



COVID-19 Guide

Adjustments to Transplant Program and OPO Evaluation Metrics

The Scientific Registry of Transplant Recipients (SRTR), under contract from the Health Resources and Services Administration (HRSA), is charged with evaluating the performance of the nation's transplant system through publication of semi-annual transplant program-specific reports (PSRs) and organ procurement organization (OPO)-specific reports (OSRs). These reports contain performance metrics covering various time periods. For OPOs, these metrics include eligible death conversion rates and deceased donor organ yield. For transplant programs, they include pre-transplant mortality rates (formerly called waitlist mortality rates), transplant rates, organ offer acceptance rates, patient mortality after listing, and 1-month, 90-day, 1-year, 1-year conditional on 90-day, and 3-year posttransplant outcomes including graft survival and patient survival.

In response to the current global pandemic, SRTR modified the evaluation metrics for transplant programs and OPOs for the reports released in January 2021, July 2021, January 2022, July 2022, January 2023, July 2023 and January 2024. These reports made adjustments to transplant program and OPO performance metrics so that data during the time around the declaration of a national public health emergency on March 13, 2020, were not included in the metrics.

Modifications for the July 2024 reporting cycle were considered at the Analytic Methods Subcommittee of the SRTR Review Committee (SRC) at its meeting on March 24, 2021, and the full SRC meetings April 27, 2021 and on January 11, 2022. Both the Analytic Methods Subcommittee and the full SRC recommended an ongoing carve out of the first quarter of the pandemic (March 13, 2020 through June 12, 2020) from adjusted performance metrics, as detailed below. These recommendations were reviewed by HRSA's Division of Transplantation, which oversees SRTR. HRSA approved these recommendations, which SRTR will implement for the July 2024 reporting cycle. These changes will remain in force beyond the July 2024 reporting cycle, unless otherwise amended:

Posttransplant Outcomes (including 1-month, 90-day, 1-year, 1-year conditional on 90-day, and 3-year graft and patient survival): Evaluation cohorts will exclude transplants performed between March 13, 2020 and June 12, 2020, inclusive of March 13 and June 12. Patients given transplants before March 13, 2020 will have follow-up censored on March 12, 2020. Patients given transplants after June 12, 2020 will resume normal follow-up. Follow-up will not resume for patients given transplants before March 13, 2020 who are alive with function on June 12, 2020; however, this may be reconsidered as SRTR continues to explore moving to a period-prevalent methodology:

1-month, 90-day, 1-year & 1-year conditional on 90-day Patient and Graft Survival Evaluations: Transplants 1/1/2021-6/30/2023, follow-up through 12/31/2023.

3-year Patient and Graft Survival Evaluations: Transplants 7/1/2018-3/12/2020, follow-up through 3/12/2020. Transplants 6/13/2020-12/31/2020; follow-up through 12/31/2023.

Pre-Transplant Mortality Rate (formerly called Waitlist Mortality Rate): These evaluations are based on normal reporting cohorts.

Days after listing (and before transplant) between 1/1/2022 and 12/31/2023.



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Transplant Rate: These evaluations are based on normal reporting cohorts.

Candidates on the waitlist 1/1/2022-12/31/2023.

Overall Rate of Mortality After Listing: These evaluations are based on normal reporting cohorts.

Evaluation period: 1/1/2022-12/31/2023.

Offer Acceptance Rate: These evaluations are based on normal reporting cohorts.

Offers received 1/1/2023-12/31/2023.

These decisions will apply to the evaluations released in the SRTR's semi-annual program-specific reports scheduled for release on July 9, 2024. These changes have been communicated to the leadership of the Organ Procurement and Transplantation Network's (OPTN) Membership and Professional Standards Committee (MSPC). These decisions will then be re-evaluated as more information becomes available in preparation for the release scheduled for January 2025.

As with the January 2024 reports, SRTR will continue to report descriptive data beyond March 12, 2020, e.g., waitlist counts, transplant counts, recipient characteristics, donor counts, donor characteristics, etc., but will alter data for performance evaluation metrics as described above.



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This report contains a wide range of useful information about the liver transplant program at Hospital of the University of Pennsylvania. The report has three main sections:

- A. Program Summary
- B. Waiting List Information
- C. Transplant Information

The Program Summary is a one-page summary highlighting characteristics of the program, including the number of candidates on the waiting list, the number of transplants performed at the program, the number of patients being cared for by the program, and patient outcomes, including outcomes while on the waiting list (the transplant rate and the death rate while on the waiting list) and outcomes after transplant (patient and graft survival probabilities). If the program performed transplants in both adults and children, survival probabilities for adults and children (pediatrics) are provided separately. For each of the outcomes measures presented, a comparison is provided showing what would be expected at this program if it were performing as similar programs around the country perform when treating similar patients. More details regarding these outcome measures are provided in Sections B and C of the report.

The Waiting List Information section contains more detailed information on how many candidates are on the waiting list at the program, the types of candidates on the waiting list, how long candidates typically have to wait for a transplant at this program, how frequently candidates successfully receive a transplant, and how often candidates on the waiting list die before receiving a transplant.

Table B1 shows the activity on this program's waiting list during two recent 1-year periods and provides comparisons to all programs within this program's OPTN region (see <http://optn.transplant.hrsa.gov/members/regions.asp> for information on OPTN regions) and the nation as a whole. Tables B2 and B3 describe the candidates on the waiting list at this program, with comparisons to candidates waiting in the same donor service area (OPO/DSA) the OPTN region, and the nation as a whole.

Table B4 shows how many candidates were removed from the waiting list because they received a transplant. The program's transplant rate is calculated as the number of candidates who received a transplant divided by the person-years observed at the program (person-years is a combination of how many candidates were on the waiting list along with how long each candidate was followed since some candidates are not on the waiting list for the entire year). The transplant rate and comparisons to what would be expected at this program are presented in Figures B1 and B2. Figure B1 shows the transplant rate compared to what was expected at this program. The expected transplant rate is an estimate of what we would expect at this program if it were performing transplants at rates similar to other programs in the US with similar candidates on their waiting lists. The expected rate is only an estimate, and is made with a certain level of uncertainty. This uncertainty is shown in Figure B2. Figure B2 displays the ratio of the observed to the expected transplant rate. A ratio of 1 indicates that the observed transplant rate was equal to the expected transplant rate, while a ratio less than 1 indicates the observed rate was lower than expected rate and a ratio greater than 1 indicates the observed rate was higher than the expected rate. However, the level of uncertainty must be considered when interpreting these numbers. The 95% interval is also shown on Figure B2. This interval provides a range within which the true ratio of observed to expected transplant rates is likely to be. If this



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confidence interval includes (crosses) 1.0, then we cannot say that this program's observed transplant rate is different from what would be expected. The observed transplant rate at this program was 107.4 per 100 person-years. Transplant rates are also provided for adult and pediatric patients separately along with comparisons to adult and pediatric rates in the DSA, the OPTN region, and the nation. Transplant rates are also presented excluding transplants from a living donor (Table B4D and Figures B1D-B3D). Please refer to the PSR Technical Methods documentation available at <http://www.srtr.org> for more detail regarding how expected rates are calculated.

The pre-transplant mortality rate (previously called the waiting list mortality rate) for candidates on the waiting list is presented in Table B5 and Figures B4-B6. These data are presented in the same way as the transplant rate data in the previous section. The intent of this table and figures is to describe risk of death once candidates are listed rather than while they are listed, but before they are transplanted. Therefore, time at risk and deaths after removal from the waiting list for reasons other than transplant, transfer to another transplant program, or recovery (no longer needing a transplant), and before any subsequent transplant, are included. As with transplant rates, mortality rates should be interpreted carefully taking into consideration the interval displayed in Figure B5. For a complete description of how observed and expected mortality rates are calculated, please refer to the technical documentation available at <http://www.srtr.org>.

Survival from listing is presented in Table B6 and Figures B7-B9. These data are presented in the same way as the pre-transplant mortality rate data in the previous section. The intent of this table and figures is to describe risk of death once candidates are listed rather than while they are listed, including after a transplant. As with transplant rates, mortality rates should be interpreted carefully taking into consideration the interval displayed in Figure B8. For a complete description of how observed and expected mortality rates are calculated, please refer to the technical documentation available at <http://www.srtr.org>.

Table B7 presents information on what happens to candidates on the waiting list by three different time points after listing: 6 months, 12 months, and 18 months. The table displays percentages of candidates who have died, been removed from the waiting list, been transplanted, or been transferred or lost-to-follow-up. Tables B8 and B9 provide more detail regarding how many candidates have received a deceased donor transplant by certain time points during the first 3 years after being put on the transplant waiting list. Each row of Tables B8 and B9 presents the percent of candidates who received a deceased donor transplant by each time point. Table B10 presents data on the time it took for different percentages of patients to be transplanted for candidates added to the list between 01/01/2018 and 06/30/2023. The time it took for 5% (the 5th percentile) of patients to receive a transplant at this program was 0.1 months. If "Not Observed" is displayed in the table, then too few candidates received transplants before 12/31/2023 to calculate a particular percentile of transplant times.

Table B11 contains a summary of the offer acceptance practices of the program. The offer acceptance ratio indicates whether the program is more or less likely to accept offers than the average program. If the offer acceptance ratio is greater than 1.0, then the program tends to accept more offers than average; if the offer acceptance ratio is less than 1.0, then the program tends to accept fewer offers than average. Figure B10 shows the distribution of program offer acceptance rates as well as the offer acceptance rate for this program. Figures B11 - B15 similarly show offer acceptance rates for subsets



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of offers.

The Transplant Information section begins with descriptions of transplant recipients in Tables C1 and C2. Data on recipients of deceased donor transplants are presented (Tables C1D and C2D); if applicable, data on recipients of living donor transplants are presented separately (Tables C1L and C2L). Comparisons to the region and the nation as a whole are provided. A description of the deceased donors used at this program is provided in Table C3D, along with characteristics of living donors in Table C3L, if applicable. Finally, information on the transplant procedure for deceased and living donor transplants is presented in Tables C4D and C4L, respectively.

Starting with Table C5, transplant outcomes are presented along with comparisons to what would be expected at this program and what happened in the nation as a whole. Tables C5-C14 (tables C5-C10 for Pancreas) present information on graft survival (survival of the transplanted organ), with data presented separately for adult and pediatric recipients. Patients are followed from the time of transplant until either failure of the transplanted organ or death, whichever comes first. Please refer to the technical methods for more information on these calculations (<http://www.srtr.org>).

While Tables C5-C14 present data on graft survival, Tables C15-C20 (tables C11-C20 for Pancreas) present information on patient survival. For these tables, patients are followed from the time of transplant until death, regardless of whether the transplant is functioning or the patient required another transplant to survive.

Tables C21 and C22 summarize the multiorgan transplant outcomes at this program. The summary statistics in these tables are descriptive and are not risk-adjusted for different donor and candidate characteristics.

Table D1 shows the rates of follow-up for living donors.

Additional information regarding the technical methods and the risk adjustment models used to estimate expected event rates is available on the SRTR website at <http://www.srtr.org>. We welcome and encourage feedback on these reports. Please feel free to share feedback with the SRTR at the following e-mail: srtr@srtr.org.



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A. Program Summary

Figure A1. Waiting list and transplant activity

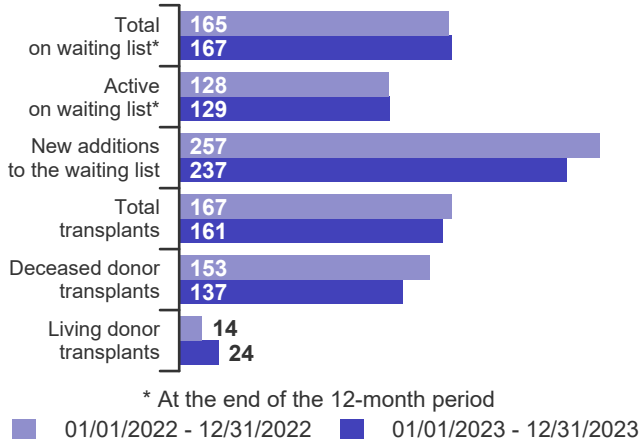


Table A1. Census of transplant recipients

Recipients	01/01/2022-12/31/2022	01/01/2023-12/31/2023
Transplanted at this center	167	161
Followed by this center*	1,480	1,597
...transplanted at this program	1,419	1,525
...transplanted elsewhere	61	72

* Recipients followed are transplant recipients for whom the center has submitted a post-transplant follow-up form for a transplant that took place before the 12-month interval for each column.

