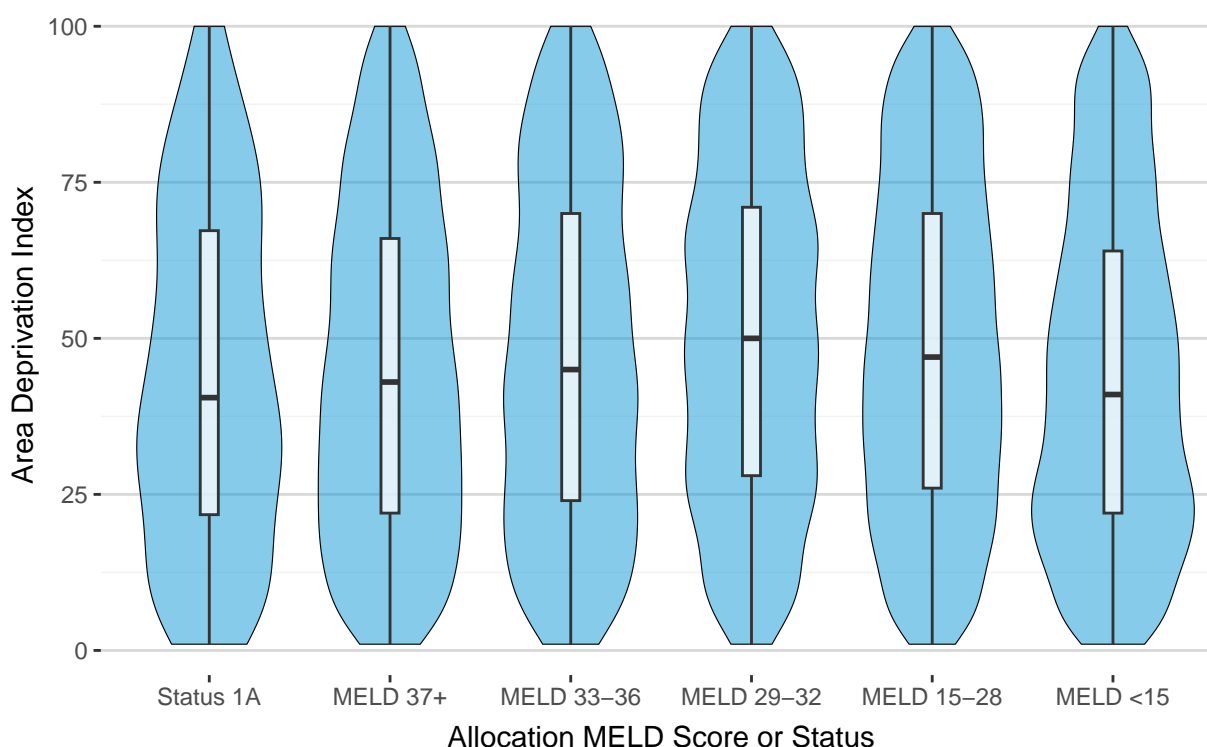
Table LI-24. Distribution of Area Deprivation Index for Adult Liver Candidates Ever Waiting in 2022 by Exception Status

Exception Status	N	Missing	Min	P25	Median	P75	Max
No Exception	18,228	433	1	24	45	69	100
HCC Exception	2,838	72	1	22	42	67	100
Non-HCC Exception	625	10	1	22	40	63	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure LI-25 and **Table LI-25** show the distribution of area deprivation index for adult liver candidates ever waiting in 2022 without an approved exception by allocation MELD score or status. Candidates can switch between the “no exception” and “exception” categories throughout their time on the waiting list and the following analyzes candidates who did not have an approved exception at removal from the waiting list or as of August 23, 2024 for those still waiting. For candidates without an approved exception, median ADI values ranged from 40 for Status 1A candidates to 50 for MELD 29-32 candidates.

Figure LI-25. Distribution of Area Deprivation Index for Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Allocation MELD Score or Status



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.
4959 temporarily inactive candidates were excluded.

Table LI-25. Distribution of Area Deprivation Index for Adult Liver Candidates Ever Waiting in 2022 Without an Approved Exception by Allocation MELD Score or Status

Allocation MELD Score or Status	N	Missing	Min	P25	Median	P75	Max
Status 1A	165	5	1	22	40	67	100
MELD 37+	1,496	31	1	22	43	66	100
MELD 33-36	1,120	24	1	24	45	70	100
MELD 29-32	1,660	35	1	28	50	71	100
MELD 15-28	5,057	89	1	26	47	70	100
MELD <15	3,771	118	1	22	41	64	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.
4959 temporarily inactive candidates were excluded.

Liver - Waiting List Mortality Rates by SDOH

Figure LI-26 and **Table LI-26** show waiting list mortality rates for adult liver candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). Overall waiting list mortality was 11.63 (95% confidence interval (CI): 10.97-12.32) deaths per 100 patient years.

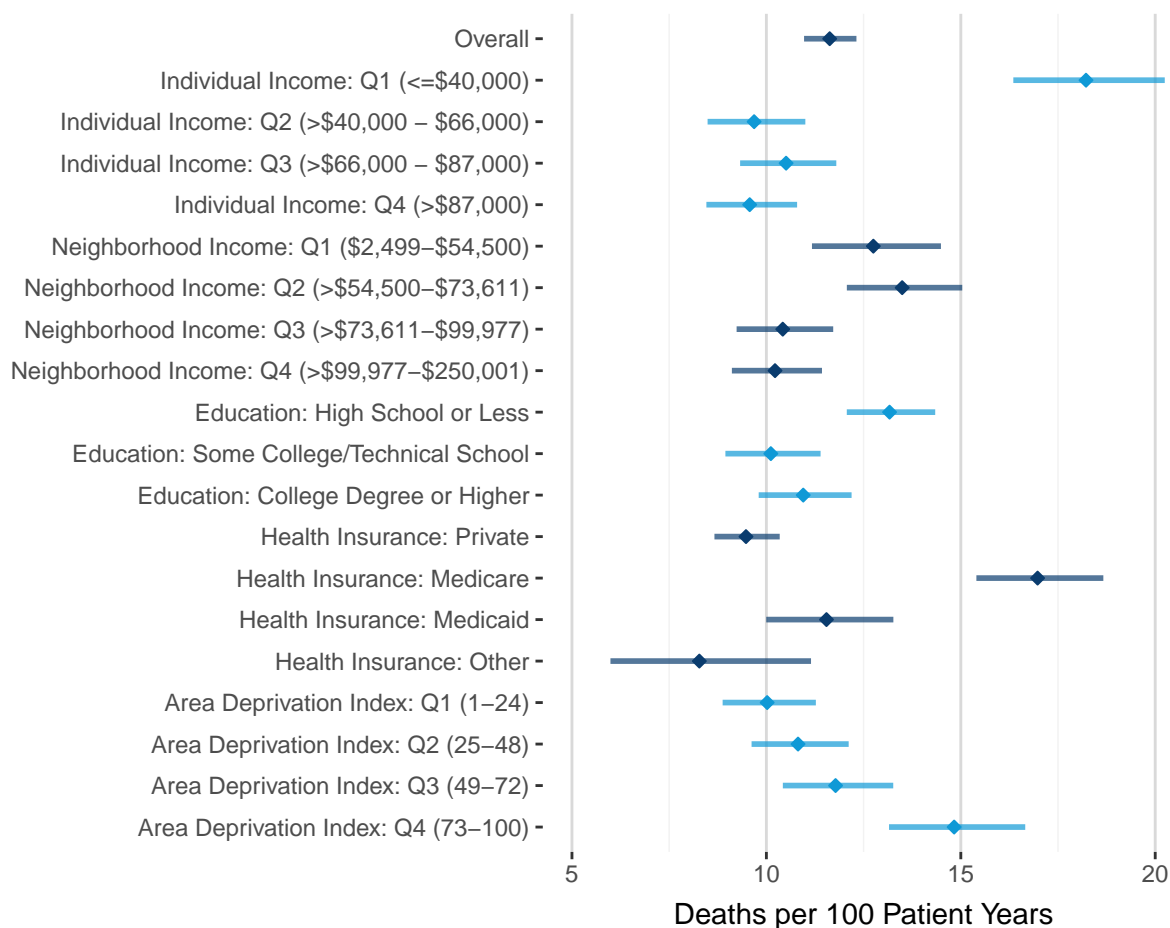
Estimated individual annual income: The waiting list mortality rate was highest for candidates in the lowest income quartile ($\leq \$40,000$) at 18.22 (95% CI: 16.35-20.25) deaths per 100 patient years, and lowest for candidates in the highest income quartile ($> \$87,000$) at 9.57 (95% CI: 8.46-10.79) deaths per 100 patient years.

Neighborhood median household income: The waiting list mortality rate was highest for candidates in the second quartile of neighborhood household income ($> \$54,500$ - $\$73,611$) at 13.49 (95% CI: 12.07-15.04) deaths per 100 patient years, and lowest for candidates in the highest neighborhood household income quartile ($> \$99,977$ - $\$250,001$) at 10.22 (95% CI: 9.11-11.43) deaths per 100 patient years.

Education: The waiting list mortality rate was highest for candidates with a high school education or less at 13.17 (95% CI: 12.07-14.34) deaths per 100 patient years, and lowest for candidates with some college/technical school at 10.11 (95% CI: 8.95-11.39) deaths per 100 patient years.

Health insurance: The waiting list mortality rate for candidates with Medicare was significantly higher than mortality for candidates with private insurance, Medicaid or other coverage.

ADI: Waiting list mortality rates increased as ADI quartile increased, such that candidates in the lowest ADI quartile (1-24) had the lowest mortality rate and candidates in the highest ADI quartile (73-100) had the highest mortality rate.

Figure LI-26. Waiting List Mortality Rates for Adult Liver Candidates Ever Waiting in 2022 by SDOH

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table LI-26. Waiting List Mortality Rates for Adult Liver Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deaths	Deaths per 100 PY	95% CI
Overall	21,683	1,163	11.63	(10.97, 12.32)
Individual Income: Q1 (\leq \$40,000)	4,295	346	18.22	(16.35, 20.25)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	5,406	236	9.68	(8.49, 11.00)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	5,831	286	10.51	(9.32, 11.80)
Individual Income: Q4 ($>$ \$87,000)	5,831	267	9.57	(8.46, 10.79)
Individual Income: Not Reported	354	28	17.32	(11.51, 25.03)
Neighborhood Income: Q1 (\$2,499-\$54,500)	4,202	235	12.75	(11.17, 14.49)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	5,406	327	13.49	(12.07, 15.04)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	5,820	279	10.42	(9.23, 11.72)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	6,157	308	10.22	(9.11, 11.43)
Neighborhood Income: Not Reported	98	14	31.35	(17.14, 52.60)
Education: High School or Less	8,647	527	13.17	(12.07, 14.34)
Education: Some College/Technical School	5,846	271	10.11	(8.95, 11.39)
Education: College Degree or Higher	6,696	332	10.95	(9.80, 12.19)
Education: Unknown/Not Reported	681	37	11.16	(7.86, 15.38)
Health Insurance: Private	11,410	501	9.48	(8.66, 10.34)
Health Insurance: Medicare	5,474	426	16.97	(15.40, 18.67)
Health Insurance: Medicaid	3,876	199	11.55	(10.00, 13.27)
Health Insurance: Other	1,070	43	8.28	(5.99, 11.15)
Area Deprivation Index: Q1 (1-24)	5,477	277	10.02	(8.87, 11.27)
Area Deprivation Index: Q2 (25-48)	5,992	297	10.81	(9.62, 12.12)
Area Deprivation Index: Q3 (49-72)	5,227	273	11.78	(10.42, 13.26)
Area Deprivation Index: Q4 (73-100)	4,473	284	14.83	(13.15, 16.66)
Area Deprivation Index: Not Reported	514	32	12.42	(8.49, 17.53)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Liver - Deceased Donor Transplant Rates by SDOH

Figure LI-27 and **Table LI-27** show deceased donor transplant rates for adult liver candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). The overall deceased donor transplant rate was 99.69 (95% confidence interval (CI): 97.49-101.92) transplants per 100 active patient years.

Estimated individual annual income: The deceased donor transplant rate was highest for candidates in the second income quartile (>\$40,000-\$66,000), and lowest for candidates in the highest income quartile (>\$87,000). However, differences in deceased donor transplant rates by individual annual income were not statistically significant.

Neighborhood median household income: The deceased donor transplant rate was highest for candidates in the lowest neighborhood median household income quartile (\$2,499-\$54,500) and lowest for candidates in the highest neighborhood median household income quartile (>\$99,977-\$250,001). This difference was statistically significant.

Education: The deceased donor transplant rate was lowest for candidates with a high school education or less and highest for candidates with a college degree or higher, though differences in transplant rate by education were not statistically significant.

Health insurance: The deceased donor transplant rate was highest for candidates insured by Medicaid, followed by privately insured candidates, candidates covered by Medicare, and candidates otherwise insured.

ADI: Deceased donor transplant rates increased as ADI quartile increased. Candidates in the lowest ADI quartile (1-24) with the lowest deprivation had the lowest transplant rate, and candidates in the highest ADI quartile (73-100) had the highest deceased donor transplant rate.

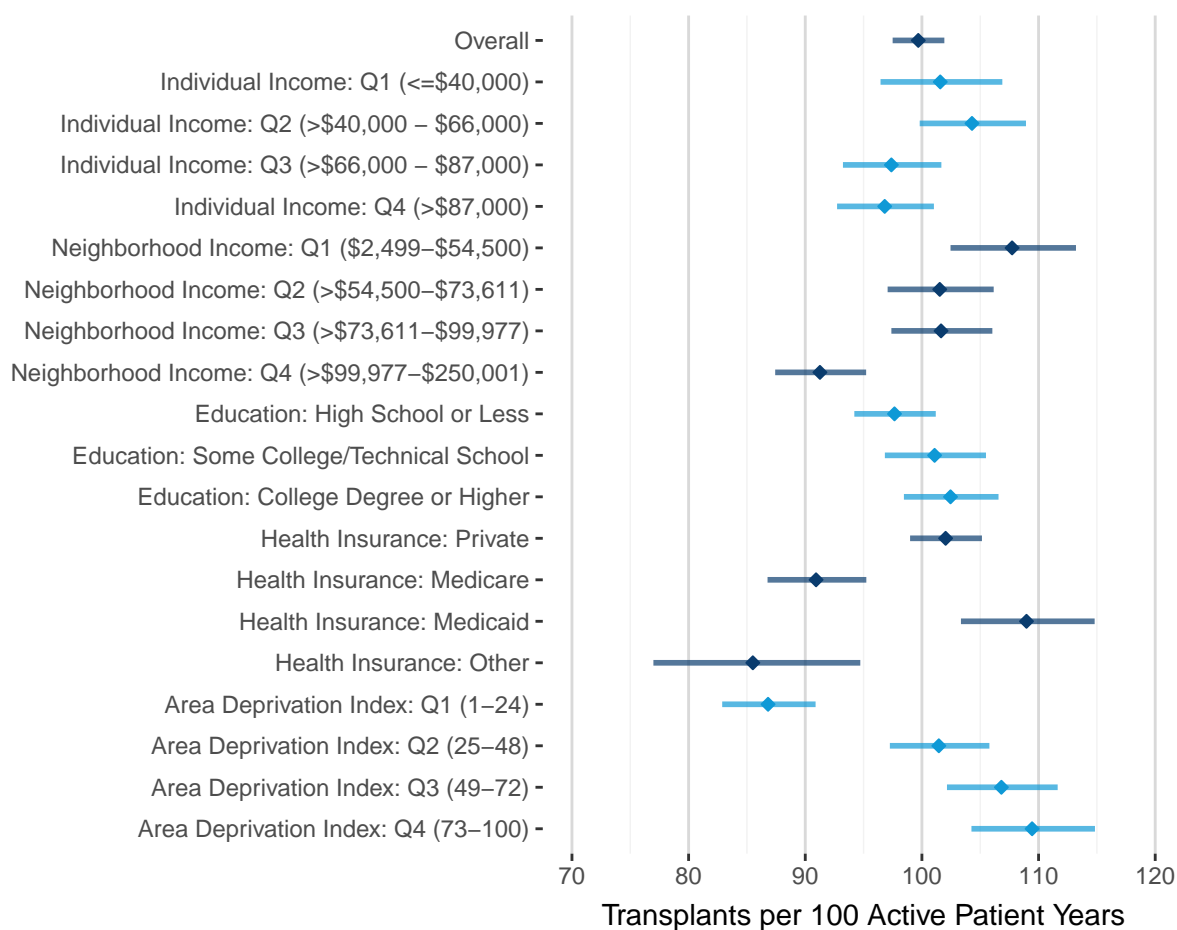
Figure LI-27. Deceased Donor Transplant Rates for Adult Liver Candidates Ever Waiting in 2022 by SDOH

Table LI-27. Deceased Donor Transplant Rates for Adult Liver Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deceased Donor Transplants	TX per 100 Active PY	95% CI
Overall	19,907	7,809	99.69	(97.49, 101.92)
Individual Income: Q1 (\leq \$40,000)	3,921	1,473	101.57	(96.45, 106.89)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	4,998	2,036	104.29	(99.81, 108.92)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	5,339	2,070	97.38	(93.23, 101.67)
Individual Income: Q4 ($>$ \$87,000)	5,355	2,114	96.81	(92.73, 101.03)
Individual Income: Not Reported	323	119	93.84	(77.74, 112.29)
Neighborhood Income: Q1 (\$2,499-\$54,500)	3,867	1,562	107.73	(102.45, 113.21)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	4,967	1,938	101.53	(97.06, 106.15)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	5,363	2,142	101.64	(97.38, 106.04)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	5,623	2,129	91.26	(87.42, 95.22)
Neighborhood Income: Not Reported	87	38	110.72	(78.35, 151.97)
Education: High School or Less	7,888	3,035	97.65	(94.21, 101.19)
Education: Some College/Technical School	5,352	2,113	101.09	(96.82, 105.49)
Education: College Degree or Higher	6,225	2,477	102.45	(98.46, 106.57)
Education: Unknown/Not Reported	607	197	78.58	(67.99, 90.35)
Health Insurance: Private	10,491	4,251	102.03	(98.99, 105.15)
Health Insurance: Medicare	5,039	1,793	90.93	(86.77, 95.23)
Health Insurance: Medicaid	3,491	1,408	108.96	(103.35, 114.81)
Health Insurance: Other	1,014	367	85.51	(76.98, 94.72)
Area Deprivation Index: Q1 (1-24)	4,943	1,829	86.81	(82.88, 90.88)
Area Deprivation Index: Q2 (25-48)	5,507	2,196	101.45	(97.25, 105.79)
Area Deprivation Index: Q3 (49-72)	4,849	1,969	106.81	(102.15, 111.64)
Area Deprivation Index: Q4 (73-100)	4,141	1,663	109.45	(104.25, 114.83)
Area Deprivation Index: Not Reported	467	152	76.33	(64.67, 89.47)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

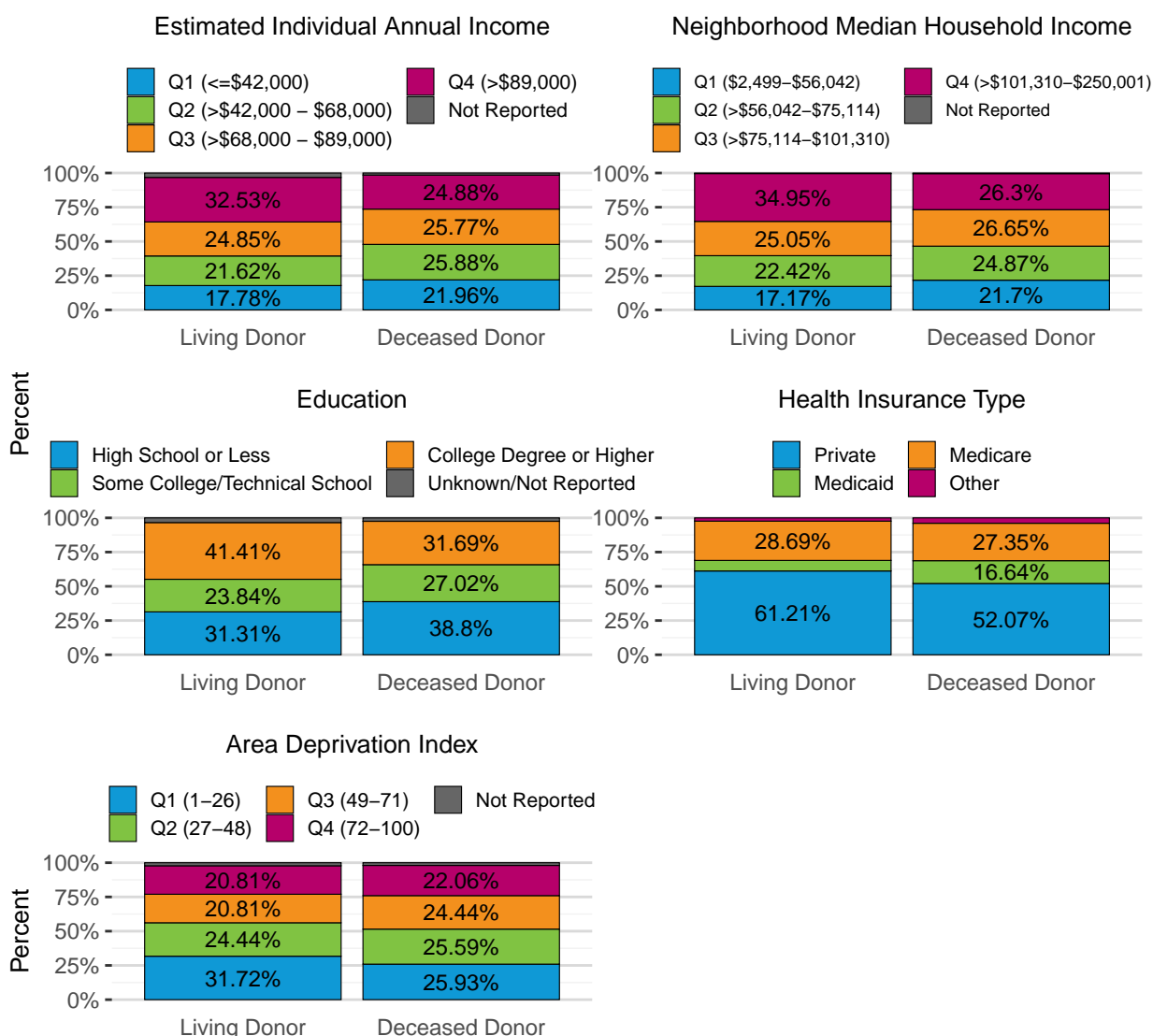
Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

TX = transplants; PY = patient years; CI = confidence interval.

Liver - SDOH for Recipients of Living vs Deceased Donor Transplants

Figure LI-28 and **Table LI-28** show the distributions of estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI) for adult liver transplant recipients in 2022 by donor type. Recipients of living donor liver transplants were more likely to be in the highest individual annual income and neighborhood median household income quartiles, have a college degree or higher education, have private health insurance, and live in a census block group with a lower ADI score.

Figure LI-28. Adult Liver Transplant Recipients in 2022 by Donor Type and SDOH



Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

Table LI-28. Adult Liver Transplant Recipients in 2022 by Donor Type and SDOH

SDOH	Living Donor	Deceased Donor
Estimated Individual Annual Income		
Q1 (<=\$42,000)	88 (17.78%)	1738 (21.96%)
Q2 (>\$42,000 - \$68,000)	107 (21.62%)	2048 (25.88%)
Q3 (>\$68,000 - \$89,000)	123 (24.85%)	2039 (25.77%)
Q4 (>\$89,000)	161 (32.53%)	1969 (24.88%)
Not Reported	16 (3.23%)	119 (1.5%)
Neighborhood Median Household Income		
Q1 (\$2,499-\$56,042)	85 (17.17%)	1717 (21.7%)
Q2 (>\$56,042-\$75,114)	111 (22.42%)	1968 (24.87%)
Q3 (>\$75,114-\$101,310)	124 (25.05%)	2109 (26.65%)
Q4 (>\$101,310-\$250,001)	173 (34.95%)	2081 (26.3%)
Not Reported	2 (0.4%)	38 (0.48%)
Education		
High School or Less	155 (31.31%)	3070 (38.8%)
Some College/Technical School	118 (23.84%)	2138 (27.02%)
College Degree or Higher	205 (41.41%)	2508 (31.69%)
Unknown/Not Reported	17 (3.43%)	197 (2.49%)
Insurance		
Private	303 (61.21%)	4120 (52.07%)
Medicaid	38 (7.68%)	1317 (16.64%)
Medicare	142 (28.69%)	2164 (27.35%)
Other	12 (2.42%)	312 (3.94%)
Area Deprivation Index		
Q1 (1-26)	157 (31.72%)	2052 (25.93%)
Q2 (27-48)	121 (24.44%)	2025 (25.59%)
Q3 (49-71)	103 (20.81%)	1934 (24.44%)
Q4 (72-100)	103 (20.81%)	1746 (22.06%)
Not Reported	11 (2.22%)	156 (1.97%)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Heart

Heart - Results Summary

This section describes social determinants of health (SDOH) for adult heart candidates ever waiting in 2022 and adult heart recipients transplanted in 2022. Notable findings are summarized below.

Estimated individual annual income: Median estimated individual annual income was \$68,000 for candidates and \$70,000 for recipients (**Figure HR-1** and **Table HR-1**). Estimated individual annual income for candidates was higher for Asian, non-Hispanic and White, non-Hispanic candidates (**Figure HR-2** and **Table HR-2**), candidates aged 65 years or older (**Figure HR-3** and **Table HR-3**), and candidates in medical urgency statuses 5 and 6 (**Figure HR-4** and **Table HR-4**). Differences in waiting list mortality by individual income were not statistically significant (**Figure HR-21** and **Table HR-21**). The deceased donor transplant rate for candidates in the highest individual income quartile was significantly higher than the rate for candidates in lower income quartiles (**Figure HR-22** and **Table HR-22**).

Neighborhood median household income: Median neighborhood household income was \$75,469 for candidates and \$76,644 for recipients (**Figure HR-5** and **Table HR-5**). Median neighborhood household income was highest for Asian, non-Hispanic candidates (**Figure HR-6** and **Table HR-6**), and increased slightly with increasing candidate age (**Figure HR-7** and **Table HR-7**). There were no statistically significant differences in waiting list mortality rates (**Figure HR-21** and **Table HR-21**) or deceased donor transplant rates (**Figure HR-22** and **Table HR-22**) by neighborhood median household income.

Education: The distribution of education was similar among candidates and recipients (**Figure HR-9** and **Table HR-9**). Having a college degree or higher education was more prevalent among Asian, non-Hispanic candidates (**Figure HR-10** and **Table HR-10**), candidates aged 65 years or older (**Figure HR-11** and **Table HR-11**), and candidates in medical urgency status 6 (**Figure HR-12** and **Table HR-12**). Waiting list mortality rates (**Figure HR-21** and **Table HR-21**) and deceased donor transplant rates (**Figure HR-22** and **Table HR-22**) did not differ significantly by educational attainment.

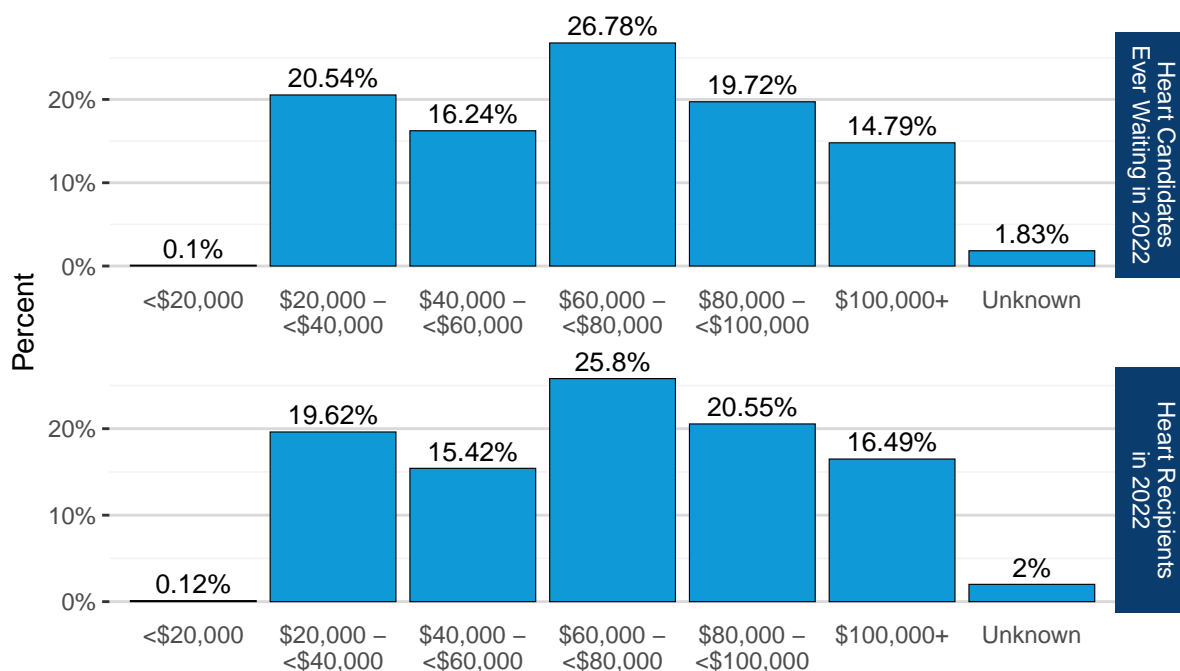
Health insurance: The distribution of health insurance type was similar among candidates and recipients (**Figure HR-13** and **Table HR-13**). Asian, non-Hispanic and White, non-Hispanic candidates had the highest proportion of private health insurance coverage (**Figure HR-14** and **Table HR-14**). The majority (72.55%) of candidates aged 65 or older were insured by Medicare (**Figure HR-15** and **Table HR-15**). Waiting list mortality was significantly higher for candidates insured by Medicare than for candidates privately insured or with Medicaid coverage (**Figure HR-21** and **Table HR-21**). The deceased donor transplant rate was highest for candidates otherwise insured (not private, Medicare or Medicaid), and this was significantly higher than the rate for candidates insured by Medicaid (**Figure HR-22** and **Table HR-22**).

ADI: The median ADI value for candidates was 48, and slightly lower for transplant recipients at 45 (**Figure HR-17** and **Table HR-17**). Median ADI values ranged from 18 for Asian, non-Hispanic candidates to 59 for Black, non-Hispanic candidates (**Figure HR-18** and **Table HR-18**). Median ADI decreased slightly with increasing candidate age at listing (**Figure HR-19** and **Table HR-19**). The waiting list mortality rate was significantly higher for candidates in the lowest ADI quartile compared to candidates in the highest ADI quartile (**Figure HR-21** and **Table HR-21**). The deceased donor transplant rate was significantly higher for candidates in the lowest ADI quartile compared to candidates in the third and highest ADI quartiles (**Figure HR-22** and **Table HR-22**).

Heart - Estimated Individual Annual Income

Figure HR-1 and **Table HR-1** show estimated individual annual income for adult heart candidates ever waiting in 2022 and adult heart transplant recipients in 2022. Median estimated individual annual income was \$68,000 for candidates and \$70,000 for recipients. For reference, mean individual annual income for employed individuals in 2022 was \$70,346 according to the U.S. Bureau of Labor Statistics⁶ and median household income in 2022 was \$74,580 according to the U.S. Census Bureau.⁷

Figure HR-1. Estimated Individual Annual Income for Adult Heart Candidates and Recipients in 2022



Estimated Individual Annual Income

Estimated individual income data were obtained from LexisNexis.

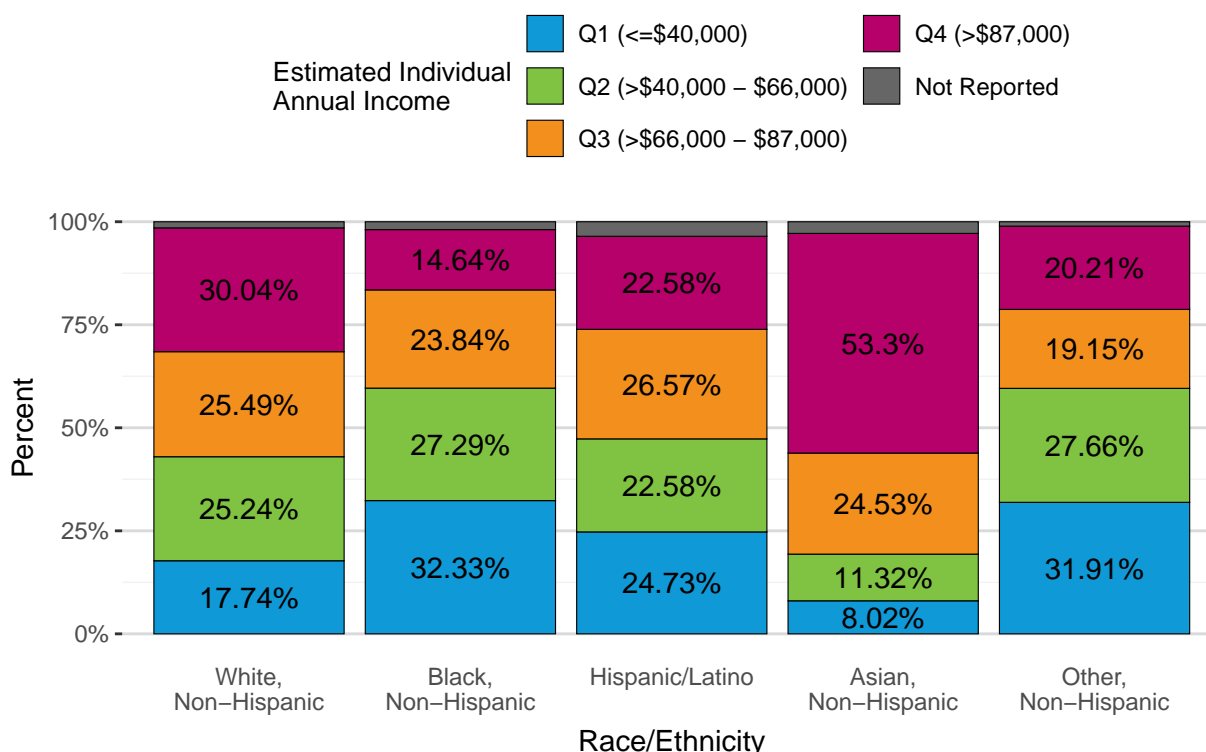
Table HR-1. Estimated Individual Annual Income for Adult Heart Candidates and Recipients in 2022

Est. Individual Income	Heart Candidates Ever Waiting in 2022		Heart Recipients in 2022	
	N	Percent	N	Percent
<\$20,000	7	0.1%	4	0.12%
\$20,000 - <\$40,000	1,434	20.54%	677	19.62%
\$40,000 - <\$60,000	1,134	16.24%	532	15.42%
\$60,000 - <\$80,000	1,870	26.78%	890	25.8%
\$80,000 - <\$100,000	1,377	19.72%	709	20.55%
\$100,000+	1,033	14.79%	569	16.49%
Unknown	128	1.83%	69	2%
Total	6,983	100%	3,450	100%

Estimated individual income data were obtained from LexisNexis.

Figure HR-2 and **Table HR-2** show estimated individual annual income for adult heart candidates ever waiting in 2022 by race/ethnicity. Asian, non-Hispanic (53.3%) and White, non-Hispanic candidates (30.04%) had the highest proportion in the highest income quartile, while Black, non-Hispanic (32.33%) and other, non-Hispanic candidates (31.91%) had the highest proportion in the lowest income quartile.

Figure HR-2. Adult Heart Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity



Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

Table HR-2. Adult Heart Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity

Est. Individual Income	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Q1 (<=\$40,000)	714 (17.74%)	647 (32.33%)	161 (24.73%)	17 (8.02%)	30 (31.91%)
Q2 (>\$40,000 - \$66,000)	1,016 (25.24%)	546 (27.29%)	147 (22.58%)	24 (11.32%)	26 (27.66%)
Q3 (>\$66,000 - \$87,000)	1,026 (25.49%)	477 (23.84%)	173 (26.57%)	52 (24.53%)	18 (19.15%)
Q4 (>\$87,000)	1,209 (30.04%)	293 (14.64%)	147 (22.58%)	113 (53.3%)	19 (20.21%)
Not Reported	60 (1.49%)	38 (1.9%)	23 (3.53%)	6 (2.83%)	1 (1.06%)
Total	4,025 (100%)	2,001 (100%)	651 (100%)	212 (100%)	94 (100%)

Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

Figure HR-3 and **Table HR-3** show estimated individual annual income for adult heart candidates ever waiting in 2022 by age at listing. Candidates aged 18-34 years had the highest proportion in the lowest income quartile (43.86%), and candidates aged 65 years or older had the highest proportion in the highest income quartile (31.03%).

Figure HR-3. Adult Heart Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing

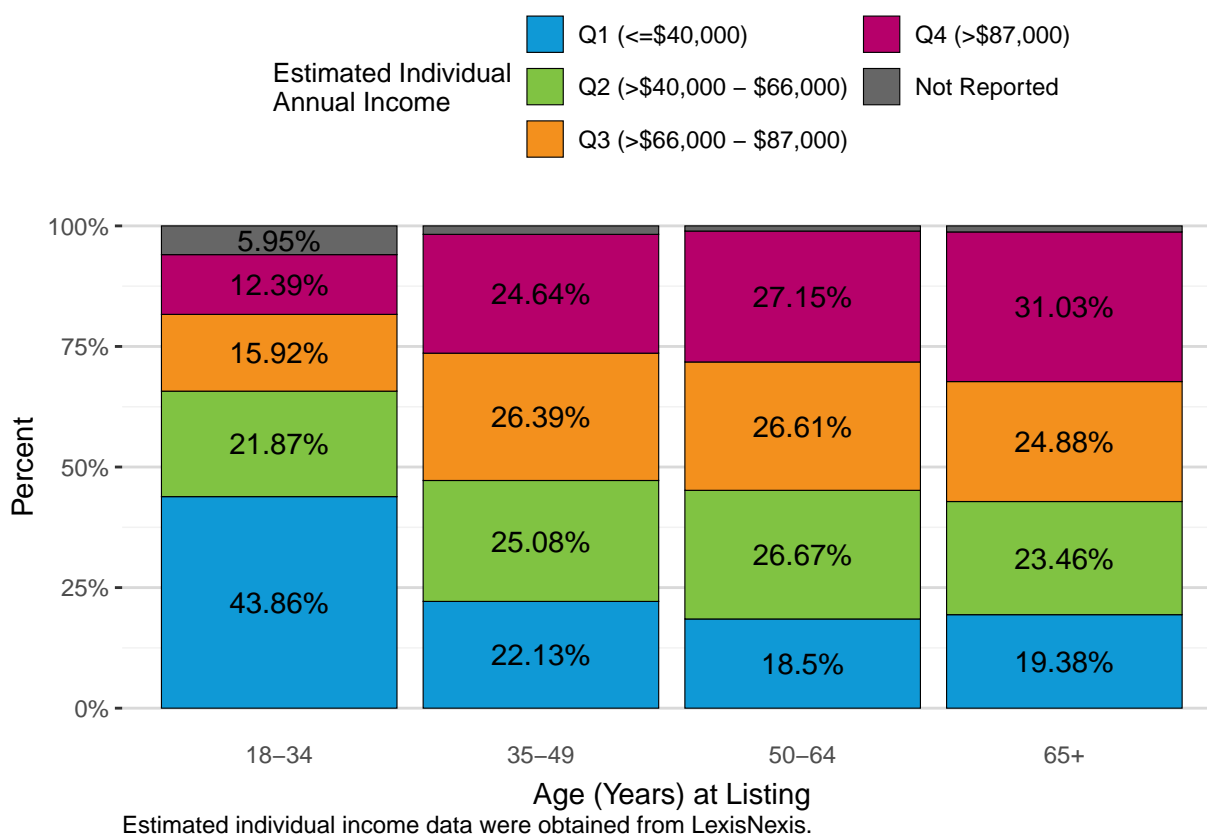


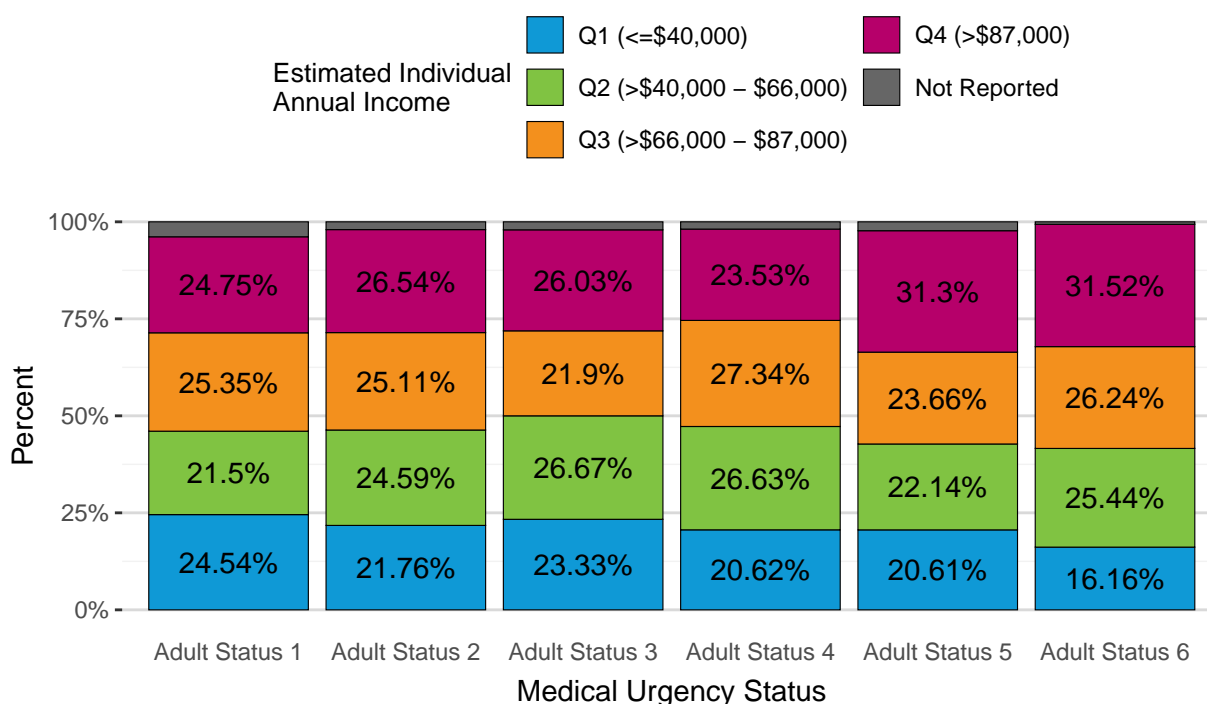
Table HR-3. Adult Heart Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing

Est. Individual Income	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Q1 (<=\$40,000)	361 (43.86%)	353 (22.13%)	622 (18.5%)	233 (19.38%)
Q2 (>\$40,000 - \$66,000)	180 (21.87%)	400 (25.08%)	897 (26.67%)	282 (23.46%)
Q3 (>\$66,000 - \$87,000)	131 (15.92%)	421 (26.39%)	895 (26.61%)	299 (24.88%)
Q4 (>\$87,000)	102 (12.39%)	393 (24.64%)	913 (27.15%)	373 (31.03%)
Not Reported	49 (5.95%)	28 (1.76%)	36 (1.07%)	15 (1.25%)
Total	823 (100%)	1,595 (100%)	3,363 (100%)	1,202 (100%)

Estimated individual income data were obtained from LexisNexis.