Figure A2. Transplant rates
01/01/2022 - 12/31/2023

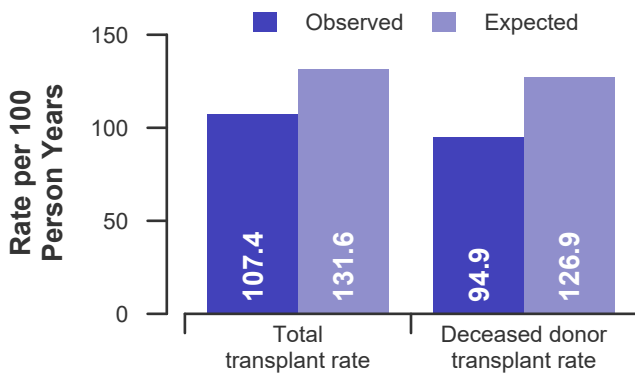


Figure A3. Pre-transplant mortality rates
01/01/2022 - 12/31/2023

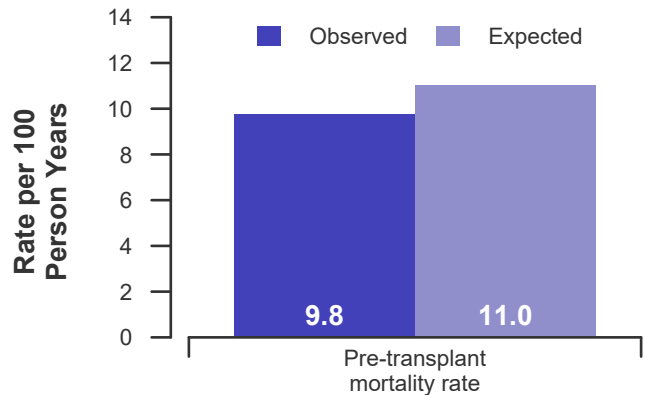


Figure A4. First-year adult graft and patient survival: 01/01/2021 - 06/30/2023

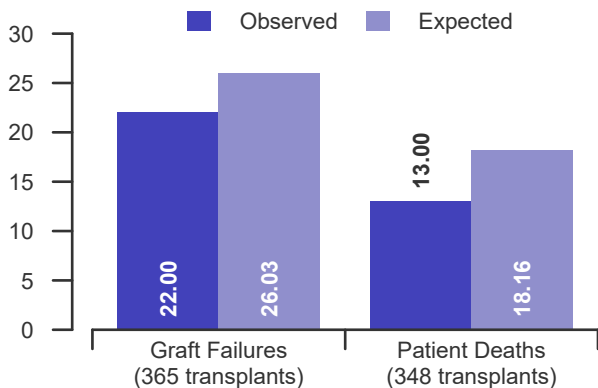


Figure A5. First-year pediatric graft and patient survival: 01/01/2021 - 06/30/2023

This center did not perform any transplants relevant to this figure during 01/01/2021-06/30/2023



B. Waiting List Information

Table B1. Waiting list activity summary: 01/01/2022 - 12/31/2023

Waiting List Registrations	Counts for this center		Activity for 01/01/2023 to 12/31/2023 as percent of registrants on waiting list on 01/01/2023		
	01/01/2022-12/31/2022	01/01/2023-12/31/2023	This Center (%)	OPTN Region (%)	U.S. (%)
On waiting list at start	128	165	100.0	100.0	100.0
Additions					
New listings at this center	257	237	143.6	103.4	133.6
Removals					
Transferred to another center	4	4	2.4	1.2	1.4
Received living donor transplant*	14	24	14.5	11.2	6.0
Received deceased donor transplant*	153	137	83.0	58.5	91.1
Died	11	12	7.3	8.5	8.7
Transplanted at another center	4	3	1.8	3.1	2.9
Deteriorated	12	18	10.9	9.0	9.0
Recovered	13	24	14.5	8.4	10.9
Other reasons	9	13	7.9	10.7	11.1
On waiting list at end of period	165	167	101.2	92.8	92.5

* These patients were removed from waiting list with removal code indicating transplant; this may not equal the number of transplants performed at this center during the specified period.



B. Waiting List Information

Table B2. Demographic characteristics of waiting list candidates
Candidates registered on the waiting list between 01/01/2023 and 12/31/2023

Demographic Characteristic	New Waiting List Registrations 01/01/2023 to 12/31/2023 (%)			All Waiting List Registrations on 12/31/2023 (%)		
	This Center (N=237)	OPTN Region (N=1,533)	U.S. (N=14,662)	This Center (N=167)	OPTN Region (N=1,375)	U.S. (N=10,149)
All (%)	100.0	100.0	100.0	100.0	100.0	100.0
Ethnicity/Race (%)*						
White	75.1	74.0	67.3	70.1	73.4	64.6
African-American	9.3	11.8	7.1	15.0	13.4	7.1
Hispanic/Latino	8.9	8.7	18.8	9.6	8.9	21.0
Asian	3.8	4.0	4.2	3.0	3.2	5.0
Other	1.7	0.8	2.1	2.4	0.7	1.9
Unknown	1.3	0.7	0.6	0.0	0.4	0.4
Age (%)						
<2 years	0.0	2.5	2.1	0.0	1.1	1.5
2-11 years	0.0	2.5	1.7	0.0	1.8	1.5
12-17 years	0.0	0.8	1.0	0.6	1.2	1.0
18-34 years	6.8	7.5	7.1	4.8	7.1	6.7
35-49 years	19.4	21.9	22.1	19.2	19.9	19.9
50-64 years	52.7	44.7	44.8	53.9	50.0	48.3
65-69 years	16.9	14.7	15.5	17.4	14.6	16.1
70+ years	4.2	5.4	5.7	4.2	4.3	5.0
Gender (%)						
Male	57.8	61.9	59.7	59.3	60.7	59.8
Female	42.2	38.1	40.3	40.7	39.3	40.2

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



B. Waiting List Information

Table B3. Medical characteristics of waiting list candidates

Candidates registered on the waiting list between 01/01/2023 and 12/31/2023

Medical Characteristic	New Waiting List Registrations 01/01/2023 to 12/31/2023 (%)			All Waiting List Registrations on 12/31/2023 (%)		
	This Center	OPTN Region	U.S.	This Center	OPTN Region	U.S.
	(N=237)	(N=1,533)	(N=14,662)	(N=167)	(N=1,375)	(N=10,149)
All (%)	100.0	100.0	100.0	100.0	100.0	100.0
Blood Type (%)						
O	44.7	45.8	47.5	43.7	47.6	50.2
A	35.4	37.7	37.2	40.1	39.4	39.1
B	15.6	12.5	11.4	14.4	11.2	9.1
AB	4.2	4.0	3.9	1.8	1.7	1.6
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Previous Transplant (%)						
Yes	5.1	4.2	4.6	1.8	4.0	3.8
No	94.9	95.8	95.4	98.2	96.0	96.2
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Primary Disease (%)						
Acute Hepatic Necrosis	2.5	2.9	2.4	0.6	1.2	1.3
Non-Cholestatic Cirrhosis	32.1	28.8	31.6	35.3	51.0	49.9
Cholestatic Liver Disease/Cirrhosis	8.0	6.2	6.2	9.0	9.1	7.5
Biliary Atresia	0.4	1.9	1.9	0.6	1.8	1.9
Metabolic Diseases	0.0	2.3	1.8	0.0	1.7	1.3
Malignant Neoplasms	15.6	9.7	10.4	25.1	10.8	11.1
Other	41.4	48.0	45.5	28.7	24.3	26.8
Missing	0.0	0.1	0.1	0.6	0.1	0.1
Medical Urgency Status/MELD/PELD at Listing (%)*						
Status 1A	3.8	2.9	2.6	0.0	0.1	0.1
Status 1B	0.0	0.3	0.4	0.0	0.0	0.1
Status 2A	0.0	0.0	0.0	0.0	0.0	0.0
Status 2B	0.0	0.0	0.0	0.0	0.1	0.0
Status 3	0.0	0.0	0.0	0.0	0.0	0.1
MELD 6-10	5.9	14.2	12.7	9.0	31.6	24.3
MELD 11-14	11.4	11.2	12.1	16.8	21.9	21.9
MELD 15-20	24.9	19.4	21.8	29.9	24.3	28.9
MELD 21-30	24.9	21.8	25.0	18.0	11.9	15.0
MELD 31-40	9.7	14.8	13.7	0.6	1.4	1.1
PELD less than or equal to 10	0.0	2.2	1.5	0.0	1.8	1.8
PELD 11-14	0.0	0.7	0.4	0.0	0.4	0.3
PELD 15-20	0.0	0.5	0.5	0.0	0.2	0.3
PELD 21-30	0.0	0.3	0.4	0.0	0.3	0.2
PELD 31 or greater	0.0	0.1	0.1	0.0	0.1	0.0
Temporarily Inactive	15.6	6.4	4.9	25.7	6.0	5.7

* MELD/PELD score based on laboratory measures is shown for listings beginning 2/27/2002 unless patient is Status 1 or Temporarily Inactive. MELD/PELD scores based on exception rules are not used. Status 1 separated into 1A and 1B in August 2005.



B. Waiting List Information

Table B4. Transplant rates: 01/01/2022 - 12/31/2023

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	128	407	1,594	11,721
Person Years**	305.5	807.9	2,941.5	21,822.1
Removals for Transplant	328	686	2,017	20,186
Adult (18+) Candidates				
Count on waiting list at start*	127	400	1,537	11,320
Person Years**	303.5	786.5	2,824.1	20,963.6
Removals for transplant	328	648	1,878	19,098
Pediatric (<18) Candidates				
Count on waiting list at start*	1	7	57	401
Person Years**	2.0	21.4	117.5	858.5
Removals for transplant	0	38	139	1,088

* Counts in this table may be lower than similar counts in other waiting list tables, such as Table B1. A small percentage (~1%) of patients are found to have died or been transplanted before being removed from the waiting list, so these patients are excluded if the event occurs prior to the start of the study period. Inactive time on the waiting list is included in the calculations for this table.

** Person years are calculated as days (converted to fractional years). The number of days from January 1 or from the date of first wait listing until death, transplant, removal from the waiting list or December 31.

Figure B1. Observed and expected transplant rates: 01/01/2022 - 12/31/2023

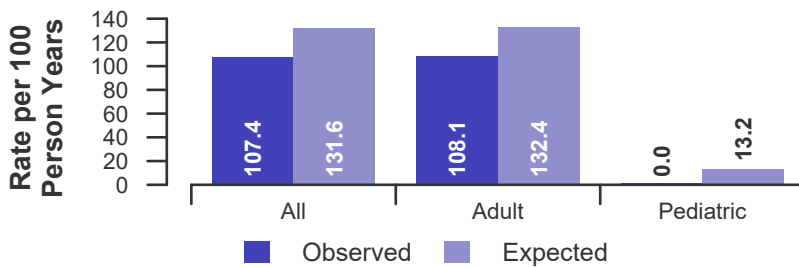


Figure B2. Transplant rate ratio estimate

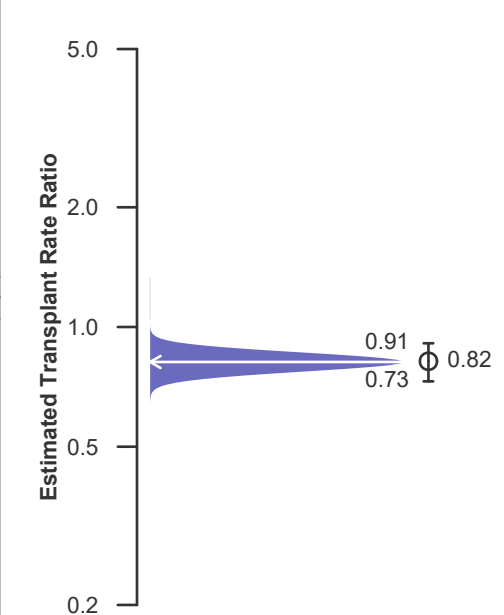
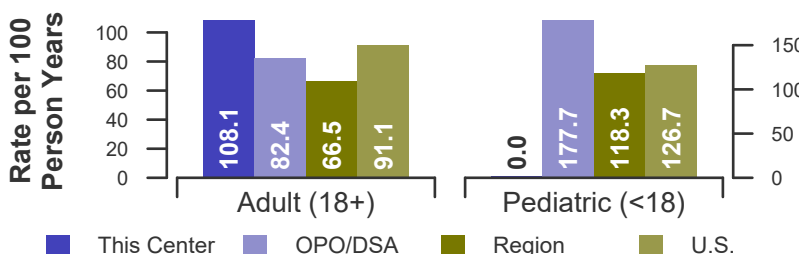


Figure B3. Observed adult (18+) and pediatric (<18) transplant rates: 01/01/2022 - 12/31/2023





B. Waiting List Information

Table B4D. Deceased donor transplant rates: 01/01/2022 - 12/31/2023

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	128	407	1,594	11,721
Person Years**	305.5	807.9	2,941.5	21,822.1
Removals for Transplant	290	644	1,712	18,925
Adult (18+) Candidates				
Count on waiting list at start*	127	400	1,537	11,320
Person Years**	303.5	786.5	2,824.1	20,963.6
Removals for transplant	290	608	1,609	18,004
Pediatric (<18) Candidates				
Count on waiting list at start*	1	7	57	401
Person Years**	2.0	21.4	117.5	858.5
Removals for transplant	0	36	103	921

* Counts in this table may be lower than similar counts in other waiting list tables, such as Table B1. A small percentage (~1%) of patients are found to have died or been transplanted before being removed from the waiting list, so these patients are excluded if the event occurs prior to the start of the study period. Inactive time on the waiting list is included in the calculations for this table.

** Person years are calculated as days (converted to fractional years). The number of days from January 1 or from the date of first wait listing until death, transplant, removal from the waiting list or December 31.

Figure B1D. Observed and expected deceased donor transplant rates: 01/01/2022 - 12/31/2023

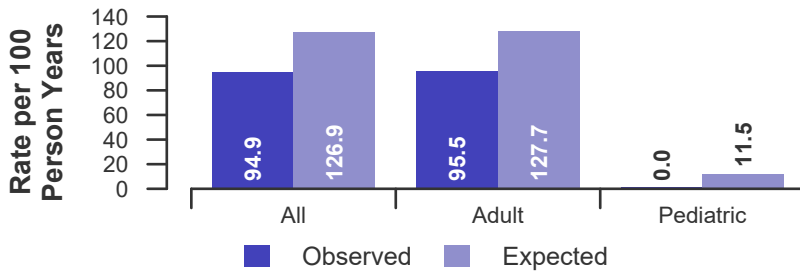


Figure B2D. Deceased donor transplant rate ratio estimate

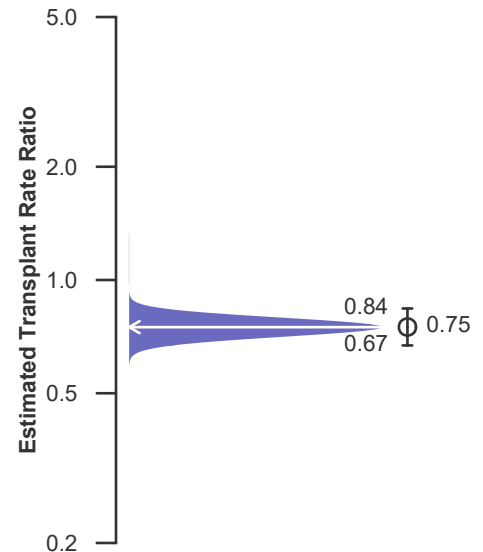
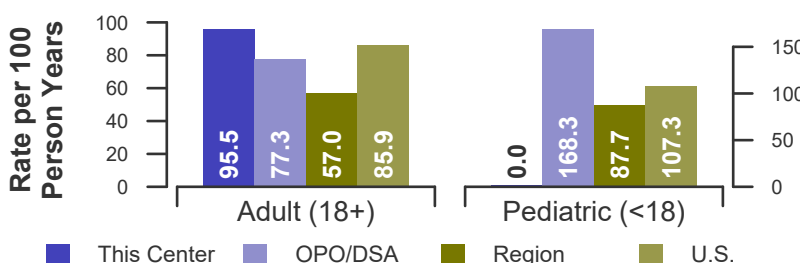


Figure B3D. Observed adult (18+) and pediatric (<18) deceased donor transplant rates: 01/01/2022 - 12/31/2023





B. Waiting List Information

Table B5. Pre-transplant mortality rates: 01/01/2022 - 12/31/2023

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	128	407	1,594	11,721
Person Years**	347.9	961.8	3,463.4	25,623.8
Number of deaths	34	149	447	3,159
Adult (18+) Candidates				
Count on waiting list at start*	127	400	1,537	11,320
Person Years**	345.9	934.2	3,333.3	24,677.1
Number of deaths	34	146	440	3,103
Pediatric (<18) Candidates				
Count on waiting list at start*	1	7	57	401
Person Years**	2.0	27.6	130.0	946.7
Number of deaths	0	3	7	56

* Counts in this table may be lower than similar counts in other waiting list tables, such as Table B1. A small percentage (~1%) of patients are found to have died or been transplanted before being removed from the waiting list, so these patients are excluded if the event occurs prior to the start of the study period. Inactive time on the waiting list is included in the calculations for this table.

** Person years are calculated as days (converted to fractional years). The number of days from January 1 or from the date of first wait listing until death, transplant, 60 days after recovery, transfer or December 31.

Figure B4. Observed and expected pre-transplant mortality rates: 01/01/2022 - 12/31/2023

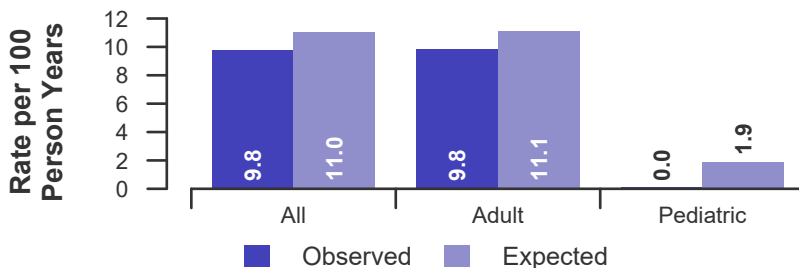


Figure B5. Pre-transplant mortality rate ratio estimate

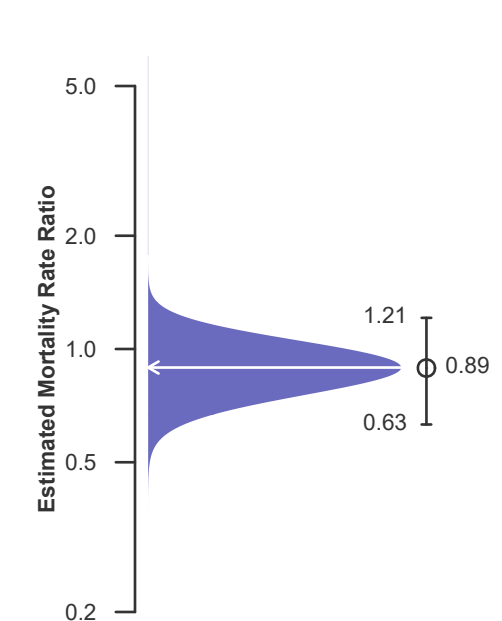
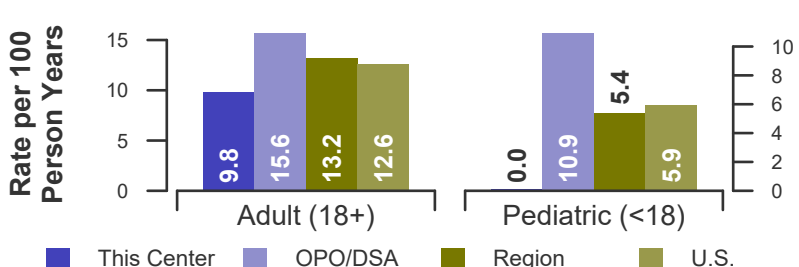


Figure B6. Observed adult (18+) and pediatric (<18) pre-transplant mortality rates: 01/01/2022 - 12/31/2023





B. Waiting List Information

Table B6. Rates of patient mortality after listing: 01/01/2022 - 12/31/2023

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Patients				
Count at risk during the evaluation period	1,254	3,321	9,076	80,020
Person-years*	1,673.0	4,420.4	12,008.4	106,989.7
Number of Deaths	82	297	852	6,659
Adult (18+) Patients				
Count at risk during the evaluation period	1,252	3,142	8,501	75,632
Person-years*	1,669.6	4,170.1	11,212.2	101,002.1
Number of Deaths	82	291	830	6,515
Pediatric (<18) Patients				
Count at risk during the evaluation period	2	179	575	4,388
Person-years*	3.4	250.2	796.2	5,987.6
Number of Deaths	0	6	22	144

* Person-years are calculated as days (converted to fractional years). The number of days from 01/01/2022, or from the date of first wait listing until death, reaching 5 years after listing or December 31, 2023.

** Patient mortality after listing describes the relative survival experience of patients after listing. It depends on many factors, some of which are outside of the control of the transplant program. For example, availability of organs may not be the same in every part of the country.

Figure B7. Observed and expected rates of patient mortality after listing: 01/01/2022 - 12/31/2023

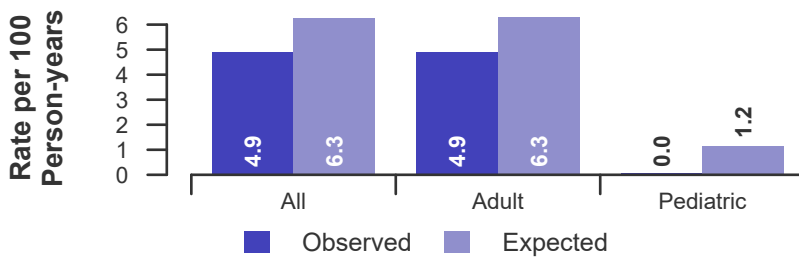


Figure B8. HR estimate of patient mortality after listing

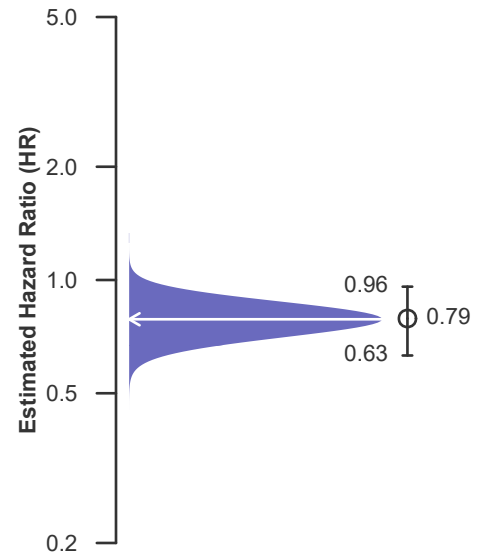
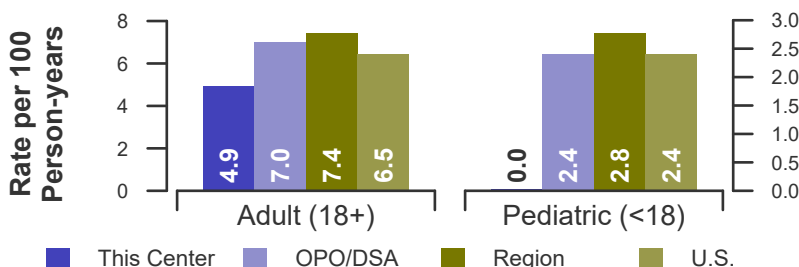


Figure B9. Observed adult (18+) and pediatric (<18) rates of patient mortality after listing: 01/01/2022 - 12/31/2023





B. Waiting List Information

Table B7. Waiting list candidate status after listing
Candidates registered on waiting list between 07/01/2021 and 06/30/2022

Waiting list status (survival status)	This Center (N=219)			U.S. (N=13,642)		
	Months Since Listing			Months Since Listing		
	6	12	18	6	12	18
Alive on waiting list (%)	42.5	23.7	15.1	37.8	21.8	14.0
Died on the waiting list without transplant (%)	2.3	3.7	3.7	4.2	5.2	5.8
Removed without transplant (%):						
Condition worsened (status unknown)	2.3	4.1	5.0	3.8	5.2	6.0
Condition improved (status unknown)	0.9	1.8	2.3	1.3	2.4	3.6
Refused transplant (status unknown)	0.0	0.0	0.0	0.1	0.3	0.4
Other	0.9	2.3	4.1	1.7	3.0	4.0
Transplant (living donor from waiting list only) (%):						
Functioning (alive)	6.4	7.3	5.9	3.0	3.7	2.4
Failed-Retransplanted (alive)	0.5	0.5	0.5	0.0	0.1	0.1
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	0.0	0.0	0.0	0.1	0.1	0.2
Status Yet Unknown**	0.0	0.0	1.4	0.0	0.1	1.7
Transplant (deceased donor) (%):						
Functioning (alive)	42.0	50.2	39.3	43.6	48.8	34.3
Failed-Retransplanted (alive)	0.0	0.5	0.9	0.4	0.5	0.7
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	0.9	2.7	3.2	2.3	3.3	4.2
Status Yet Unknown*	1.4	2.3	17.4	1.5	5.0	22.1
Lost or Transferred (status unknown) (%)	0.0	0.9	1.4	0.2	0.4	0.6
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0
Total % known died on waiting list or after transplant	3.2	6.4	6.8	6.5	8.6	10.1
Total % known died or removed as unstable	5.5	10.5	11.9	10.3	13.9	16.2
Total % removed for transplant	51.1	63.5	68.5	50.9	61.6	65.6
Total % with known functioning transplant (alive)	48.4	57.5	45.2	46.6	52.5	36.8

* Follow-up form covering specified time period not yet completed, and possibly has not become due.