Figure HR-4 and **Table HR-4** show estimated individual annual income for adult heart candidates ever waiting in 2022 by medical urgency status. Candidates can switch between medical urgency statuses throughout their time on the waiting list and the following represents a candidate's most recent status, either at time of waiting list removal or as of August 23, 2024 for those still waiting. There were slightly more Adult Status 5 and Adult Status 6 candidates in the highest income quartile compared to the other groups. Adult Status 1 candidates had the highest proportion in the lowest income quartile (24.54%).

Figure HR-4. Adult Heart Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Medical Urgency Status



Estimated individual income data were obtained from LexisNexis.

N=2 candidates listed as Status 1A;

N=1 candidates listed as Status 1B;

N=1 candidates listed as Status 2; and

N=1255 temporarily inactive candidates were excluded.

Table HR-4. Adult Heart Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Medical Urgency Status

Est. Individual Income	Medical Urgency Status					
	Adult Status 1	Adult Status 2	Adult Status 3	Adult Status 4	Adult Status 5	Adult Status 6
Q1 ($\leq \$40,000$)	121 (24.54%)	500 (21.76%)	147 (23.33%)	319 (20.62%)	27 (20.61%)	101 (16.16%)
Q2 ($> \$40,000 - \$66,000$)	106 (21.5%)	565 (24.59%)	168 (26.67%)	412 (26.63%)	29 (22.14%)	159 (25.44%)
Q3 ($> \$66,000 - \$87,000$)	125 (25.35%)	577 (25.11%)	138 (21.9%)	423 (27.34%)	31 (23.66%)	164 (26.24%)
Q4 ($> \$87,000$)	122 (24.75%)	610 (26.54%)	164 (26.03%)	364 (23.53%)	41 (31.3%)	197 (31.52%)
Not Reported	19 (3.85%)	46 (2%)	13 (2.06%)	29 (1.87%)	3 (2.29%)	4 (0.64%)
Total	493 (100%)	2,298 (100%)	630 (100%)	1,547 (100%)	131 (100%)	625 (100%)

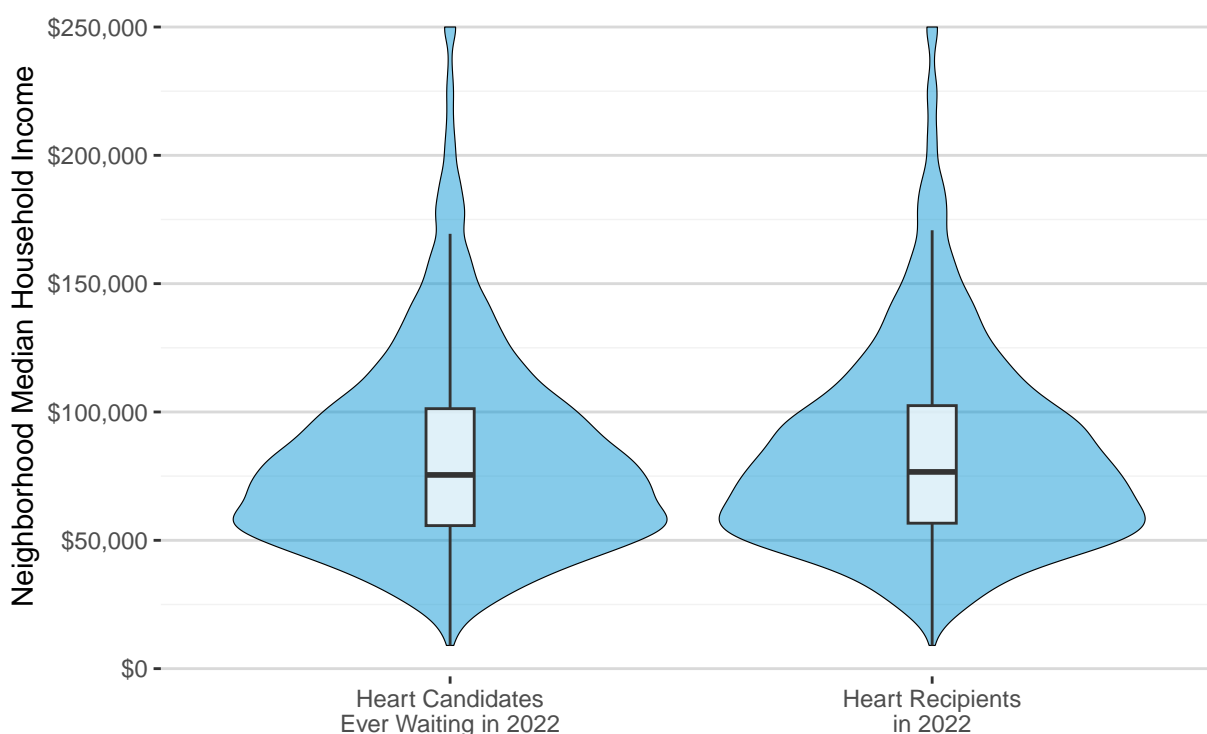
Estimated individual income data were obtained from LexisNexis.

N=2 candidates listed as Status 1A; N=1 candidates listed as Status 1B; N=1 candidates listed as Status 2; and N=1255 temporarily inactive candidates were excluded.

Heart - Neighborhood Median Household Income

Figure HR-5 and **Table HR-5** show the distribution of neighborhood median household income for adult heart candidates ever waiting in 2022 and adult heart recipients transplanted in 2022 based on data from the American Community Survey. Median neighborhood household income was \$75,469 for candidates, and slightly higher for recipients at \$76,644. For reference, median household income in 2022 according to the U.S. Census Bureau was \$74,580.⁷

Figure HR-5. Distribution of Neighborhood Median Household Income for Adult Heart Candidates and Recipients in 2022



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

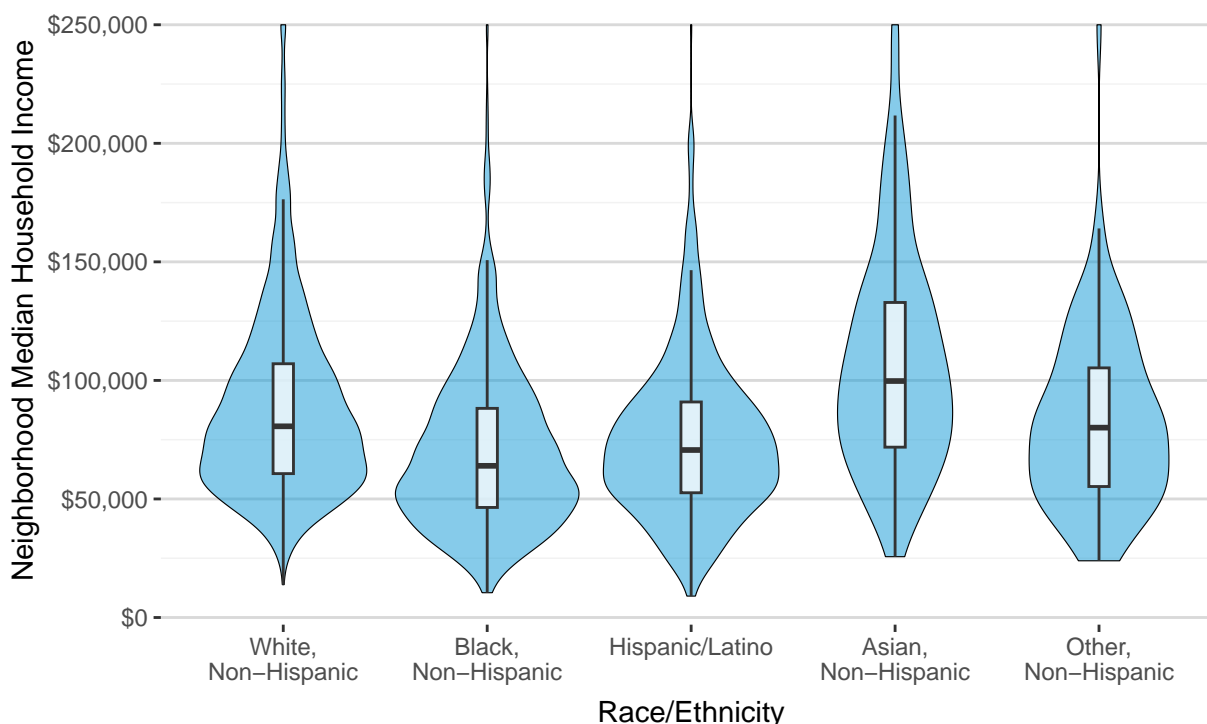
Table HR-5. Distribution of Neighborhood Median Household Income for Adult Heart Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Heart Candidates Ever Waiting in 2022	6,983	44	\$9,036	\$55,729	\$75,469	\$101,296	\$250,001
Heart Recipients in 2022	3,450	26	\$9,036	\$56,669	\$76,644	\$102,478	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure HR-6 and **Table HR-6** show the distribution of neighborhood median household income for adult heart candidates ever waiting in 2022 by race/ethnicity. Neighborhood median household income was highest for Asian, non-Hispanic candidates (median: \$99,734) and lowest for Black, non-Hispanic candidates (median: \$63,969).

Figure HR-6. Distribution of Neighborhood Median Household Income for Adult Heart Candidates Ever Waiting in 2022 by Race/Ethnicity



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

Table HR-6. Distribution of Neighborhood Median Household Income for Adult Heart Candidates Ever Waiting in 2022 by Race/Ethnicity

Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
White, Non-Hispanic	4,025	19	\$13,829	\$60,692	\$80,648	\$107,024	\$250,001
Black, Non-Hispanic	2,001	16	\$10,455	\$46,414	\$63,969	\$88,214	\$250,001
Hispanic/Latino	651	7	\$9,036	\$52,618	\$70,645	\$90,915	\$250,001
Asian, Non-Hispanic	212	2	\$25,655	\$71,842	\$99,734	\$132,874	\$250,001
Other, Non-Hispanic	94	0	\$23,917	\$55,241	\$80,082	\$105,281	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

Figure HR-7 and **Table HR-7** show the distribution of median household income for adult heart candidates ever waiting in 2022 by age at listing. Median neighborhood household income increased slightly with increasing candidate age at listing. The median was lowest for adult candidates aged 18-34 (\$70,098) and highest for candidates aged 65 years or older (\$79,728).

Figure HR-7. Distribution of Neighborhood Median Household Income for Adult Heart Candidates Ever Waiting in 2022 by Age at Listing

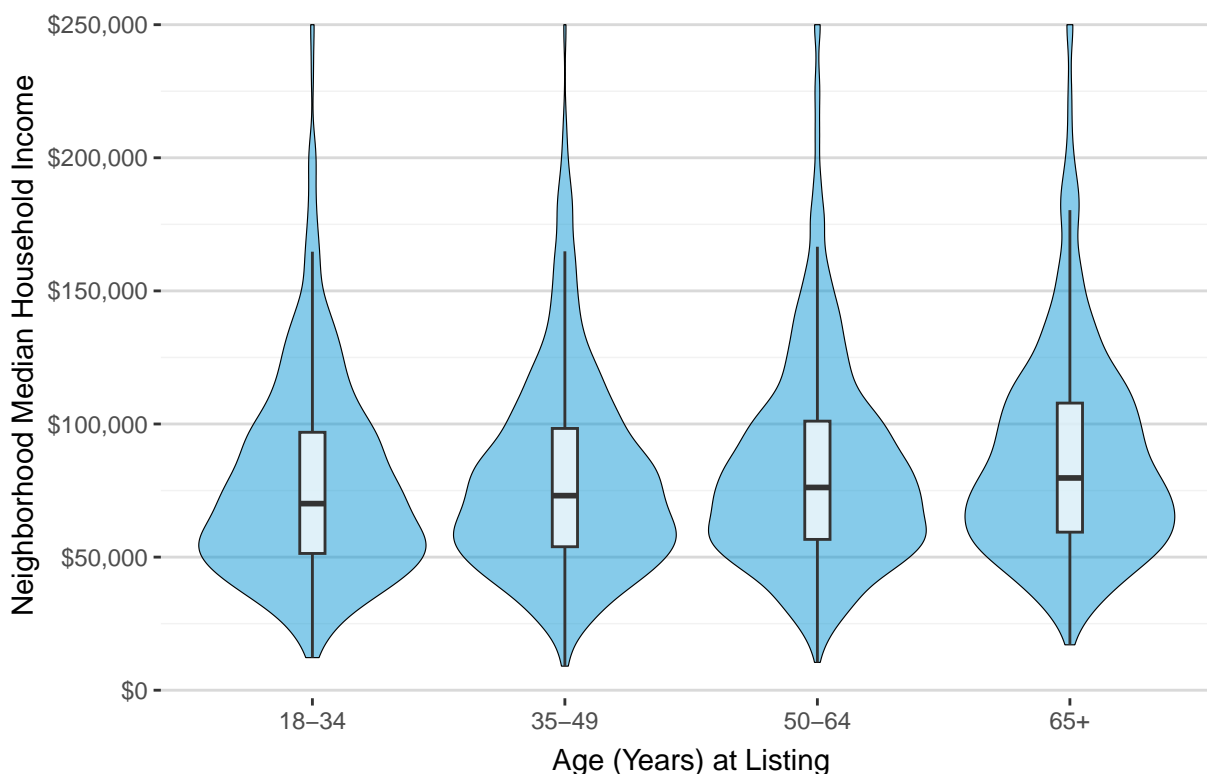


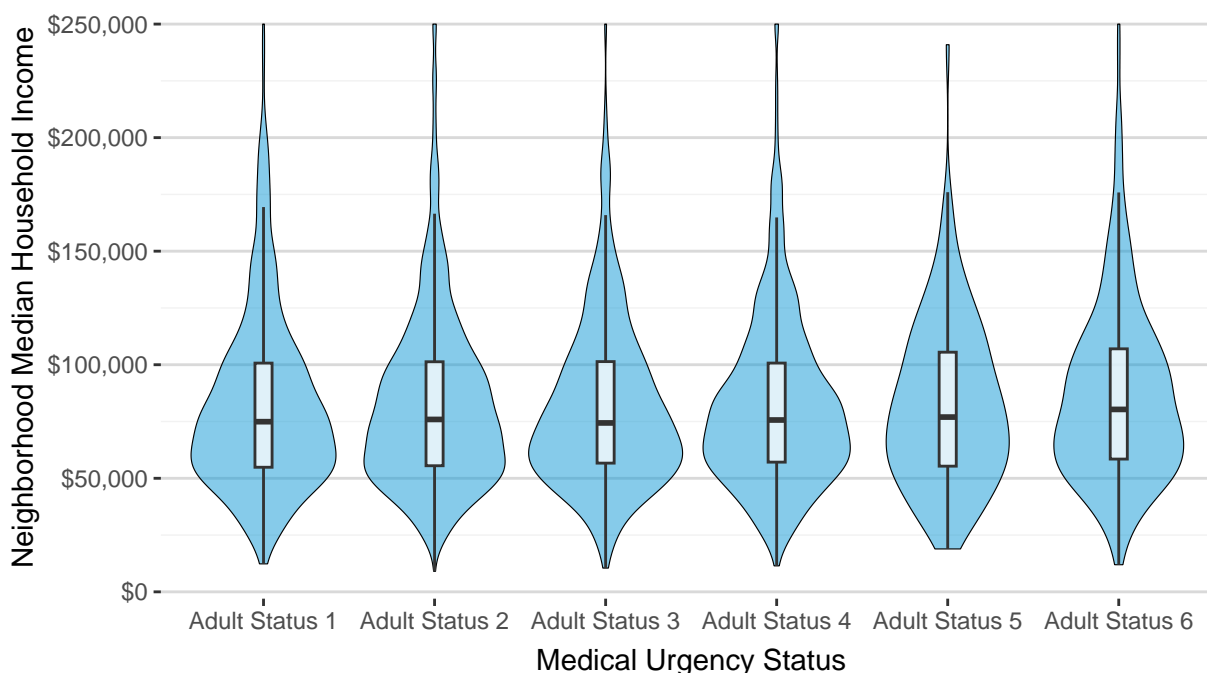
Table HR-7. Distribution of Neighborhood Median Household Income for Adult Heart Candidates Ever Waiting in 2022 by Age at Listing

Age at Listing	N	Missing	Min	P25	Median	P75	Max
18-34	823	15	\$12,245	\$51,368	\$70,098	\$96,891	\$250,001
35-49	1,595	6	\$9,036	\$53,899	\$73,092	\$98,333	\$250,001
50-64	3,363	18	\$10,455	\$56,646	\$76,167	\$101,077	\$250,001
65+	1,202	5	\$17,056	\$59,375	\$79,728	\$107,860	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure HR-8 and **Table HR-8** show the distribution of median household income for adult heart candidates ever waiting in 2022 by medical urgency status. The distribution of neighborhood median household income was largely similar between groups, but the median was slightly higher for Adult Status 6 candidates (\$80,329).

Figure HR-8. Distribution of Neighborhood Median Household Income for Adult Heart Candidates Ever Waiting in 2022 by Medical Urgency Status



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

N=2 candidates listed as Status 1A;
N=1 candidates listed as Status 1B;
N=1 candidates listed as Status 2; and
N=1255 temporarily inactive candidates were excluded.

Table HR-8. Distribution of Neighborhood Median Household Income for Adult Heart Candidates Ever Waiting in 2022 by Medical Urgency Status

Medical Urgency Status	N	Missing	Min	P25	Median	P75	Max
Adult Status 1	493	4	\$12,310	\$54,861	\$74,922	\$100,718	\$250,001
Adult Status 2	2,298	20	\$9,036	\$55,525	\$75,910	\$101,308	\$250,001
Adult Status 3	630	2	\$10,455	\$56,676	\$74,370	\$101,381	\$250,001
Adult Status 4	1,547	10	\$11,431	\$57,109	\$75,667	\$100,735	\$250,001
Adult Status 5	131	0	\$18,892	\$55,334	\$76,957	\$105,524	\$240,927
Adult Status 6	625	2	\$11,936	\$58,466	\$80,329	\$107,006	\$250,001

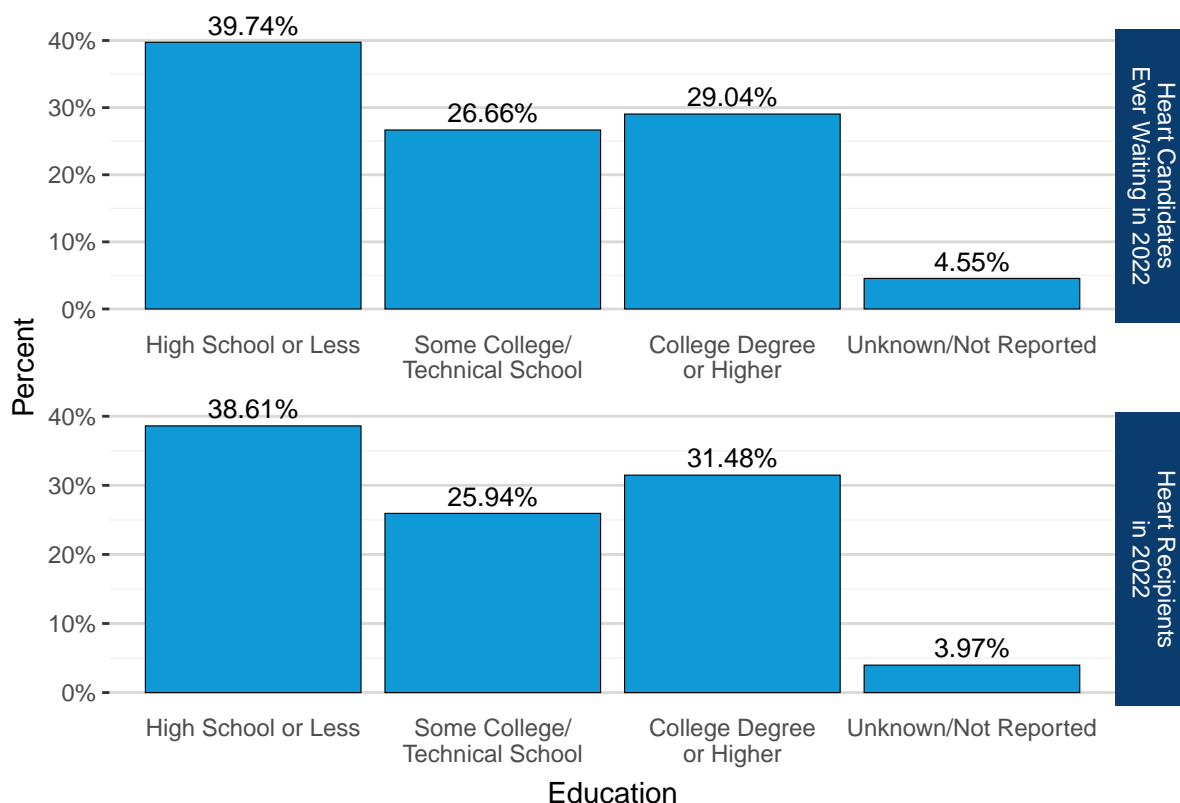
Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

N=2 candidates listed as Status 1A; N=1 candidates listed as Status 1B; N=1 candidates listed as Status 2; and N=1255 temporarily inactive candidates were excluded.

Heart - Education

Figure HR-9 and **Table HR-9** show the highest education level reported for adult heart candidates ever waiting in 2022 and adult heart transplant recipients in 2022. Educational attainment was similar between candidates and recipients, though slightly more recipients (31.48%) than candidates (29.04%) had a college education or higher. Approximately 40% of candidates and recipients reported having a high school education or less.

Figure HR-9. Highest Education Level for Adult Heart Candidates and Recipients in 2022



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

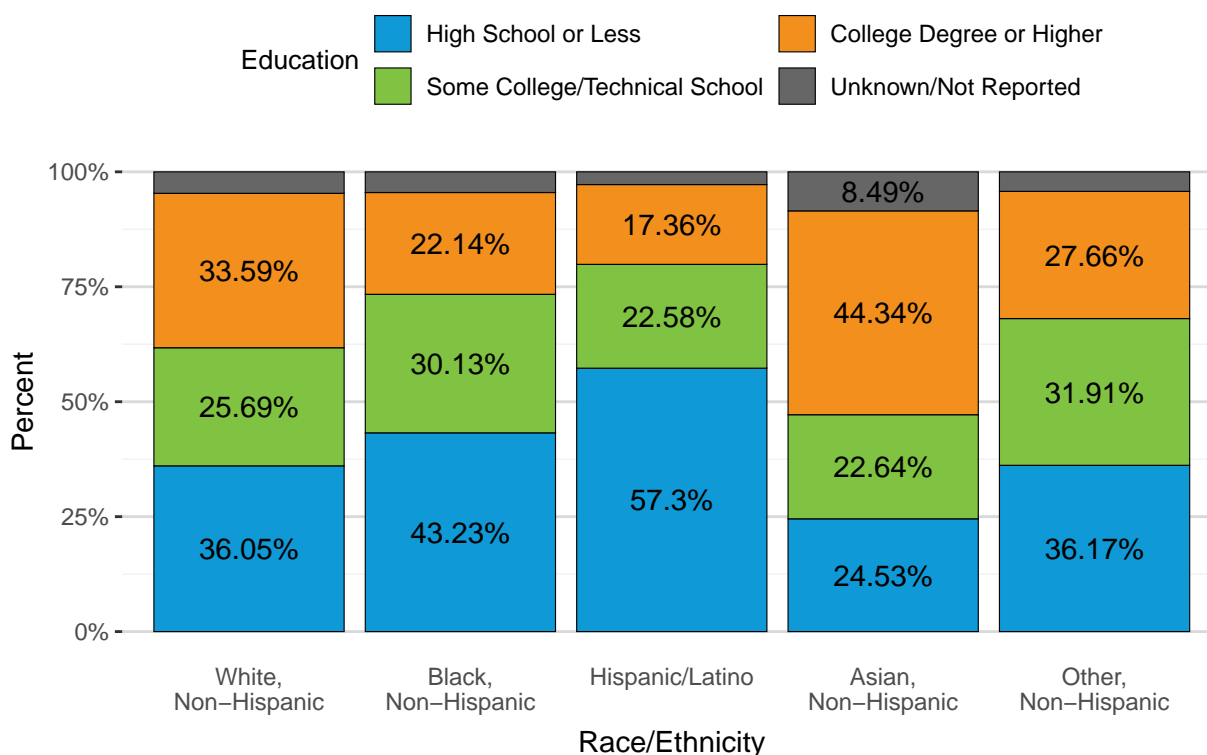
Table HR-9. Highest Education Level for Adult Heart Candidates and Recipients in 2022

Education	Heart Candidates Ever Waiting in 2022		Heart Recipients in 2022	
	N	Percent	N	Percent
High School or Less	2,775	39.74%	1,332	38.61%
Some College/Technical School	1,862	26.66%	895	25.94%
College Degree or Higher	2,028	29.04%	1,086	31.48%
Unknown/Not Reported	318	4.55%	137	3.97%
Total	6,983	100%	3,450	100%

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure HR-10 and **Table HR-10** show education level for adult heart candidates ever waiting in 2022 by race/ethnicity. Asian, non-Hispanic (44.34%) and White, non-Hispanic candidates (33.59%) had higher proportions of college or higher education, while Hispanic/Latino (57.3%) and Black, non-Hispanic candidates (43.23%) had higher proportions with a high school degree or less.

Figure HR-10. Adult Heart Candidates Ever Waiting in 2022 by Education and Race/Ethnicity



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

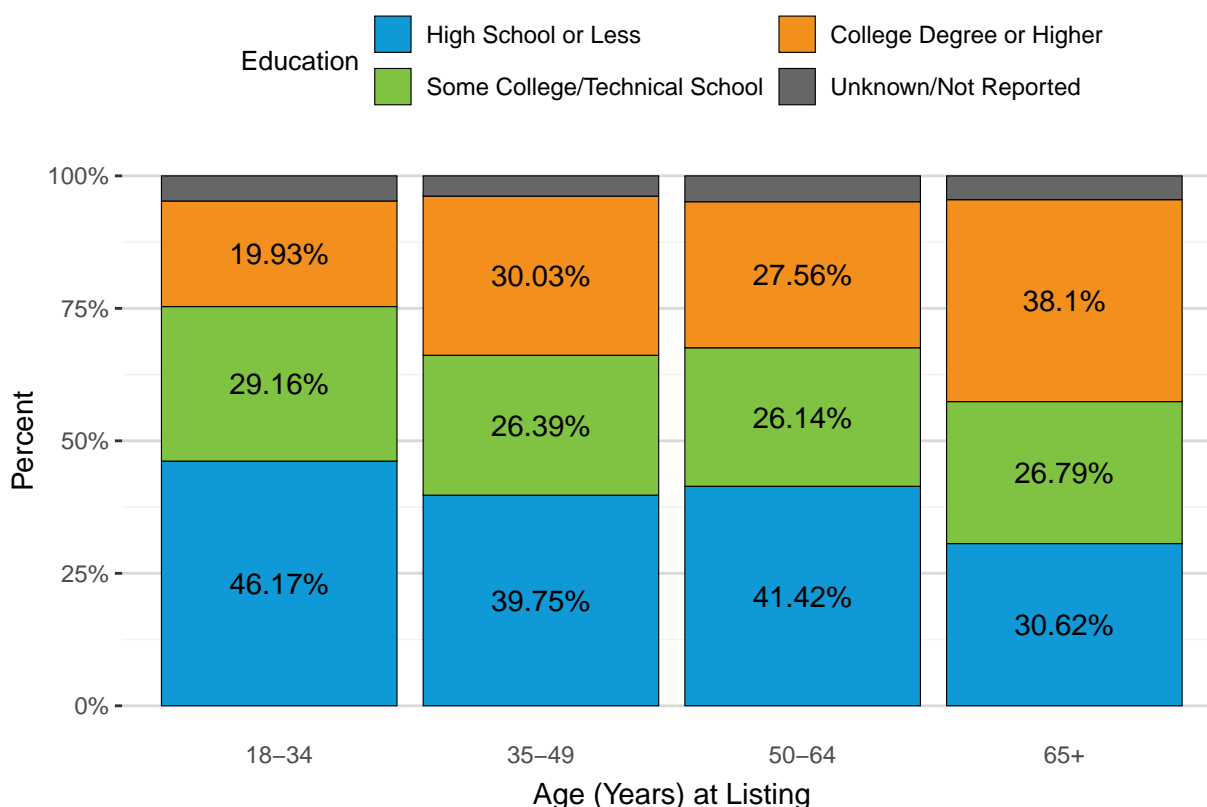
Table HR-10. Adult Heart Candidates Ever Waiting in 2022 by Education and Race/Ethnicity

Education	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
High School or Less	1,451 (36.05%)	865 (43.23%)	373 (57.3%)	52 (24.53%)	34 (36.17%)
Some College/Technical School	1,034 (25.69%)	603 (30.13%)	147 (22.58%)	48 (22.64%)	30 (31.91%)
College Degree or Higher	1,352 (33.59%)	443 (22.14%)	113 (17.36%)	94 (44.34%)	26 (27.66%)
Unknown/Not Reported	188 (4.67%)	90 (4.5%)	18 (2.76%)	18 (8.49%)	4 (4.26%)
Total	4,025 (100%)	2,001 (100%)	651 (100%)	212 (100%)	94 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

Figure HR-11 and **Table HR-11** show the education level for adult heart candidates ever waiting in 2022 by candidate age at listing. Candidates aged 18 to 34 years at listing had the highest proportion of a high school or less education (46.17%), and candidates aged 65 years or older at listing had the highest proportion with a college degree or higher (38.1%).

Figure HR-11. Adult Heart Candidates Ever Waiting in 2022 by Education and Age at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

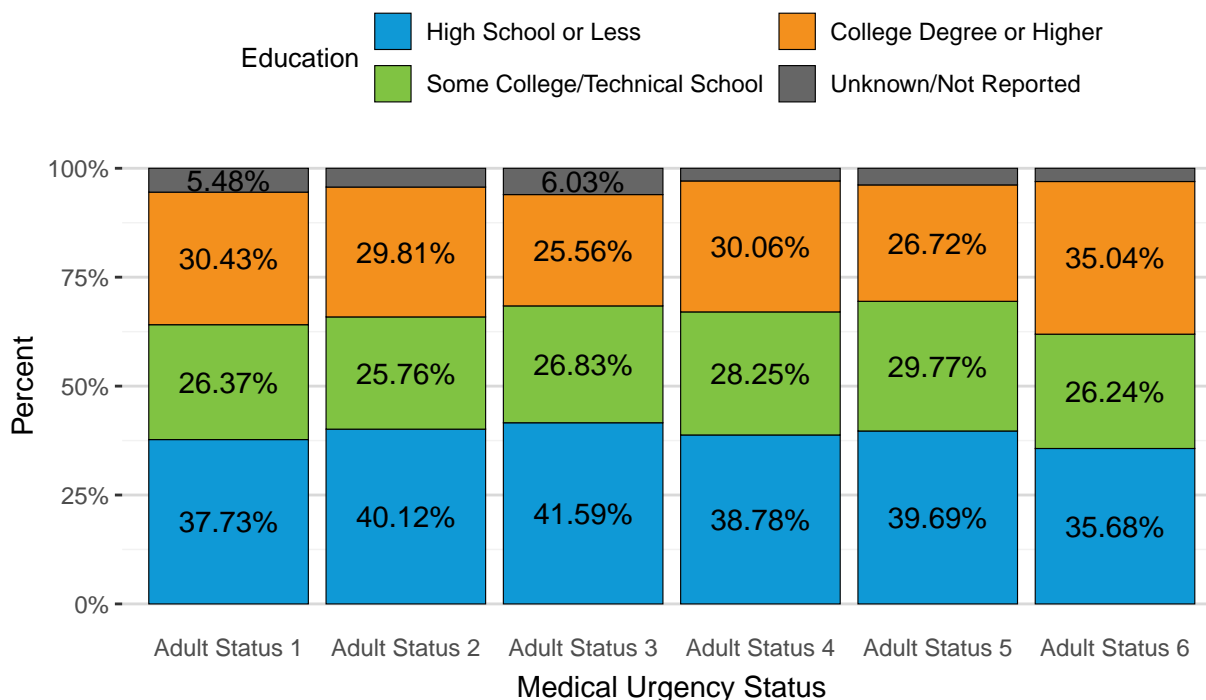
Table HR-11. Adult Heart Candidates Ever Waiting in 2022 by Education and Age at Listing

Education	Age (Years) at Listing			
	18-34	35-49	50-64	65+
High School or Less	380 (46.17%)	634 (39.75%)	1,393 (41.42%)	368 (30.62%)
Some College/Technical School	240 (29.16%)	421 (26.39%)	879 (26.14%)	322 (26.79%)
College Degree or Higher	164 (19.93%)	479 (30.03%)	927 (27.56%)	458 (38.1%)
Unknown/Not Reported	39 (4.74%)	61 (3.82%)	164 (4.88%)	54 (4.49%)
Total	823 (100%)	1,595 (100%)	3,363 (100%)	1,202 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure HR-12 and **Table HR-12** show education level for adult heart candidates ever waiting in 2022 by medical urgency status. Adult Status 6 candidates had the highest proportion with a college degree or higher (35.04%), and Adult Status 3 candidates had the highest proportion with a high school education or less (41.59%).

Figure HR-12. Adult Heart Candidates Ever Waiting in 2022 by Education and Medical Urgency Status



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

N=2 candidates listed as Status 1A;

N=1 candidates listed as Status 1B;

N=1 candidates listed as Status 2; and

N=1255 temporarily inactive candidates were excluded.

Table HR-12. Adult Heart Candidates Ever Waiting in 2022 by Education and Medical Urgency Status

Education	Medical Urgency Status					
	Adult Status 1	Adult Status 2	Adult Status 3	Adult Status 4	Adult Status 5	Adult Status 6
High School or Less	186 (37.73%)	922 (40.12%)	262 (41.59%)	600 (38.78%)	52 (39.69%)	223 (35.68%)
Some College/Technical School	130 (26.37%)	592 (25.76%)	169 (26.83%)	437 (28.25%)	39 (29.77%)	164 (26.24%)
College Degree or Higher	150 (30.43%)	685 (29.81%)	161 (25.56%)	465 (30.06%)	35 (26.72%)	219 (35.04%)
Unknown/Not Reported	27 (5.48%)	99 (4.31%)	38 (6.03%)	45 (2.91%)	5 (3.82%)	19 (3.04%)
Total	493 (100%)	2,298 (100%)	630 (100%)	1,547 (100%)	131 (100%)	625 (100%)

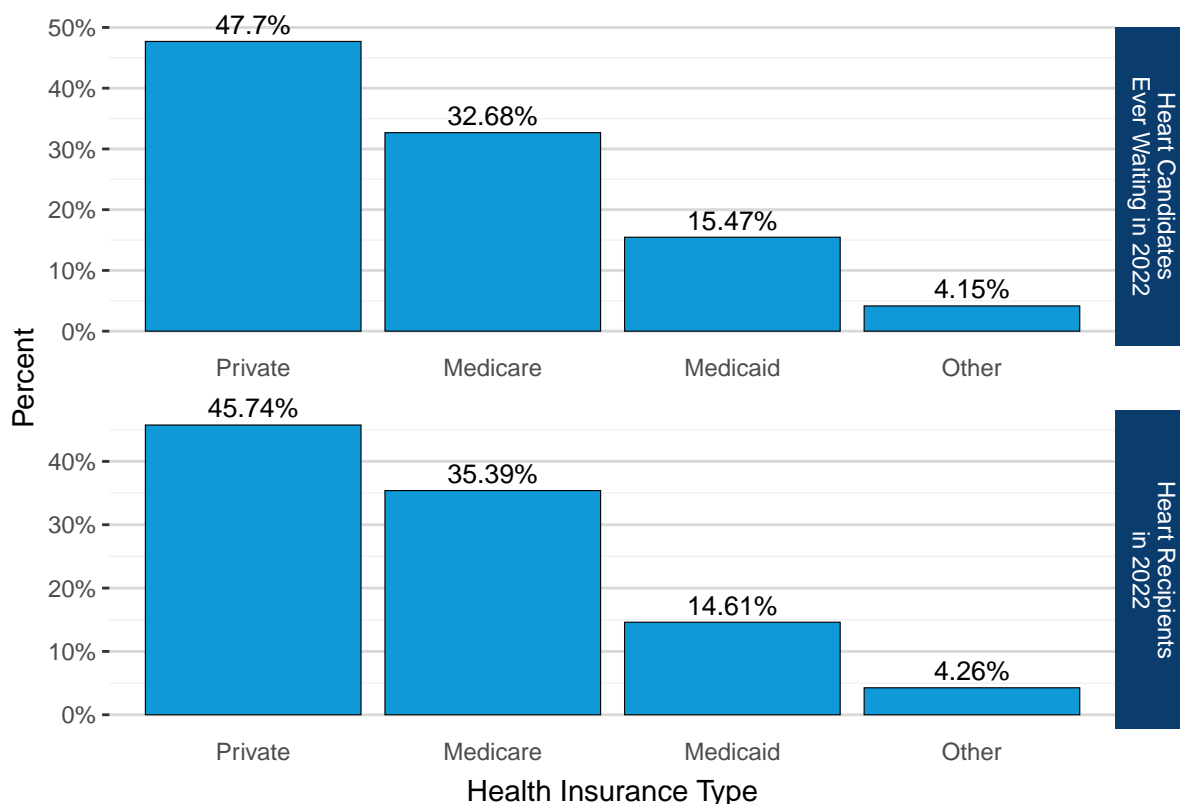
Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

N=2 candidates listed as Status 1A; N=1 candidates listed as Status 1B; N=1 candidates listed as Status 2; and N=1255 temporarily inactive candidates were excluded.

Heart - Health Insurance Type

Figure HR-13 and **Table HR-13** show health insurance type for adult heart candidates ever waiting in 2022 and adult heart transplant recipients in 2022. Slightly more candidates were privately insured (47.7%) compared to recipients (45.74%). A higher proportion of recipients were insured by Medicare (35.39%) compared to candidates (32.68%). Candidates and recipients insured by Medicaid were 15.47% and 14.61%, respectively. Candidates and recipients insured by Medicaid were 15.47% and 14.61%, respectively.

Figure HR-13. Health Insurance Type for Adult Heart Candidates and Recipients in 2022



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

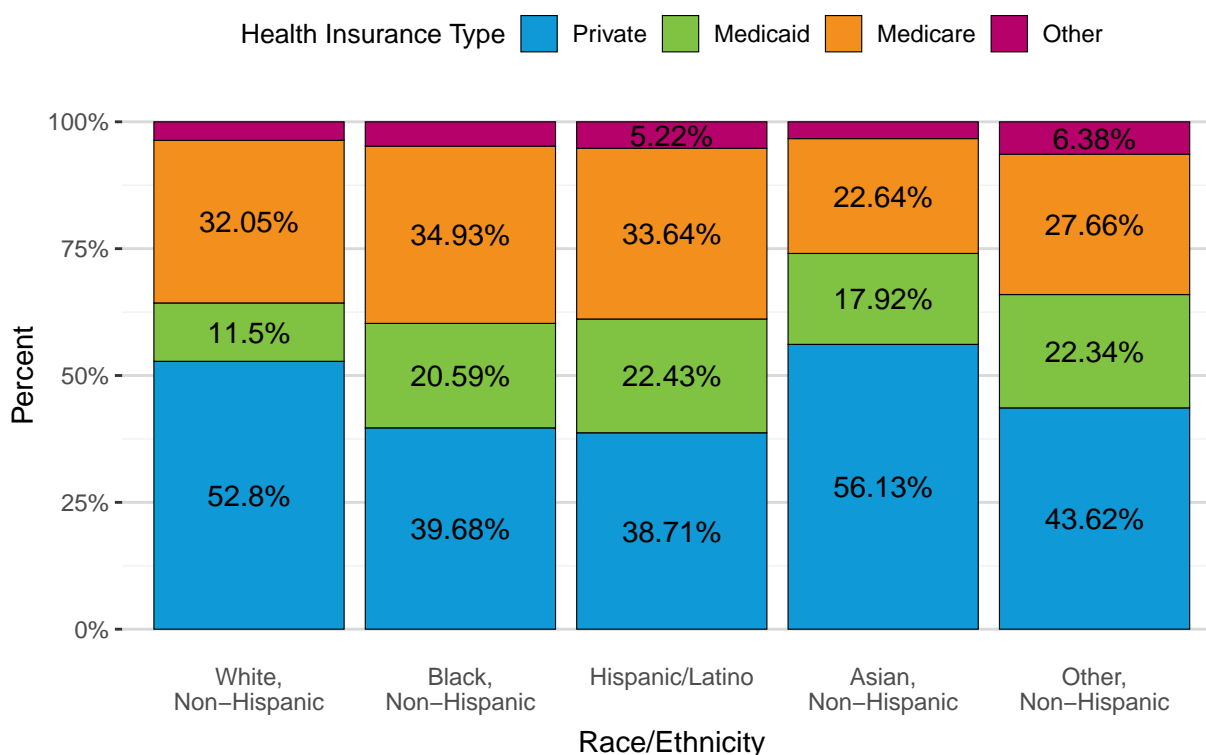
Table HR-13. Health Insurance Type for Adult Heart Candidates and Recipients in 2022

Health Insurance Type	Heart Candidates Ever Waiting in 2022		Heart Recipients in 2022	
	N	Percent	N	Percent
Private	3,331	47.7%	1,578	45.74%
Medicaid	1,080	15.47%	504	14.61%
Medicare	2,282	32.68%	1,221	35.39%
Other	290	4.15%	147	4.26%
Total	6,983	100%	3,450	100%

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure HR-14 and **Table HR-14** show health insurance type for adult heart candidates ever waiting in 2022 by race/ethnicity. Private insurance was more prevalent for Asian, non-Hispanic (56.13%) and White, non-Hispanic candidates (52.8%). Black, non-Hispanic candidates had the highest proportion of Medicare coverage (34.93%), and Hispanic/Latino candidates had the highest proportion of Medicaid coverage (22.43%).

Figure HR-14. Adult Heart Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

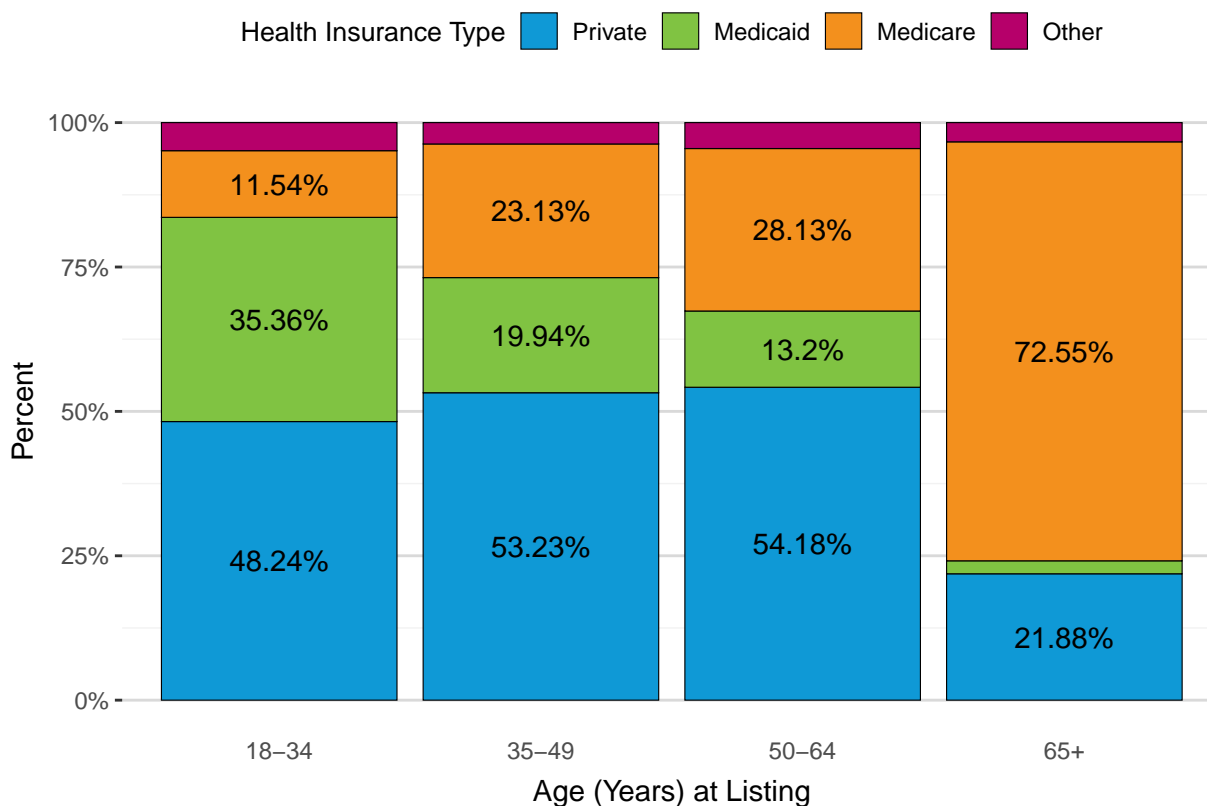
Table HR-14. Adult Heart Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity

Health Insurance Type	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Private	2,125 (52.8%)	794 (39.68%)	252 (38.71%)	119 (56.13%)	41 (43.62%)
Medicaid	463 (11.5%)	412 (20.59%)	146 (22.43%)	38 (17.92%)	21 (22.34%)
Medicare	1,290 (32.05%)	699 (34.93%)	219 (33.64%)	48 (22.64%)	26 (27.66%)
Other	147 (3.65%)	96 (4.8%)	34 (5.22%)	7 (3.3%)	6 (6.38%)
Total	4,025 (100%)	2,001 (100%)	651 (100%)	212 (100%)	94 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

Figure HR-15 and **Table HR-15** show health insurance type for adult heart candidates ever waiting in 2022 by candidate age at listing. Candidates aged 18 to 34 at listing had the highest proportion of Medicaid coverage (35.36%), and candidates aged 50 to 64 had the highest proportion of private insurance (54.18%). The majority of candidates aged 65 years or older were insured by Medicare (72.55%); this trend is expected as Medicare coverage is reserved for adults aged 65 or older or younger individuals with certain health conditions or disabilities.⁹

Figure HR-15. Adult Heart Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

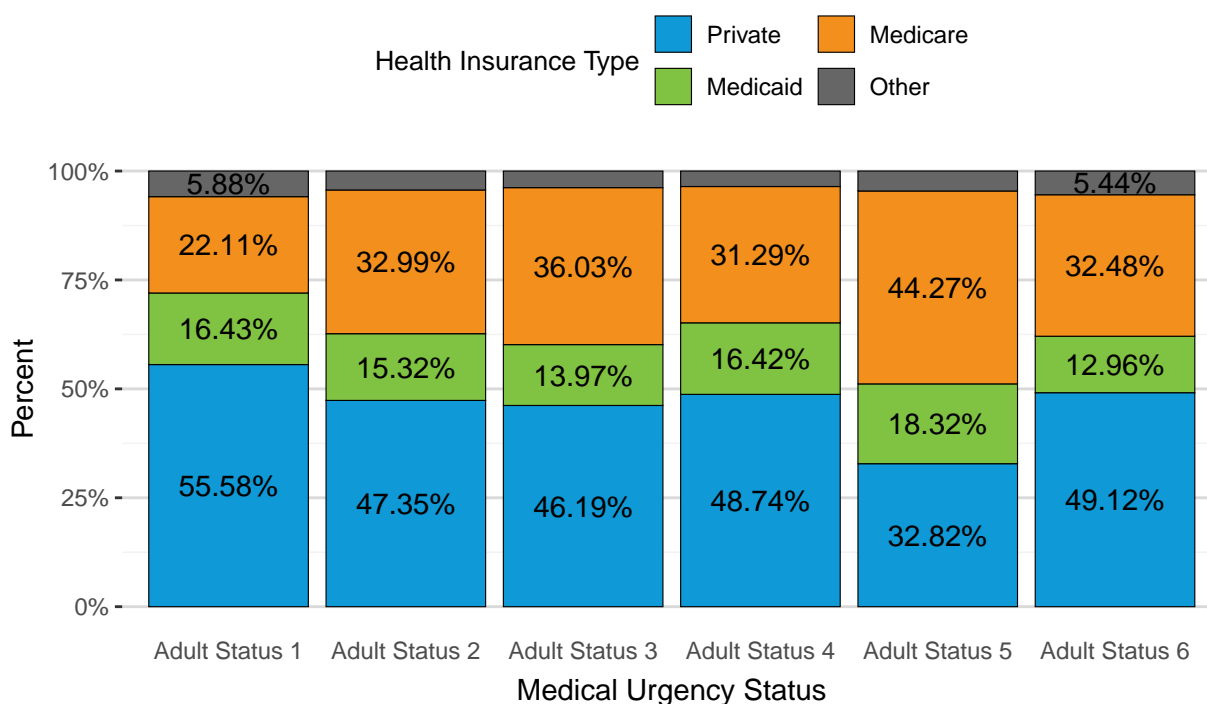
Table HR-15. Adult Heart Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing

Health Insurance Type	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Private	397 (48.24%)	849 (53.23%)	1,822 (54.18%)	263 (21.88%)
Medicaid	291 (35.36%)	318 (19.94%)	444 (13.2%)	27 (2.25%)
Medicare	95 (11.54%)	369 (23.13%)	946 (28.13%)	872 (72.55%)
Other	40 (4.86%)	59 (3.7%)	151 (4.49%)	40 (3.33%)
Total	823 (100%)	1,595 (100%)	3,363 (100%)	1,202 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure HR-16 and **Table HR-16** show health insurance type for adult heart candidates ever waiting in 2022 by medical urgency status. Adult Status 1 candidates had the highest proportion of private insurance (55.58%), and Adult Status 5 candidates had the highest proportion of Medicare coverage (44.27%). Medicaid coverage ranged from 12.96% in Adult Status 6 candidates to 18.32% in Adult Status 5 candidates.

Figure HR-16. Adult Heart Candidates Ever Waiting in 2022 by Health Insurance Type and Medical Urgency Status



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. N=2 candidates listed as Status 1A; N=1 candidates listed as Status 1B; N=1 candidates listed as Status 2; and N=1255 temporarily inactive candidates were excluded.

Table HR-16. Adult Heart Candidates Ever Waiting in 2022 by Health Insurance Type and Medical Urgency Status

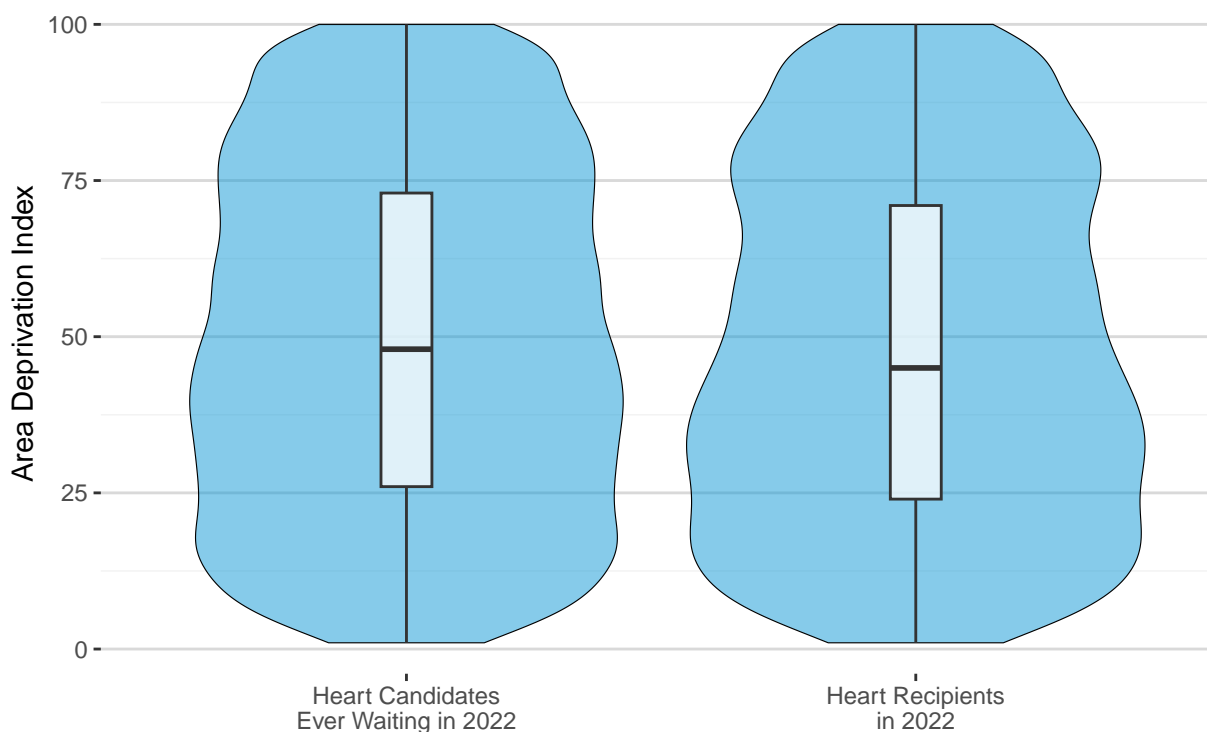
Health Insurance Type	Medical Urgency Status					
	Adult Status 1	Adult Status 2	Adult Status 3	Adult Status 4	Adult Status 5	Adult Status 6
Private	274 (55.58%)	1,088 (47.35%)	291 (46.19%)	754 (48.74%)	43 (32.82%)	307 (49.12%)
Medicaid	81 (16.43%)	352 (15.32%)	88 (13.97%)	254 (16.42%)	24 (18.32%)	81 (12.96%)
Medicare	109 (22.11%)	758 (32.99%)	227 (36.03%)	484 (31.29%)	58 (44.27%)	203 (32.48%)
Other	29 (5.88%)	100 (4.35%)	24 (3.81%)	55 (3.56%)	6 (4.58%)	34 (5.44%)
Total	493 (100%)	2,298 (100%)	630 (100%)	1,547 (100%)	131 (100%)	625 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. N=2 candidates listed as Status 1A; N=1 candidates listed as Status 1B; N=1 candidates listed as Status 2; and N=1255 temporarily inactive candidates were excluded.

Heart - Area Deprivation Index

Figure HR-17 and **Table HR-17** show the distribution of area deprivation index for adult heart candidates ever waiting in 2022 and adult heart transplant recipients in 2022 based on data from the 2021 Neighborhood Atlas Area Deprivation Index (ADI). Median ADI values for candidates and recipients were 48, and 45, respectively.

Figure HR-17. Distribution of Area Deprivation Index for Adult Heart Candidates and Recipients in 2022



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

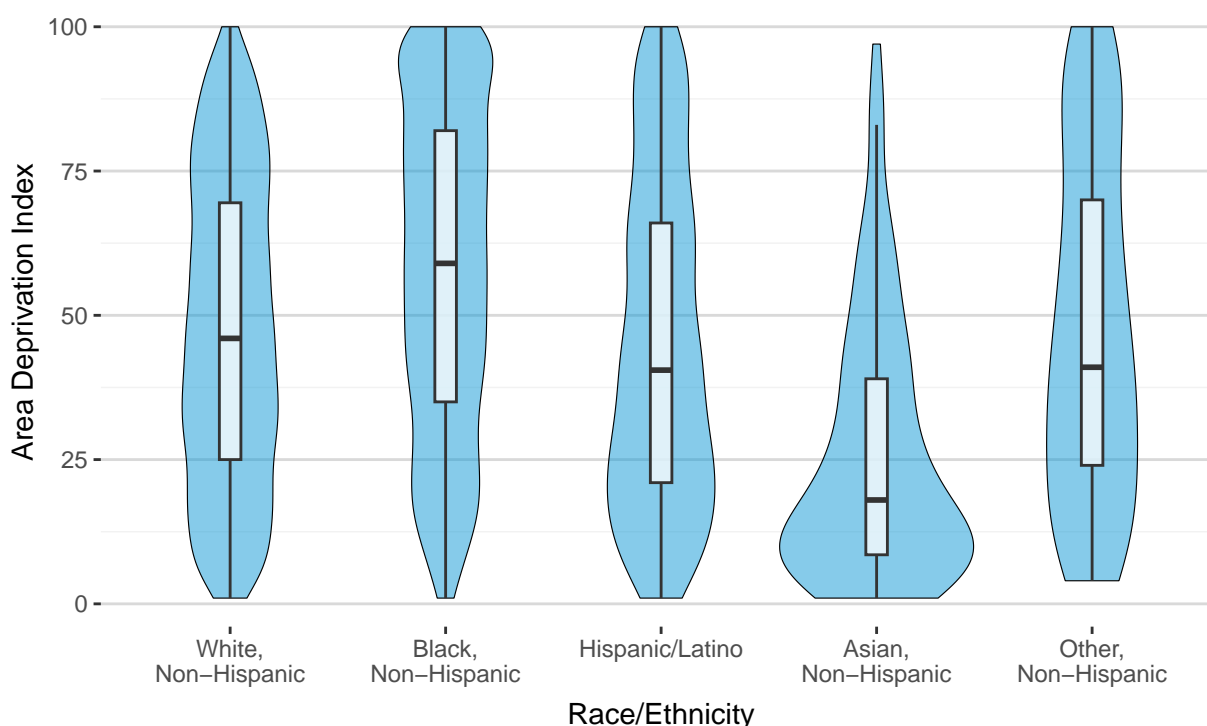
Table HR-17. Distribution of Area Deprivation Index for Adult Heart Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Heart Candidates Ever Waiting in 2022	6,983	213	1	26	48	73	100
Heart Recipients in 2022	3,450	105	1	24	45	71	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure HR-18 and **Table HR-18** show the distribution of area deprivation index for adult heart candidates ever waiting in 2022 by race/ethnicity. Median ADI was lowest for Asian, non-Hispanic candidates (18) and highest for Black, non-Hispanic candidates (59).

Figure HR-18. Distribution of Area Deprivation Index for Adult Heart Candidates Ever Waiting in 2022 by Race/Ethnicity



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

Table HR-18. Distribution of Area Deprivation Index for Adult Heart Candidates Ever Waiting in 2022 by Race/Ethnicity

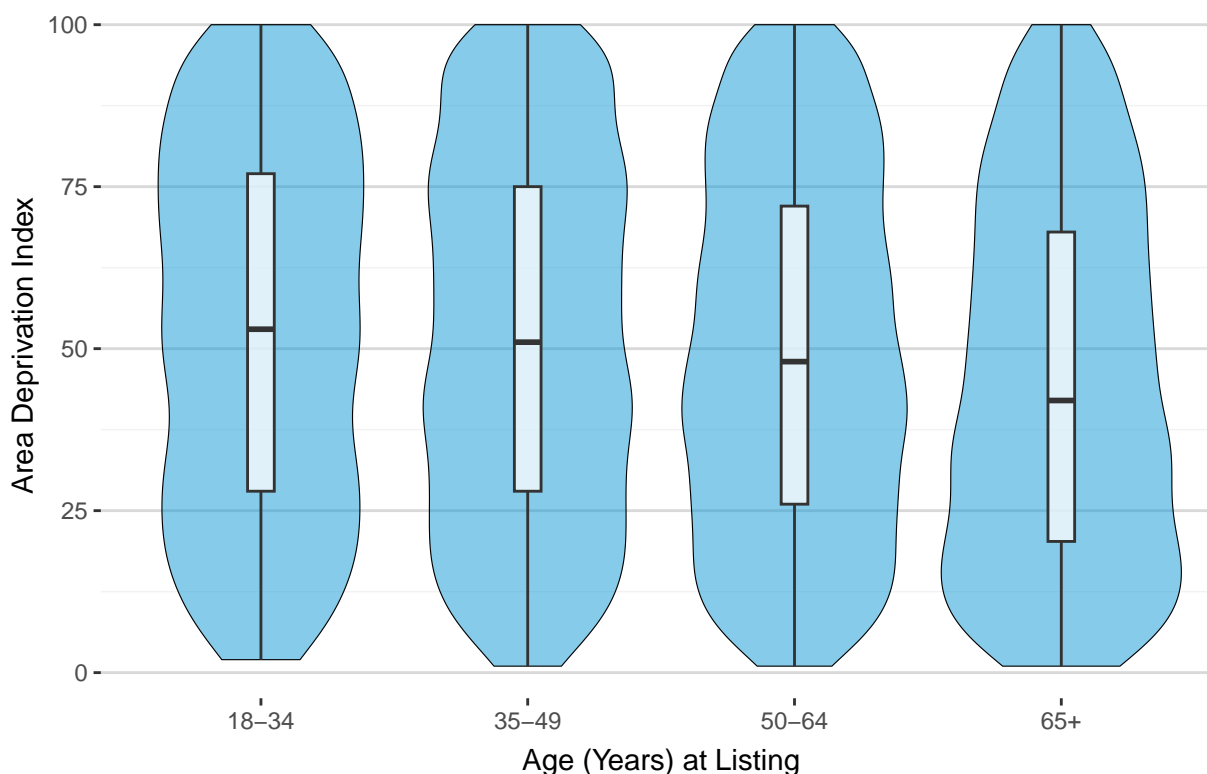
Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
White, Non-Hispanic	4,025	110	1	25	46	70	100
Black, Non-Hispanic	2,001	66	1	35	59	82	100
Hispanic/Latino	651	19	1	21	40	66	100
Asian, Non-Hispanic	212	9	1	8	18	39	97
Other, Non-Hispanic	94	9	4	24	41	70	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Other, NH includes N=29 American Indian/Alaska Native, NH; N=39 Multiracial, NH and N=26 Native Hawaiian/other Pacific Islander, NH candidates.

Figure HR-19 and **Table HR-19** show the distribution of area deprivation index for adult heart candidates ever waiting in 2022 by candidate age at listing. Median neighborhood ADI decreased as candidate age at listing increased. Median ADI was highest for candidates aged 18 to 34 years at listing (53), and lowest for candidates 65 years or older at listing (42).

Figure HR-19. Distribution of Area Deprivation Index for Adult Heart Candidates Ever Waiting in 2022 by Age at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

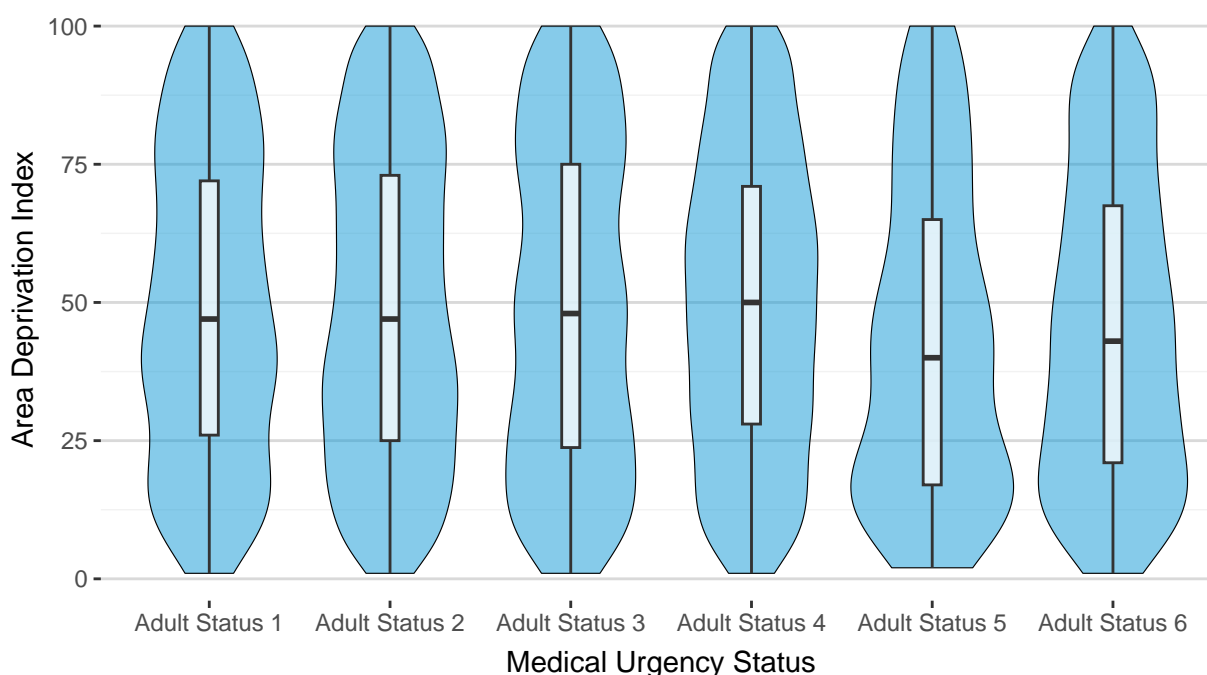
Table HR-19. Distribution of Area Deprivation Index for Adult Heart Candidates Ever Waiting in 2022 by Age at Listing

Age at Listing	N	Missing	Min	P25	Median	P75	Max
18-34	823	37	2	28	53	77	100
35-49	1,595	41	1	28	51	75	100
50-64	3,363	107	1	26	48	72	100
65+	1,202	28	1	20	42	68	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure HR-20 and **Table HR-20** show the distribution of area deprivation index for adult heart candidates ever waiting in 2022 by medical urgency status. ADI was relatively similar between groups, with median values ranging from 40 for Adult Status 5 candidates to 50 for Adult Status 4 candidates.

Figure HR-20. Distribution of Area Deprivation Index for Adult Heart Candidates Ever Waiting in 2022 by Medical Urgency Status



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

N=2 candidates listed as Status 1A;

N=1 candidates listed as Status 1B;

N=1 candidates listed as Status 2; and

N=1255 temporarily inactive candidates were excluded.

Table HR-20. Distribution of Area Deprivation Index for Adult Heart Candidates Ever Waiting in 2022 by Medical Urgency Status

Medical Urgency Status	N	Missing	Min	P25	Median	P75	Max
Adult Status 1	493	16	1	26	47	72	100
Adult Status 2	2,298	66	1	25	47	73	100
Adult Status 3	630	14	1	24	48	75	100
Adult Status 4	1,547	51	1	28	50	71	100
Adult Status 5	131	5	2	17	40	65	100
Adult Status 6	625	30	1	21	43	68	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

N=2 candidates listed as Status 1A; N=1 candidates listed as Status 1B; N=1 candidates listed as Status 2; and N=1255 temporarily inactive candidates were excluded.

Heart - Waiting List Mortality Rates by SDOH

Figure HR-21 and **Table HR-21** show waiting list mortality rates for adult heart candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, educational attainment, health insurance type, and area deprivation index (ADI). Overall waiting list mortality was 7.65 (95% confidence interval (CI): 6.66-8.74) deaths per 100 patient years.

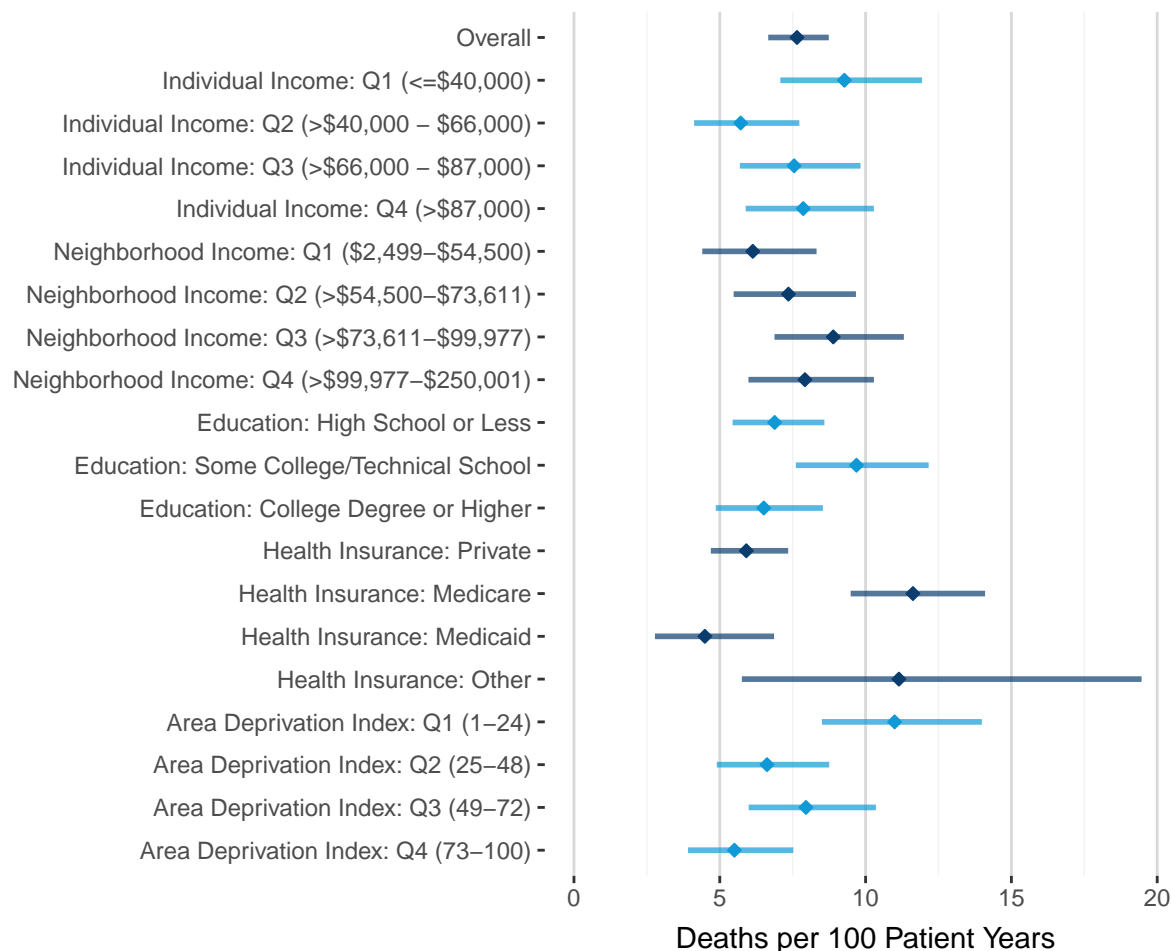
Estimated individual annual income: Waiting list mortality was highest for candidates in the lowest income quartile ($\leq \$40,000$) and lowest for candidates in the second income quartile ($> \$40,000$ - $\$66,000$); however, differences in waiting list mortality by estimated individual annual income were not statistically significant.

Neighborhood median household income: Waiting list mortality was highest for candidates in the third neighborhood median household income quartile ($> \$73,611$ - $\$99,977$) and lowest for candidates in the lowest neighborhood income quartile ($< \$2,499$ - $\$54,500$); however, differences in waiting list mortality by neighborhood median household income were not statistically significant.

Education: Waiting list mortality was highest for candidates reporting an education of some college or technical school, and lowest for candidates with a college degree or higher; these differences were not statistically significant.

Health insurance: The waiting list mortality rate for candidates insured by Medicare was significantly higher than the mortality rates for candidates with private insurance or Medicaid.

ADI: The waiting list mortality rate for candidates in the lowest ADI quartile (1-24) was significantly higher than the waiting list mortality rate for candidates in the highest ADI quartile (73-100).

Figure HR-21. Waiting List Mortality Rates for Adult Heart Candidates Ever Waiting in 2022 by SDOH

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) for Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table HR-21. Waiting List Mortality Rates for Adult Heart Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deaths	Deaths per 100 PY	95% CI
Overall	6,983	216	7.65	(6.66, 8.74)
Individual Income: Q1 (\leq \$40,000)	1,572	60	9.27	(7.08, 11.94)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	1,763	42	5.72	(4.12, 7.73)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	1,749	55	7.55	(5.69, 9.83)
Individual Income: Q4 ($>$ \$87,000)	1,783	53	7.86	(5.89, 10.28)
Individual Income: Not Reported	128	6	14.16	(5.20, 30.82)
Neighborhood Income: Q1 (\$2,499-\$54,500)	1,617	41	6.13	(4.40, 8.32)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	1,715	51	7.35	(5.48, 9.67)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	1,810	66	8.89	(6.88, 11.31)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	1,797	56	7.92	(5.98, 10.29)
Neighborhood Income: Not Reported	44	2	15.39	(1.86, 55.59)
Education: High School or Less	2,779	78	6.88	(5.44, 8.59)
Education: Some College/Technical School	1,876	74	9.69	(7.61, 12.16)
Education: College Degree or Higher	2,038	52	6.51	(4.86, 8.54)
Education: Unknown/Not Reported	322	12	8.86	(4.58, 15.48)
Health Insurance: Private	3,340	81	5.91	(4.69, 7.35)
Health Insurance: Medicare	2,304	103	11.62	(9.49, 14.10)
Health Insurance: Medicaid	1,082	21	4.49	(2.78, 6.86)
Health Insurance: Other	291	12	11.14	(5.76, 19.46)
Area Deprivation Index: Q1 (1-24)	1,614	66	10.99	(8.50, 13.99)
Area Deprivation Index: Q2 (25-48)	1,819	49	6.62	(4.90, 8.75)
Area Deprivation Index: Q3 (49-72)	1,628	55	7.95	(5.99, 10.35)
Area Deprivation Index: Q4 (73-100)	1,709	39	5.50	(3.91, 7.52)
Area Deprivation Index: Not Reported	213	7	8.37	(3.36, 17.24)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Heart - Deceased Donor Transplant Rates by SDOH

Figure HR-22 and **Table HR-22** show deceased donor transplant rates for adult heart candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). The overall deceased donor transplant rate was 152.71 (95% confidence interval (CI): 147.65-157.90) transplants per 100 active patient years.

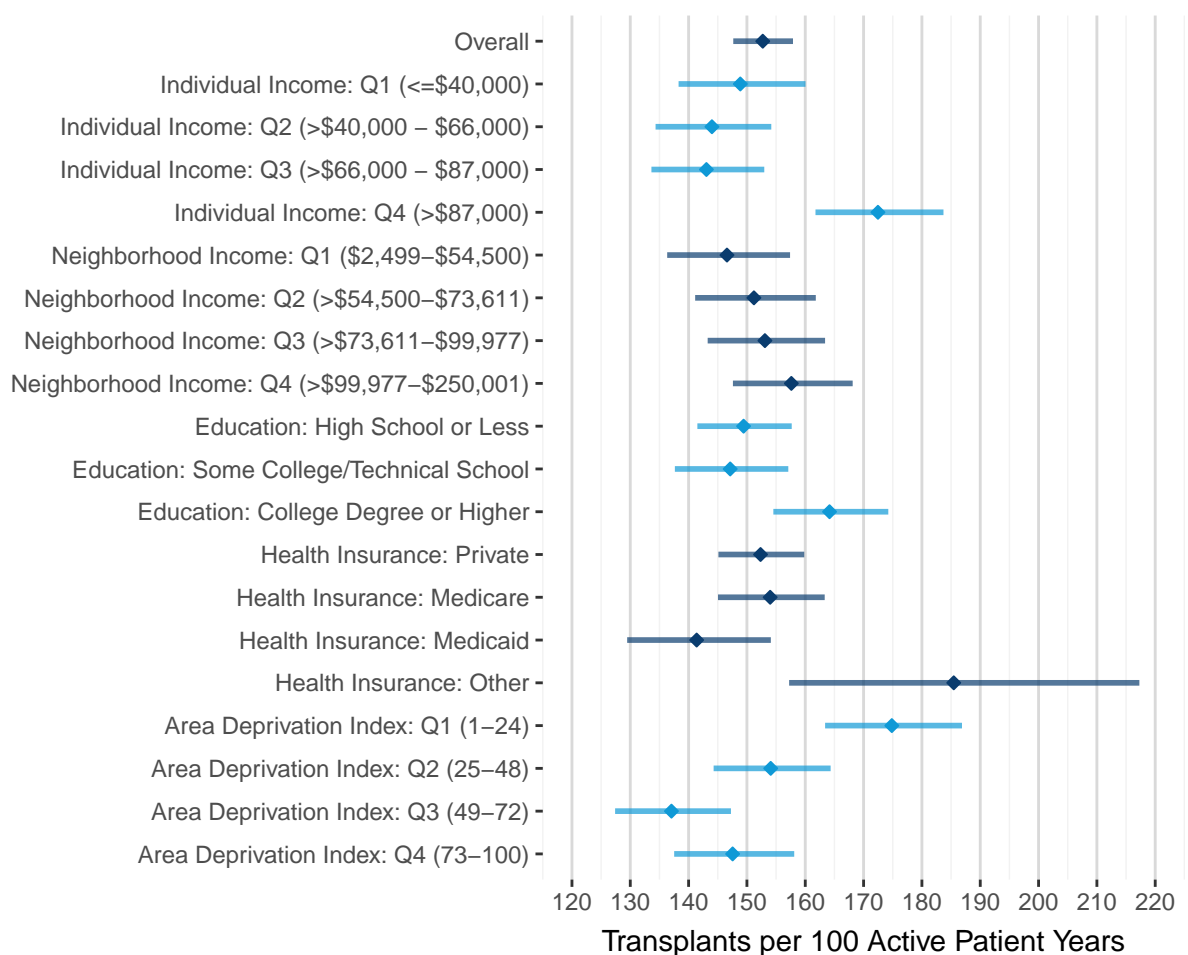
Estimated individual annual income: The deceased donor transplant rate for candidates in the highest income quartile (>\$87,000) was significantly higher compared to candidates in other individual income quartiles.

Neighborhood median household income: The deceased donor transplant rate increased as neighborhood median household income increased; however, differences in transplant rates by neighborhood median household income were not statistically significant.

Education: The deceased donor transplant rate was highest for candidates with a college degree or higher, and lowest for candidates with some college/technical school. Differences in transplant rates by educational attainment were not statistically significant.

Health insurance: The deceased donor transplant rate was highest for candidates otherwise insured (not private, Medicare, or Medicaid coverage), and this was significantly higher than the transplant rate for candidates insured by Medicaid.

ADI: The deceased donor transplant rate was highest for candidates in the lowest ADI quartile (1-24), and this was significantly higher than the transplant rate for candidates in the third ADI quartile (49-72) and the highest ADI quartile (73-100).

Figure HR-22. Deceased Donor Transplant Rates for Adult Heart Candidates Ever Waiting in 2022 by SDOH

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) for Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table HR-22. Deceased Donor Transplant Rates for Adult Heart Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deceased Donor Transplants	TX per 100 Active PY	95% CI
Overall	6,587	3,445	152.71	(147.65, 157.90)
Individual Income: Q1 (\leq \$40,000)	1,448	733	148.86	(138.28, 160.04)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	1,654	824	144.00	(134.33, 154.18)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	1,667	855	143.06	(133.63, 152.97)
Individual Income: Q4 ($>$ \$87,000)	1,702	965	172.46	(161.75, 183.70)
Individual Income: Not Reported	124	68	189.02	(146.78, 239.63)
Neighborhood Income: Q1 (\$2,499-\$54,500)	1,502	758	146.58	(136.33, 157.39)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	1,623	836	151.20	(141.12, 161.81)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	1,709	904	153.08	(143.27, 163.40)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	1,710	921	157.61	(147.60, 168.13)
Neighborhood Income: Not Reported	43	26	237.13	(154.90, 347.45)
Education: High School or Less	2,613	1,330	149.42	(141.50, 157.68)
Education: Some College/Technical School	1,765	895	147.13	(137.65, 157.09)
Education: College Degree or Higher	1,947	1,083	164.16	(154.53, 174.24)
Education: Unknown/Not Reported	289	137	132.87	(111.55, 157.08)
Health Insurance: Private	3,137	1,668	152.34	(145.11, 159.83)
Health Insurance: Medicare	2,198	1,106	153.98	(145.04, 163.33)
Health Insurance: Medicaid	1,007	518	141.38	(129.47, 154.10)
Health Insurance: Other	273	153	185.46	(157.24, 217.28)
Area Deprivation Index: Q1 (1-24)	1,548	868	174.84	(163.40, 186.87)
Area Deprivation Index: Q2 (25-48)	1,714	922	154.07	(144.29, 164.35)
Area Deprivation Index: Q3 (49-72)	1,538	746	137.06	(127.40, 147.26)
Area Deprivation Index: Q4 (73-100)	1,584	804	147.55	(137.52, 158.11)
Area Deprivation Index: Not Reported	203	105	146.21	(119.59, 177.00)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

TX = transplants; PY = patient years; CI = confidence interval.

Lung

Lung - Results Summary

This section describes social determinants of health for adult lung candidates ever waiting in 2022 and adult lung recipients transplanted in 2022. Notable findings are summarized below.

Estimated individual annual income: Median estimated individual annual income was \$73,000 for candidates and \$74,000 for recipients (**Figure LU-1** and **Table LU-1**). In general, estimated individual annual income was lower among Black non-Hispanic and other non-Hispanic candidates (**Figure LU-2** and **Table LU-2**), younger candidates (**Figure LU-3** and **Table LU-3**), and candidates in diagnosis groups A and C (**Figure LU-4** and **Table LU-4**). There were no significant differences in waiting list mortality rates (**Figure LU-26** and **Table LU-26**) or deceased donor transplant rates (**Figure LU-27** and **Table LU-27**) by estimated individual annual income.

Neighborhood median household income: Median neighborhood household income was \$80,360 for candidates and \$80,859 for recipients (**Figure LU-6** and **Table LU-6**). In general, median neighborhood household income was lower among Black non-Hispanic and other non-Hispanic candidates (**Figure LU-7** and **Table LU-7**), younger candidates (**Figure LU-8** and **Table LU-8**), and candidates in diagnosis groups A and C (**Figure LU-9** and **Table LU-9**). There were no significant differences in waiting list mortality rates (**Figure LU-26** and **Table LU-26**) or deceased donor transplant rates (**Figure LU-27** and **Table LU-27**) by neighborhood median household income.

Education: Lung candidates and recipients had similar distributions of educational attainment, with approximately 35-36% having a high school education or less, and approximately 34-36% with a college degree or higher (**Figure LU-11** and **Table LU-11**). Asian non-Hispanic candidates (**Figure LU-12** and **Table LU-12**), candidates in the 35-49 and 65+ age groups (**Figure LU-13** and **Table LU-13**), and candidates in diagnosis groups C and D (**Figure LU-14** and **Table LU-14**) were more likely to have a college degree or higher. There were no significant differences in waiting list mortality rates by education level (**Figure LU-26** and **Table LU-26**). The deceased donor transplant rate for candidates with a college degree or higher was significantly higher than the transplant rates for candidates without a college degree (**Figure LU-27** and **Table LU-27**).

Health insurance type: The distribution of health insurance type was similar among candidates and recipients, though slightly more recipients than candidates were insured by Medicare (49.47% and 45.92%, respectively; **Figure LU-16** and **Table LU-16**). Asian, non-Hispanic candidates had the highest proportion with private insurance and White, non-Hispanic candidates had the highest proportion with Medicare (**Figure LU-17** and **Table LU-17**). Private insurance was the most common insurance type for candidates under age 65, while the majority of candidates aged 65+ had Medicare (**Figure LU-18** and **Table LU-18**). Diagnosis group A had the highest proportion of candidates on Medicare, while diagnosis group D had the highest percent with private insurance (**Figure LU-19** and **Table LU-19**). The lung allocation score (LAS) at listing 40-50 group had the highest percent with Medicare and LAS 70+ had the highest percent with private health insurance (**Figure LU-20** and **Table LU-20**). There were no significant differences in waiting list mortality rates by health insurance type (**Figure LU-26** and **Table LU-26**). The deceased donor transplant rate for candidates with Medicaid was significantly lower than the transplant rate for candidates with Medicare (**Figure LU-27** and **Table LU-27**).

Area deprivation index (ADI): The median ADI was similar for lung candidates and recipients at 43 and 44, respectively (**Figure LU-21** and **Table LU-21**). Median ADI ranged from 16 for Asian, non-Hispanic candidates to 61.5 for Other, non-Hispanic candidates (**Figure LU-22** and **Table LU-22**). The median ADI was lowest for diagnosis group B (35) and highest for diagnosis group A (51; **Figure LU-24** and **Table LU-24**), and ranged from 38 for the LAS at listing group 20-30 to 53 for the LAS at listing group 0-20 (**Figure LU-25** and **Table LU-25**) with no clear trends. There were no significant differences in waiting list mortality rates (**Figure LU-26** and **Table LU-26**) or deceased donor transplant rates (**Figure LU-27** and **Table LU-27**) by ADI quartiles.

Lung - Estimated Individual Annual Income

Figure LU-1 and **Table LU-1** show estimated individual annual income for adult lung candidates ever waiting in 2022 and adult lung transplant recipients in 2022. Median estimated individual annual income was similar for candidates and recipients at \$73,000 and \$74,000, respectively.