B. Waiting List Information

Table B7S1. Medical urgency status 1 candidate status after listing
Candidates registered on the waiting list between 07/01/2021 and 06/30/2022

Waiting list status (survival status)	This Center (N=3)			U.S. (N=456)		
	Months Since listing			Months Since listing		
	6	12	18	6	12	18
Alive on waiting list (%)	0.0	0.0	0.0	3.3	1.8	1.1
Died on the waiting list without transplant (%)	0.0	0.0	0.0	8.3	8.3	8.3
Removed without transplant (%):						
Condition worsened (status unknown)	0.0	0.0	0.0	5.0	5.0	5.3
Condition improved (status unknown)	33.3	33.3	33.3	15.8	17.3	17.8
Refused transplant (status unknown)	0.0	0.0	0.0	0.2	0.2	0.2
Other	0.0	0.0	0.0	0.7	0.7	0.7
Transplant (living donor from waiting list only) (%):						
Functioning (alive)	0.0	0.0	0.0	2.0	1.5	1.1
Failed-Retransplanted (alive)	0.0	0.0	0.0	0.0	0.0	0.0
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	0.0	0.0	0.0	0.0	0.2	0.2
Status Yet Unknown**	0.0	0.0	0.0	0.0	0.2	0.7
Transplant (deceased donor) (%):						
Functioning (alive)	66.7	66.7	33.3	55.3	48.5	34.0
Failed-Retransplanted (alive)	0.0	0.0	0.0	1.1	1.3	1.3
Failed-alive not retransplanted	0.0	0.0	0.0	0.2	0.2	0.0
Died	0.0	0.0	0.0	6.6	7.5	8.1
Status Yet Unknown*	0.0	0.0	33.3	0.9	6.6	20.6
Lost or Transferred (status unknown) (%)	0.0	0.0	0.0	0.7	0.7	0.7
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0
Total % known died on waiting list or after transplant	0.0	0.0	0.0	14.9	16.0	16.7
Total % known died or removed as unstable	0.0	0.0	0.0	20.0	21.1	21.9
Total % removed for transplant	66.7	66.7	66.7	66.0	66.0	66.0
Total % with known functioning transplant (alive)	66.7	66.7	33.3	57.2	50.0	35.1

* Follow-up form covering specified time period not yet completed, and possibly has not become due.



B. Waiting List Information

Table B8. Percent of candidates with deceased donor transplants: demographic characteristics
Candidates registered on the waiting list between 01/01/2018 and 12/31/2020

Characteristic	Percent transplanted at time periods since listing									
	This Center					United States				
	N	30 day	1 year	2 years	3 years	N	30 day	1 year	2 years	3 years
All	499	29.3	63.7	69.9	70.5	38,471	24.3	53.2	59.1	60.9
Ethnicity/Race*										
White	352	27.8	63.6	69.9	70.2	26,281	24.5	54.0	59.5	61.2
African-American	65	32.3	56.9	66.2	67.7	2,973	27.6	56.7	62.3	64.0
Hispanic/Latino	48	22.9	66.7	72.9	72.9	6,742	22.1	50.1	56.8	58.8
Asian	30	50.0	76.7	76.7	80.0	1,805	22.6	48.6	56.8	59.6
Other	4	25.0	50.0	50.0	50.0	670	27.0	53.0	58.8	60.4
Unknown	0	--	--	--	--	0	--	--	--	--
Age										
<2 years	0	--	--	--	--	816	23.8	73.7	76.1	77.2
2-11 years	0	--	--	--	--	600	25.7	69.3	74.2	75.8
12-17 years	3	33.3	66.7	66.7	66.7	439	21.0	58.5	64.9	66.7
18-34 years	46	41.3	69.6	73.9	73.9	2,384	35.6	55.5	59.9	61.2
35-49 years	78	46.2	71.8	73.1	73.1	6,986	34.9	57.7	62.3	63.8
50-64 years	241	26.1	64.3	72.6	73.4	18,777	22.5	52.2	58.4	60.4
65-69 years	107	22.4	61.7	67.3	68.2	6,505	16.2	47.9	55.2	57.1
70+ years	24	12.5	29.2	37.5	37.5	1,964	17.0	47.6	54.1	55.2
Gender										
Male	320	29.1	63.8	70.3	70.9	23,956	24.2	54.4	60.3	62.2
Female	179	29.6	63.7	69.3	69.8	14,515	24.5	51.4	57.1	58.8

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



B. Waiting List Information

Table B9. Percent of candidates with deceased donor transplants: medical characteristics
Candidates registered on the waiting list between 01/01/2018 and 12/31/2020

Characteristic	N	Percent transplanted at time periods since listing								
		This Center				United States				
		30 day	1 year	2 years	3 years	N	30 day	1 year	2 years	3 years
All	499	29.3	63.7	69.9	70.5	38,471	24.3	53.2	59.1	60.9
Blood Type										
O	207	27.5	64.7	72.0	72.5	17,956	22.9	50.8	57.0	58.9
A	185	26.5	57.3	63.8	64.3	14,291	23.4	51.4	57.6	59.4
B	84	38.1	70.2	73.8	75.0	4,698	28.1	61.6	66.6	68.0
AB	23	34.8	82.6	87.0	87.0	1,526	37.5	73.3	76.0	76.6
Previous Transplant										
Yes	26	50.0	76.9	76.9	76.9	1,849	31.7	55.1	59.4	60.6
No	473	28.1	63.0	69.6	70.2	36,622	23.9	53.2	59.1	60.9
Primary Disease										
Acute Hepatic Necrosis	37	75.7	81.1	83.8	83.8	1,845	55.7	64.6	66.2	66.7
Non-Cholestatic Cirrhosis	322	27.6	60.9	67.7	68.3	25,491	25.7	52.8	58.1	59.9
Cholestatic Liver Disease/Cirrhosis	39	33.3	74.4	79.5	79.5	2,485	19.8	51.8	59.5	61.4
Biliary Atresia	2	0.0	50.0	50.0	50.0	723	16.7	66.7	72.1	73.6
Metabolic Diseases	12	25.0	66.7	66.7	66.7	857	27.4	70.2	74.6	76.2
Malignant Neoplasms	64	9.4	60.9	68.8	70.3	4,898	8.0	47.4	57.1	59.3
Other	23	30.4	65.2	69.6	69.6	2,155	24.2	52.3	58.8	61.3
Missing	0	--	--	--	--	17	29.4	35.3	41.2	41.2
Medical Urgency Status/MELD/PELD at Listing*										
Status 1	0	--	--	--	--	0	--	--	--	--
Status 1A	15	73.3	73.3	73.3	73.3	1,178	60.8	61.1	61.3	61.4
Status 1B	0	--	--	--	--	135	51.9	82.2	82.2	82.2
Status 2A	0	--	--	--	--	0	--	--	--	--
Status 2B	0	--	--	--	--	0	--	--	--	--
Status 3	0	--	--	--	--	0	--	--	--	--
MELD 6-10	125	4.8	52.8	67.2	68.8	6,971	2.5	37.4	48.0	51.1
MELD 11-14	58	6.9	53.4	58.6	58.6	4,971	3.2	34.0	43.8	47.0
MELD 15-20	93	9.7	52.7	60.2	61.3	8,014	10.4	46.3	53.6	55.7
MELD 21-30	125	41.6	75.2	76.8	76.8	8,887	31.6	63.7	67.1	68.1
MELD 31-40	65	83.1	86.2	86.2	86.2	4,393	74.4	81.7	81.8	81.9
PELD less than or equal to 10	0	--	--	--	--	637	10.8	72.2	77.9	80.5
PELD 11-14	0	--	--	--	--	104	19.2	77.9	82.7	83.7
PELD 15-20	0	--	--	--	--	156	23.1	78.2	79.5	79.5
PELD 21-30	0	--	--	--	--	122	25.4	77.0	78.7	78.7
PELD 31 or greater	0	--	--	--	--	42	45.2	69.0	69.0	69.0
Temporarily Inactive	18	55.6	61.1	66.7	66.7	2,861	39.5	56.2	59.6	60.6

* MELD/PELD score based on laboratory measures is shown for listings beginning 2/27/2002 unless patient is Status 1 or Temporarily Inactive. MELD/PELD scores based on exception rules are not used. Status 1 separated into 1A and 1B in August 2005.



B. Waiting List Information

Table B10. Time to transplant for waiting list candidates*

Candidates registered on the waiting list between 01/01/2018 and 06/30/2023

Percentile	Center	Months to Transplant**		U.S.
		OPO/DSA	Region	
5th	0.1	0.1	0.1	0.1
10th	0.1	0.2	0.2	0.2
25th	0.6	0.6	0.9	0.7
50th (median time to transplant)	6.6	8.7	8.0	6.6
75th	Not Observed	Not Observed	Not Observed	Not Observed

* If cells contain "Not Observed" fewer than that percentile of patients had received a transplant. For example, the 50th percentile of time to transplant is the time when 50% of candidates have received transplants. If waiting times are long, then the 50th percentile may not be observed during the follow-up period for this table. Also, if more than 50% of candidates are removed from the list due to death or other reasons before receiving transplants, then the 50th percentile of time to transplant will not be observed.

** Censored on 12/31/2023. Calculated as the months after listing, during which the corresponding percent of all patients initially listed had received a transplant.



B. Waiting List Information

Table B11. Offer Acceptance Practices: 01/01/2023 - 12/31/2023

Offers Acceptance Characteristics	This Center	OPO/DSA	Region	U.S.
Overall				
Number of Offers	7,680	16,113	53,822	360,349
Number of Acceptances	116	280	775	8,781
Expected Acceptances	131.3	424.0	1,112.4	8,781.2
Offer Acceptance Ratio*	0.89	0.66	0.70	1.00
95% Credible Interval**	[0.73, 1.05]	--	--	--
PHS increased infectious risk				
Number of Offers	911	2,001	5,703	42,733
Number of Acceptances	19	52	128	1,509
Expected Acceptances	22.5	79.2	191.5	1,512.5
Offer Acceptance Ratio*	0.86	0.67	0.67	1.00
95% Credible Interval**	[0.53, 1.26]	--	--	--
DCD donor				
Number of Offers	1,315	3,961	20,063	135,763
Number of Acceptances	8	16	53	1,536
Expected Acceptances	15.3	45.5	152.6	1,547.0
Offer Acceptance Ratio*	0.58	0.38	0.36	0.99
95% Credible Interval**	[0.28, 0.99]	--	--	--
HCV+ donor				
Number of Offers	209	451	1,128	10,038
Number of Acceptances	2	10	25	324
Expected Acceptances	4.5	16.4	37.3	335.5
Offer Acceptance Ratio*	0.62	0.65	0.69	0.97
95% Credible Interval**	[0.17, 1.35]	--	--	--
Hard-to-Place Livers (Over 50 Offers)				
Number of Offers	4,385	9,195	36,842	234,866
Number of Acceptances	13	28	79	1,256
Expected Acceptances	15.2	58.8	201.7	1,399.9
Offer Acceptance Ratio*	0.87	0.49	0.40	0.90
95% Credible Interval**	[0.49, 1.37]	--	--	--
Donor more than 500 miles away				
Number of Offers	1,191	3,120	14,828	123,447
Number of Acceptances	7	22	72	1,089
Expected Acceptances	6.7	33.3	114.0	1,091.2
Offer Acceptance Ratio*	1.03	0.68	0.64	1.00
95% Credible Interval**	[0.47, 1.81]	--	--	--

* The offer acceptance ratio estimates the relative offer acceptance practice of Hospital of the University of Pennsylvania compared to the national offer acceptance practice. A ratio above one indicates the program accepts more offers compared to national offer acceptance practices (e.g., an offer acceptance ratio of 1.25 indicates a center accepts 25% more offers than is expected based on national offer acceptance practices), while a ratio below one indicates the program accepts fewer offers compared to national offer acceptance practices (e.g., an offer acceptance ratio of 0.75 indicates a center accepts 25% fewer offers than is expected based on national offer acceptance practices).