Figure LU-1. Estimated Individual Annual Income for Adult Lung Candidates and Recipients in 2022

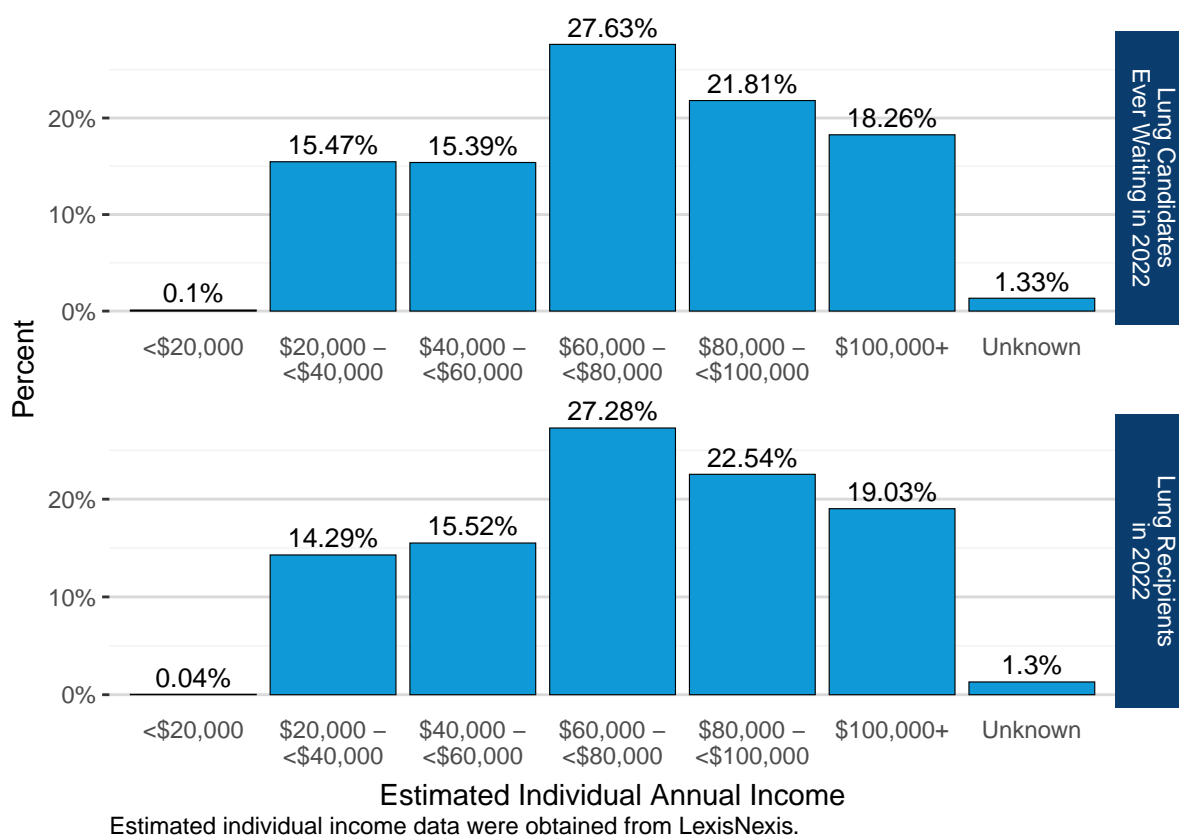


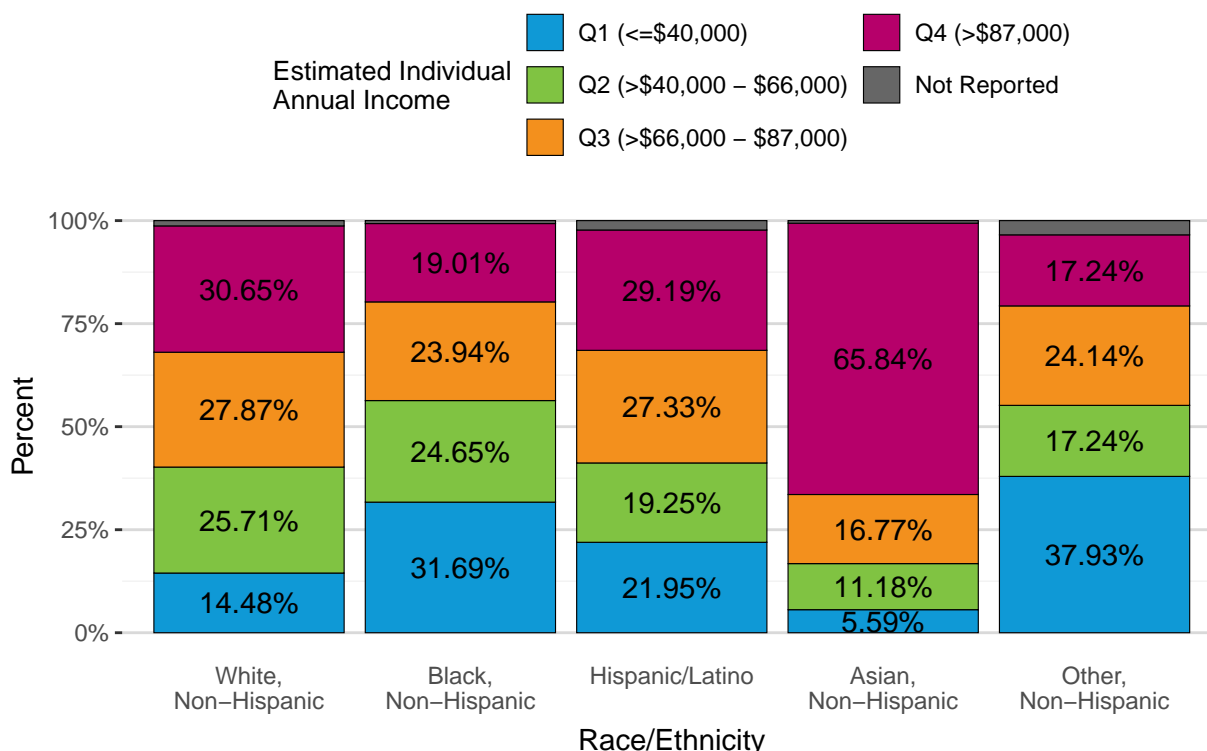
Table LU-1. Estimated Individual Annual Income for Adult Lung Candidates and Recipients in 2022

Est. Individual Income	Lung Candidates Ever Waiting in 2022		Lung Recipients in 2022	
	N	Percent	N	Percent
<\$20,000	4	0.1%	1	0.04%
\$20,000 - <\$40,000	593	15.47%	362	14.29%
\$40,000 - <\$60,000	590	15.39%	393	15.52%
\$60,000 - <\$80,000	1,059	27.63%	691	27.28%
\$80,000 - <\$100,000	836	21.81%	571	22.54%
\$100,000+	700	18.26%	482	19.03%
Unknown	51	1.33%	33	1.3%
Total	3,833	100%	2,533	100%

Estimated individual income data were obtained from LexisNexis.

Figure LU-2 and **Table LU-2** show estimated individual annual income for adult lung candidates ever waiting in 2022 by race/ethnicity. Other, non-Hispanic candidates had the highest proportion in the lowest income quartile (37.93%) and the lowest proportion in the highest income quartile (17.24%), while Asian, non-Hispanic candidates had the lowest proportion in the lowest income quartile (5.59%) and the highest proportion in the highest income quartile (65.84%).

Figure LU-2. Adult Lung Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity



Estimated individual income data were obtained from LexisNexis.

Other, non-Hispanic includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Table LU-2. Adult Lung Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Race/Ethnicity

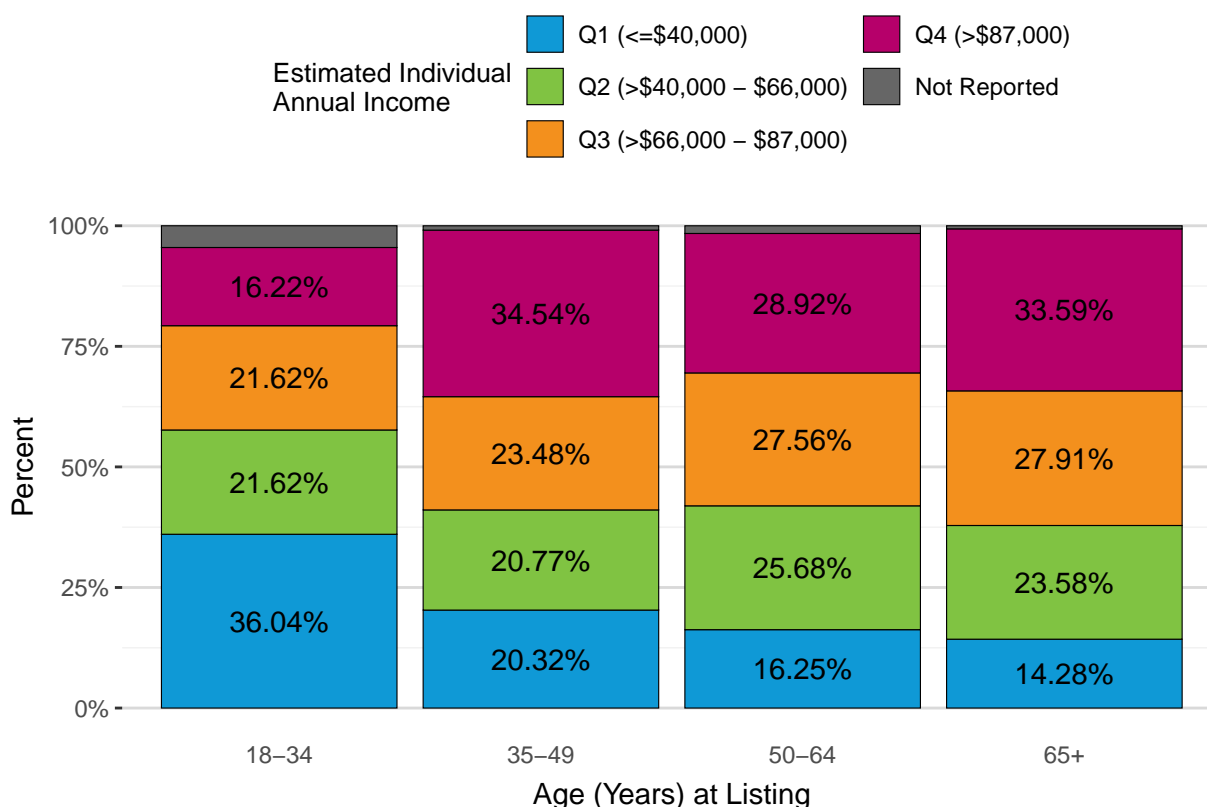
Est. Individual Income	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Q1 (<=\$40,000)	396 (14.48%)	135 (31.69%)	106 (21.95%)	9 (5.59%)	11 (37.93%)
Q2 (>\$40,000 - \$66,000)	703 (25.71%)	105 (24.65%)	93 (19.25%)	18 (11.18%)	5 (17.24%)
Q3 (>\$66,000 - \$87,000)	762 (27.87%)	102 (23.94%)	132 (27.33%)	27 (16.77%)	7 (24.14%)
Q4 (>\$87,000)	838 (30.65%)	81 (19.01%)	141 (29.19%)	106 (65.84%)	5 (17.24%)
Not Reported	35 (1.28%)	3 (0.7%)	11 (2.28%)	1 (0.62%)	1 (3.45%)
Total	2,734 (100%)	426 (100%)	483 (100%)	161 (100%)	29 (100%)

Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Figure LU-3 and **Table LU-3** show estimated individual annual income for adult lung candidates ever waiting in 2022 by age at listing. A greater proportion of candidates aged 18-34 were in the lowest quartile of individual income compared with candidates over age 34. There were some differences in the distribution of individual income between the 35-49, 50-64, and 65+ age groups, but overall the trends were similar.

Figure LU-3. Adult Lung Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing



Estimated individual income data were obtained from LexisNexis.

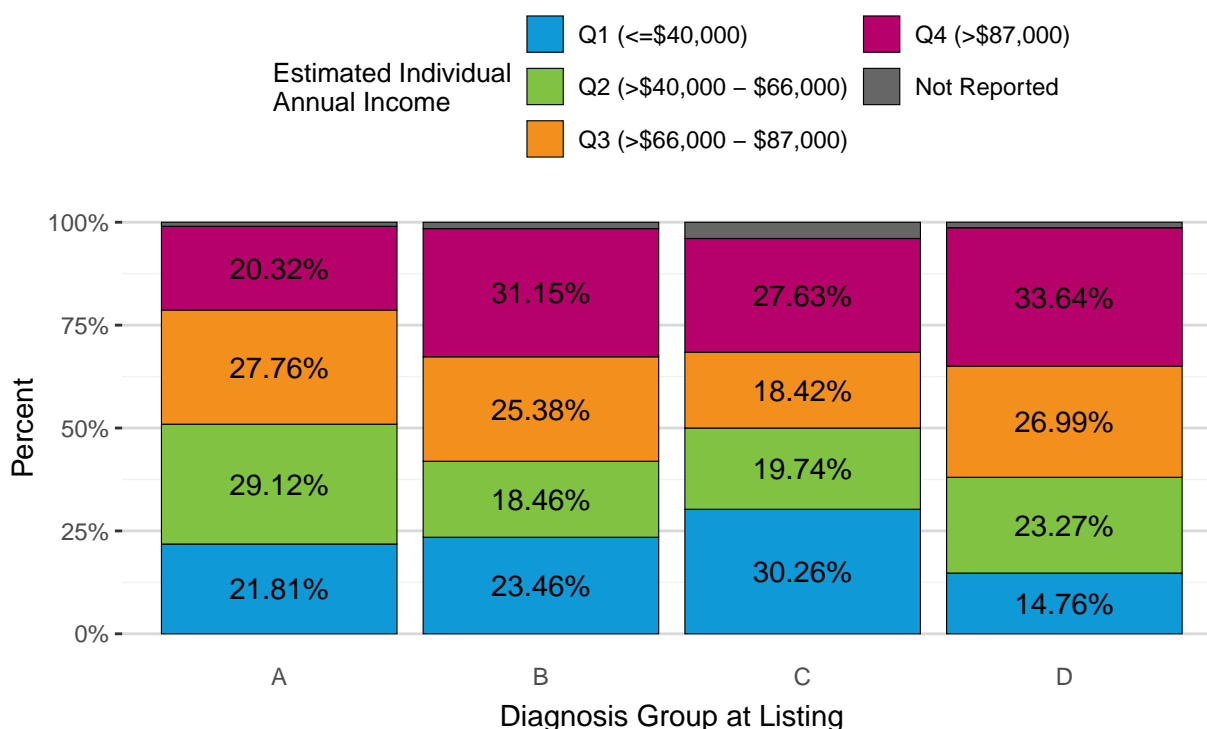
Table LU-3. Adult Lung Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Age at Listing

Est. Individual Income	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Q1 (<=\$40,000)	80 (36.04%)	90 (20.32%)	286 (16.25%)	201 (14.28%)
Q2 (>\$40,000 - \$66,000)	48 (21.62%)	92 (20.77%)	452 (25.68%)	332 (23.58%)
Q3 (>\$66,000 - \$87,000)	48 (21.62%)	104 (23.48%)	485 (27.56%)	393 (27.91%)
Q4 (>\$87,000)	36 (16.22%)	153 (34.54%)	509 (28.92%)	473 (33.59%)
Not Reported	10 (4.5%)	4 (0.9%)	28 (1.59%)	9 (0.64%)
Total	222 (100%)	443 (100%)	1,760 (100%)	1,408 (100%)

Estimated individual income data were obtained from LexisNexis.

Figure LU-4 and **Table LU-4** show estimated individual annual income for adult lung candidates ever waiting in 2022 by diagnosis group at listing. Diagnosis groups B and D had the highest percent of candidates in the highest income quartile (31.15% and 33.64%, respectively) and diagnosis group C had the highest percent of candidates in the lowest income quartile (30.26%).

Figure LU-4. Adult Lung Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Diagnosis Group at Listing



Estimated individual income data were obtained from LexisNexis.
 Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A- obstructive lung disease, B- pulmonary vascular disease, C- cystic fibrosis and immunodeficiency disorder, and D- restrictive lung disease.

Table LU-4. Adult Lung Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and Diagnosis Group at Listing

Est. Individual Income	Diagnosis Group at Listing			
	A	B	C	D
Q1 ($\leq \$40,000$)	176 (21.81%)	61 (23.46%)	23 (30.26%)	397 (14.76%)
Q2 ($> \$40,000 - \$66,000$)	235 (29.12%)	48 (18.46%)	15 (19.74%)	626 (23.27%)
Q3 ($> \$66,000 - \$87,000$)	224 (27.76%)	66 (25.38%)	14 (18.42%)	726 (26.99%)
Q4 ($> \$87,000$)	164 (20.32%)	81 (31.15%)	21 (27.63%)	905 (33.64%)
Not Reported	8 (0.99%)	4 (1.54%)	3 (3.95%)	36 (1.34%)
Total	807 (100%)	260 (100%)	76 (100%)	2,690 (100%)

Estimated individual income data were obtained from LexisNexis.
 Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A- obstructive lung disease, B- pulmonary vascular disease, C- cystic fibrosis and immunodeficiency disorder, and D- restrictive lung disease.

Figure LU-5 and **Table LU-5** show estimated individual annual income for adult lung candidates ever waiting in 2022 by LAS at listing. The LAS at listing group 0-20 had both the highest percent of candidates in the highest income quartile (40.0%) and the highest percent of candidates in the lowest income quartile (20%). A higher expected waitlist mortality and lower expected post-transplant mortality corresponds to a higher LAS.

Figure LU-5. Adult Lung Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and LAS at Listing

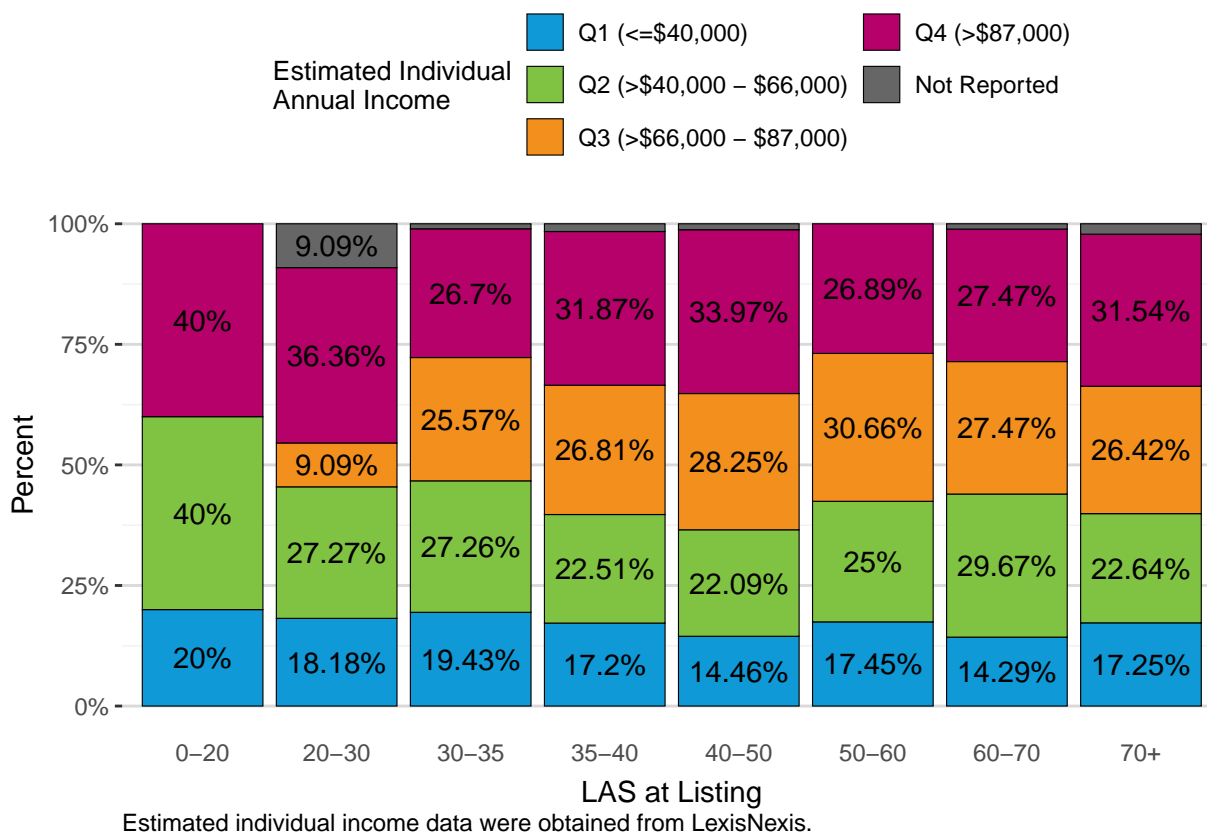


Table LU-5. Adult Lung Candidates Ever Waiting in 2022 by Estimated Individual Annual Income and LAS at Listing

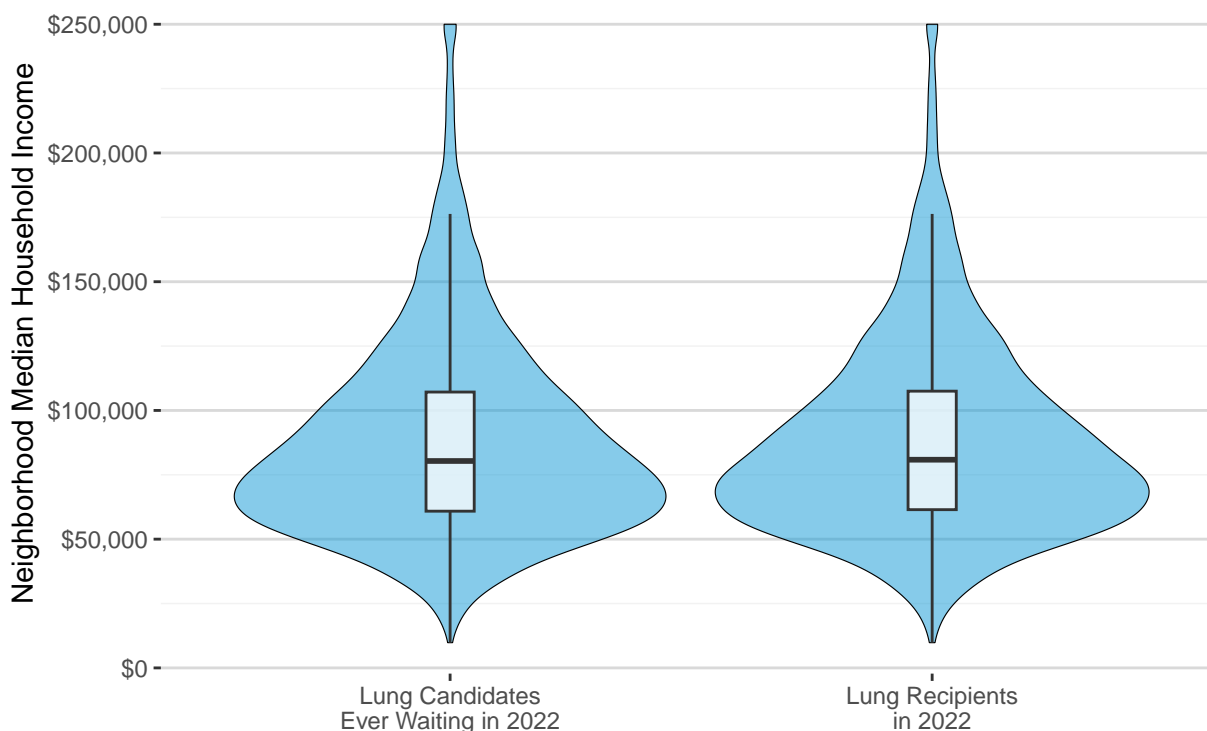
Est. Individual Income	LAS at Listing							
	0-20	20-30	30-35	35-40	40-50	50-60	60-70	70+
Q1 ($\leq \$40,000$)	2 (20%)	2 (18.18%)	206 (19.43%)	204 (17.2%)	129 (14.46%)	37 (17.45%)	13 (14.29%)	64 (17.25%)
Q2 ($> \$40,000 - \$66,000$)	4 (40%)	3 (27.27%)	289 (27.26%)	267 (22.51%)	197 (22.09%)	53 (25%)	27 (29.67%)	84 (22.64%)
Q3 ($> \$66,000 - \$87,000$)	0 (0%)	1 (9.09%)	271 (25.57%)	318 (26.81%)	252 (28.25%)	65 (30.66%)	25 (27.47%)	98 (26.42%)
Q4 ($> \$87,000$)	4 (40%)	4 (36.36%)	283 (26.7%)	378 (31.87%)	303 (33.97%)	57 (26.89%)	25 (27.47%)	117 (31.54%)
Not Reported	0 (0%)	1 (9.09%)	11 (1.04%)	19 (1.6%)	11 (1.23%)	0 (0%)	1 (1.1%)	8 (2.16%)
Total	10 (100%)	11 (100%)	1,060 (100%)	1,186 (100%)	892 (100%)	212 (100%)	91 (100%)	371 (100%)

Estimated individual income data were obtained from LexisNexis.

Lung - Neighborhood Median Household Income

Figure LU-6 and **Table LU-6** show the distribution of neighborhood median household income for adult lung candidates ever waiting in 2022. Neighborhood median household income was \$80,360 for candidates and \$80,859 for recipients.

Figure LU-6. Distribution of Neighborhood Median Household Income for Adult Lung Candidates and Recipients in 2022



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

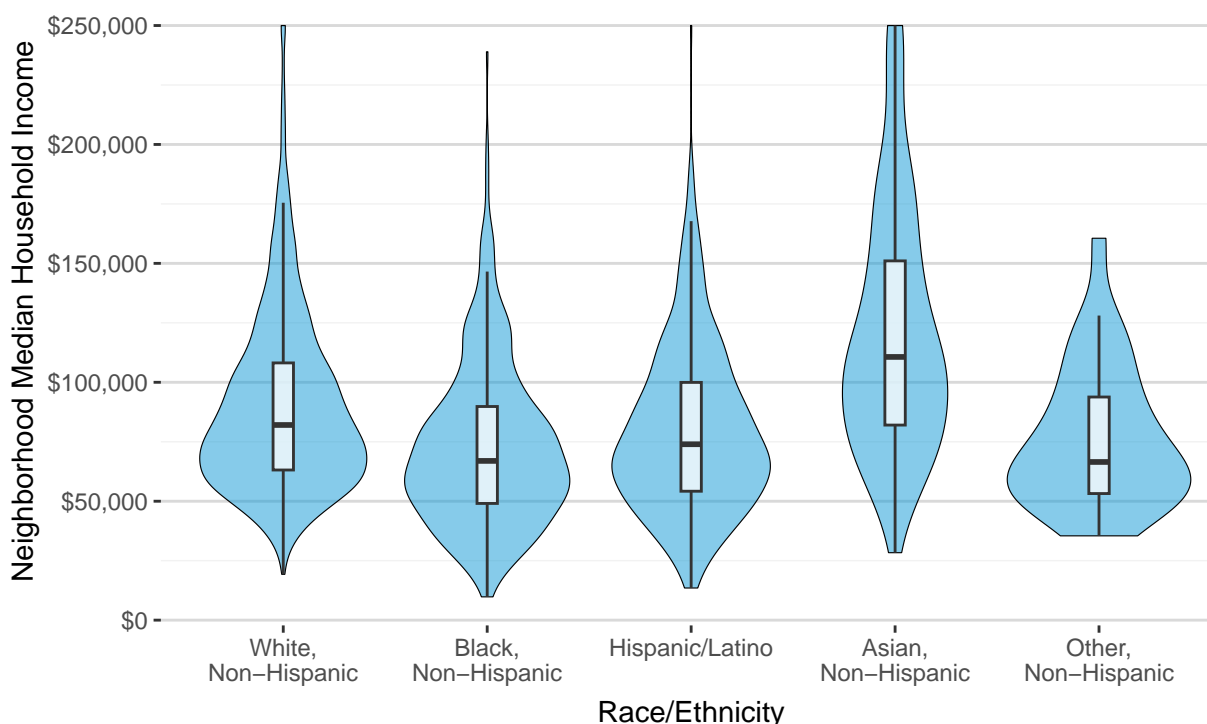
Table LU-6. Distribution of Neighborhood Median Household Income for Adult Lung Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Lung Candidates Ever Waiting in 2022	3,833	18	\$9,795	\$60,873	\$80,360	\$107,143	\$250,001
Lung Recipients in 2022	2,533	10	\$9,795	\$61,458	\$80,859	\$107,490	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure LU-7 and **Table LU-7** show the distribution of neighborhood median household income for adult lung candidates ever waiting in 2022 by race/ethnicity. There were differences in the distribution of neighborhood median household income by candidate race/ethnicity. Neighborhood median household income was highest for Asian, non-Hispanic candidates (median: \$110,667) and lowest for Other, non-Hispanic candidates (median: \$66,502) and Black, non-Hispanic candidates (median: \$66,945).

Figure LU-7. Distribution of Neighborhood Median Household Income for Adult Lung Candidates Ever Waiting in 2022 by Race/Ethnicity



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.
Other, non-Hispanic includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Table LU-7. Distribution of Neighborhood Median Household Income for Adult Lung Candidates Ever Waiting in 2022 by Race/Ethnicity

Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
White, Non-Hispanic	2,734	10	\$19,250	\$63,125	\$82,045	\$108,151	\$250,001
Black, Non-Hispanic	426	2	\$9,795	\$49,066	\$66,945	\$89,818	\$238,957
Hispanic/Latino	483	5	\$13,508	\$54,204	\$73,957	\$99,956	\$250,001
Asian, Non-Hispanic	161	0	\$28,352	\$82,014	\$110,667	\$151,051	\$250,001
Other, Non-Hispanic	29	1	\$35,438	\$53,224	\$66,502	\$93,806	\$160,568

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.
Other, NH includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Figure LU-8 and **Table LU-8** show the distribution of median household income for adult lung candidates ever waiting in 2022 by age at listing. Neighborhood median household income was lowest for candidates aged 18-34 (median: \$75,764) and highest for candidates aged 65+ (median: \$84,542).

Figure LU-8. Distribution of Neighborhood Median Household Income for Adult Lung Candidates Ever Waiting in 2022 by Age at Listing

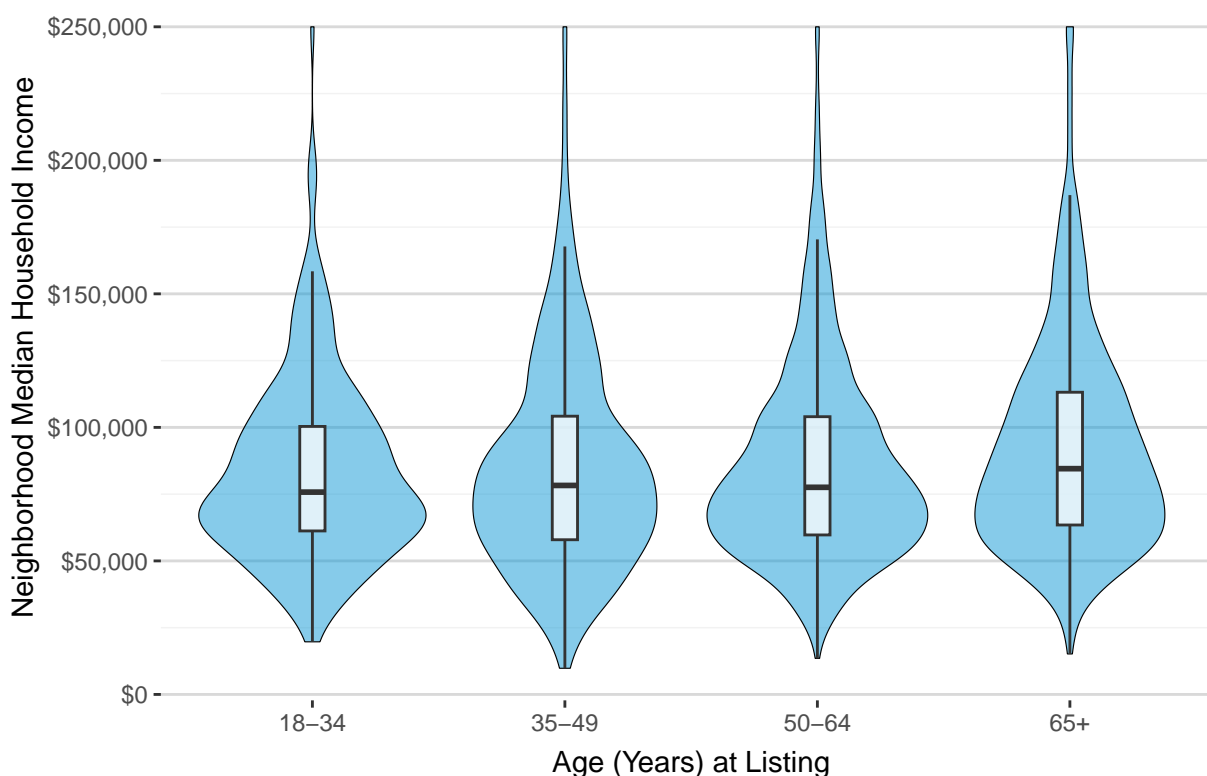


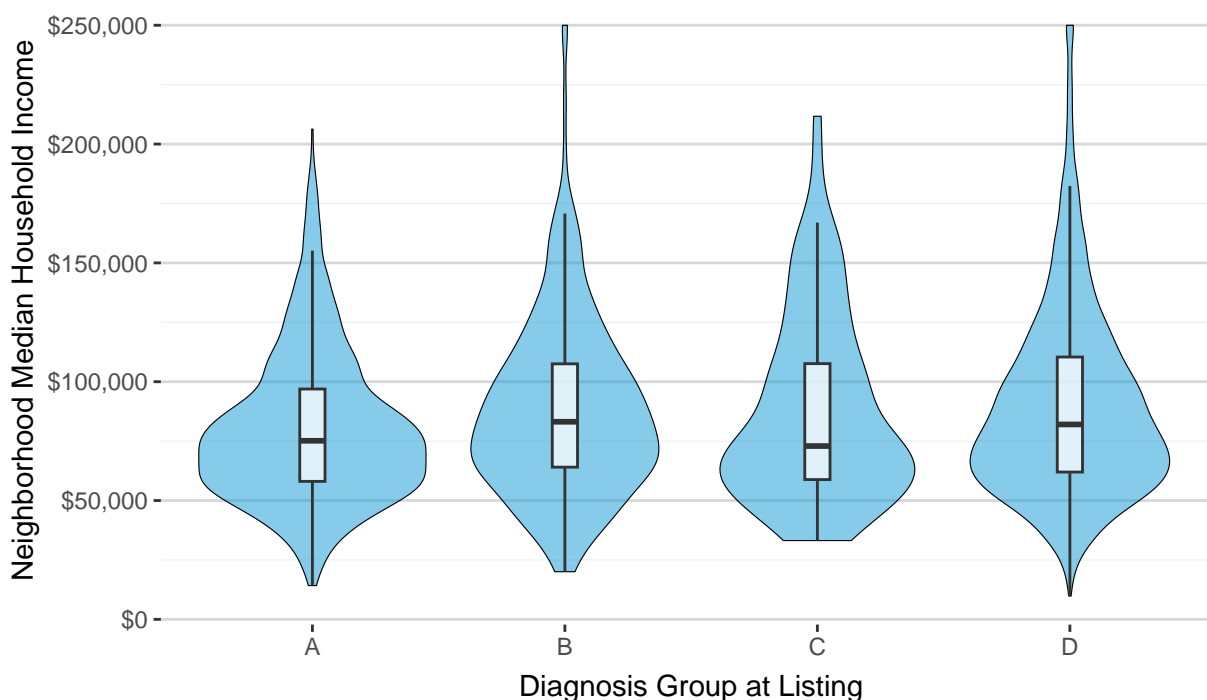
Table LU-8. Distribution of Neighborhood Median Household Income for Adult Lung Candidates Ever Waiting in 2022 by Age at Listing

Age at Listing	N	Missing	Min	P25	Median	P75	Max
18-34	222	3	\$19,706	\$61,220	\$75,764	\$100,352	\$250,001
35-49	443	1	\$9,795	\$57,928	\$78,256	\$104,188	\$250,001
50-64	1,760	12	\$13,508	\$59,730	\$77,564	\$103,998	\$250,001
65+	1,408	2	\$15,159	\$63,455	\$84,542	\$113,158	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure LU-9 and **Table LU-9** show the distribution of neighborhood median household income for adult lung candidates ever waiting in 2022 by diagnosis group at listing. Diagnosis group C had the lowest median value for neighborhood median household income at \$72,917 and diagnosis group B had the highest at \$83,147.

Figure LU-9. Distribution of Neighborhood Median Household Income for Adult Lung Candidates Ever Waiting in 2022 by Diagnosis Group at Listing



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A- obstructive lung disease, B- pulmonary vascular disease, C- cystic fibrosis and immunodeficiency disorder, and D- restrictive lung disease.

Table LU-9. Distribution of Neighborhood Median Household Income for Adult Lung Candidates Ever Waiting in 2022 by Diagnosis Group at Listing

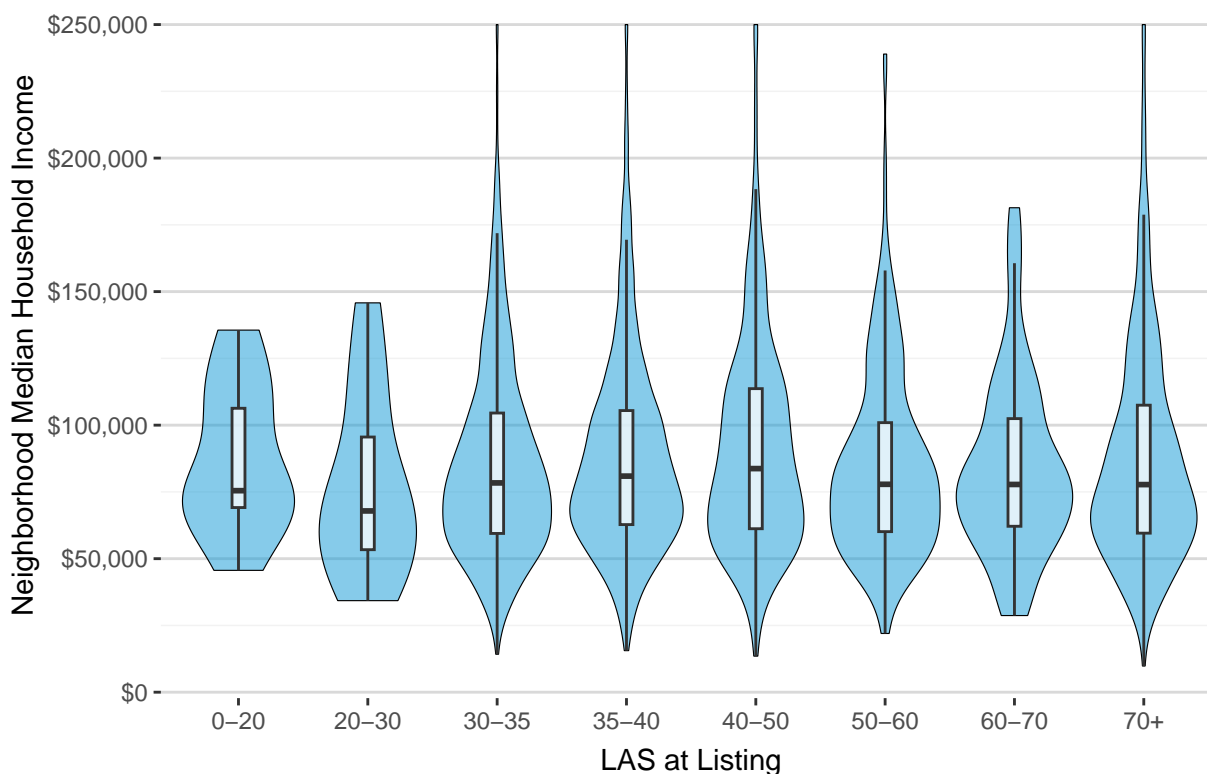
Diagnosis Group	N	Missing	Min	P25	Median	P75	Max
A	807	2	\$14,208	\$58,065	\$75,139	\$96,923	\$206,304
B	260	1	\$20,035	\$64,037	\$83,147	\$107,518	\$250,001
C	76	1	\$33,143	\$58,808	\$72,917	\$107,610	\$211,711
D	2,690	14	\$9,795	\$61,975	\$82,025	\$110,390	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A- obstructive lung disease, B- pulmonary vascular disease, C- cystic fibrosis and immunodeficiency disorder, and D- restrictive lung disease.

Figure LU-10 and **Table LU-10** show the distribution of neighborhood median household income for adult lung candidates ever waiting in 2022 by LAS at listing. The LAS at listing 20-30 group had the lowest neighborhood median household income at \$67,876, though the sample size was small, and the LAS at listing 40-50 group had the highest neighborhood median household income at \$83,734. A higher expected waitlist mortality and lower expected post-transplant mortality corresponds to a higher LAS.

Figure LU-10. Distribution of Neighborhood Median Household Income for Adult Lung Candidates Ever Waiting in 2022 by LAS at Listing



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Table LU-10. Distribution of Neighborhood Median Household Income for Adult Lung Candidates Ever Waiting in 2022 by LAS at Listing

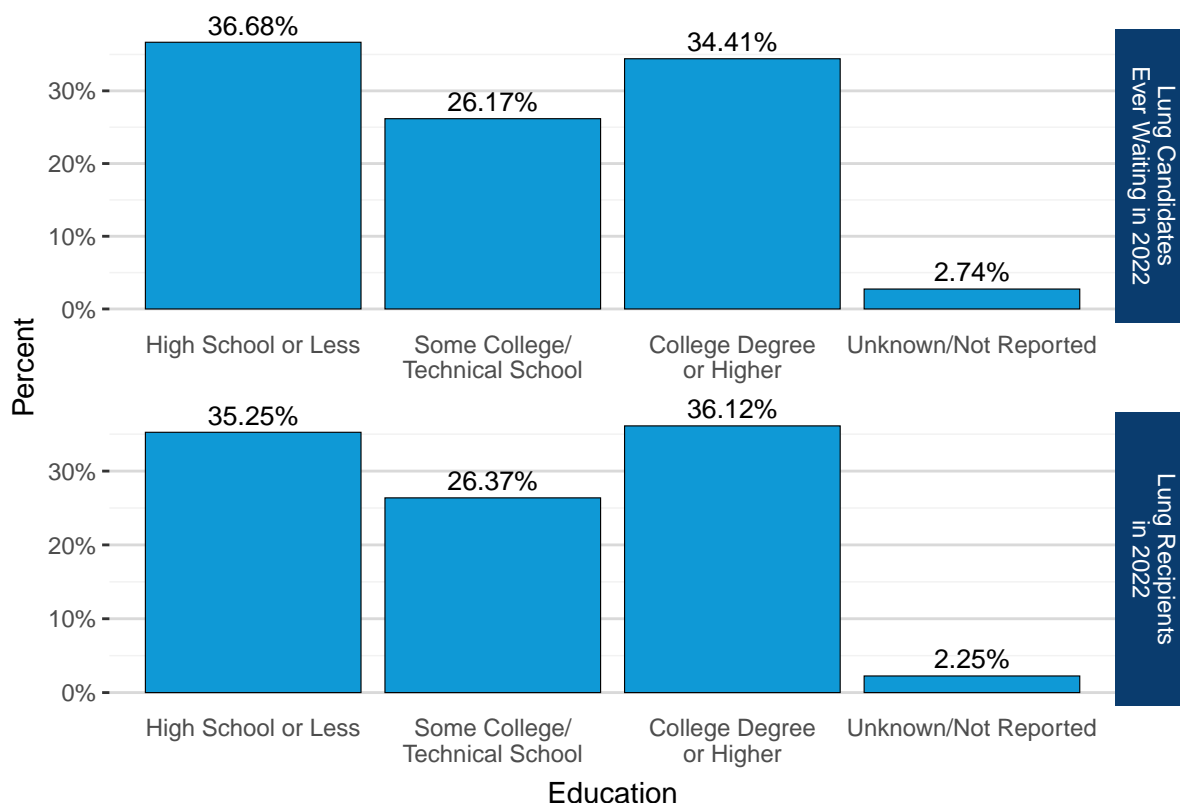
LAS at Listing	N	Missing	Min	P25	Median	P75	Max
0-20	10	0	\$45,625	\$69,138	\$75,462	\$106,317	\$135,586
20-30	11	0	\$34,279	\$53,364	\$67,876	\$95,556	\$145,795
30-35	1,060	4	\$14,208	\$59,443	\$78,372	\$104,542	\$250,001
35-40	1,186	9	\$15,563	\$62,759	\$80,918	\$105,463	\$250,001
40-50	892	4	\$13,508	\$61,212	\$83,734	\$113,668	\$250,001
50-60	212	0	\$21,988	\$60,120	\$77,854	\$100,934	\$238,957
60-70	91	0	\$28,705	\$62,134	\$77,788	\$102,446	\$181,408
70+	371	1	\$9,795	\$59,560	\$77,739	\$107,475	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Lung - Education

Figure LU-11 and **Table LU-11** show the highest education level reported for adult lung candidates ever waiting in 2022 and adult lung transplant recipients in 2022. The distribution of education level was similar for candidates and recipients, with approximately 35-36% having a high school education or less, approximately 26% having some college/technical school, and approximately 34-36% having a college degree or higher.

Figure LU-11. Highest Education Level for Adult Lung Candidates and Recipients in 2022



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

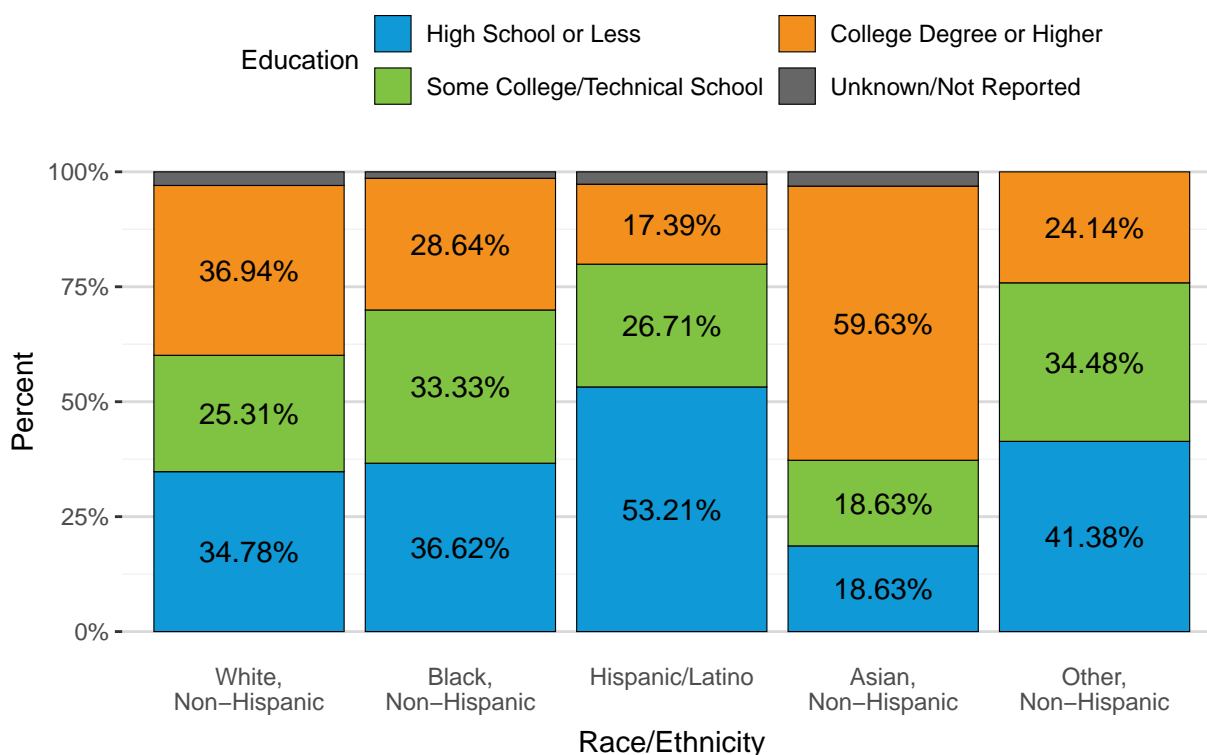
Table LU-11. Highest Education Level for Adult Lung Candidates and Recipients in 2022

Education	Lung Candidates Ever Waiting in 2022		Lung Recipients in 2022	
	N	Percent	N	Percent
High School or Less	1,406	36.68%	893	35.25%
Some College/Technical School	1,003	26.17%	668	26.37%
College Degree or Higher	1,319	34.41%	915	36.12%
Unknown/Not Reported	105	2.74%	57	2.25%
Total	3,833	100%	2,533	100%

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LU-12 and **Table LU-12** show education level for adult lung candidates ever waiting in 2022 by race/ethnicity. Asian, non-Hispanic candidates had the greatest proportion with a college degree or higher (59.63%), followed by White, non-Hispanic (36.94%), Black, non-Hispanic (28.64%), Other, non-Hispanic (24.14%), and Hispanic/Latino (17.39%).

Figure LU-12. Adult Lung Candidates Ever Waiting in 2022 by Education and Race/Ethnicity



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, non-Hispanic includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

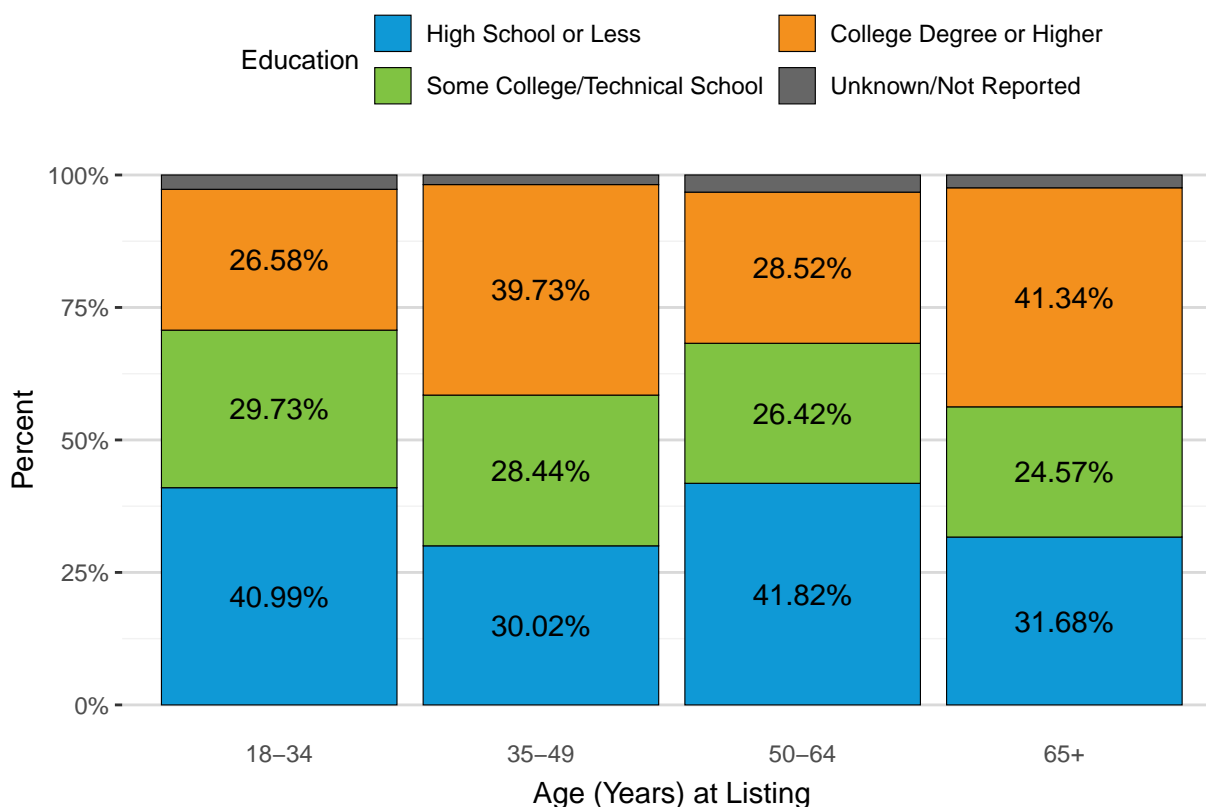
Table LU-12. Adult Lung Candidates Ever Waiting in 2022 by Education and Race/Ethnicity

Education	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
High School or Less	951 (34.78%)	156 (36.62%)	257 (53.21%)	30 (18.63%)	12 (41.38%)
Some College/Technical School	692 (25.31%)	142 (33.33%)	129 (26.71%)	30 (18.63%)	10 (34.48%)
College Degree or Higher	1,010 (36.94%)	122 (28.64%)	84 (17.39%)	96 (59.63%)	7 (24.14%)
Unknown/Not Reported	81 (2.96%)	6 (1.41%)	13 (2.69%)	5 (3.11%)	0 (0%)
Total	2,734 (100%)	426 (100%)	483 (100%)	161 (100%)	29 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Figure LU-13 and **Table LU-13** show the education level for adult lung candidates ever waiting in 2022 by candidate age at listing. Candidates aged 65+ had the greatest proportion with a college degree or higher (41.34%), while candidates aged 18-34 had the lowest proportion (26.58%).

Figure LU-13. Adult Lung Candidates Ever Waiting in 2022 by Education and Age at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

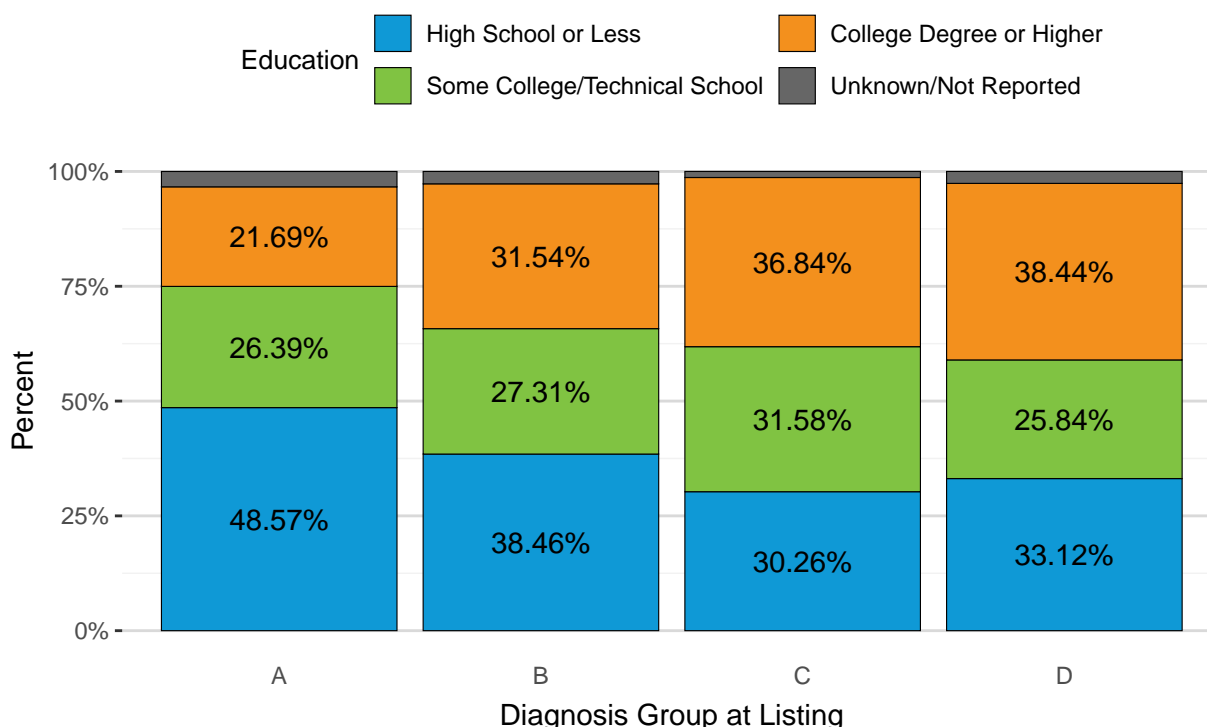
Table LU-13. Adult Lung Candidates Ever Waiting in 2022 by Education and Age at Listing

Education	Age (Years) at Listing			
	18-34	35-49	50-64	65+
High School or Less	91 (40.99%)	133 (30.02%)	736 (41.82%)	446 (31.68%)
Some College/Technical School	66 (29.73%)	126 (28.44%)	465 (26.42%)	346 (24.57%)
College Degree or Higher	59 (26.58%)	176 (39.73%)	502 (28.52%)	582 (41.34%)
Unknown/Not Reported	6 (2.7%)	8 (1.81%)	57 (3.24%)	34 (2.41%)
Total	222 (100%)	443 (100%)	1,760 (100%)	1,408 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LU-14 and **Table LU-14** show education level for adult lung candidates ever waiting in 2022 by diagnosis group at listing. The smallest proportion of individuals with a college degree were in diagnosis group A (21.69%) and the largest proportion were in diagnosis group D (38.44%).

Figure LU-14. Adult Lung Candidates Ever Waiting in 2022 by Education and Diagnosis Group at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms. Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A- obstructive lung disease, B- pulmonary vascular disease, C- cystic fibrosis and immunodeficiency disorder, and D- restrictive lung disease.

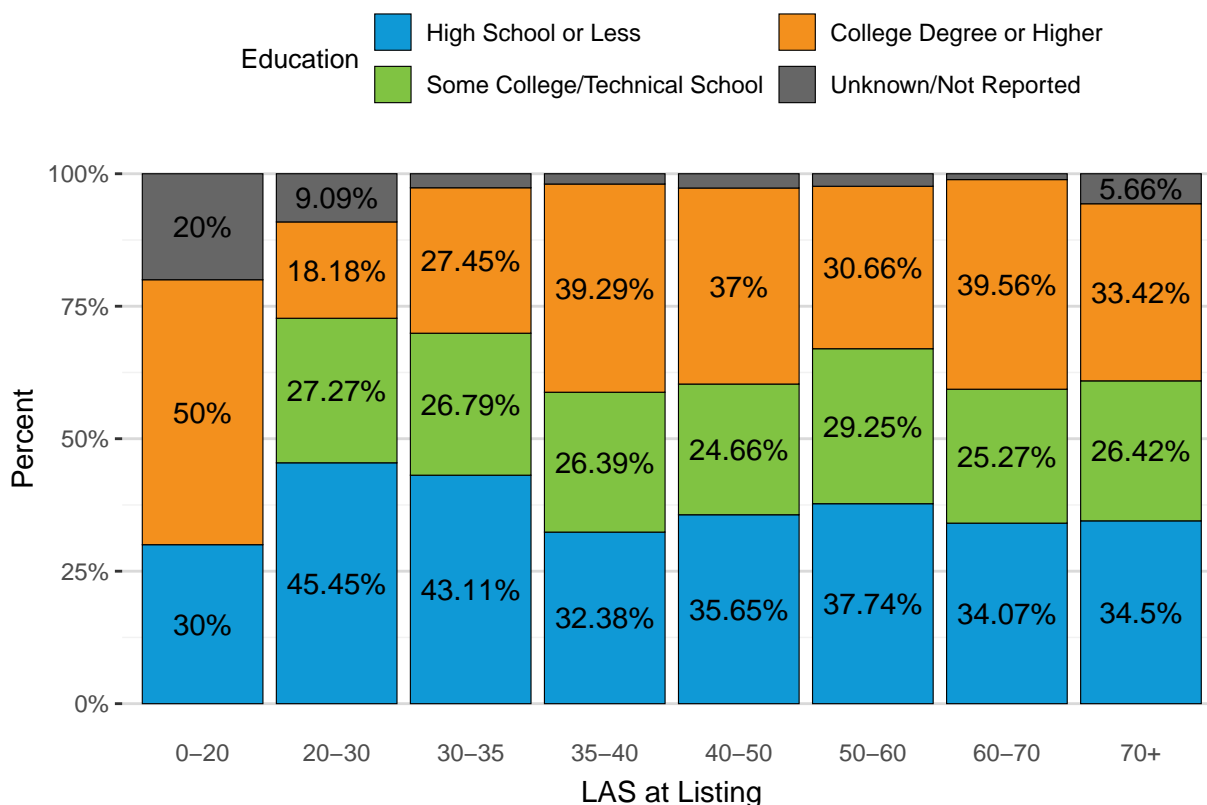
Table LU-14. Adult Lung Candidates Ever Waiting in 2022 by Education and Diagnosis Group at Listing

Education	Diagnosis Group at Listing			
	A	B	C	D
High School or Less	392 (48.57%)	100 (38.46%)	23 (30.26%)	891 (33.12%)
Some College/Technical School	213 (26.39%)	71 (27.31%)	24 (31.58%)	695 (25.84%)
College Degree or Higher	175 (21.69%)	82 (31.54%)	28 (36.84%)	1,034 (38.44%)
Unknown/Not Reported	27 (3.35%)	7 (2.69%)	1 (1.32%)	70 (2.6%)
Total	807 (100%)	260 (100%)	76 (100%)	2,690 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms. Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A- obstructive lung disease, B- pulmonary vascular disease, C- cystic fibrosis and immunodeficiency disorder, and D- restrictive lung disease.

Figure LU-15 and **Table LU-15** show the education level for adult lung candidates ever waiting in 2022 by LAS at listing. The LAS at listing 0-20 group had the highest percent with a college degree or higher (50%) and the LAS at listing 20-30 group had the highest percent with a high school education or less (45.45%). Both of these groups contained the lowest number of candidates, so distributions should be interpreted with caution. A higher expected waitlist mortality and lower expected post-transplant mortality corresponds to a higher LAS.

Figure LU-15. Adult Lung Candidates Ever Waiting in 2022 by Education and LAS at Listing



Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Table LU-15. Adult Lung Candidates Ever Waiting in 2022 by Education and LAS at Listing

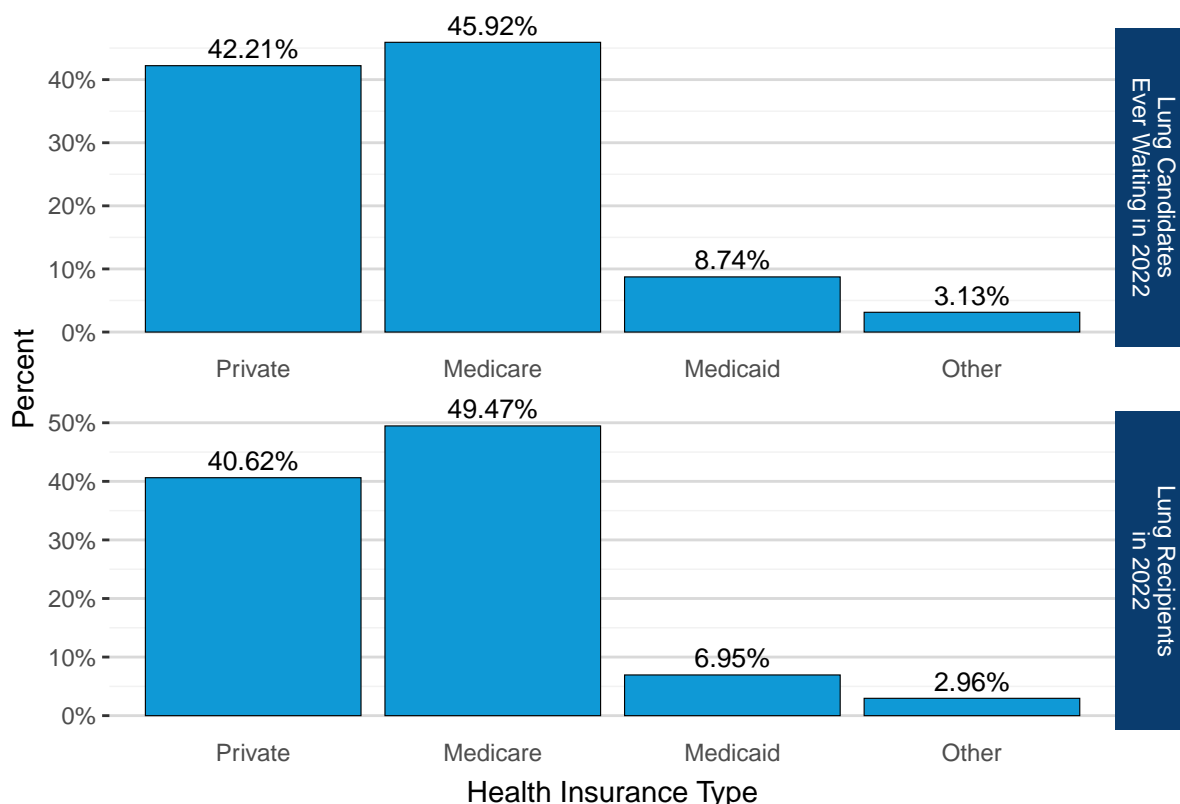
Education	LAS at Listing							
	0-20	20-30	30-35	35-40	40-50	50-60	60-70	70+
High School or Less	3 (30%)	5 (45.45%)	457 (43.11%)	384 (32.38%)	318 (35.65%)	80 (37.74%)	31 (34.07%)	128 (34.5%)
Some College/Technical School	0 (0%)	3 (27.27%)	284 (26.79%)	313 (26.39%)	220 (24.66%)	62 (29.25%)	23 (25.27%)	98 (26.42%)
College Degree or Higher	5 (50%)	2 (18.18%)	291 (27.45%)	466 (39.29%)	330 (37%)	65 (30.66%)	36 (39.56%)	124 (33.42%)
Unknown/Not Reported	2 (20%)	1 (9.09%)	28 (2.64%)	23 (1.94%)	24 (2.69%)	5 (2.36%)	1 (1.1%)	21 (5.66%)
Total	10 (100%)	11 (100%)	1,060 (100%)	1,186 (100%)	892 (100%)	212 (100%)	91 (100%)	371 (100%)

Education data were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Lung - Health Insurance Type

Figure LU-16 and **Table LU-16** show health insurance type for adult lung candidates ever waiting in 2022 and adult lung transplant recipients in 2022. Approximately 42% of candidates had private insurance, approximately 46% had Medicare, 8.7% had Medicaid, and roughly 3% reported a primary payer other than private insurance or Medicare/Medicaid. Compared with candidates ever waiting in 2022, transplant recipients were more likely to have Medicare (49.47%), while smaller proportions had private insurance (40.62%) or Medicaid (6.95%).

Figure LU-16. Health Insurance Type for Adult Lung Candidates and Recipients in 2022



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

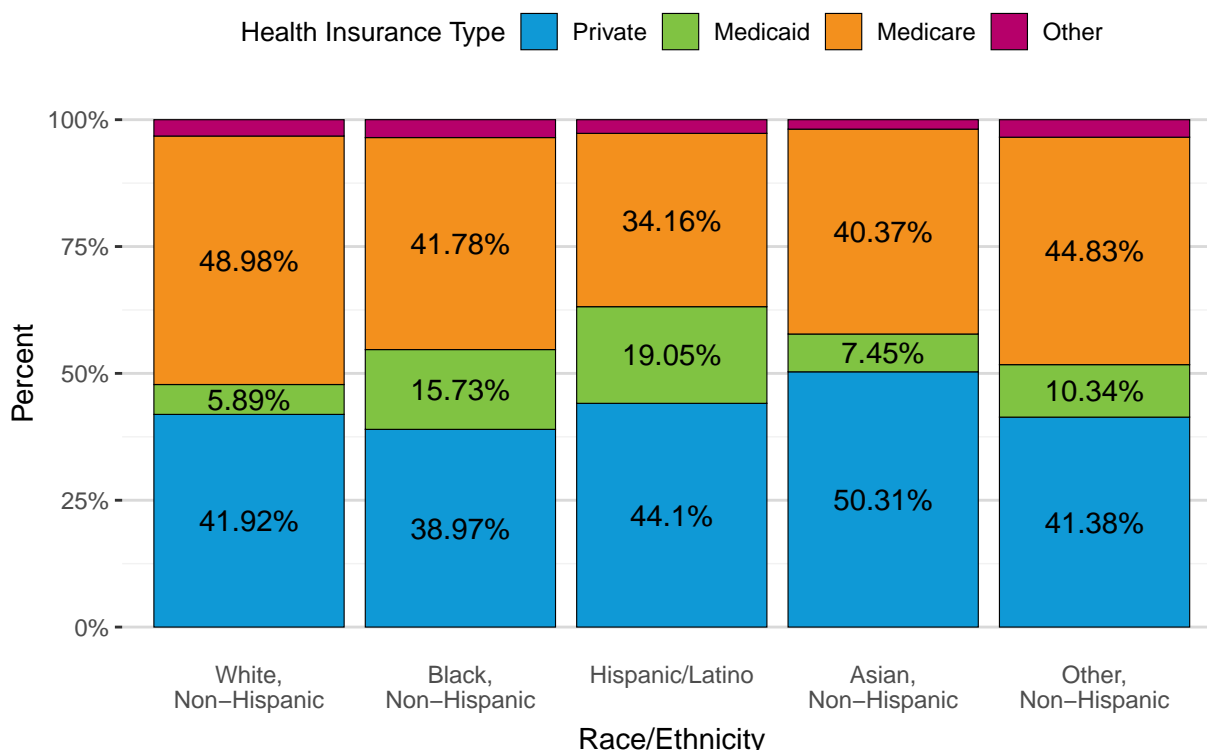
Table LU-16. Health Insurance Type for Adult Lung Candidates and Recipients in 2022

Health Insurance Type	Lung Candidates Ever Waiting in 2022		Lung Recipients in 2022	
	N	Percent	N	Percent
Private	1,618	42.21%	1,029	40.62%
Medicaid	335	8.74%	176	6.95%
Medicare	1,760	45.92%	1,253	49.47%
Other	120	3.13%	75	2.96%
Total	3,833	100%	2,533	100%

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LU-17 and **Table LU-17** show health insurance type for adult lung candidates ever waiting in 2022 by race/ethnicity. The proportion of candidates with private insurance ranged from 38.97% for Black, non-Hispanic candidates to 50.31% for Asian, non-Hispanic candidates. The proportion with Medicare ranged from 34.16% for Hispanic/Latino candidates to 48.98% for White, non-Hispanic candidates. The proportion with Medicaid ranged from 5.89% for White, non-Hispanic candidates to 19.05% for Hispanic/Latino candidates.

Figure LU-17. Adult Lung Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, non-Hispanic includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

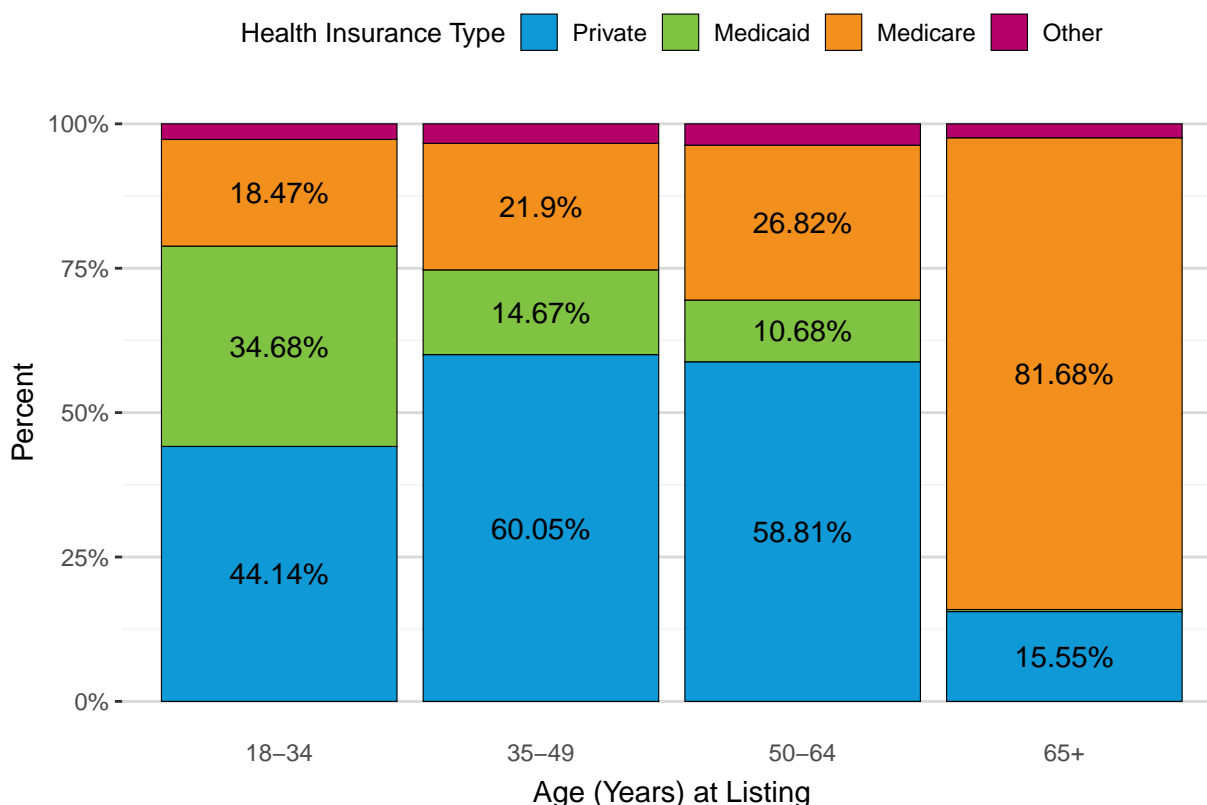
Table LU-17. Adult Lung Candidates Ever Waiting in 2022 by Health Insurance Type and Race/Ethnicity

Health Insurance Type	Race/Ethnicity				
	White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Private	1,146 (41.92%)	166 (38.97%)	213 (44.1%)	81 (50.31%)	12 (41.38%)
Medicaid	161 (5.89%)	67 (15.73%)	92 (19.05%)	12 (7.45%)	3 (10.34%)
Medicare	1,339 (48.98%)	178 (41.78%)	165 (34.16%)	65 (40.37%)	13 (44.83%)
Other	88 (3.22%)	15 (3.52%)	13 (2.69%)	3 (1.86%)	1 (3.45%)
Total	2,734 (100%)	426 (100%)	483 (100%)	161 (100%)	29 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Other, NH includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Figure LU-18 and **Table LU-18** show health insurance type for adult lung candidates ever waiting in 2022 by candidate age at listing. Private insurance was the most common health insurance type for candidates under age 65, while the majority of candidates aged 65+ had Medicare. This trend is expected as Medicare coverage is reserved for adults aged 65 or older or younger individuals with certain health conditions or disabilities⁹.

Figure LU-18. Adult Lung Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

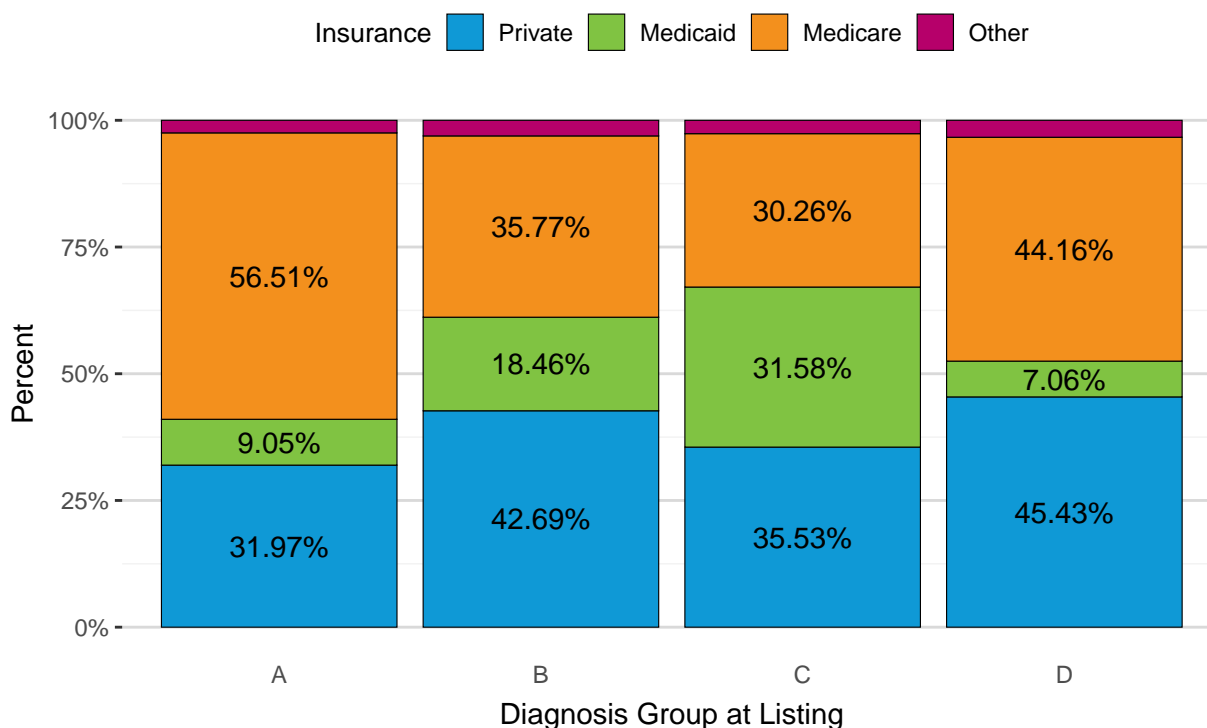
Table LU-18. Adult Lung Candidates Ever Waiting in 2022 by Health Insurance Type and Age at Listing

Health Insurance Type	Age (Years) at Listing			
	18-34	35-49	50-64	65+
Private	98 (44.14%)	266 (60.05%)	1,035 (58.81%)	219 (15.55%)
Medicaid	77 (34.68%)	65 (14.67%)	188 (10.68%)	5 (0.36%)
Medicare	41 (18.47%)	97 (21.9%)	472 (26.82%)	1,150 (81.68%)
Other	6 (2.7%)	15 (3.39%)	65 (3.69%)	34 (2.41%)
Total	222 (100%)	443 (100%)	1,760 (100%)	1,408 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Figure LU-19 and **Table LU-19** show health insurance type for lung candidates ever waiting in 2022 by diagnosis group at listing. Diagnosis group A had the highest proportion of candidates on Medicare (56.51%), while diagnosis group D had the highest percent with private insurance (45.43%).

Figure LU-19. Adult Lung Candidates Ever Waiting in 2022 by Health Insurance Type and Diagnosis Group at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms. Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A– obstructive lung disease, B– pulmonary vascular disease, C– cystic fibrosis and immunodeficiency disorder, and D– restrictive lung disease.

Table LU-19. Adult Lung Candidates Ever Waiting in 2022 by Health Insurance Type and Diagnosis Group at Listing

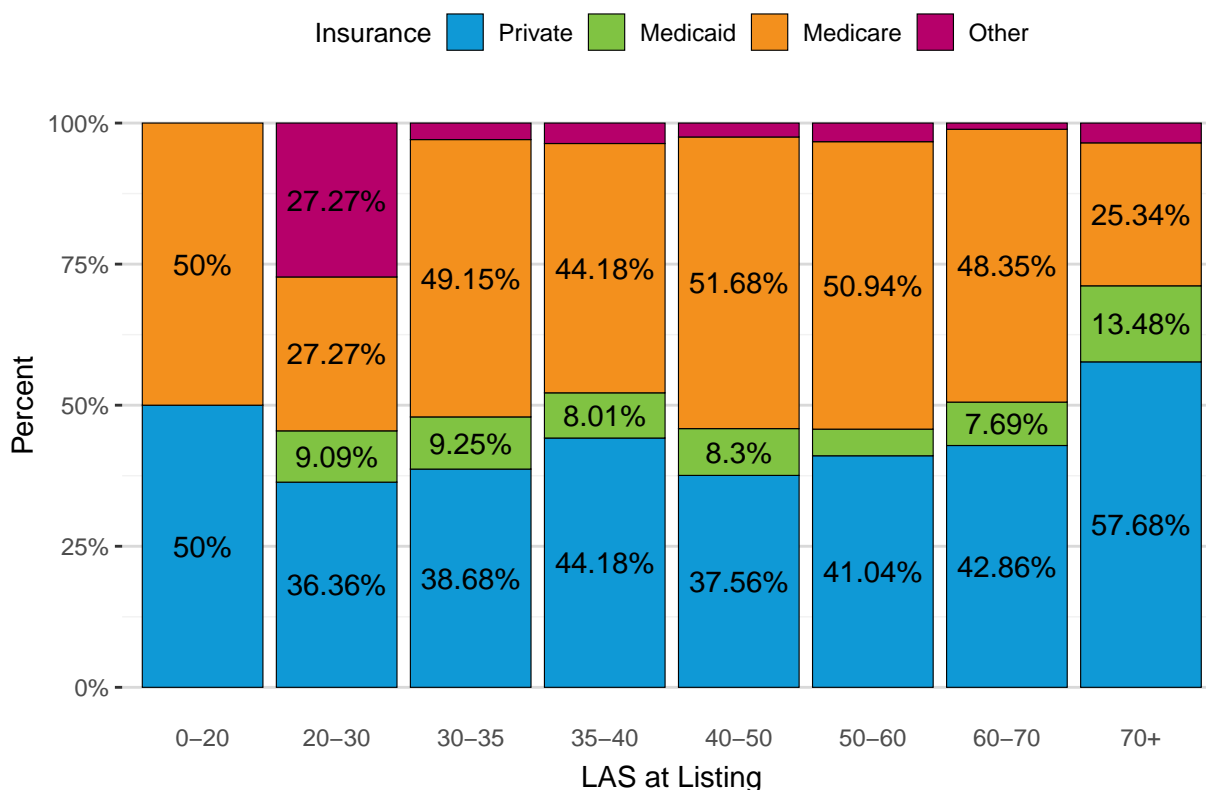
Health Insurance Type	Diagnosis Group at Listing			
	A	B	C	D
Private	258 (31.97%)	111 (42.69%)	27 (35.53%)	1,222 (45.43%)
Medicaid	73 (9.05%)	48 (18.46%)	24 (31.58%)	190 (7.06%)
Medicare	456 (56.51%)	93 (35.77%)	23 (30.26%)	1,188 (44.16%)
Other	20 (2.48%)	8 (3.08%)	2 (2.63%)	90 (3.35%)
Total	807 (100%)	260 (100%)	76 (100%)	2,690 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A- obstructive lung disease, B- pulmonary vascular disease, C- cystic fibrosis and immunodeficiency disorder, and D- restrictive lung disease.

Figure LU-20 and **Table LU-20** show health insurance type for lung candidates ever waiting in 2022 by LAS at listing. The LAS at listing 40-50 group had the highest percent with Medicare (51.68%) and LAS 70+ had the highest percent with private health insurance (57.68%). A considerable percent of LAS 20-30 had a primary payer other than private insurance or Medicare/Medicaid (27.27%), but the number of candidates in this group was low. A higher expected waitlist mortality and lower expected post-transplant mortality corresponds to a higher LAS.

Figure LU-20. Adult Lung Candidates Ever Waiting in 2022 by Health Insurance Type and LAS at Listing



Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Table LU-20. Adult Lung Candidates Ever Waiting in 2022 by Health Insurance Type and LAS at Listing

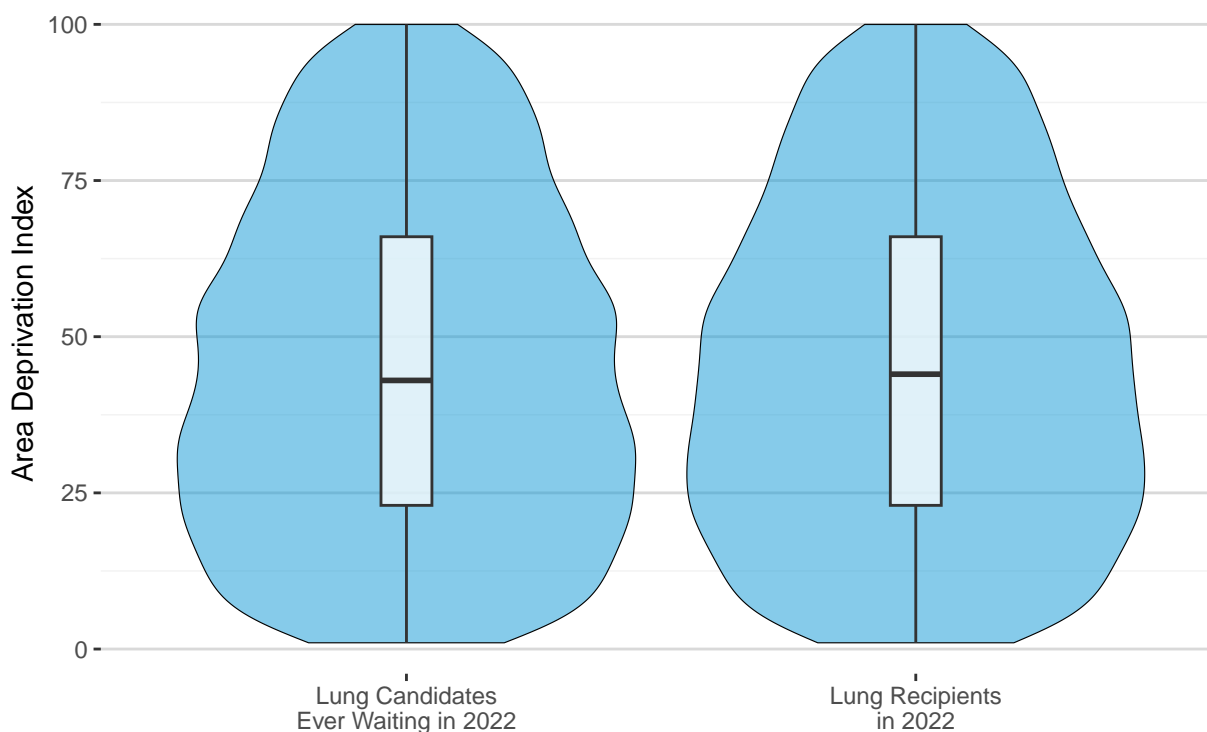
Health Insurance Type	LAS at Listing							
	0-20	20-30	30-35	35-40	40-50	50-60	60-70	70+
Private	5 (50%)	4 (36.36%)	410 (38.68%)	524 (44.18%)	335 (37.56%)	87 (41.04%)	39 (42.86%)	214 (57.68%)
Medicaid	0 (0%)	1 (9.09%)	98 (9.25%)	95 (8.01%)	74 (8.3%)	10 (4.72%)	7 (7.69%)	50 (13.48%)
Medicare	5 (50%)	3 (27.27%)	521 (49.15%)	524 (44.18%)	461 (51.68%)	108 (50.94%)	44 (48.35%)	94 (25.34%)
Other	0 (0%)	3 (27.27%)	31 (2.92%)	43 (3.63%)	22 (2.47%)	7 (3.3%)	1 (1.1%)	13 (3.5%)
Total	10 (100%)	11 (100%)	1,060 (100%)	1,186 (100%)	892 (100%)	212 (100%)	91 (100%)	371 (100%)

Data on health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Lung - Area Deprivation Index

Figure LU-21 and **Table LU-21** show the distribution of area deprivation index (ADI) for adult lung candidates ever waiting in 2022 and adult lung transplant recipients in 2022. The median ADI was similar for candidates and recipients at 43 and 44, respectively.