** As an example, the 95% Credible Interval for the overall offer acceptance ratio, [0.73, 1.05], indicates the location of PAUP's true offer acceptance ratio with 95% probability. The best estimate is 11% less likely to accept an offer compared to national acceptance behavior, but PAUP's performance could plausibly range from 27% reduced acceptance up to 5% higher



B. Waiting List Information

Figure B10. Offer acceptance: Overall

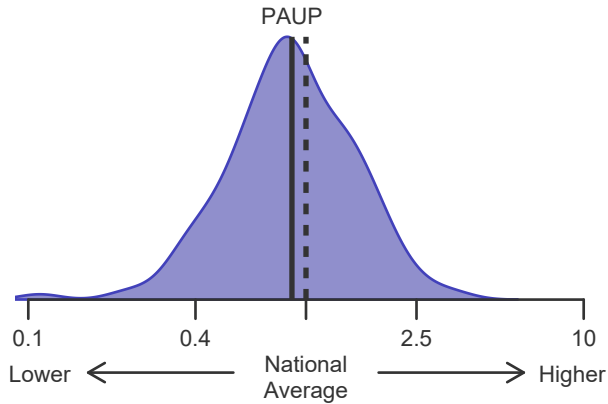


Figure B11. Offer acceptance: PHS increased infectious risk

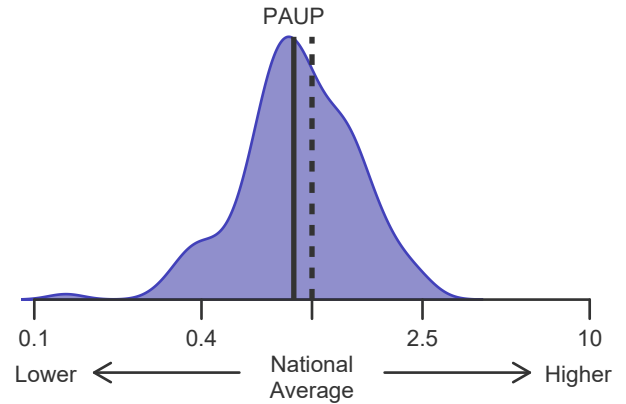


Figure B12. Offer acceptance: DCD Donor

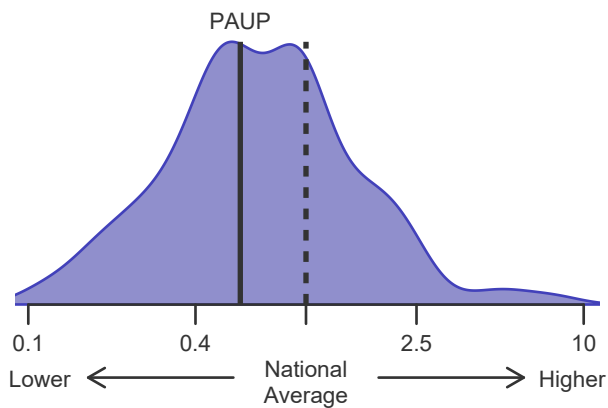


Figure B13. Offer acceptance: HCV+ Donor

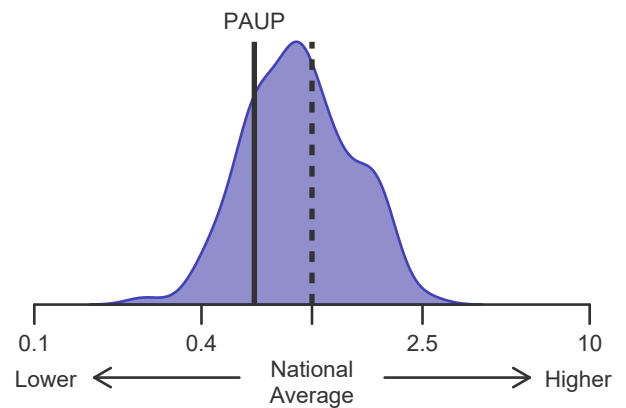


Figure B14. Offer acceptance: Offer number > 50

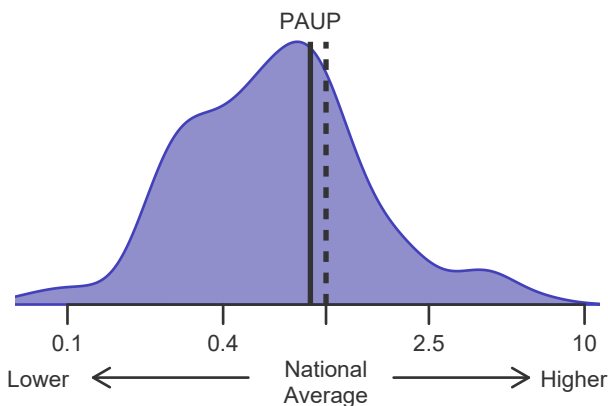
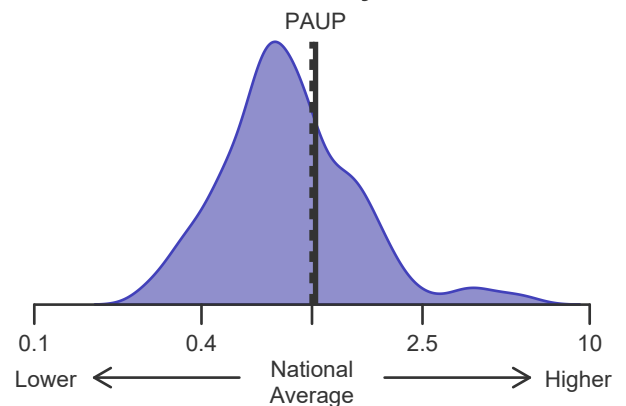


Figure B15. Offer acceptance: Donor more than 500 miles away





C. Transplant Information

Table C1D. Deceased donor transplant recipient demographic characteristics
Patients transplanted between 01/01/2023 and 12/31/2023

Characteristic	Percentage in each category		
	Center (N=137)	Region (N=867)	U.S. (N=10,001)
Ethnicity/Race (%)*			
White	72.3	72.3	68.4
African-American	6.6	11.9	7.3
Hispanic/Latino	11.7	8.5	17.9
Asian	5.1	5.8	4.2
Other	2.2	0.9	1.9
Unknown	2.2	0.6	0.4
Age (%)			
<2 years	0.0	2.0	1.7
2-11 years	0.0	2.8	1.8
12-17	0.0	0.9	1.1
18-34	7.3	6.3	6.8
35-49 years	20.4	22.7	22.3
50-64 years	54.7	45.3	45.0
65-69 years	16.1	14.5	14.7
70+ years	1.5	5.4	6.5
Gender (%)			
Male	58.4	62.7	61.2
Female	41.6	37.3	38.8

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



C. Transplant Information

Table C1L. Living donor transplant recipient demographic characteristics
Patients transplanted between 01/01/2023 and 12/31/2023

Characteristic	Percentage in each category		
	Center (N=24)	Region (N=166)	U.S. (N=658)
Ethnicity/Race (%)*			
White	87.5	88.6	74.2
African-American	0.0	5.4	5.9
Hispanic/Latino	4.2	3.0	14.3
Asian	8.3	2.4	4.4
Other	0.0	0.6	0.9
Unknown	0.0	0.0	0.3
Age (%)			
<2 years	0.0	6.0	6.8
2-11 years	0.0	4.8	4.6
12-17	0.0	0.0	0.5
18-34	16.7	14.5	11.2
35-49 years	4.2	18.1	19.5
50-64 years	41.7	34.9	35.6
65-69 years	25.0	13.9	15.8
70+ years	12.5	7.8	6.1
Gender (%)			
Male	70.8	59.6	50.8
Female	29.2	40.4	49.2

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



C. Transplant Information

Table C2D. Deceased donor transplant recipient medical characteristics
Patients transplanted between 01/01/2023 and 12/31/2023

Characteristic	Percentage in each category		
	Center (N=137)	Region (N=867)	U.S. (N=10,001)
Blood Type (%)			
O	47.4	43.8	46.6
A	33.6	34.9	35.8
B	14.6	15.9	12.7
AB	4.4	5.3	4.9
Previous Transplant (%)			
Yes	6.6	4.0	4.2
No	93.4	96.0	95.8
Body Mass Index (%)			
0-20	8.0	12.3	10.3
21-25	27.7	26.2	26.4
26-30	34.3	31.4	30.3
31-35	16.8	18.2	19.1
36-40	9.5	5.9	8.1
41+	3.6	3.9	4.2
Unknown	0.0	2.1	1.6
Primary Disease (%)			
Acute Hepatic Necrosis	3.6	4.0	2.4
Non-Cholestatic Cirrhosis	29.2	24.5	31.6
Cholestatic Liver Disease/Cirrhosis	5.8	3.3	6.1
Biliary Atresia	0.7	1.0	1.7
Metabolic Diseases	2.2	3.5	2.4
Malignant Neoplasms	16.8	11.9	11.1
Other	41.6	51.7	44.6
Missing	0.0	0.1	0.0
Medical Urgency Statust/MELD/PELD at Transplant (%)*			
Status 1A	4.4	4.0	2.7
Status 1B	0.0	2.2	1.2
MELD 6-10	8.0	8.1	8.8
MELD 11-14	6.6	5.7	7.9
MELD 15-20	13.9	13.0	17.1
MELD 21-30	39.4	30.1	30.8
MELD 31-40	20.4	27.0	22.6
PELD less than or equal to 10	0.0	0.8	1.0
PELD 11-14	0.0	0.2	0.3
PELD 15-20	0.0	0.0	0.4
PELD 21-30	0.0	0.2	0.3
PELD 31 or greater	0.0	0.2	0.1
Temporarily Inactive	0.0	0.0	0.0
Recipient Medical Condition at Transplant (%)			
Not Hospitalized	57.7	52.5	58.5
Hospitalized	29.2	30.7	24.5
ICU	13.1	16.8	16.9
Unknown	0.0	0.0	0.1

* MELD/PELD score based on laboratory measures at the time of transplant is shown unless recipient is Status 1 or Temporarily Inactive. MELD/PELD scores based on exception rules are not used. Status 1 separated into 1A and 1B in August 2005



C. Transplant Information

Table C2L. Living donor transplant recipient medical characteristics
Patients transplanted between 01/01/2023 and 12/31/2023

Characteristic	Percentage in each category		
	Center (N=24)	Region (N=166)	U.S. (N=658)
Blood Type (%)			
O	33.3	38.6	45.4
A	41.7	47.0	41.6
B	12.5	10.2	10.5
AB	12.5	4.2	2.4
Previous Transplant (%)			
Yes	0.0	1.8	1.5
No	100.0	98.2	98.5
Body Mass Index (%)			
0-20	8.3	16.3	17.8
21-25	54.2	33.7	30.9
26-30	25.0	28.9	29.2
31-35	12.5	13.9	14.6
36-40	0.0	4.2	4.9
41+	0.0	1.8	2.1
Unknown	0.0	1.2	0.6
Primary Disease (%)			
Acute Hepatic Necrosis	0.0	0.0	0.5
Non-Cholestatic Cirrhosis	45.8	26.5	31.9
Cholestatic Liver Disease/Cirrhosis	8.3	16.3	20.5
Biliary Atresia	0.0	7.8	9.1
Metabolic Diseases	0.0	4.2	1.8
Malignant Neoplasms	16.7	16.9	11.7
Other	29.2	28.3	24.5
Missing	0.0	0.0	0.0
Medical Urgency Statust/MELD/PELD at Transplant (%)*			
Status 1A	0.0	0.0	0.2
Status 1B	0.0	2.4	0.9
MELD 6-10	29.2	28.3	25.7
MELD 11-14	20.8	15.1	19.9
MELD 15-20	33.3	33.7	29.3
MELD 21-30	16.7	9.6	10.3
MELD 31-40	0.0	2.4	1.4
PELD less than or equal to 10	0.0	4.2	5.3
PELD 11-14	0.0	0.0	0.9
PELD 15-20	0.0	3.6	2.4
PELD 21-30	0.0	0.6	0.8
PELD 31 or greater	0.0	0.0	0.8
Temporarily Inactive	0.0	0.0	2.1
Recipient Medical Condition at Transplant (%)			
Not Hospitalized	95.8	91.6	89.5
Hospitalized	4.2	7.2	8.4
ICU	0.0	1.2	2.1
Unknown	0.0	0.0	0.0

* MELD/PELD score based on laboratory measures at the time of transplant is shown unless recipient is Status 1 or Temporarily Inactive. MELD/PELD scores based on exception rules are not used. Status 1 separated into 1A and 1B in August 2005



C. Transplant Information

Table C3D. Deceased donor characteristics

Transplants performed between 01/01/2023 and 12/31/2023

Donor Characteristic	Percentage in each category		
	Center (N=137)	Region (N=867)	U.S. (N=10,001)
Cause of Death (%)			
Deceased: Stroke	24.1	23.5	24.9
Deceased: MVA	10.2	9.9	11.7
Deceased: Other	65.7	66.6	63.4
Ethnicity/Race (%)*			
White	56.2	61.7	61.8
African-American	28.5	23.8	19.0
Hispanic/Latino	13.9	11.5	14.7
Asian	0.7	2.7	3.0
Other	0.7	0.3	1.3
Not Reported	0.0	0.0	0.1
Age (%)			
<2 years	0.0	0.9	0.7
2-11 years	3.6	2.7	1.9
12-17	2.2	4.6	4.0
18-34	26.3	27.5	28.0
35-49 years	33.6	25.1	29.7
50-64 years	27.0	29.1	26.8
65-69 years	4.4	5.7	4.8
70+ years	2.9	4.5	4.1
Gender (%)			
Male	59.1	60.3	61.3
Female	40.9	39.7	38.7
Blood Type (%)			
O	48.9	48.1	49.9
A	33.6	35.9	36.1
B	13.9	13.0	11.5
AB	3.6	3.0	2.5
Unknown	0.0	0.0	0.0

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



C. Transplant Information

Table C3L. Living donor characteristics
Transplants performed between 01/01/2023 and 12/31/2023

Donor Characteristic	Percentage in each category		
	Center (N=24)	Region (N=166)	U.S. (N=658)
Ethnicity/Race (%)*			
White	91.7	90.4	76.7
African-American	0.0	3.0	3.8
Hispanic/Latino	4.2	3.0	14.1
Asian	4.2	3.0	3.5
Other	0.0	0.6	1.7
Not Reported	0.0	0.0	0.2
Age (%)			
0-11 years	0.0	0.0	0.2
12-17	0.0	0.0	0.0
18-34	41.7	35.5	39.5
35-49 years	54.2	47.0	44.8
50-64 years	4.2	17.5	15.0
65-69 years	0.0	0.0	0.5
70+ years	0.0	0.0	0.0
Gender (%)			
Male	50.0	42.8	40.9
Female	50.0	57.2	59.1
Blood Type (%)			
O	54.2	60.2	65.2
A	37.5	31.9	28.0
B	4.2	6.6	5.9
AB	4.2	1.2	0.9
Unknown	0.0	0.0	0.0

* Race and ethnicity are reported together as a single data element, reflecting their data collection (either race or ethnicity is required, but not both). Patients formerly coded as white and Hispanic are coded as Hispanic. Race and ethnicity sum to 100%.



C. Transplant Information

Table C4D. Deceased donor transplant characteristics
Transplants performed between 01/01/2023 and 12/31/2023

Transplant Characteristic	Percentage in each category		
	Center (N=137)	Region (N=867)	U.S. (N=10,001)
Cold Ischemic Time (Hours): Local (%)			
Deceased: 0-5 hr	69.6	64.2	54.6
Deceased: 6-10 hr	28.6	30.5	27.3
Deceased: 11-15 hr	1.8	3.2	9.6
Deceased: 16-20 hr	0.0	1.1	5.8
Deceased: 21+ hr	0.0	1.1	2.1
Not Reported	0.0	0.0	0.7
Cold Ischemic Time (Hours): Shared (%)			
Deceased: 0-5 hr	49.4	45.4	35.3
Deceased: 6-10 hr	49.4	50.9	43.7
Deceased: 11-15 hr	0.0	1.5	10.2
Deceased: 16-20 hr	0.0	0.9	7.0
Deceased: 21+ hr	0.0	0.5	2.9
Not Reported	1.2	0.9	0.9
Procedure Type (%)			
Single organ	91.2	91.8	90.4
Multi organ	8.8	8.2	9.6
Donor Location (%)			
Local Donation Service Area (DSA)	40.9	32.2	34.9
Another Donation Service Area (DSA)	59.1	67.8	65.1
Median Time in Hospital After Transplant	10.0 Days	12.0 Days	10.0 Days



C. Transplant Information

Table C4L. Living donor transplant characteristics
Transplants performed between 01/01/2023 and 12/31/2023

Transplant Characteristic	Percentage in each category		
	Center (N=24)	Region (N=166)	U.S. (N=658)
Relation with Donor (%)			
Related	62.5	46.4	47.1
Unrelated	37.5	53.6	52.7
Not Reported	0.0	0.0	0.2
Procedure Type (%)			
Single organ	100.0	99.4	99.8
Multi organ	0.0	0.6	0.2
Median Time in Hospital After Transplant	8.5 Days	9.0 Days	11.0 Days



C. Transplant Information

Table C5. Adult (18+) 1-month survival with a functioning graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	365	20,494
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	97.53% [95.96%-99.14%]	97.16% [96.93%-97.39%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	97.27%	--
Number of observed graft failures (including deaths) during the first month after transplant	9	582
Number of expected graft failures (including deaths) during the first month after transplant	9.82	--
Estimated hazard ratio*	0.93	--
95% credible interval for the hazard ratio**	[0.46, 1.56]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.46, 1.56], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 7% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 54% reduced risk up to 56% increased risk.

Figure C1. Adult (18+) 1-month graft failure HR estimate

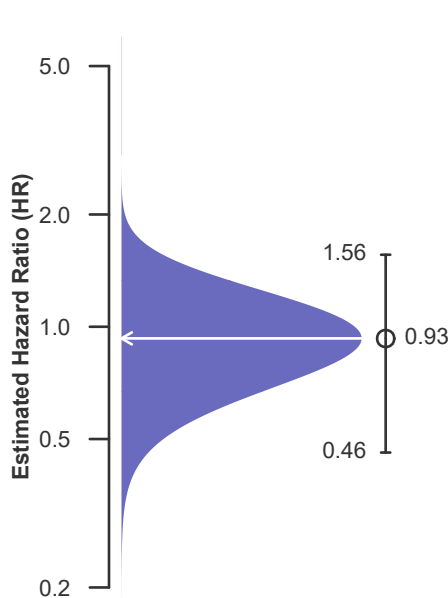
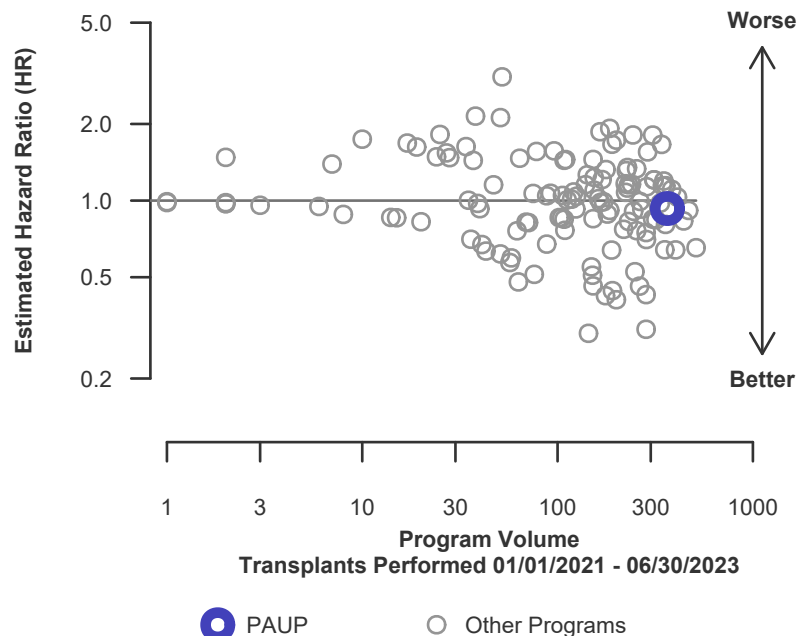


Figure C2. Adult (18+) 1-month graft failure HR program comparison





C. Transplant Information

Table C5D. Adult (18+) 1-month survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	324	19,192
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	97.84% [96.27%-99.44%]	97.14% [96.91%-97.38%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	97.26%	--
Number of observed graft failures (including deaths) during the first month after transplant	7	548
Number of expected graft failures (including deaths) during the first month after transplant	8.75	--
Estimated hazard ratio*	0.84	--
95% credible interval for the hazard ratio**	[0.38, 1.47]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.38, 1.47], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 16% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 62% reduced risk up to 47% increased risk.

Figure C1D. Adult (18+) 1-month deceased donor graft failure HR estimate

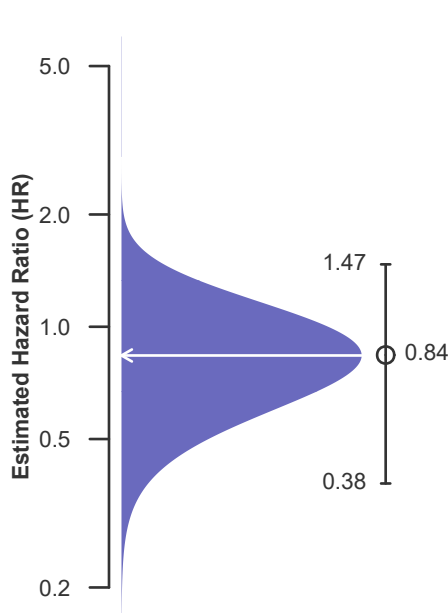
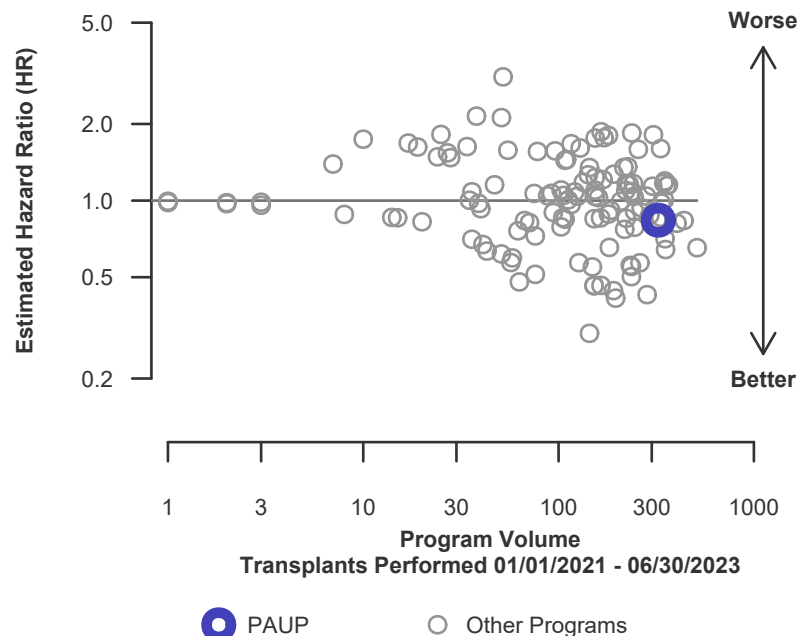


Figure C2D. Adult (18+) 1-month deceased donor graft failure HR program comparison





C. Transplant Information

Table C5L. Adult (18+) 1-month survival with a functioning living donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	41	1,302
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	95.12% [88.75%-100.00%]	97.39% [96.53%-98.26%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	97.39%	--
Number of observed graft failures (including deaths) during the first month after transplant	2	34
Number of expected graft failures (including deaths) during the first month after transplant	1.07	--
Estimated hazard ratio*	1.30	--
95% credible interval for the hazard ratio**	[0.35, 2.85]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.35, 2.85], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 30% higher risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 65% reduced risk up to 185% increased risk.