Figure LU-21. Distribution of Area Deprivation Index for Adult Lung Candidates and Recipients in 2022



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

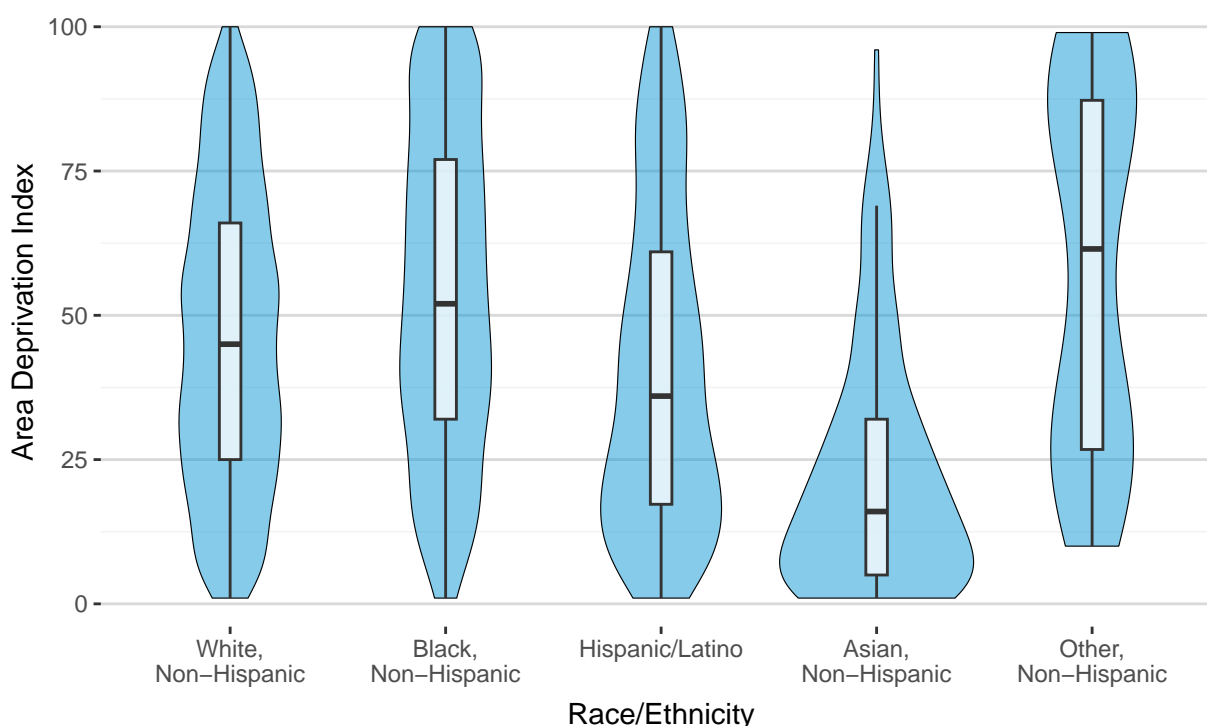
Table LU-21. Distribution of Area Deprivation Index for Adult Lung Candidates and Recipients in 2022

	N	Missing	Min	P25	Median	P75	Max
Lung Candidates Ever Waiting in 2022	3,833	79	1	23	43	66	100
Lung Recipients in 2022	2,533	45	1	23	44	66	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure LU-22 and **Table LU-22** show the distribution of area deprivation index for adult lung candidates ever waiting in 2022 by race/ethnicity. Median ADI ranged from 16 for Asian, non-Hispanic candidates to 61.5 for Other, non-Hispanic candidates.

Figure LU-22. Distribution of Area Deprivation Index for Adult Lung Candidates Ever Waiting in 2022 by Race/Ethnicity



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

Other, non-Hispanic includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Table LU-22. Distribution of Area Deprivation Index for Adult Lung Candidates Ever Waiting in 2022 by Race/Ethnicity

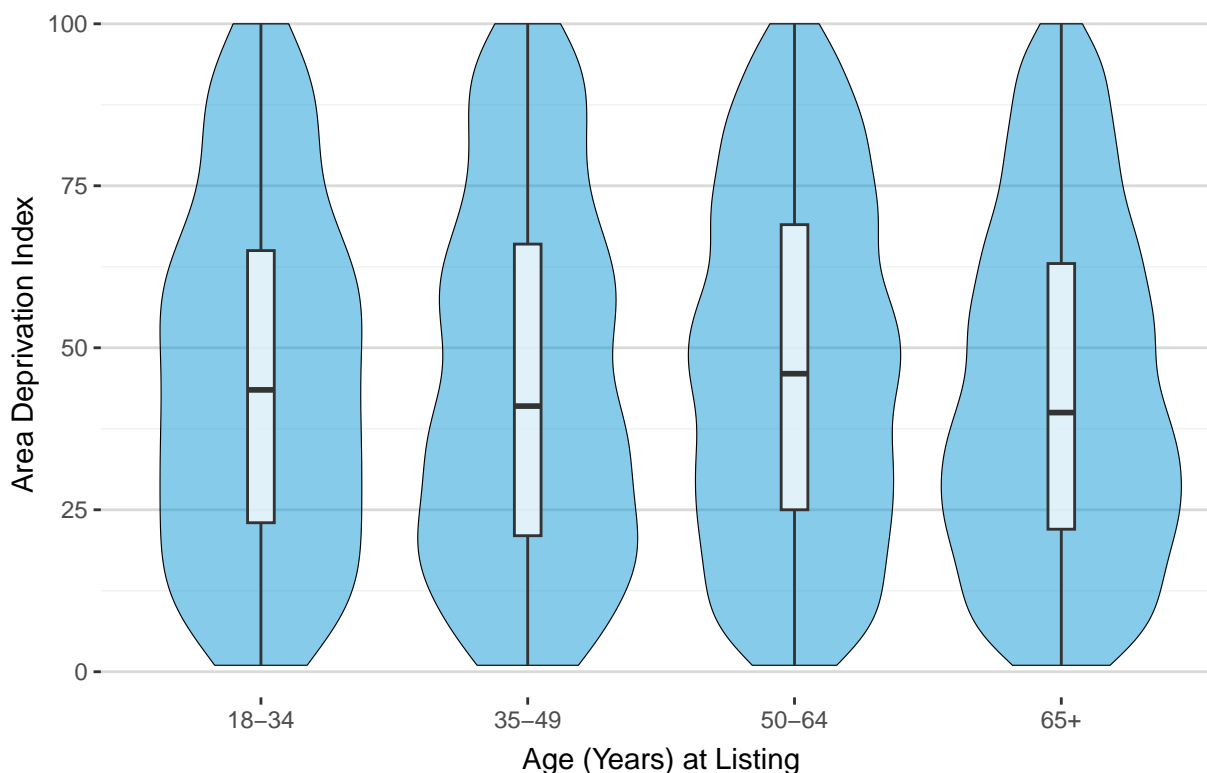
Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
White, Non-Hispanic	2,734	55	1	25	45.0	66	100
Black, Non-Hispanic	426	10	1	32	52.0	77	100
Hispanic/Latino	483	9	1	17	36.0	61	100
Asian, Non-Hispanic	161	4	1	5	16.0	32	96
Other, Non-Hispanic	29	1	10	27	61.5	87	99

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Other, NH includes N=17 American Indian/Alaska Native, NH; N=11 Multiracial, NH; and N=1 Native Hawaiian/other Pacific Islander, NH candidates.

Figure LU-23 and **Table LU-23** show the distribution of area deprivation index for adult lung candidates ever waiting in 2022 by candidate age at listing. Median ADI was highest for candidates aged 50-64 (46.0) and lowest for candidates aged 65+ (40.0).

Figure LU-23. Distribution of Area Deprivation Index for Adult Lung Candidates Ever Waiting in 2022 by Age at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.

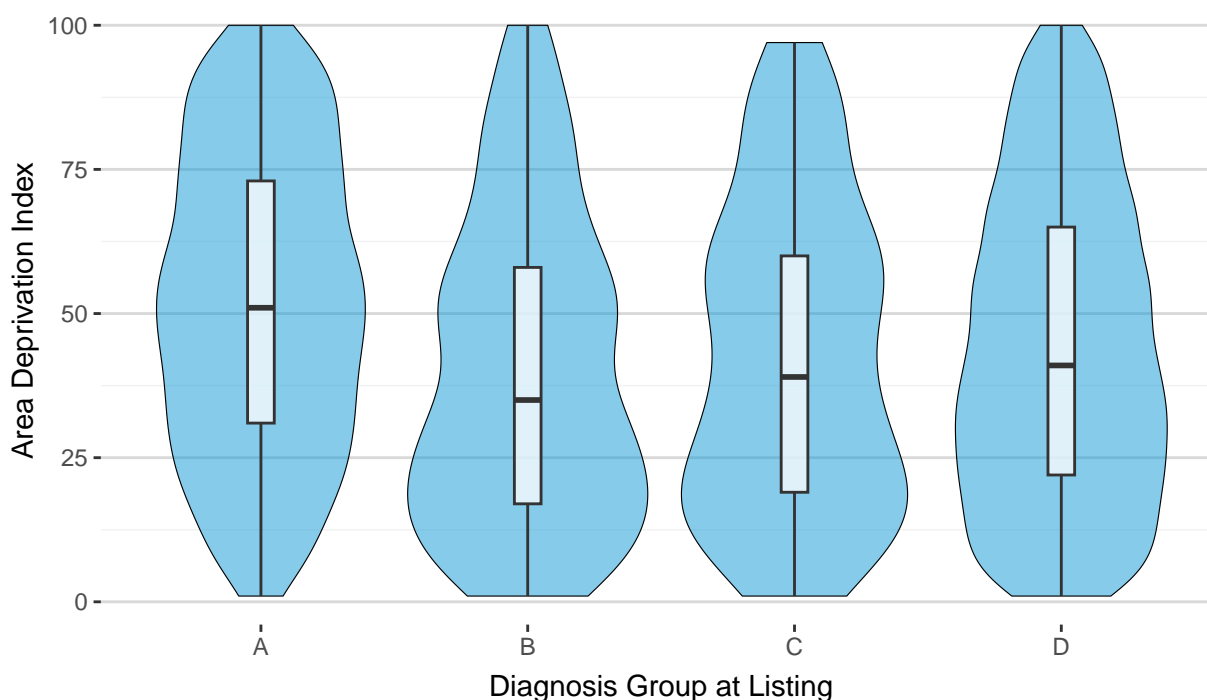
Table LU-23. Distribution of Area Deprivation Index for Adult Lung Candidates Ever Waiting in 2022 by Age at Listing

Age (Years) at Listing	N	Missing	Min	P25	Median	P75	Max
18-34	222	12	1	23	43.5	65	100
35-49	443	7	1	21	41.0	66	100
50-64	1,760	39	1	25	46.0	69	100
65+	1,408	21	1	22	40.0	63	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure LU-24 and **Table LU-24** show the distribution of area deprivation index for adult lung candidates ever waiting in 2022 by diagnosis group at listing. The median ADI ranged from 35 for diagnosis group B to 51 for diagnosis group A.

Figure LU-24. Distribution of Area Deprivation Index for Adult Lung Candidates Ever Waiting in 2022 by Diagnosis Group at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level. Diagnosis groups utilized in this report align with those outlined in OPTN lung allocation policy: A– obstructive lung disease, B– pulmonary vascular disease, C– cystic fibrosis and immunodeficiency disorder, and D– restrictive lung disease.

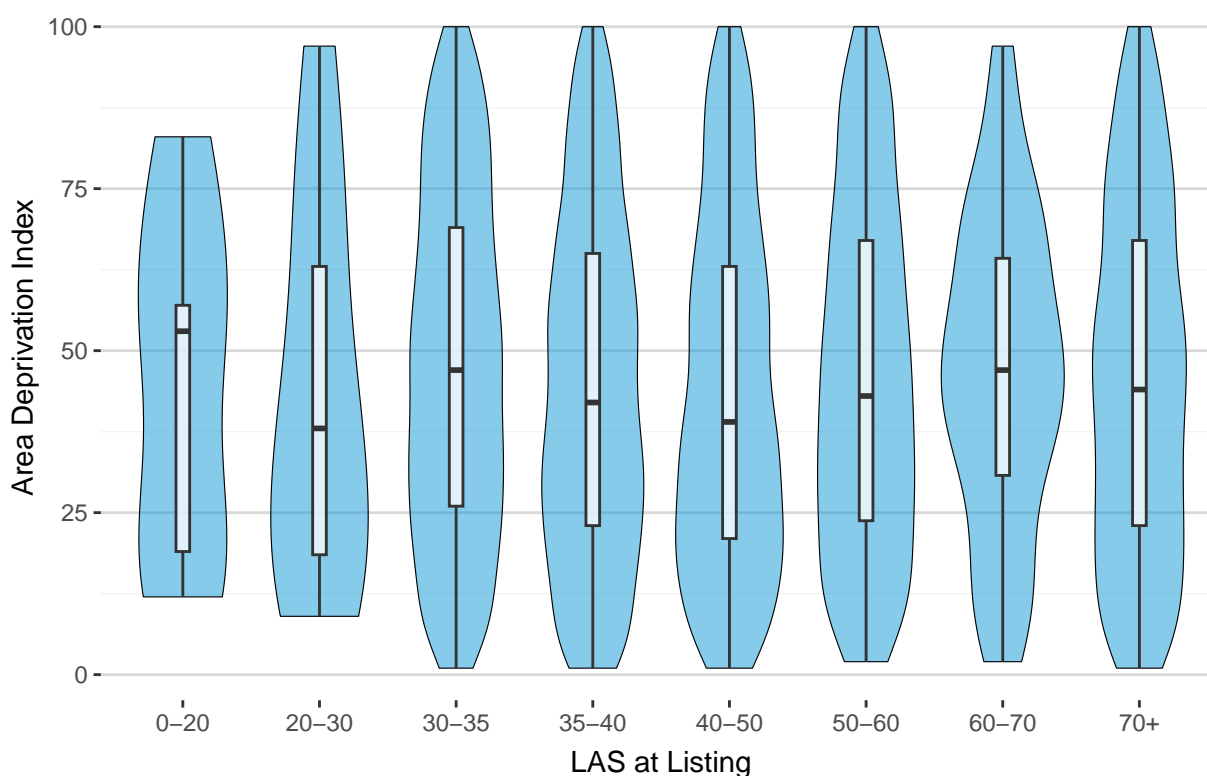
Table LU-24. Distribution of Area Deprivation Index for Adult Lung Candidates Ever Waiting in 2022 by Diagnosis Group at Listing

Diagnosis Group	N	Missing	Min	P25	Median	P75	Max
A	807	13	1	31	51	73	100
B	260	7	1	17	35	58	100
C	76	3	1	19	39	60	97
D	2,690	56	1	22	41	65	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure LU-25 and **Table LU-25** show the distribution of area deprivation index for adult lung candidates ever waiting in 2022 by LAS at listing. The median ADI ranged from 38 for the LAS at listing group 20-30 to 53 for the LAS at listing group 0-20. A higher expected waitlist mortality and lower expected post-transplant mortality corresponds to a higher LAS.

Figure LU-25. Distribution of Area Deprivation Index for Adult Lung Candidates Ever Waiting in 2022 by LAS at Listing



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Table LU-25. Distribution of Area Deprivation Index for Adult Lung Candidates Ever Waiting in 2022 by LAS at Listing

LAS at Listing	N	Missing	Min	P25	Median	P75	Max
0-20	10	1	12	19	53	57	83
20-30	11	1	9	18	38	63	97
30-35	1,060	24	1	26	47	69	100
35-40	1,186	26	1	23	42	65	100
40-50	892	14	1	21	39	63	100
50-60	212	0	2	24	43	67	100
60-70	91	3	2	31	47	64	97
70+	371	10	1	23	44	67	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Lung - Waiting List Mortality Rates by SDOH

Figure LU-26 and **Table LU-26** show waiting list mortality rates for adult lung candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). Overall waiting list mortality was 19.09 (95% confidence interval (CI): 16.43-22.04) deaths per 100 patient years.

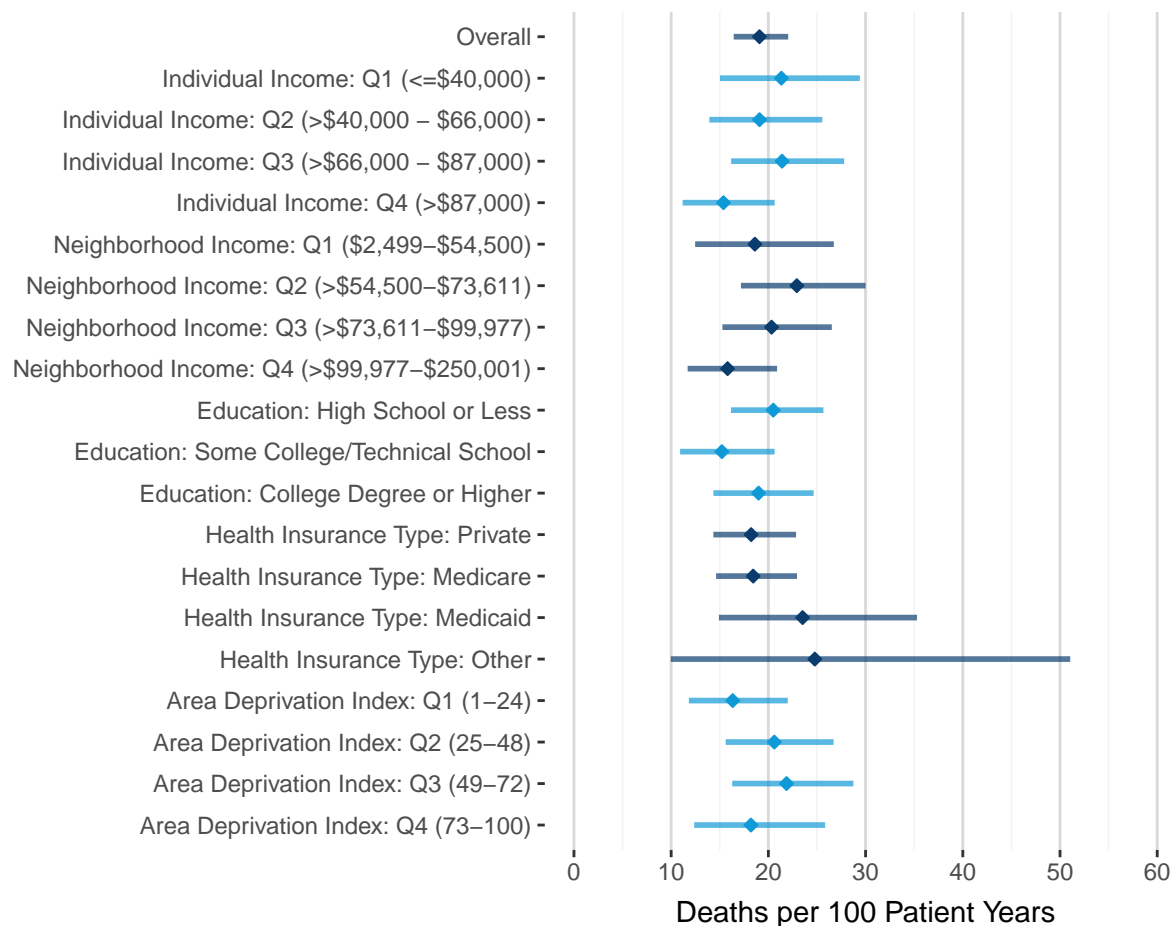
Estimated individual annual income: There were no statistically significant differences in waiting list mortality by estimated individual annual income. Waiting list mortality was highest for candidates in the third income quartile, and lowest for candidates in the highest income quartile.

Neighborhood median household income: There were no statistically significant differences in waiting list mortality by neighborhood median household income. Waiting list mortality was highest for candidates in the second neighborhood income quartile, and lowest for candidates in the highest income quartile.

Education: There were no statistically significant differences in waiting list mortality by education level. Waiting list mortality was highest for candidates with a high school education or less, and lowest for candidates with some college/technical school.

Health insurance type: There were no statistically significant differences in waiting list mortality by health insurance type. Waiting list mortality rates were lowest for candidates with private insurance and Medicare, and highest for candidates with Medicaid or other insurance.

ADI: There were no statistically significant differences in waiting list mortality rates by ADI quartiles. Waiting list mortality was highest for candidates in the third ADI quartile (ADI 49-72) and lowest for candidates in the lowest income quartile (ADI 1-24).

Figure LU-26. Waiting List Mortality Rates for Adult Lung Candidates Ever Waiting in 2022 by SDOH

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey.

Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table LU-26. Waiting List Mortality Rates for Adult Lung Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deaths	Deaths per 100 PY	95% CI
Overall	3,833	185	19.09	(16.43, 22.04)
Individual Income: Q1 (\leq \$40,000)	657	37	21.34	(15.02, 29.41)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	924	45	19.09	(13.93, 25.55)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	1,031	56	21.41	(16.17, 27.80)
Individual Income: Q4 ($>$ \$87,000)	1,172	44	15.38	(11.18, 20.65)
Individual Income: Not Reported	51	3	23.67	(4.88, 69.16)
Neighborhood Income: Q1 (\$2,499-\$54,500)	643	29	18.61	(12.47, 26.73)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	957	53	22.93	(17.17, 29.99)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	1,043	54	20.33	(15.27, 26.52)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	1,172	49	15.81	(11.69, 20.90)
Neighborhood Income: Not Reported	18	0	0.00	–
Education: High School or Less	1,409	76	20.50	(16.15, 25.66)
Education: Some College/Technical School	1,011	41	15.22	(10.92, 20.64)
Education: College Degree or Higher	1,326	56	18.99	(14.34, 24.66)
Education: Unknown/Not Reported	107	12	34.30	(17.72, 59.91)
Health Insurance Type: Private	1,621	75	18.23	(14.34, 22.85)
Health Insurance Type: Medicare	1,767	80	18.44	(14.62, 22.95)
Health Insurance Type: Medicaid	337	23	23.52	(14.91, 35.29)
Health Insurance Type: Other	124	7	24.78	(9.96, 51.05)
Area Deprivation Index: Q1 (1-24)	1,016	43	16.33	(11.82, 22.00)
Area Deprivation Index: Q2 (25-48)	1,085	57	20.61	(15.61, 26.71)
Area Deprivation Index: Q3 (49-72)	940	51	21.87	(16.28, 28.75)
Area Deprivation Index: Q4 (73-100)	713	31	18.20	(12.37, 25.84)
Area Deprivation Index: Not Reported	79	3	11.55	(2.38, 33.76)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Lung - Deceased Donor Transplant Rates by SDOH

Figure LU-27 and **Table LU-27** show deceased donor transplant rates for adult lung candidates ever waiting in 2022 by estimated individual annual income, neighborhood median household income, education, health insurance type, and area deprivation index (ADI). The overall deceased donor transplant rate was 309.22 (95% confidence interval (CI): (297.28-321.52) transplants per 100 active patient years.

Estimated individual annual income: Deceased donor transplant rates increased as individual income increased; however, these differences were not statistically significant.

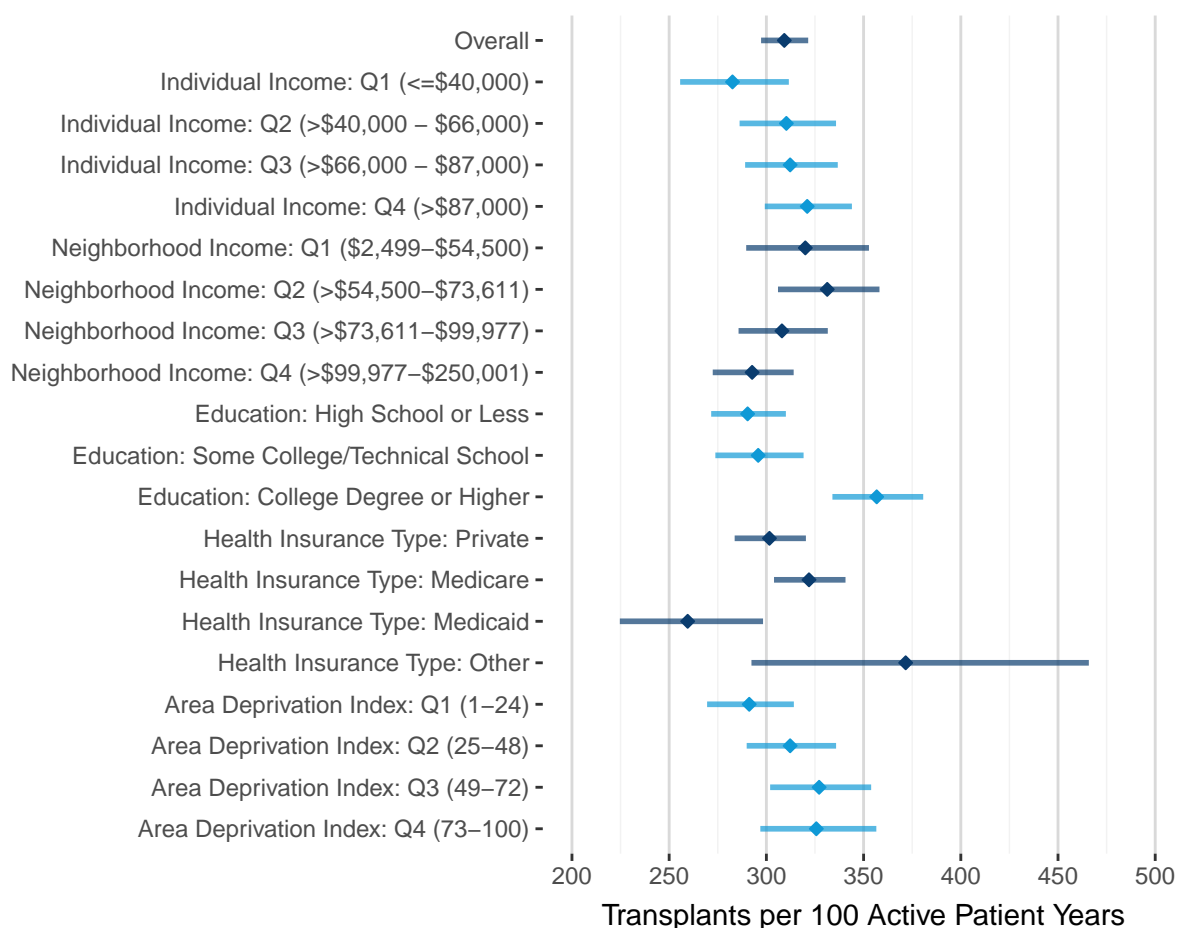
Neighborhood median household income: There were no statistically significant differences in deceased donor transplant rates by neighborhood income. The transplant rate was highest for candidates in the second quartile of neighborhood income and lowest for candidates in the highest neighborhood income quartile.

Education: The deceased donor transplant rate for candidates with a college degree or higher was significantly higher than the transplant rates for candidates with less than a college degree.

Health insurance type: The deceased donor transplant rate was highest for candidates with a primary payer other than Medicare, Medicaid or private insurance, and lowest for candidates with Medicaid. The transplant rate for candidates insured by Medicare was significantly higher than the transplant rate for candidates with Medicaid.

ADI: There were no statistically significant differences in deceased donor transplant rates by ADI quartiles. The deceased donor transplant rate was highest for candidates in the third ADI quartile (ADI 49-72), and lowest for candidates in the lowest ADI quartile (ADI 1-24).

Figure LU-27. Deceased Donor Transplant Rates for Adult Lung Candidates Ever Waiting in 2022 by SDOH



Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey.

Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

PY = patient years; CI = confidence interval.

Table LU-27. Deceased Donor Transplant Rates for Adult Lung Candidates Ever Waiting in 2022 by SDOH

Characteristic	Candidates	Deceased Donor Transplants	TX per 100 Active PY	95% CI
Overall	3,747	2,526	309.22	(297.28, 321.52)
Individual Income: Q1 (\leq \$40,000)	633	403	282.57	(255.65, 311.55)
Individual Income: Q2 ($>$ \$40,000 - \$66,000)	912	614	310.28	(286.22, 335.82)
Individual Income: Q3 ($>$ \$66,000 - \$87,000)	1,000	673	312.22	(289.07, 336.73)
Individual Income: Q4 ($>$ \$87,000)	1,153	803	321.00	(299.18, 344.00)
Individual Income: Not Reported	49	33	308.69	(212.49, 433.51)
Neighborhood Income: Q1 (\$2,499-\$54,500)	622	405	320.03	(289.62, 352.77)
Neighborhood Income: Q2 ($>$ \$54,500-\$73,611)	934	632	331.30	(305.97, 358.17)
Neighborhood Income: Q3 ($>$ \$73,611-\$99,977)	1,025	705	308.00	(285.68, 331.60)
Neighborhood Income: Q4 ($>$ \$99,977-\$250,001)	1,148	774	292.67	(272.42, 314.04)
Neighborhood Income: Not Reported	18	10	160.37	(76.90, 294.92)
Education: High School or Less	1,371	893	290.34	(271.61, 310.03)
Education: Some College/Technical School	988	666	295.79	(273.75, 319.13)
Education: College Degree or Higher	1,305	912	356.75	(333.97, 380.67)
Education: Unknown/Not Reported	103	57	195.26	(147.89, 252.98)
Health Insurance Type: Private	1,583	1,057	301.59	(283.68, 320.33)
Health Insurance Type: Medicare	1,735	1,196	321.92	(303.93, 340.70)
Health Insurance Type: Medicaid	324	198	259.52	(224.63, 298.29)
Health Insurance Type: Other	120	75	371.64	(292.32, 465.85)
Area Deprivation Index: Q1 (1-24)	999	668	291.18	(269.52, 314.13)
Area Deprivation Index: Q2 (25-48)	1,058	722	312.23	(289.87, 335.86)
Area Deprivation Index: Q3 (49-72)	915	622	327.14	(301.93, 353.89)
Area Deprivation Index: Q4 (73-100)	696	469	325.70	(296.89, 356.56)
Area Deprivation Index: Not Reported	79	45	203.38	(148.35, 272.14)

Estimated individual income data were obtained from LexisNexis.

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Data on education and health insurance type were obtained from OPTN Transplant Candidate Registration (TCR) forms.

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

TX = transplants; PY = patient years; CI = confidence interval.

Results: Living Donors

Living Donors - Results Summary

The following section describes social determinants of health (SDOH) for adult living donors who donated a kidney or liver to an adult recipient in 2022. Differences by SDOH measures among living donors are summarized below.

Estimated individual annual income: Median estimated individual annual income was \$80,000 for living kidney donors and \$75,000 for living liver donors (**Figure LD-1** and **Table LD-1**). In general, estimated individual annual income was higher for Asian, non-Hispanic living donors, and lower for Black non-Hispanic, other non-Hispanic (**Figure LD-2** and **Table LD-2**) and living donors aged 18-34 (**Figure LD-3** and **Table LD-3**).

Neighborhood median household income: Median neighborhood household income was \$85,181 for living kidney donors and \$84,359 for living liver donors (**Figure LD-5** and **Table LD-5**). Neighborhood median household income was higher for Asian, non-Hispanic living donors (**Figure LD-6** and **Table LD-6**) and increased slightly with increasing donor age (**Figure LD-7** and **Table LD-7**).

Education: Over half of living kidney and liver donors had a college degree or higher (**Figure LD-9** and **Table LD-9**). College or higher education was most prevalent in Asian, non-Hispanic and White, non-Hispanic living donors (**Figure LD-10** and **Table LD-10**). Over half of both kidney and liver living donors in all age groups had a college degree or higher education (**Figure LD-11** and **Table LD-11**).

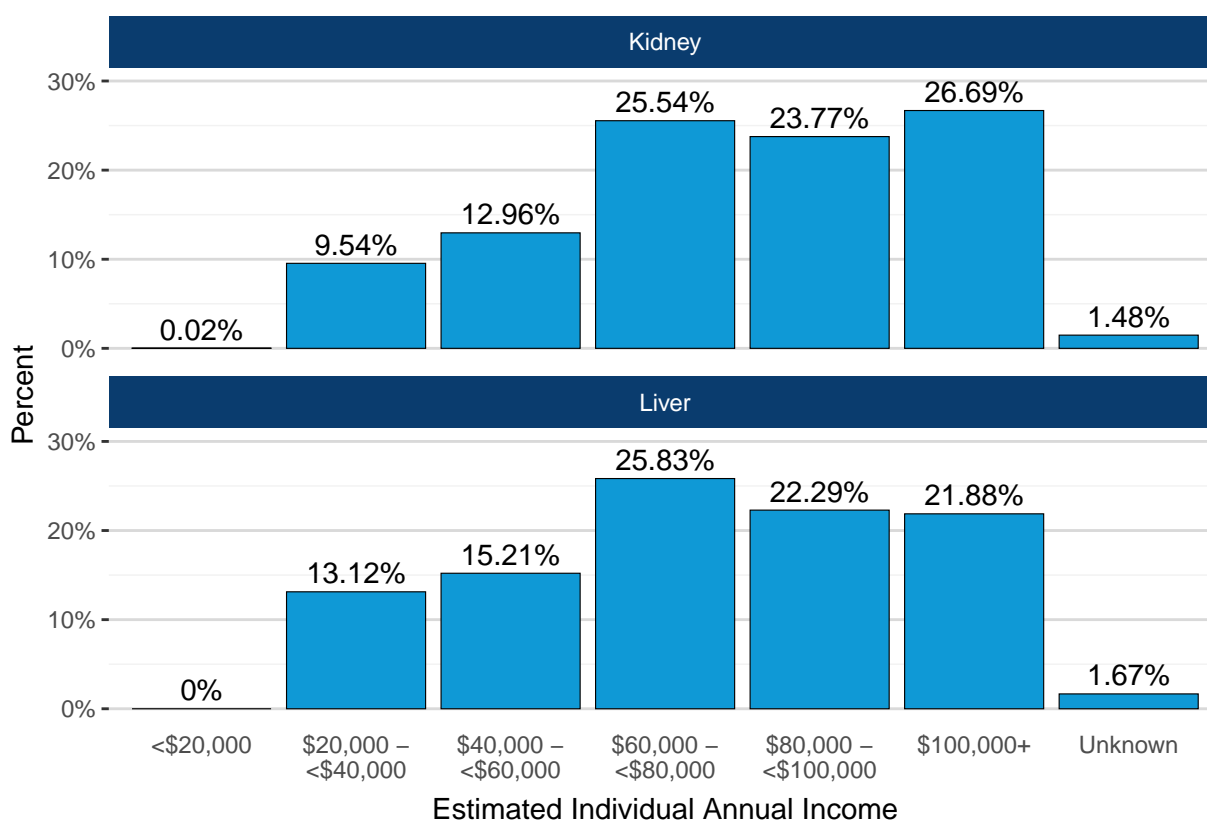
Health insurance: The OPTN Living Donor Registration (LDR) form does not currently collect specific health insurance type information for living donors; however, information on whether or not a donor is insured at the time of donation is collected. The majority (>90%) of living donors had health insurance at the time of donation (**Figure LD-13** and **Table LD-13**).

Area Deprivation Index: The median ADI for living kidney and liver donors was similar at 39 and 42, respectively (**Figure LD-17** and **Table LD-17**). Median ADI values were highest for Black, non-Hispanic living donors (**Figure LD-18** and **Table LD-18**), and decreased slightly with increasing donor age (**Figure LD-19** and **Table LD-19**).

Living Donors - Estimated Individual Annual Income

Figure LD-1 and **Table LD-1** show estimated individual annual income for living donors who donated in 2022 by organ donated. Median estimated individual annual income was \$80,000 for living kidney donors and \$75,000 for living liver donors. For reference, mean individual annual income for employed individuals in 2022 was \$70,346 according to the U.S. Bureau of Labor Statistics⁶ and median household income in 2022 was \$74,580 according to the U.S. Census Bureau.⁷

Figure LD-1. Living Donors who Donated in 2022 by Estimated Individual Annual Income and Organ Donated



Estimated individual income data were obtained from LexisNexis.

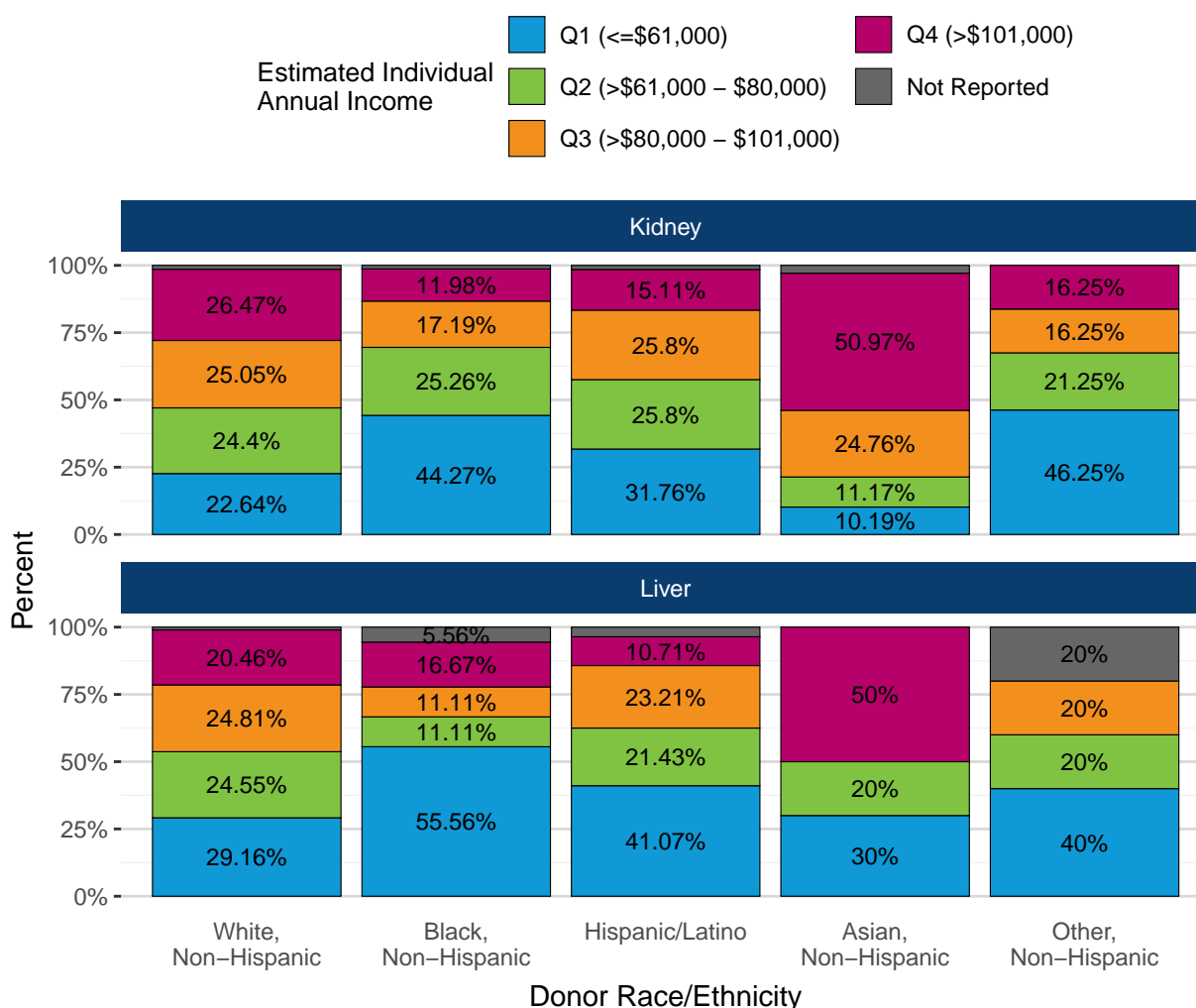
Table LD-1. Living Donors who Donated in 2022 by Estimated Individual Annual Income and Organ Donated

Organ Donated	Est. Individual Income	N	Percent
Kidney	<\$20,000	1	0.02%
	\$20,000 - <\$40,000	483	9.54%
	\$40,000 - <\$60,000	656	12.96%
	\$60,000 - <\$80,000	1,293	25.54%
	\$80,000 - <\$100,000	1,203	23.77%
	\$100,000+	1,351	26.69%
	Unknown	75	1.48%
	Total	5,062	100%
Liver	<\$20,000	0	0%
	\$20,000 - <\$40,000	63	13.12%
	\$40,000 - <\$60,000	73	15.21%
	\$60,000 - <\$80,000	124	25.83%
	\$80,000 - <\$100,000	107	22.29%
	\$100,000+	105	21.88%
	Unknown	8	1.67%
	Total	480	100%
Total	Total	5,542	100%

Estimated individual income data were obtained from Lexis-Nexis.

Figure LD-2 and **Table LD-2** show estimated individual annual income for living kidney and liver donors who donated in 2022 by donor race/ethnicity and organ donated. For living kidney donors, Black, non-Hispanic (44.27%) and Other, non-Hispanic (46.25%) donors had the highest proportion in the lowest income quartile, while Asian, non-Hispanic (50.97%) donors had the highest proportion in the highest income quartile. For living liver donors, Black, non-Hispanic (55.56%) donors had the highest proportion in the lowest income quartile, and Asian, non-Hispanic (50%) donors had the highest proportion in the highest income quartile.

Figure LD-2. Living Donors who Donated in 2022 by Estimated Individual Annual Income, Race/Ethnicity and Organ Donated



Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Table LD-2. Living Donors who Donated in 2022 by Estimated Individual Annual Income, Race/Ethnicity and Organ Donated

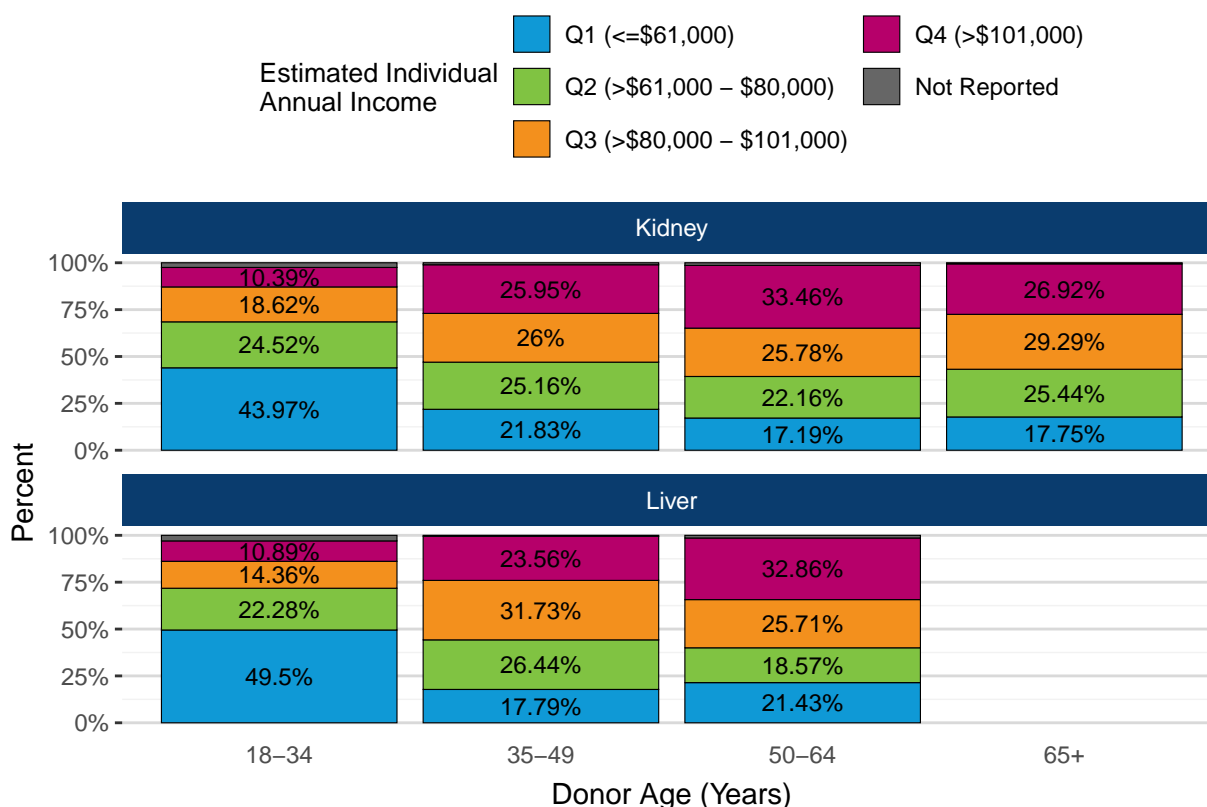
Organ Donated	Est. Individual Income	Donor Race/Ethnicity				
		White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Kidney	Q1 (<=\$61,000)	846 (22.64%)	170 (44.27%)	208 (31.76%)	21 (10.19%)	37 (46.25%)
	Q2 (>\$61,000 - \$80,000)	912 (24.40%)	97 (25.26%)	169 (25.80%)	23 (11.17%)	17 (21.25%)
	Q3 (>\$80,000 - \$101,000)	936 (25.05%)	66 (17.19%)	169 (25.80%)	51 (24.76%)	13 (16.25%)
	Q4 (>\$101,000)	989 (26.47%)	46 (11.98%)	99 (15.11%)	105 (50.97%)	13 (16.25%)
	Not Reported	54 (1.45%)	5 (1.30%)	10 (1.53%)	6 (2.91%)	0 (0.00%)
	Total	3,737 (100.00%)	384 (100.00%)	655 (100.00%)	206 (100.00%)	80 (100.00%)
Liver	Q1 (<=\$61,000)	114 (29.16%)	10 (55.56%)	23 (41.07%)	3 (30.00%)	2 (40.00%)
	Q2 (>\$61,000 - \$80,000)	96 (24.55%)	2 (11.11%)	12 (21.43%)	2 (20.00%)	1 (20.00%)
	Q3 (>\$80,000 - \$101,000)	97 (24.81%)	2 (11.11%)	13 (23.21%)	0 (0.00%)	1 (20.00%)
	Q4 (>\$101,000)	80 (20.46%)	3 (16.67%)	6 (10.71%)	5 (50.00%)	0 (0.00%)
	Not Reported	4 (1.02%)	1 (5.56%)	2 (3.57%)	0 (0.00%)	1 (20.00%)
	Total	391 (100.00%)	18 (100.00%)	56 (100.00%)	10 (100.00%)	5 (100.00%)
Total	Total	4,128 (100%)	402 (100%)	711 (100%)	216 (100%)	85 (100%)

Estimated individual income data were obtained from LexisNexis.

Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Figure LD-3 and **Table LD-3** show estimated individual annual income for living kidney and liver donors who donated in 2022 by donor age at donation and organ donated. For both kidney and liver donors, adult donors aged 18-34 had the highest proportion in the lowest income quartile, while donors aged 50-64 had the highest proportion in the highest income quartile. There were no living liver donors aged 65+ who donated in 2022.

Figure LD-3. Living Donors who Donated in 2022 by Estimated Individual Annual Income, Age and Organ Donated



Estimated individual income data were obtained from LexisNexis.

Table LD-3. Living Donors who Donated in 2022 by Estimated Individual Annual Income, Age and Organ Donated

Organ Donated	Est. Individual Income	Donor Age (Years)			
		18-34	35-49	50-64	65+
Kidney	Q1 (<=\$61,000)	529 (43.97%)	413 (21.83%)	280 (17.19%)	60 (17.75%)
	Q2 (>\$61,000 - \$80,000)	295 (24.52%)	476 (25.16%)	361 (22.16%)	86 (25.44%)
	Q3 (>\$80,000 - \$101,000)	224 (18.62%)	492 (26.00%)	420 (25.78%)	99 (29.29%)
	Q4 (>\$101,000)	125 (10.39%)	491 (25.95%)	545 (33.46%)	91 (26.92%)
	Not Reported	30 (2.49%)	20 (1.06%)	23 (1.41%)	2 (0.59%)
	Total	1,203 (100.00%)	1,892 (100.00%)	1,629 (100.00%)	338 (100.00%)
Liver	Q1 (<=\$61,000)	100 (49.50%)	37 (17.79%)	15 (21.43%)	0 (-)
	Q2 (>\$61,000 - \$80,000)	45 (22.28%)	55 (26.44%)	13 (18.57%)	0 (-)
	Q3 (>\$80,000 - \$101,000)	29 (14.36%)	66 (31.73%)	18 (25.71%)	0 (-)
	Q4 (>\$101,000)	22 (10.89%)	49 (23.56%)	23 (32.86%)	0 (-)
	Not Reported	6 (2.97%)	1 (0.48%)	1 (1.43%)	0 (-)
	Total	202 (100.00%)	208 (100.00%)	70 (100.00%)	0 (-)
Total	Total	1,405 (100%)	2,100 (100%)	1,699 (100%)	338 (100%)

Estimated individual income data were obtained from LexisNexis.

Figure LD-4 and **Table LD-4** show estimated individual annual income for living kidney and liver donors who donated in 2022 by the donor's relationship to the recipient and organ donated. For living kidney donors, donors biologically related to the recipient (28.46%) had the highest proportion of donors in the lowest income quartile. For living liver donors, paired donation donors (37.5%) had the highest proportion in the lowest income quartile.

Figure LD-4. Living Donors who Donated in 2022 by Estimated Individual Annual Income, Relationship to Recipient, and Organ Donated

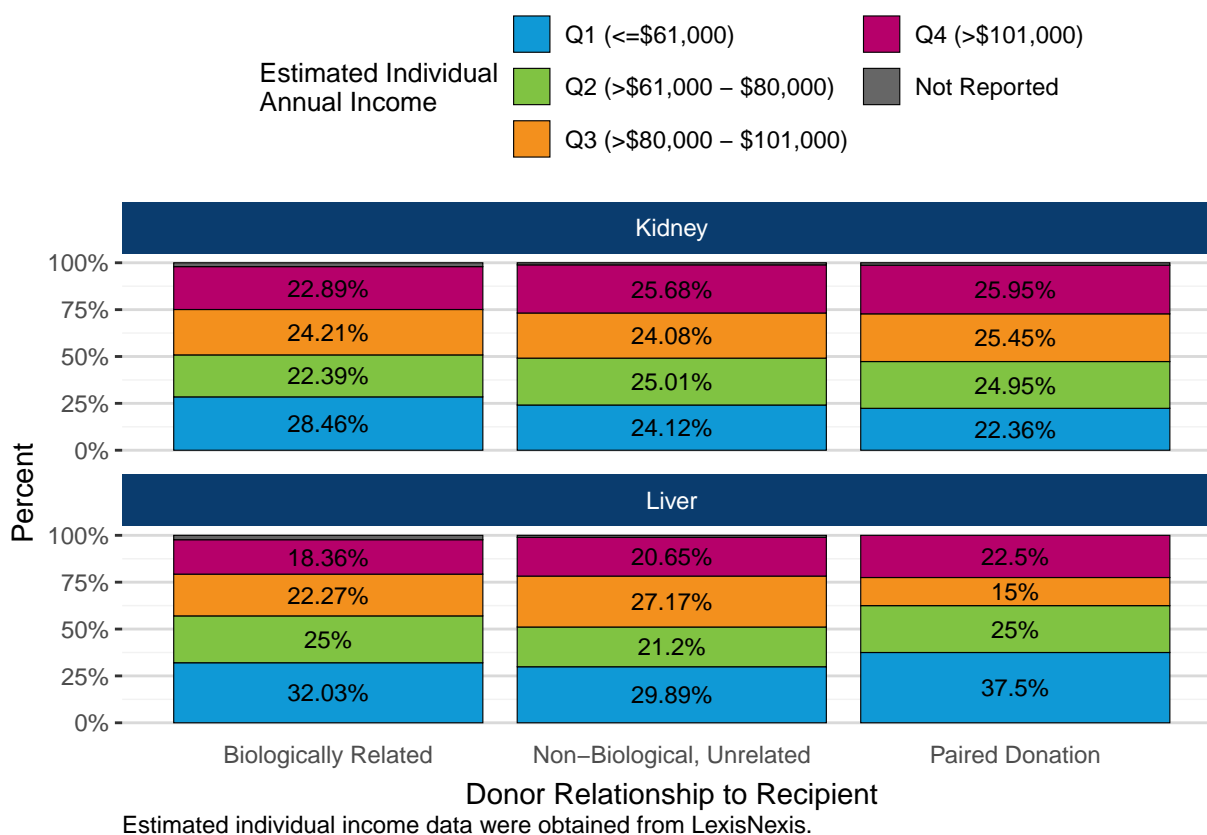


Table LD-4. Living Donors who Donated in 2022 by Estimated Individual Annual Income, Relationship to Recipient, and Organ Donated

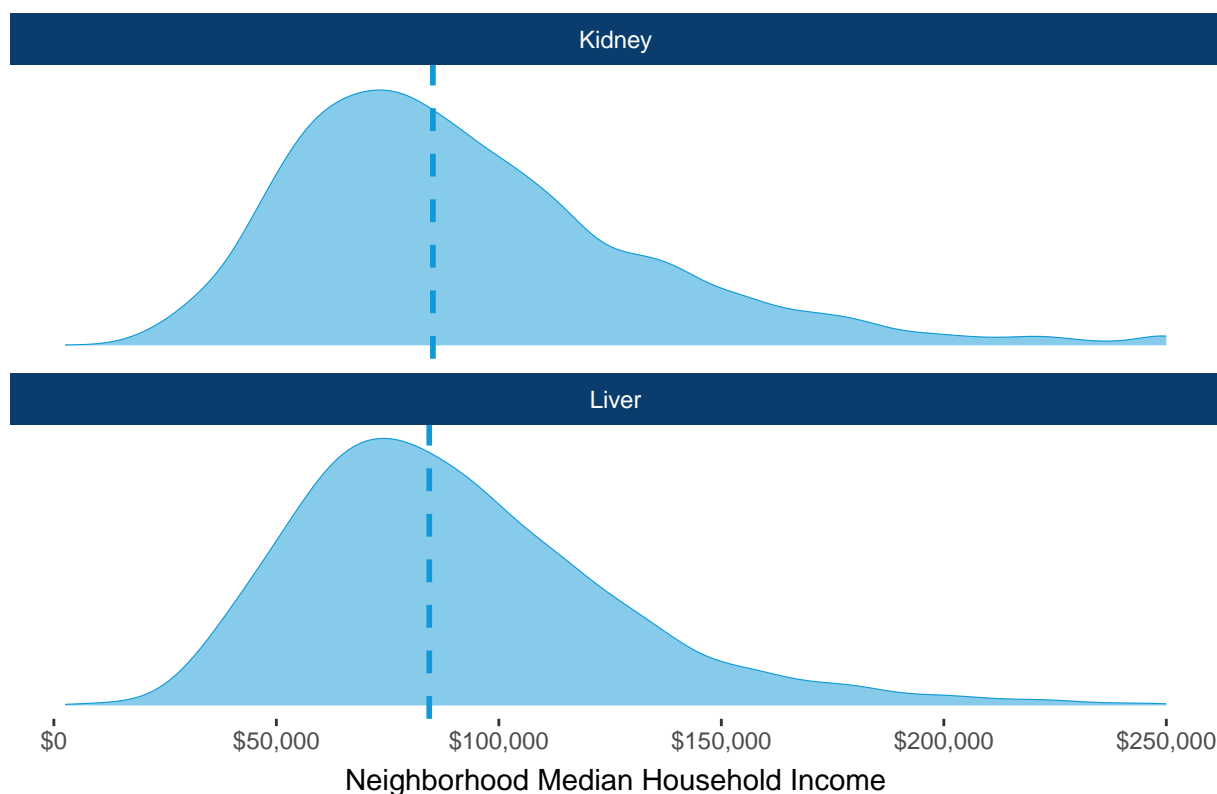
Organ Donated	Est. Individual Income	Donor Relationship to Recipient		
		Biologically Related	Non-Biological, Unrelated	Paired Donation
Kidney	Q1 (\leq \$61,000)	516 (28.46%)	542 (24.12%)	224 (22.36%)
	Q2 ($>$ \$61,000 - \$80,000)	406 (22.39%)	562 (25.01%)	250 (24.95%)
	Q3 ($>$ \$80,000 - \$101,000)	439 (24.21%)	541 (24.08%)	255 (25.45%)
	Q4 ($>$ \$101,000)	415 (22.89%)	577 (25.68%)	260 (25.95%)
	Not Reported	37 (2.04%)	25 (1.11%)	13 (1.30%)
	Total	1,813 (100.00%)	2,247 (100.00%)	1,002 (100.00%)
Liver	Q1 (\leq \$61,000)	82 (32.03%)	55 (29.89%)	15 (37.50%)
	Q2 ($>$ \$61,000 - \$80,000)	64 (25.00%)	39 (21.20%)	10 (25.00%)
	Q3 ($>$ \$80,000 - \$101,000)	57 (22.27%)	50 (27.17%)	6 (15.00%)
	Q4 ($>$ \$101,000)	47 (18.36%)	38 (20.65%)	9 (22.50%)
	Not Reported	6 (2.34%)	2 (1.09%)	0 (0.00%)
	Total	256 (100.00%)	184 (100.00%)	40 (100.00%)
Total	Total	2,069 (100%)	2,431 (100%)	1,042 (100%)

Estimated individual income data were obtained from LexisNexis.

Living Donors - Neighborhood Median Household Income

Figure LD-5 and **Table LD-5** show the distribution of neighborhood median household income for living kidney and liver donors who donated in 2022 by organ donated. Median neighborhood household income for was \$85,181 for living kidney donors and \$84,359 for living liver donors. For reference, median household income in 2022 according to the U.S. Census Bureau was \$74,580.⁷

Figure LD-5. Distribution of Neighborhood Median Household Income for Living Donors who Donated in 2022 by Organ Donated



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

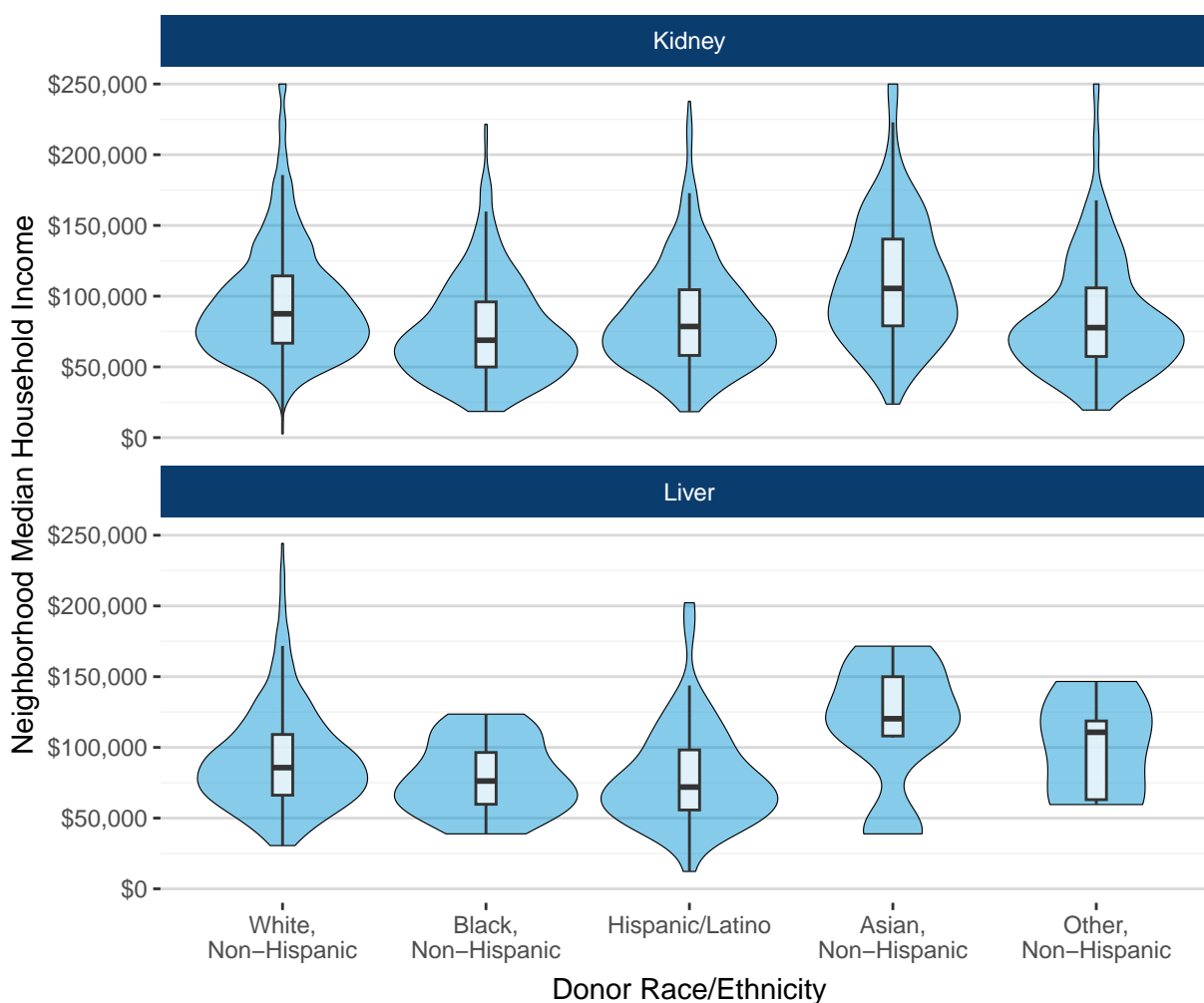
Table LD-5. Distribution of Neighborhood Median Household Income for Living Donors who Donated in 2022 by Organ Donated

Organ Donated	N	Missing	Min	P25	Median	P75	Max
Kidney	5,062	26	\$2,499	\$64,375	\$85,181	\$113,089	\$250,001
Liver	480	3	\$12,276	\$64,773	\$84,359	\$109,141	\$244,250
Total	5,542	29	\$2,499	\$64,393	\$85,071	\$112,708	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure LD-6 and **Table LD-6** show the distribution of neighborhood median household income for living kidney and liver donors who donated in 2022 by donor race/ethnicity and organ donated. For kidney donors, neighborhood median household income was highest for Asian, non-Hispanic donors (median: \$105,481) and lowest for Black, non-Hispanic donors (median: \$68,860), while for liver donors, neighborhood median household income was highest for Asian, non-Hispanic donors (median: \$120,248) and lowest for Hispanic/Latino donors (median: \$71,947).

Figure LD-6. Distribution of Neighborhood Median Household Income for Living Donors who Donated in 2022 by Race/Ethnicity and Organ Donated



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.
 Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Table LD-6. Distribution of Neighborhood Median Household Income for Living Donors who Donated in 2022 by Race/Ethnicity and Organ Donated

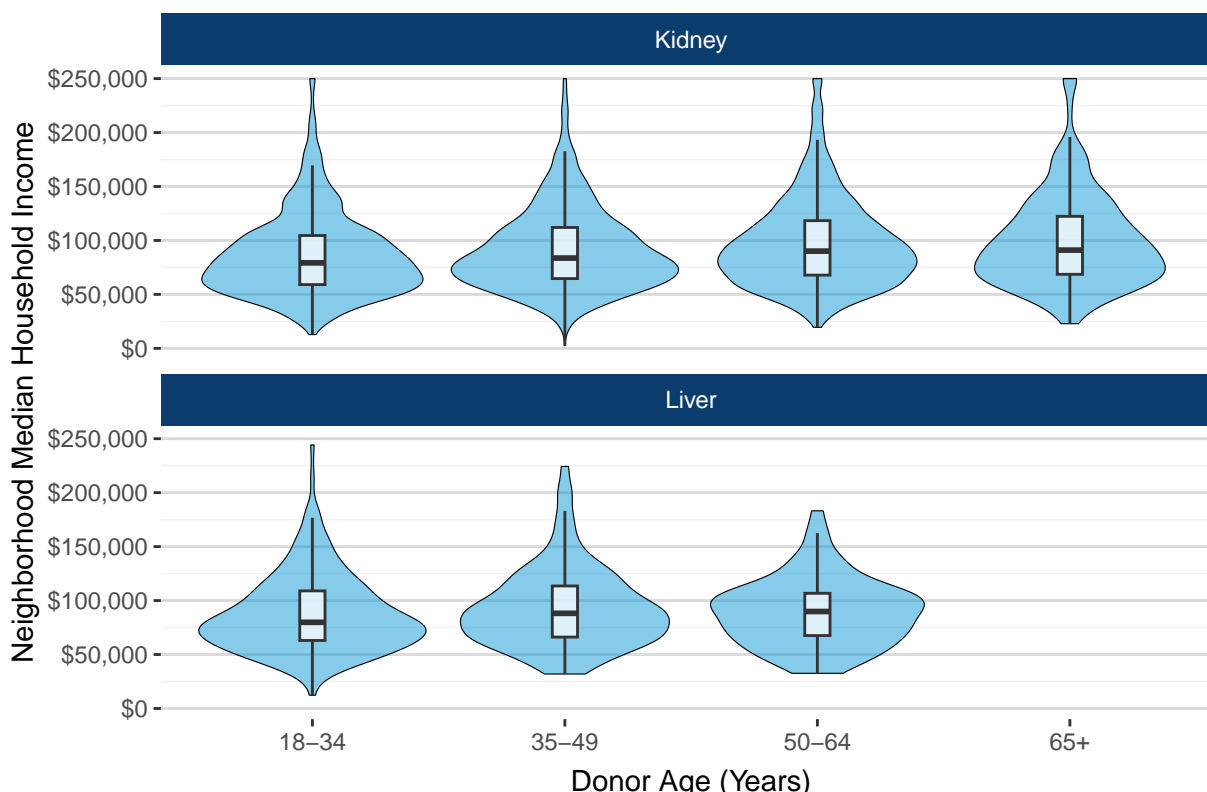
Organ Donated	Donor Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
Kidney	White, Non-Hispanic	3,737	18	\$2,499	\$66,746	\$87,523	\$114,329	\$250,001
	Black, Non-Hispanic	384	3	\$18,502	\$49,930	\$68,860	\$95,950	\$221,482
	Hispanic/Latino	655	3	\$18,306	\$58,109	\$78,547	\$104,550	\$237,738
	Asian, Non-Hispanic	206	1	\$23,706	\$79,000	\$105,481	\$140,337	\$250,001
	Other, Non-Hispanic	80	1	\$19,475	\$57,344	\$77,750	\$105,832	\$250,001
	Total	5,062	26	\$2,499	\$64,375	\$85,181	\$113,089	\$250,001
Liver	White, Non-Hispanic	391	3	\$30,578	\$66,191	\$85,682	\$109,104	\$244,250
	Black, Non-Hispanic	18	0	\$38,862	\$59,789	\$76,210	\$96,398	\$123,517
	Hispanic/Latino	56	0	\$12,276	\$55,739	\$71,947	\$98,226	\$202,222
	Asian, Non-Hispanic	10	0	\$38,866	\$108,036	\$120,248	\$149,958	\$171,563
	Other, Non-Hispanic	5	0	\$59,583	\$63,031	\$110,687	\$118,682	\$146,607
	Total	480	3	\$12,276	\$64,773	\$84,359	\$109,141	\$244,250
Total	Total	5,542	29	\$2,499	\$64,393	\$85,071	\$112,708	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Figure LD-7 and **Table LD-7** show the distribution of neighborhood median household income for living kidney and liver donors who donated in 2022 by donor age and organ donated. For both kidney and liver donors, neighborhood median household income increased as donor age increased. There were no living liver donors aged 65+ who donated in 2022.

Figure LD-7. Distribution of Neighborhood Median Household Income for Living Donors who Donated in 2022 by Age and Organ Donated



Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Table LD-7. Distribution of Neighborhood Median Household Income for Living Donors who Donated in 2022 by Age and Organ Donated

Organ Donated	Donor Age (Years)	N	Missing	Min	P25	Median	P75	Max
Kidney	18-34	1,203	8	\$12,740	\$59,094	\$79,238	\$104,548	\$250,001
	35-49	1,892	9	\$2,499	\$64,638	\$83,667	\$112,012	\$250,001
	50-64	1,629	9	\$19,475	\$67,870	\$90,105	\$118,318	\$250,001
	65+	338	0	\$22,829	\$68,624	\$91,052	\$122,337	\$250,001
	Total	5,062	26	\$2,499	\$64,375	\$85,181	\$113,089	\$250,001
Liver	18-34	202	2	\$12,276	\$63,007	\$79,832	\$108,966	\$244,250
	35-49	208	1	\$31,948	\$66,162	\$88,167	\$113,520	\$224,318
	50-64	70	0	\$32,574	\$67,569	\$89,852	\$106,738	\$183,199
	Total	480	3	\$12,276	\$64,773	\$84,359	\$109,141	\$244,250
Total	Total	5,542	29	\$2,499	\$64,393	\$85,071	\$112,708	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Figure LD-8 and **Table LD-8** show the distribution of neighborhood median household income for living kidney and liver donors who donated in 2022 by the donor relationship to recipient and organ donated. Neighborhood median household income was highest for paired donation donors (median: \$90,282) for kidney living donors, and highest for non-biological, unrelated donors (median: \$85,296) for liver living donors.

Figure LD-8. Distribution of Neighborhood Median Household Income for Living Donors who Donated in 2022 by Relationship to Recipient and Organ Donated

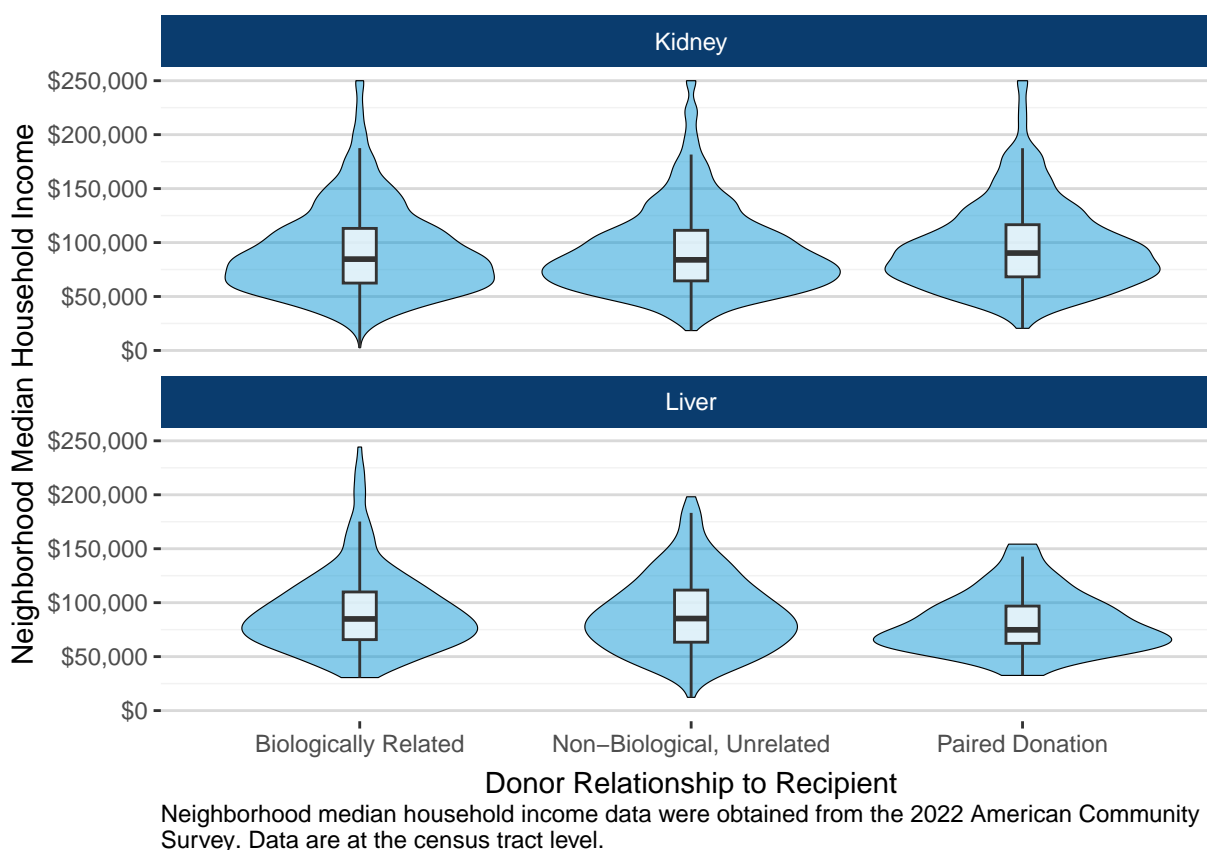


Table LD-8. Distribution of Neighborhood Median Household Income for Living Donors who Donated in 2022 by Relationship to Recipient and Organ Donated

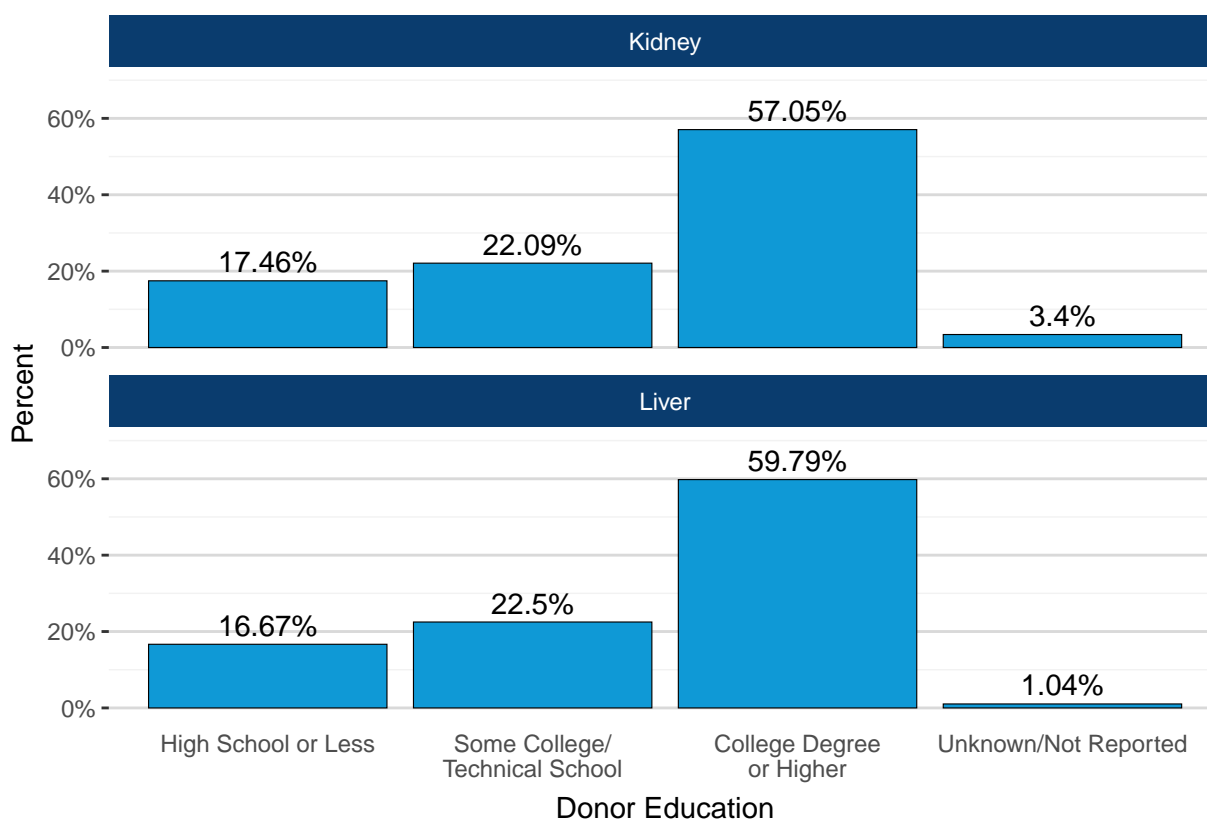
Organ Donated	Donor Relationship to Recipient	N	Missing	Min	P25	Median	P75	Max
Kidney	Biologically Related	1,813	9	\$2,499	\$62,448	\$84,648	\$113,111	\$250,001
	Non-Biological, Unrelated	2,247	11	\$18,418	\$64,479	\$83,972	\$111,340	\$250,001
	Paired Donation	1,002	6	\$20,515	\$68,210	\$90,282	\$116,539	\$250,001
	Total	5,062	26	\$2,499	\$64,375	\$85,181	\$113,089	\$250,001
Liver	Biologically Related	256	1	\$30,578	\$65,746	\$84,924	\$109,936	\$244,250
	Non-Biological, Unrelated	184	2	\$12,276	\$63,383	\$85,296	\$111,656	\$198,137
	Paired Donation	40	0	\$32,574	\$62,314	\$74,856	\$96,854	\$154,250
	Total	480	3	\$12,276	\$64,773	\$84,359	\$109,141	\$244,250
Total	Total	5,542	29	\$2,499	\$64,393	\$85,071	\$112,708	\$250,001

Neighborhood median household income data were obtained from the 2022 American Community Survey. Data are at the census tract level.

Living Donors - Education

Figure LD-9 and **Table LD-9** show living kidney and liver donors who donated in 2022 by donor educational attainment and organ donated. For living kidney donors, approximately 57% had a college degree or higher and approximately 17% had a high school education or less. For living liver donors, approximately 60% had a college degree or higher and 17% had a high school education or less. This distribution differs from the national averages from the U.S. Census Bureau which estimate that among the U.S. adult population aged 25 and older, 37% have a high school education or less, 25% have some college/technical school, and 37% have a college degree or higher⁸.

Figure LD-9. Living Donors who Donated in 2022 by Education and Organ Donated



Education data were obtained from OPTN Living Donor Registration (LDR) forms.

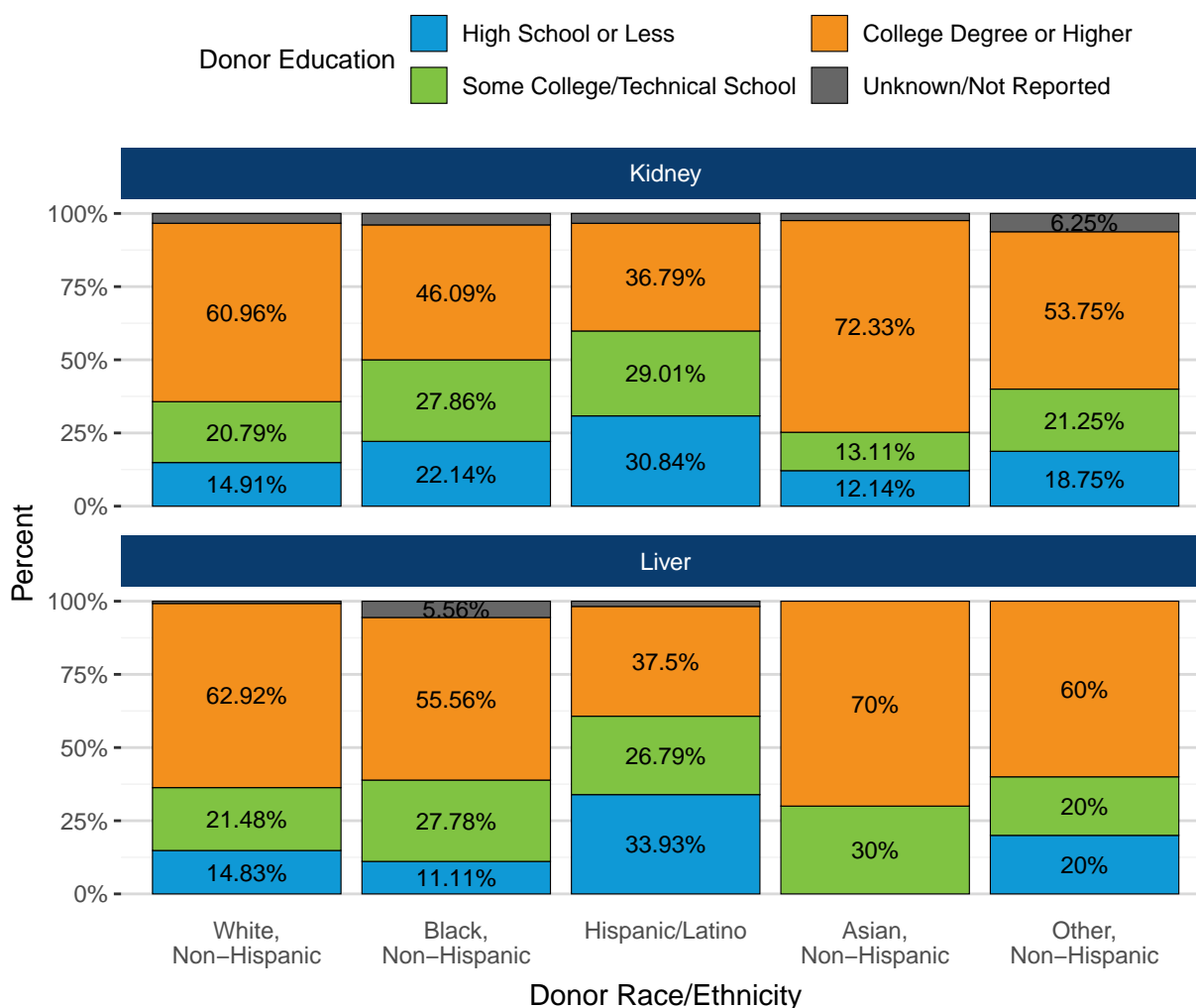
Table LD-9. Living Donors who Donated in 2022 by Education and Organ Donated

Organ Donated	Donor Education	N	Percent
Kidney	High School or Less	884	17.46%
	Some College/Technical School	1,118	22.09%
	College Degree or Higher	2,888	57.05%
	Unknown/Not Reported	172	3.4%
	Total	5,062	100%
Liver	High School or Less	80	16.67%
	Some College/Technical School	108	22.5%
	College Degree or Higher	287	59.79%
	Unknown/Not Reported	5	1.04%
	Total	480	100%
Total	Total	5,542	100%

Education data were obtained from OPTN Living Donor Registration (LDR) forms.

Figure LD-10 and **Table LD-10** show living kidney and liver donors who donated in 2022 by donor educational attainment, donor race/ethnicity, and organ donated. For both kidney and liver donors, Asian, non-Hispanic donors had the highest proportion with a college degree or higher while Hispanic/Latino donors had the highest proportion with a high school education or less.

Figure LD-10. Living Donors who Donated in 2022 by Education, Race/Ethnicity and Organ Donated



Education data were obtained from OPTN Living Donor Registration (LDR) forms.

Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Table LD-10. Living Donors who Donated in 2022 by Education, Race/Ethnicity and Organ Donated

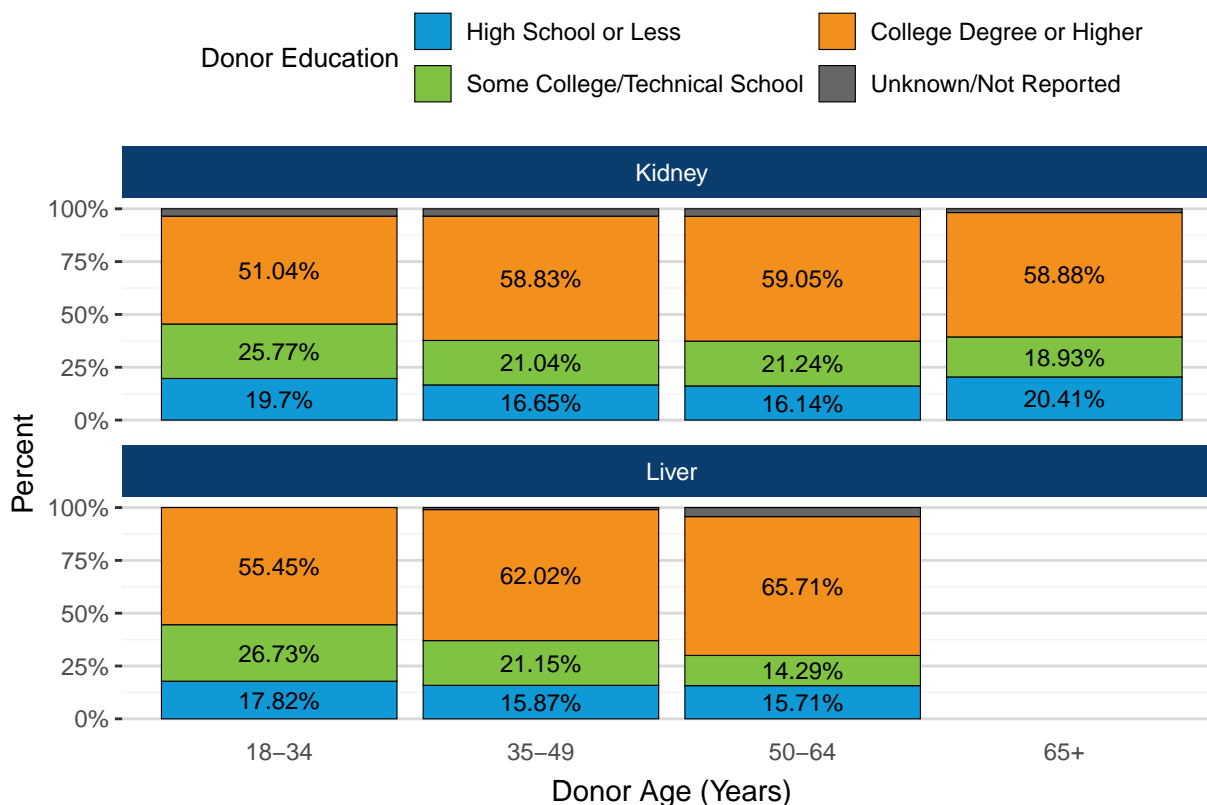
Organ Donated	Donor Education	Donor Race/Ethnicity				
		White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Kidney	High School or Less	557 (14.91%)	85 (22.14%)	202 (30.84%)	25 (12.14%)	15 (18.75%)
	Some College/Technical School	777 (20.79%)	107 (27.86%)	190 (29.01%)	27 (13.11%)	17 (21.25%)
	College Degree or Higher	2,278 (60.96%)	177 (46.09%)	241 (36.79%)	149 (72.33%)	43 (53.75%)
	Unknown/Not Reported	125 (3.34%)	15 (3.91%)	22 (3.36%)	5 (2.43%)	5 (6.25%)
	Total	3,737 (100.00%)	384 (100.00%)	655 (100.00%)	206 (100.00%)	80 (100.00%)
Liver	High School or Less	58 (14.83%)	2 (11.11%)	19 (33.93%)	0 (0.00%)	1 (20.00%)
	Some College/Technical School	84 (21.48%)	5 (27.78%)	15 (26.79%)	3 (30.00%)	1 (20.00%)
	College Degree or Higher	246 (62.92%)	10 (55.56%)	21 (37.50%)	7 (70.00%)	3 (60.00%)
	Unknown/Not Reported	3 (0.77%)	1 (5.56%)	1 (1.79%)	0 (0.00%)	0 (0.00%)
	Total	391 (100.00%)	18 (100.00%)	56 (100.00%)	10 (100.00%)	5 (100.00%)
Total	Total	4,128 (100%)	402 (100%)	711 (100%)	216 (100%)	85 (100%)

Education data were obtained from OPTN Living Donor Registration (LDR) forms.

Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Figure LD-11 and **Table LD-11** show living kidney and liver donors who donated in 2022 by donor educational attainment, donor age, and organ donated. For both kidney and liver donors, over 50% of all donors in all age groups had a college education or higher.

Figure LD-11. Living Donors who Donated in 2022 by Education, Age and Organ Donated



Education data were obtained from OPTN Living Donor Registration (LDR) forms.