Figure C1L. Adult (18+) 1-month living donor graft failure HR estimate

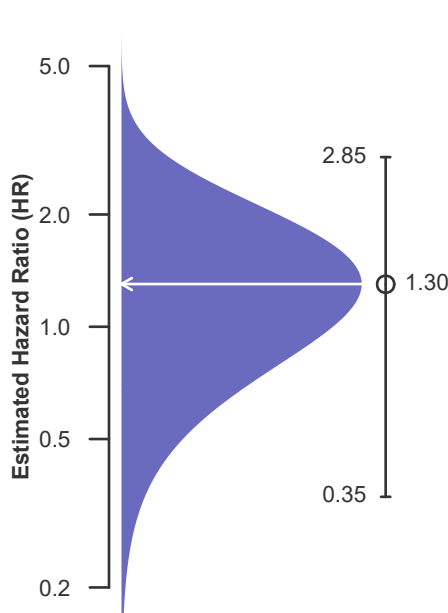
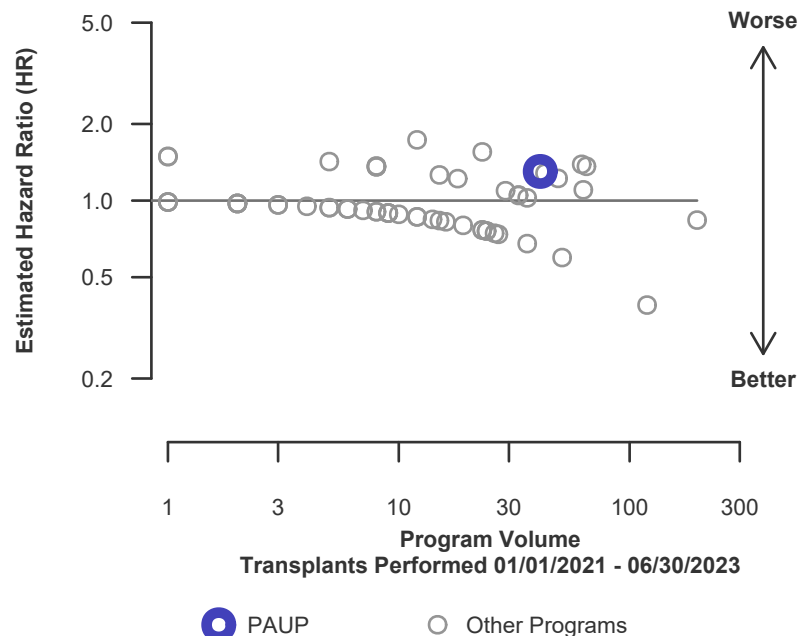


Figure C2L. Adult (18+) 1-month living donor graft failure HR program comparison





C. Transplant Information

Table C6. Adult (18+) 90-Day survival with a functioning graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	365	20,494
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	96.16% [94.21%-98.15%]	95.51% [95.22%-95.79%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	95.59%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	14	921
Number of expected graft failures (including deaths) during the first 90 days after transplant	15.90	--
Estimated hazard ratio*	0.89	--
95% credible interval for the hazard ratio**	[0.51, 1.38]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.51, 1.38], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 11% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 49% reduced risk up to 38% increased risk.

Figure C3. Adult (18+) 90-Day graft failure HR estimate

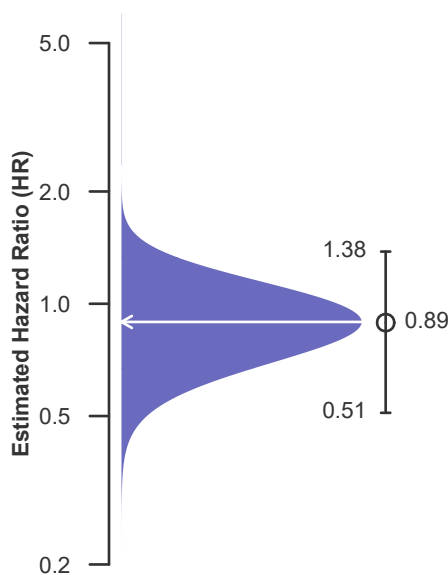
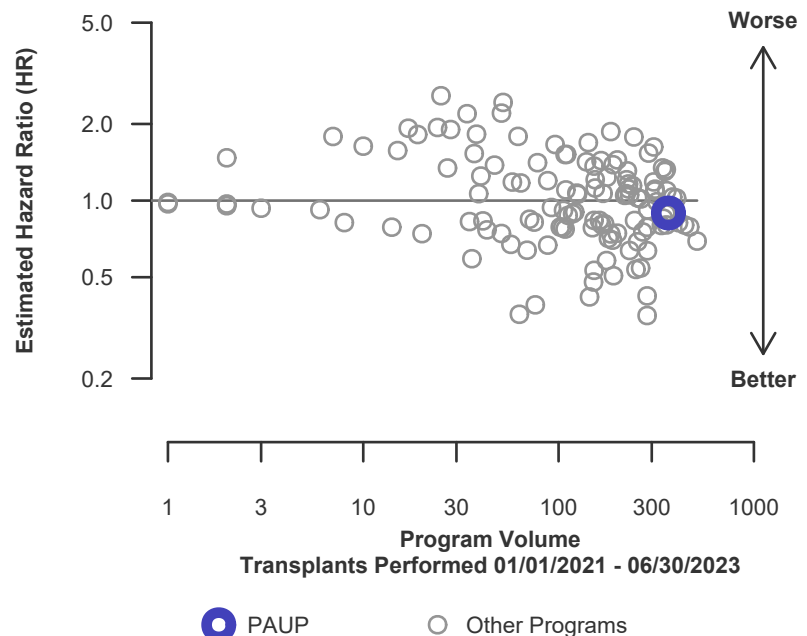


Figure C4. Adult (18+) 90-Day graft failure HR program comparison





C. Transplant Information

Table C6D. Adult (18+) 90-Day survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	324	19,192
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	96.30% [94.26%-98.37%]	95.47% [95.18%-95.77%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	95.53%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	12	869
Number of expected graft failures (including deaths) during the first 90 days after transplant	14.27	--
Estimated hazard ratio*	0.86	--
95% credible interval for the hazard ratio**	[0.47, 1.37]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.47, 1.37], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 14% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 53% reduced risk up to 37% increased risk.

Figure C3D. Adult (18+) 90-Day deceased donor graft failure HR estimate

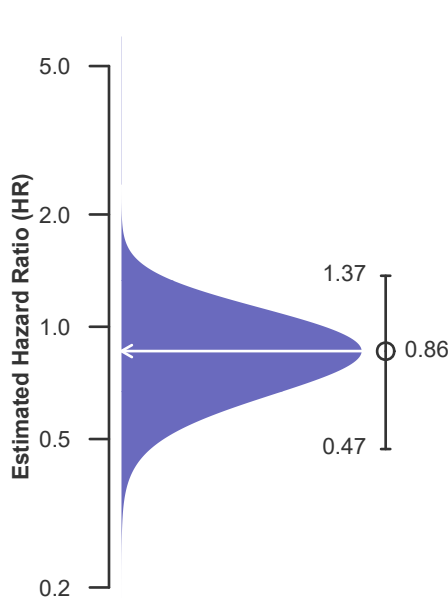
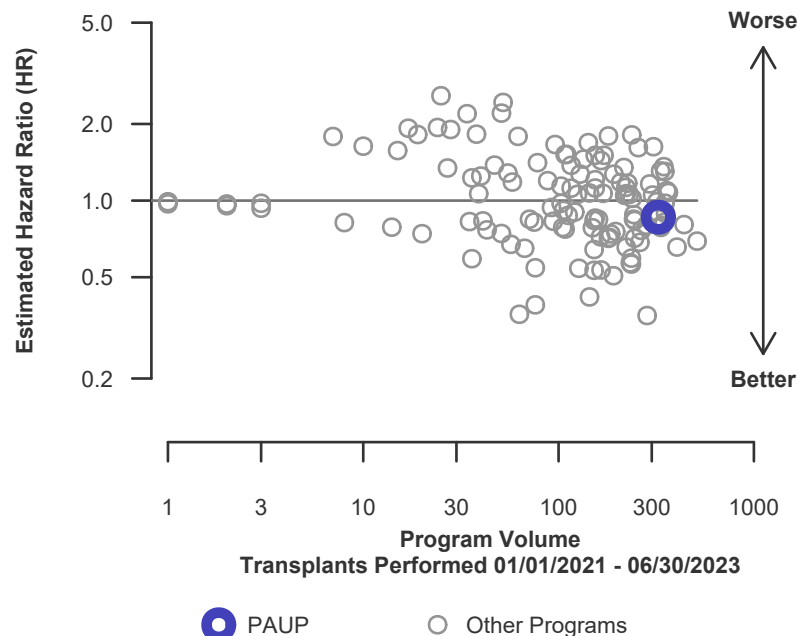


Figure C4D. Adult (18+) 90-Day deceased donor graft failure HR program comparison





C. Transplant Information

Table C6L. Adult (18+) 90-Day survival with a functioning living donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	41	1,302
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	95.12% [88.75%-100.00%]	96.01% [94.95%-97.08%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	96.01%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	2	52
Number of expected graft failures (including deaths) during the first 90 days after transplant	1.63	--
Estimated hazard ratio*	1.10	--
95% credible interval for the hazard ratio**	[0.30, 2.42]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.30, 2.42], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 10% higher risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 70% reduced risk up to 142% increased risk.

Figure C3L. Adult (18+) 90-Day living donor graft failure HR estimate

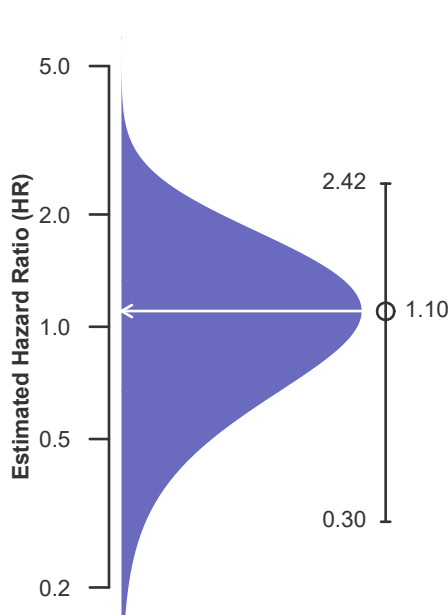
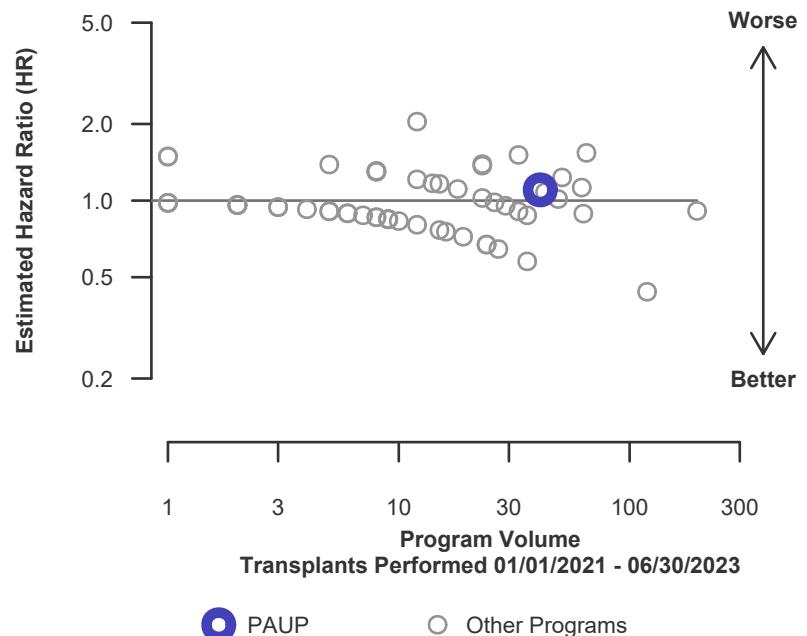


Figure C4L. Adult (18+) 90-Day living donor graft failure HR program comparison





C. Transplant Information

Table C7. Adult (18+) 1-year survival with a functioning graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	365	20,494
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	93.51% [90.91%-96.20%]	92.40% [92.02%-92.77%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	92.45%	--
Number of observed graft failures (including deaths) during the first year after transplant	22	1,481
Number of expected graft failures (including deaths) during the first year after transplant	26.03	--
Estimated hazard ratio*	0.86	--
95% credible interval for the hazard ratio**	[0.55, 1.23]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.55, 1.23], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 14% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 45% reduced risk up to 23% increased risk.