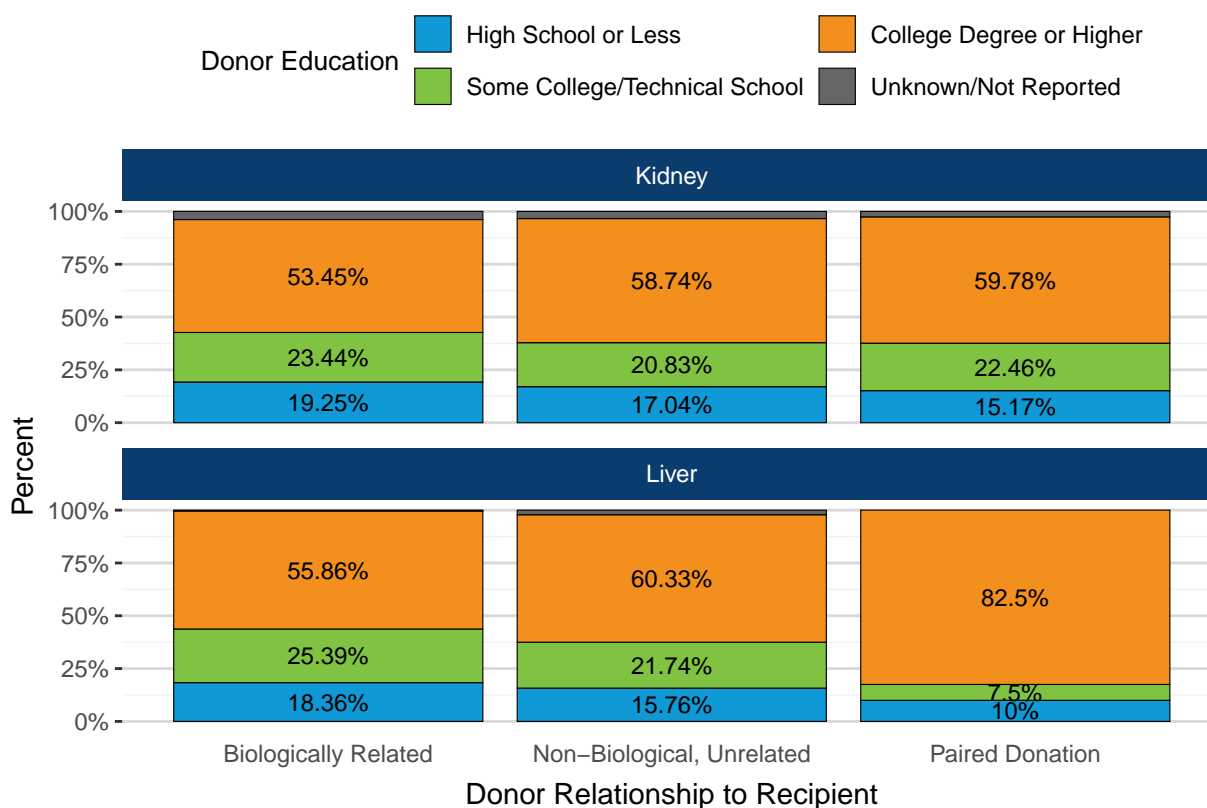
Table LD-11. Living Donors who Donated in 2022 by Education, Age and Organ Donated

Organ Donated	Donor Education	Donor Age (Years)			
		18-34	35-49	50-64	65+
Kidney	High School or Less	237 (19.70%)	315 (16.65%)	263 (16.14%)	69 (20.41%)
	Some College/Technical School	310 (25.77%)	398 (21.04%)	346 (21.24%)	64 (18.93%)
	College Degree or Higher	614 (51.04%)	1,113 (58.83%)	962 (59.05%)	199 (58.88%)
	Unknown/Not Reported	42 (3.49%)	66 (3.49%)	58 (3.56%)	6 (1.78%)
	Total	1,203 (100.00%)	1,892 (100.00%)	1,629 (100.00%)	338 (100.00%)
Liver	High School or Less	36 (17.82%)	33 (15.87%)	11 (15.71%)	0 (-)
	Some College/Technical School	54 (26.73%)	44 (21.15%)	10 (14.29%)	0 (-)
	College Degree or Higher	112 (55.45%)	129 (62.02%)	46 (65.71%)	0 (-)
	Unknown/Not Reported	0 (0.00%)	2 (0.96%)	3 (4.29%)	0 (-)
	Total	202 (100.00%)	208 (100.00%)	70 (100.00%)	0 (-)
Total	Total	1,405 (100%)	2,100 (100%)	1,699 (100%)	338 (100%)

Education data were obtained from OPTN Living Donor Registration (LDR) forms.

Figure LD-12 and **Table LD-12** show living kidney and liver donors who donated in 2022 by donor educational attainment, the donor's relationship to recipient, and organ donated. For both kidney and liver donors, paired donation donors had the highest proportion of a college degree or higher, and donors biologically related to the recipient had the highest proportion of a high school education or less.

Figure LD-12. Living Donors who Donated in 2022 by Education, Relationship to Recipient and Organ Donated



Education data were obtained from OPTN Living Donor Registration (LDR) forms.

Table LD-12. Living Donors who Donated in 2022 by Education, Relationship to Recipient and Organ Donated

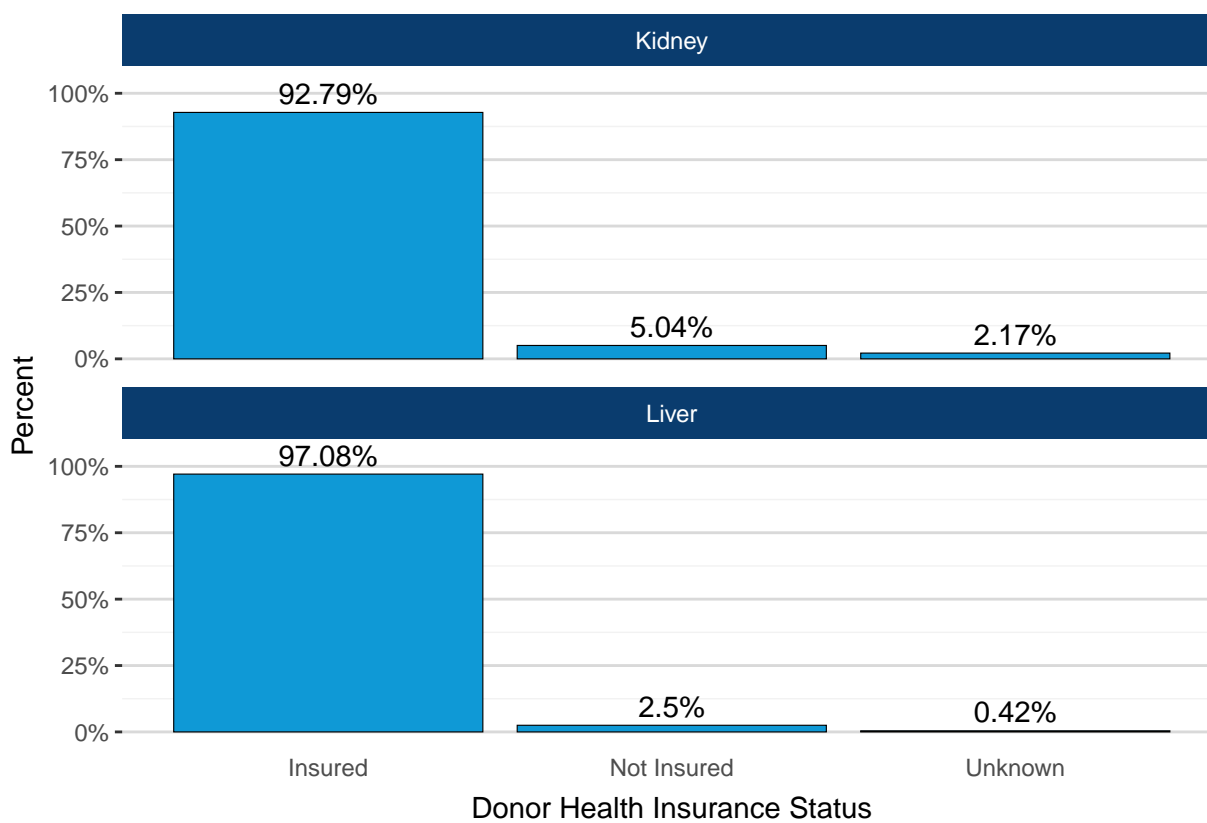
Organ Donated	Donor Education	Donor Relationship to Recipient		
		Biologically Related	Non-Biological, Unrelated	Paired Donation
Kidney	High School or Less	349 (19.25%)	383 (17.04%)	152 (15.17%)
	Some College/Technical School	425 (23.44%)	468 (20.83%)	225 (22.46%)
	College Degree or Higher	969 (53.45%)	1,320 (58.74%)	599 (59.78%)
	Unknown/Not Reported	70 (3.86%)	76 (3.38%)	26 (2.59%)
	Total	1,813 (100.00%)	2,247 (100.00%)	1,002 (100.00%)
Liver	High School or Less	47 (18.36%)	29 (15.76%)	4 (10.00%)
	Some College/Technical School	65 (25.39%)	40 (21.74%)	3 (7.50%)
	College Degree or Higher	143 (55.86%)	111 (60.33%)	33 (82.50%)
	Unknown/Not Reported	1 (0.39%)	4 (2.17%)	0 (0.00%)
	Total	256 (100.00%)	184 (100.00%)	40 (100.00%)
Total	Total	2,069 (100%)	2,431 (100%)	1,042 (100%)

Education data were obtained from OPTN Living Donor Registration (LDR) forms.

Living Donors - Health Insurance Status

Figure LD-13 and **Table LD-13** show living kidney and liver donors who donated in 2022 by donor health insurance status and organ donated. The Living Donor Registration (LDR) form currently does not collect specific health insurance type information for living donors, but indicates whether or not the donor had health insurance at the time of donation. Over 90% of living kidney and liver donors had health insurance at donation.

Figure LD-13. Living Donors who Donated in 2022 by Health Insurance Status and Organ Donated



Data on health insurance status were obtained from OPTN Living Donor Registration (LDR) forms.

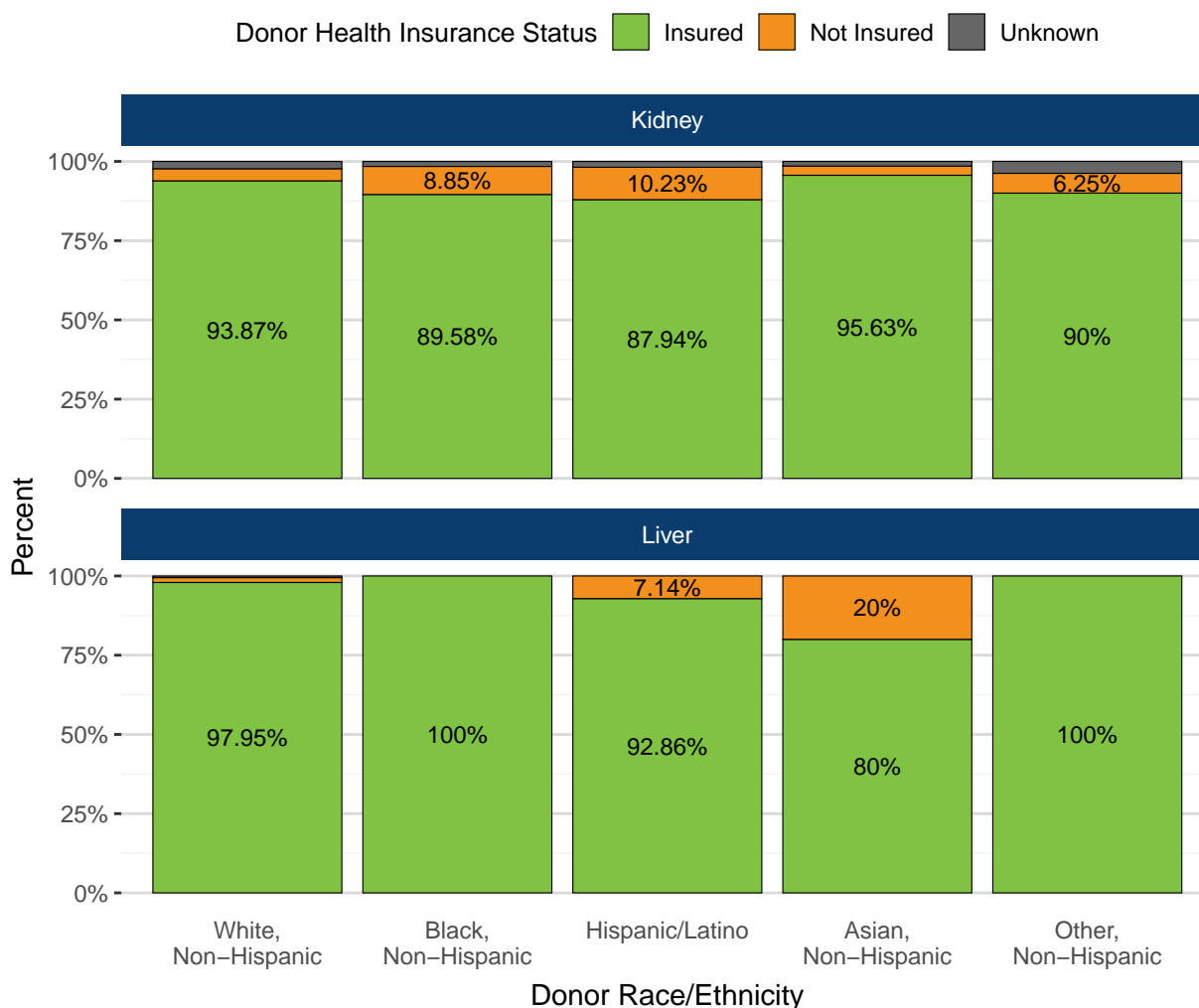
Table LD-13. Living Donors who Donated in 2022 by Health Insurance Status and Organ Donated

Organ Donated	Donor Health Insurance Status	N	Percent
Kidney	Insured	4,697	92.79%
	Not Insured	255	5.04%
	Unknown	110	2.17%
	Total	5,062	100%
Liver	Insured	466	97.08%
	Not Insured	12	2.5%
	Unknown	2	0.42%
	Total	480	100%
Total	Total	5,542	100%

Data on health insurance status were obtained from OPTN Living Donor Registration (LDR) forms.

Figure LD-14 and **Table LD-14** show living kidney and liver donors who donated in 2022 by donor health insurance status, donor race/ethnicity, and organ donated. For kidney donors, 10.23% of Hispanic/Latino donors, 8.85% of Black, non-Hispanic donors, and 6.25% of other, non-Hispanic donors were uninsured. Meanwhile, for liver donors, 20% of Asian, non-Hispanic donors and 7.14% of Hispanic/Latino donors were uninsured.

Figure LD-14. Living Donors who Donated in 2022 by Health Insurance Status, Race/Ethnicity and Organ Donated



Data on health insurance status were obtained from OPTN Living Donor Registration (LDR) forms. Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Table LD-14. Living Donors who Donated in 2022 by Health Insurance Status, Race/Ethnicity and Organ Donated

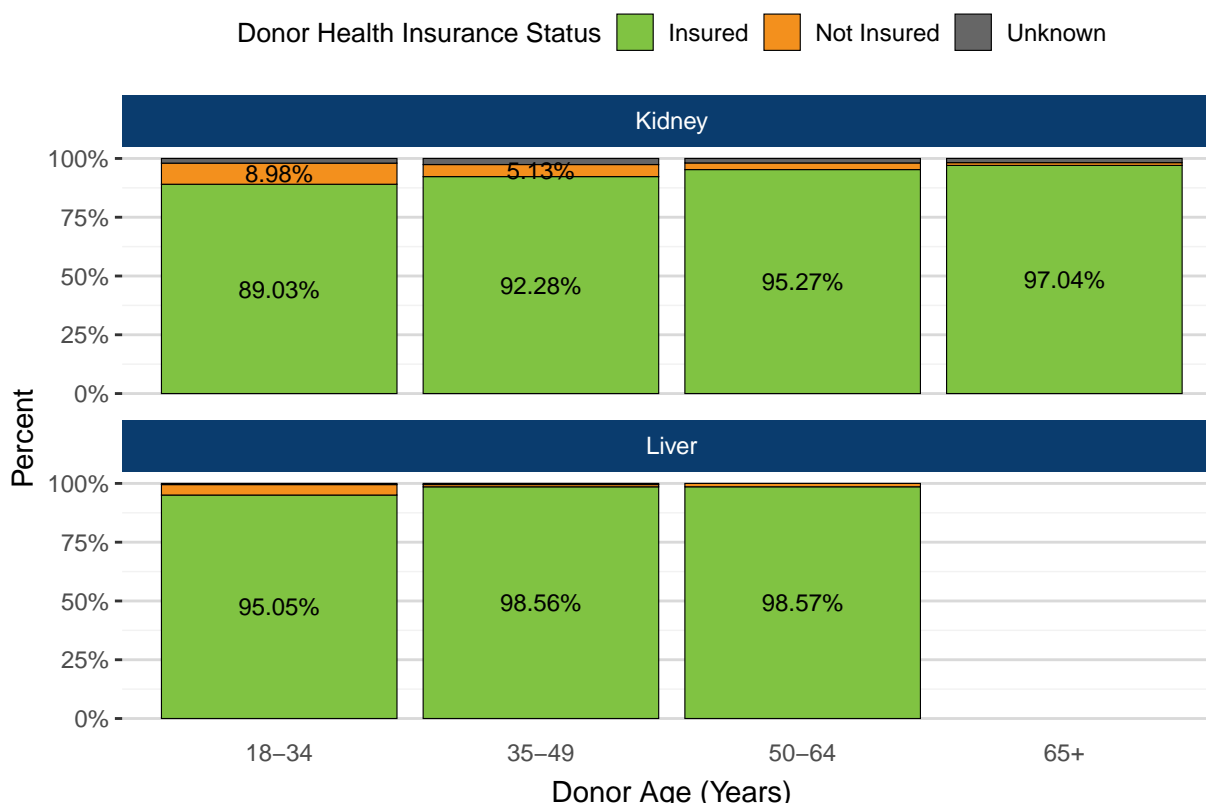
Organ Donated	Donor Health Insurance Status	Donor Race/Ethnicity				
		White, NH	Black, NH	Hispanic/Latino	Asian, NH	Other, NH
Kidney	Insured	3,508 (93.87%)	344 (89.58%)	576 (87.94%)	197 (95.63%)	72 (90.00%)
	Not Insured	143 (3.83%)	34 (8.85%)	67 (10.23%)	6 (2.91%)	5 (6.25%)
	Unknown	86 (2.30%)	6 (1.56%)	12 (1.83%)	3 (1.46%)	3 (3.75%)
	Total	3,737 (100.00%)	384 (100.00%)	655 (100.00%)	206 (100.00%)	80 (100.00%)
Liver	Insured	383 (97.95%)	18 (100.00%)	52 (92.86%)	8 (80.00%)	5 (100.00%)
	Not Insured	6 (1.53%)	0 (0.00%)	4 (7.14%)	2 (20.00%)	0 (0.00%)
	Unknown	2 (0.51%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
	Total	391 (100.00%)	18 (100.00%)	56 (100.00%)	10 (100.00%)	5 (100.00%)
Total	Total	4,128 (100%)	402 (100%)	711 (100%)	216 (100%)	85 (100%)

Data on health insurance status were obtained from OPTN Living Donor Registration (LDR) forms.

Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Figure LD-15 and **Table LD-15** show living kidney and liver donors who donated in 2022 by donor health insurance status, donor age, and organ donated. For both kidney and liver donors, the highest proportion of uninsured was among donors aged 18-34. The majority of living donors who donated in 2022 had health insurance at the time of donation.

Figure LD-15. Living Donors who Donated in 2022 by Health Insurance Status, Age and Organ Donated



Data on health insurance status were obtained from OPTN Living Donor Registration (LDR) forms.

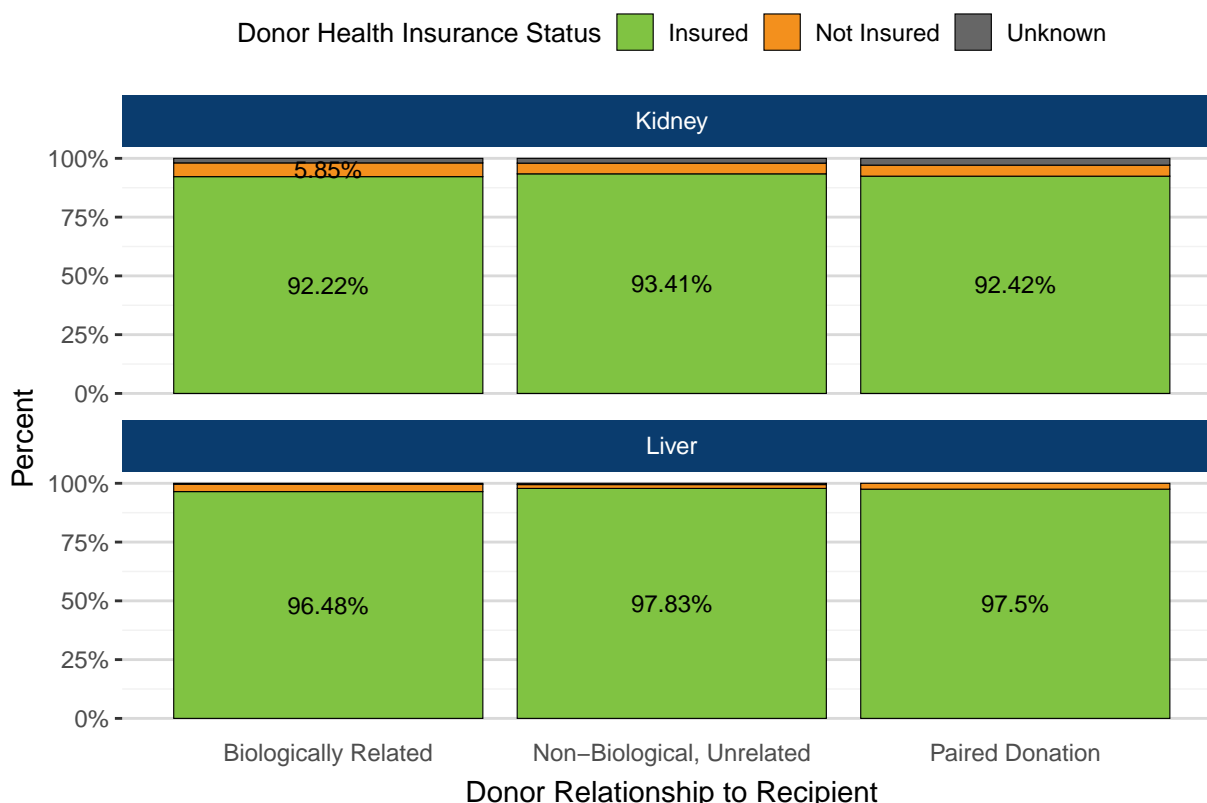
Table LD-15. Living Donors who Donated in 2022 by Health Insurance Status, Age and Organ Donated

Organ Donated	Donor Health Insurance Status	Donor Age (Years)			
		18-34	35-49	50-64	65+
Kidney	Insured	1,071 (89.03%)	1,746 (92.28%)	1,552 (95.27%)	328 (97.04%)
	Not Insured	108 (8.98%)	97 (5.13%)	46 (2.82%)	4 (1.18%)
	Unknown	24 (2.00%)	49 (2.59%)	31 (1.90%)	6 (1.78%)
	Total	1,203 (100.00%)	1,892 (100.00%)	1,629 (100.00%)	338 (100.00%)
Liver	Insured	192 (95.05%)	205 (98.56%)	69 (98.57%)	0 (-)
	Not Insured	9 (4.46%)	2 (0.96%)	1 (1.43%)	0 (-)
	Unknown	1 (0.50%)	1 (0.48%)	0 (0.00%)	0 (-)
	Total	202 (100.00%)	208 (100.00%)	70 (100.00%)	0 (-)
Total	Total	1,405 (100%)	2,100 (100%)	1,699 (100%)	338 (100%)

Data on health insurance status were obtained from OPTN Living Donor Registration (LDR) forms.

Figure LD-16 and **Table LD-16** show living kidney and liver donors who donated in 2022 by donor health insurance status, the donor's relationship to recipient, and organ donated. Health insurance status did not differ much across relationship to recipient categories. Approximately 5% of living kidney donors and 2-3% of living liver donors were uninsured at the time of donation across all donor relationship to recipient categories.

Figure LD-16. Living Donors who Donated in 2022 by Health Insurance Status, Relationship to Recipient and Organ Donated



Data on health insurance status were obtained from OPTN Living Donor Registration (LDR) forms.

Table LD-16. Living Donors who Donated in 2022 by Health Insurance Status, Relationship to Recipient and Organ Donated

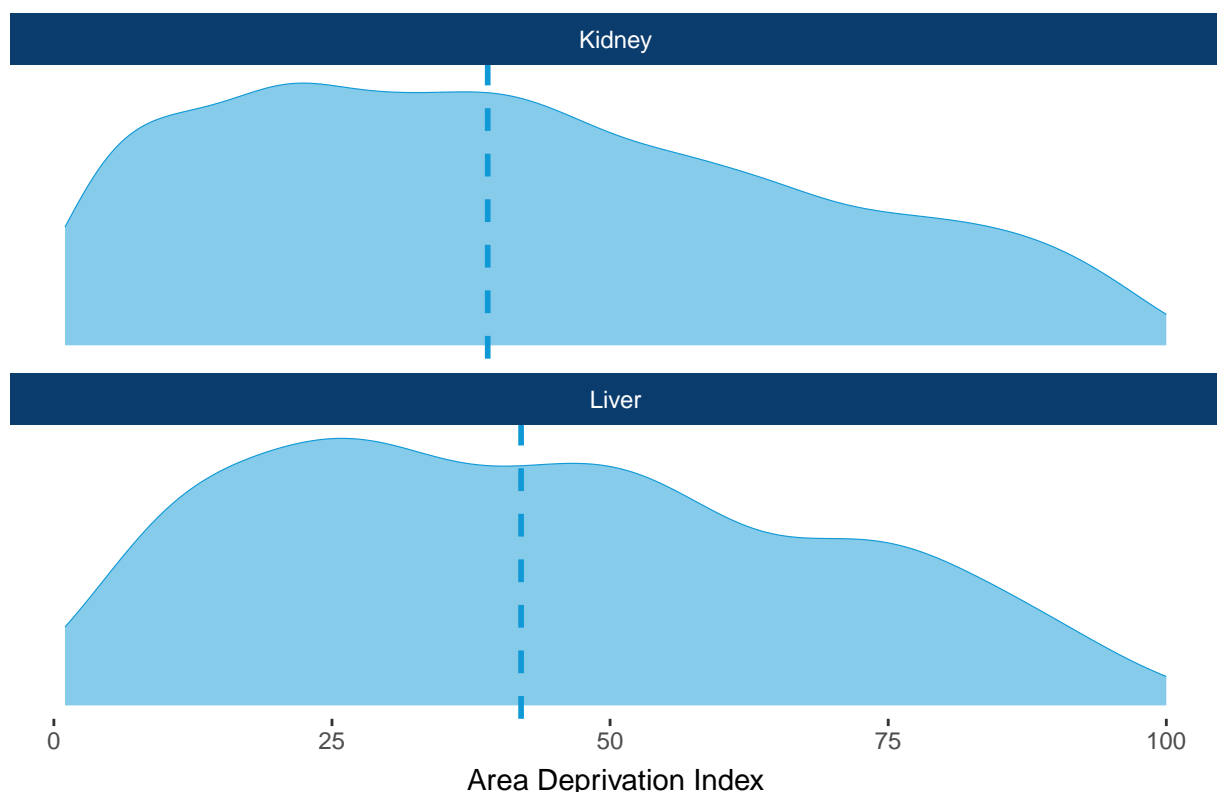
Organ Donated	Donor Health Insurance Status	Donor Relationship to Recipient		
		Biologically Related	Non-Biological, Unrelated	Paired Donation
Kidney	Insured	1,672 (92.22%)	2,099 (93.41%)	926 (92.42%)
	Not Insured	106 (5.85%)	102 (4.54%)	47 (4.69%)
	Unknown	35 (1.93%)	46 (2.05%)	29 (2.89%)
	Total	1,813 (100.00%)	2,247 (100.00%)	1,002 (100.00%)
Liver	Insured	247 (96.48%)	180 (97.83%)	39 (97.50%)
	Not Insured	8 (3.12%)	3 (1.63%)	1 (2.50%)
	Unknown	1 (0.39%)	1 (0.54%)	0 (0.00%)
	Total	256 (100.00%)	184 (100.00%)	40 (100.00%)
Total	Total	2,069 (100%)	2,431 (100%)	1,042 (100%)

Data on health insurance status were obtained from OPTN Living Donor Registration (LDR) forms.

Living Donors - Area Deprivation Index

Figure LD-17 and **Table LD-17** show the distribution of neighborhood area deprivation index for living kidney and liver donors who donated in 2022 by organ donated. Median area deprivation index was 39 for living kidney donors and 42 for living liver donors.

Figure LD-17. Distribution of Area Deprivation Index for Living Donors who Donated in 2022 by Organ Donated



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

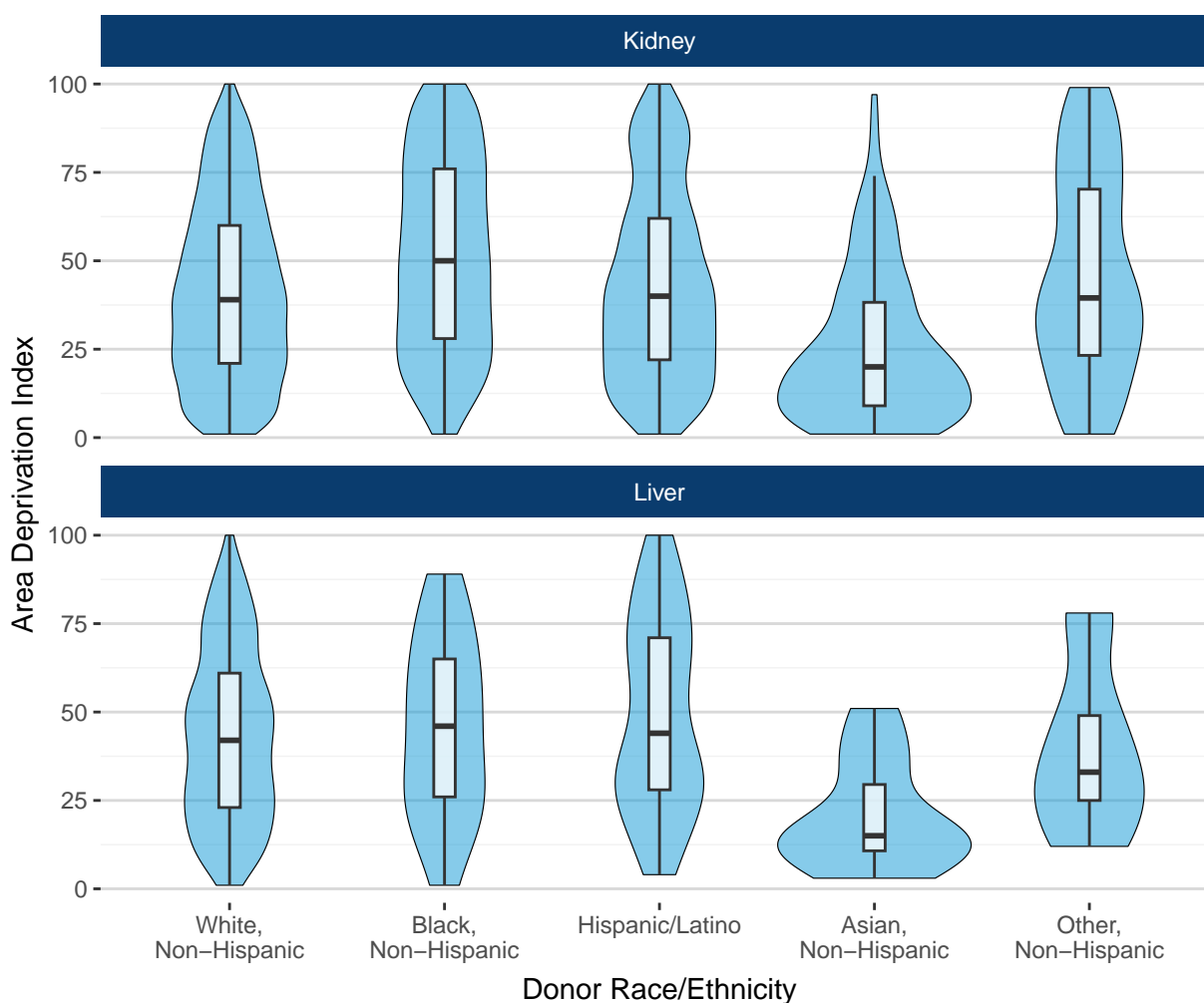
Table LD-17. Distribution of Area Deprivation Index for Living Donors who Donated in 2022 by Organ Donated

Organ Donated	N	Missing	Min	P25	Median	P75	Max
Kidney	5,062	134	1	21	39	61	100
Liver	480	11	1	23	42	61	100
Total	5,542	145	1	21	39	61	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Figure LD-18 and **Table LD-18** show the distribution of area deprivation index for living kidney and liver donors who donated in 2022 by donor race/ethnicity and organ donated. For living kidney donors, ADI was highest for Black, non-Hispanic donors (median: 50) and lowest for Asian, non-Hispanic donors (median: 20), and for living liver donors, ADI was highest for Black, non-Hispanic donors (median: 46) and lowest for Asian, non-Hispanic donors (median: 15).

Figure LD-18. Distribution of Area Deprivation Index for Living Donors who Donated in 2022 by Race/Ethnicity and Organ Donated



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.

Data are at the census block group level.

Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Table LD-18. Distribution of Area Deprivation Index for Living Donors who Donated in 2022 by Race/Ethnicity and Organ Donated

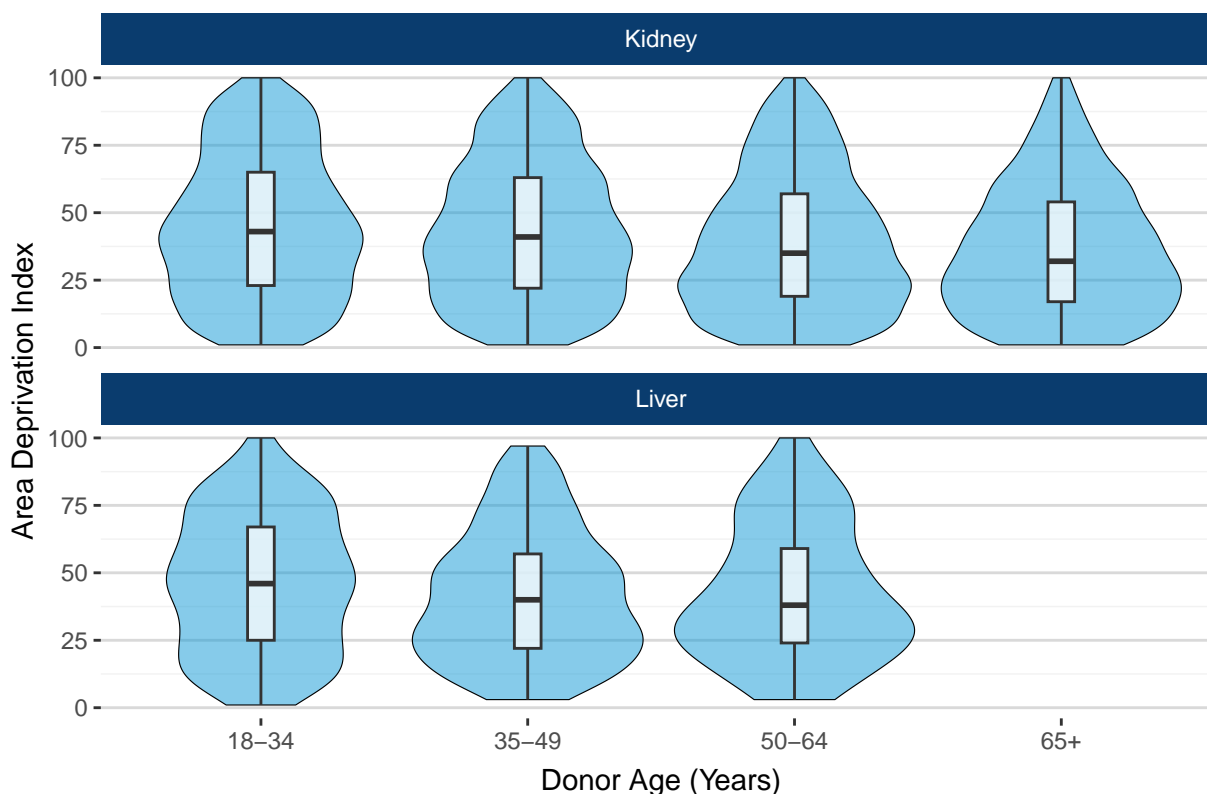
Organ Donated	Donor Race/Ethnicity	N	Missing	Min	P25	Median	P75	Max
Kidney	White, Non-Hispanic	3,737	100	1	21	39	60	100
	Black, Non-Hispanic	384	9	1	28	50	76	100
	Hispanic/Latino	655	13	1	22	40	62	100
	Asian, Non-Hispanic	206	6	1	9	20	38	97
	Other, Non-Hispanic	80	6	1	23	40	70	99
	Total	5,062	134	1	21	39	61	100
Liver	White, Non-Hispanic	391	7	1	23	42	61	100
	Black, Non-Hispanic	18	1	1	26	46	65	89
	Hispanic/Latino	56	3	4	28	44	71	100
	Asian, Non-Hispanic	10	0	3	11	15	30	51
	Other, Non-Hispanic	5	0	12	25	33	49	78
	Total	480	11	1	23	42	61	100
Total	Total	5,542	145	1	21	39	61	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

Other, NH includes N=21 American Indian/Alaskan Native, NH kidney donors; N=54 Multiracial, NH kidney donors; N=2 Multiracial, NH liver donors; N=5 Native Hawaiian/Other Pacific Islander, NH kidney donors; N=3 Native Hawaiian/Other Pacific Islander, NH liver donors.

Figure LD-19 and **Table LD-19** show the distribution of area deprivation index for living kidney and liver donors who donated in 2022 by donor age at donation and organ donated. For both kidney and liver donors, ADI decreased with increasing age, with donors aged 18-34 having the highest median ADI values.

Figure LD-19. Distribution of Area Deprivation Index for Living Donors who Donated in 2022 by Age and Organ Donated



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.

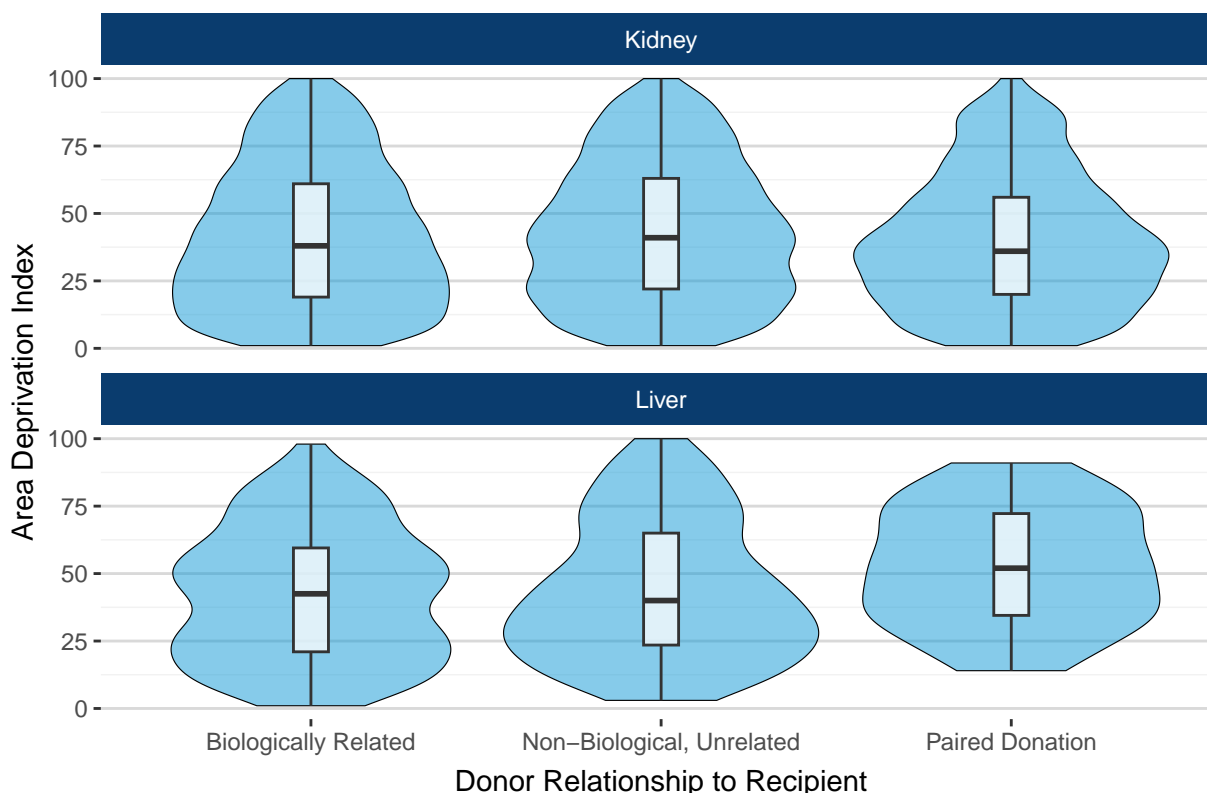
Table LD-19. Distribution of Area Deprivation Index for Living Donors who Donated in 2022 by Age and Organ Donated

Organ Donated	Donor Age (Years)	N	Missing	Min	P25	Median	P75	Max
Kidney	18-34	1,203	38	1	23	43	65	100
	35-49	1,892	44	1	22	41	63	100
	50-64	1,629	45	1	19	35	57	100
	65+	338	7	1	17	32	54	100
	Total	5,062	134	1	21	39	61	100
Liver	18-34	202	7	1	25	46	67	100
	35-49	208	3	3	22	40	57	97
	50-64	70	1	3	24	38	59	100
	Total	480	11	1	23	42	61	100
Total	Total	5,542	145	1	21	39	61	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.

Figure LD-20 and **Table LD-20** show the distribution of area deprivation index for living kidney and liver donors who donated in 2022 by donor relationship to recipient and organ donated. For kidney donors, ADI was highest for donors not biologically related to the recipient (median: 41) and lowest for paired donation donors (median: 36), while for liver donors ADI was highest for paired donation donors (median: 52) and lowest for donors not biologically related to the recipient (median: 40).

Figure LD-20. Distribution of Area Deprivation Index for Living Donors who Donated in 2022 by Relationship to Recipient and Organ Donated



Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas.
Data are at the census block group level.

Table LD-20. Distribution of Area Deprivation Index for Living Donors who Donated in 2022 by Relationship to Recipient and Organ Donated

Organ Donated	Donor Relationship to Recipient	N	Missing	Min	P25	Median	P75	Max
Kidney	Biologically Related	1,813	52	1	19	38	61	100
	Non-Biological, Unrelated	2,247	52	1	22	41	63	100
	Paired Donation	1,002	30	1	20	36	56	100
	Total	5,062	134	1	21	39	61	100
Liver	Biologically Related	256	6	1	21	42	60	98
	Non-Biological, Unrelated	184	5	3	24	40	65	100
	Paired Donation	40	0	14	34	52	72	91
	Total	480	11	1	23	42	61	100
Total	Total	5,542	145	1	21	39	61	100

Data from the 2021 Area Deprivation Index (ADI) were obtained from Neighborhood Atlas. Data are at the census block group level.

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