Figure C5. Adult (18+) 1-year graft failure HR estimate

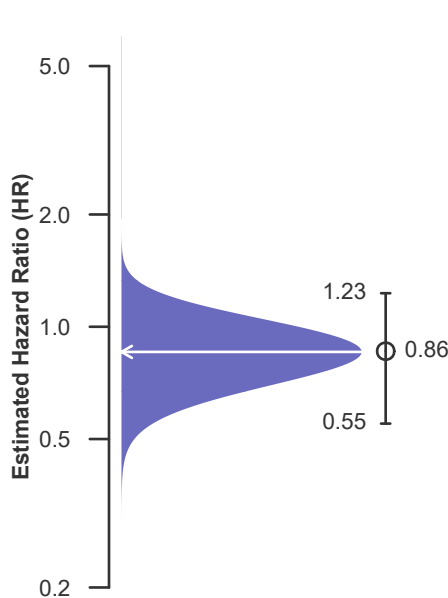
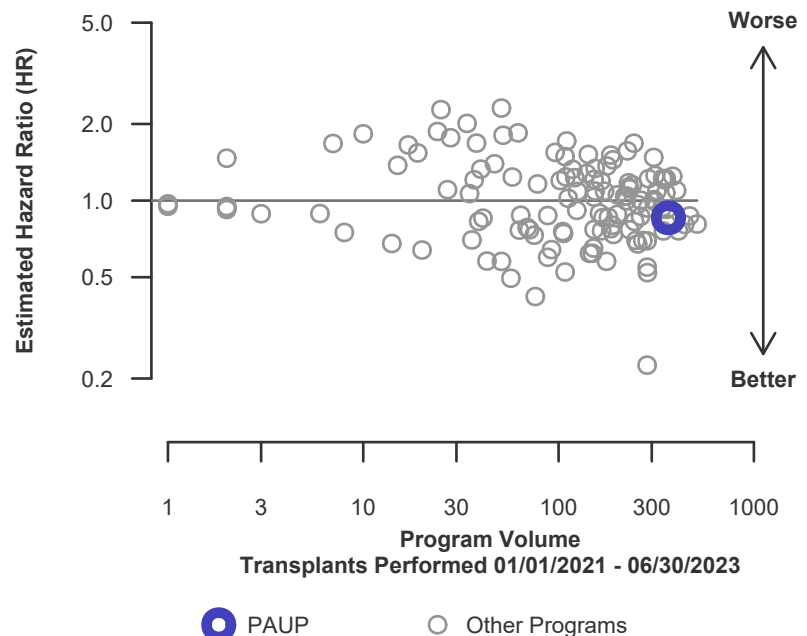


Figure C6. Adult (18+) 1-year graft failure HR program comparison





C. Transplant Information

Table C7D. Adult (18+) 1-year survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	324	19,192
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	93.33% [90.52%-96.22%]	92.32% [91.93%-92.71%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	92.32%	--
Number of observed graft failures (including deaths) during the first year after transplant	20	1,400
Number of expected graft failures (including deaths) during the first year after transplant	23.50	--
Estimated hazard ratio*	0.86	--
95% credible interval for the hazard ratio**	[0.54, 1.26]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.54, 1.26], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 14% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 46% reduced risk up to 26% increased risk.

Figure C5D. Adult (18+) 1-year deceased donor graft failure HR estimate

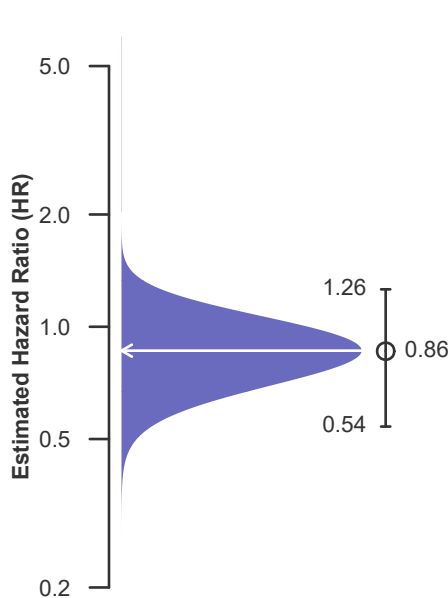
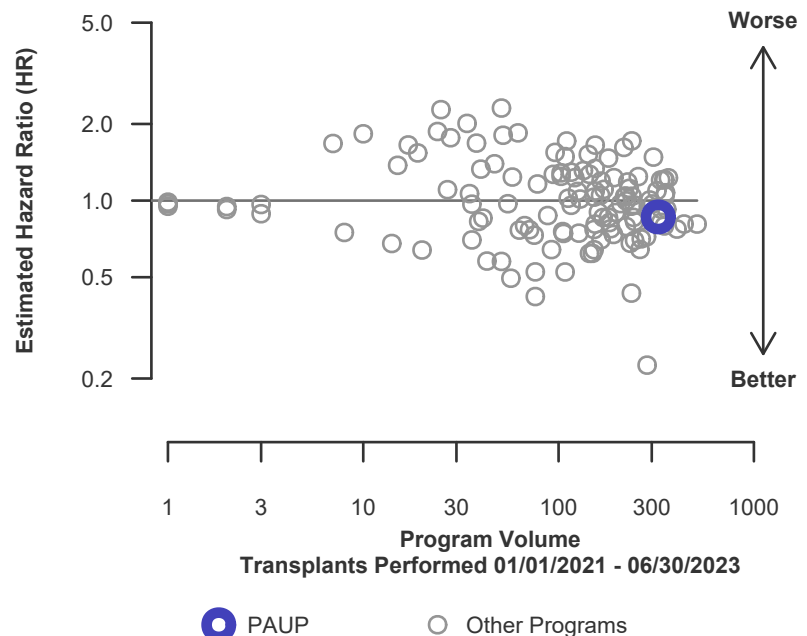


Figure C6D. Adult (18+) 1-year deceased donor graft failure HR program comparison





C. Transplant Information

Table C7L. Adult (18+) 1-year survival with a functioning living donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	41	1,302
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	95.12% [88.75%-100.00%]	93.53% [92.17%-94.91%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	93.53%	--
Number of observed graft failures (including deaths) during the first year after transplant	2	81
Number of expected graft failures (including deaths) during the first year after transplant	2.53	--
Estimated hazard ratio*	0.88	--
95% credible interval for the hazard ratio**	[0.24, 1.93]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.24, 1.93], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 12% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 76% reduced risk up to 93% increased risk.

Figure C5L. Adult (18+) 1-year living donor graft failure HR estimate

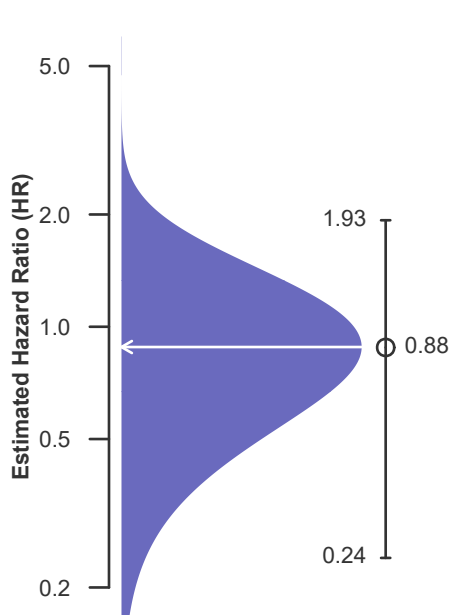
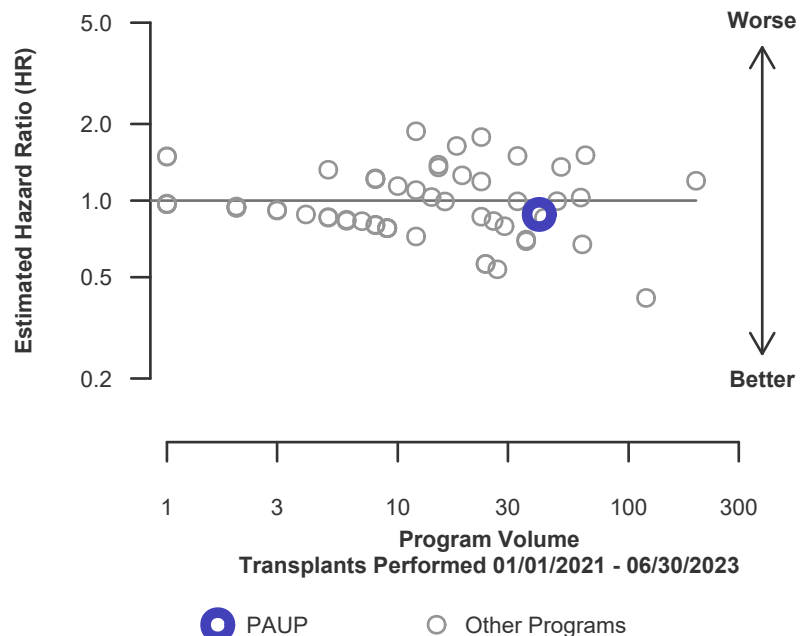


Figure C6L. Adult (18+) 1-year living donor graft failure HR program comparison





C. Transplant Information

Table C8. Adult (18+) 1-year Conditional survival with a functioning graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	351	19,573
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	97.24% [96.49%-98.00%]	96.74% [96.64%-96.85%]
Expected probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (adjusted for patient and donor characteristics)	96.72%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	8	560
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	10.13	--
Estimated hazard ratio*	0.82	--
95% credible interval for the hazard ratio**	[0.40, 1.41]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.40, 1.41], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 18% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 60% reduced risk up to 41% increased risk.

Figure C7. Adult (18+) 1-year Conditional graft failure HR estimate

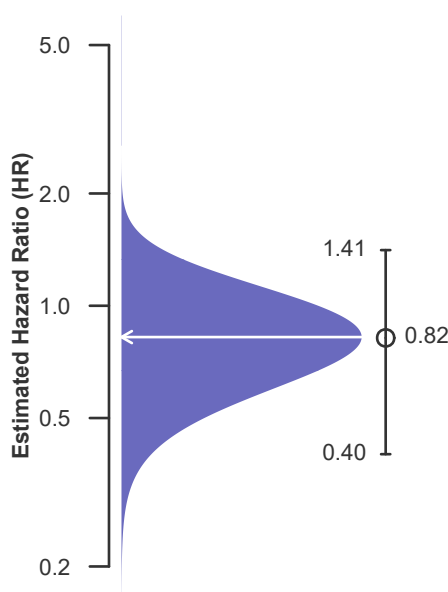
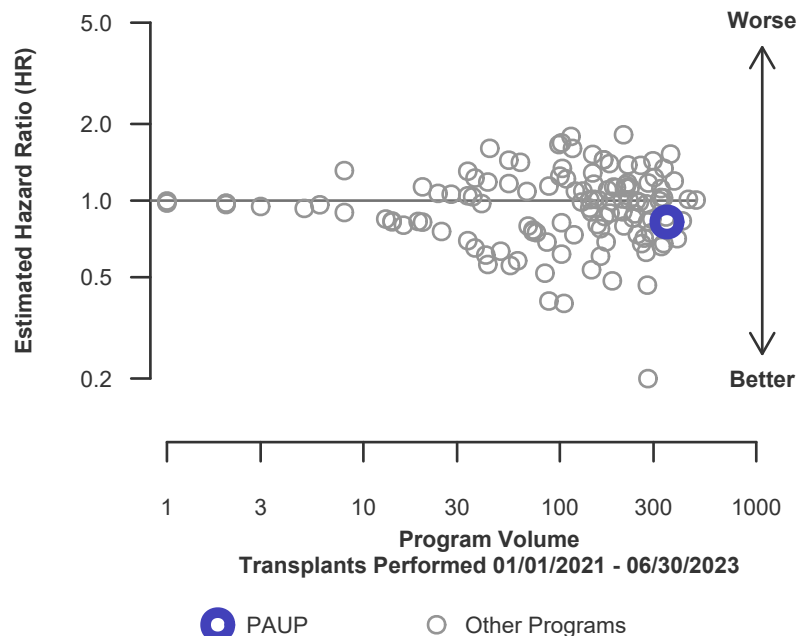


Figure C8. Adult (18+) 1-year Conditional graft failure HR program comparison





C. Transplant Information

Table C8D. Adult (18+) 1-year Conditional survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	312	18,323
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	96.92% [96.03%-97.81%]	96.70% [96.59%-96.81%]
Expected probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (adjusted for patient and donor characteristics)	96.63%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	8	531
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	9.23	--
Estimated hazard ratio*	0.89	--
95% credible interval for the hazard ratio**	[0.43, 1.52]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.43, 1.52], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 11% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 57% reduced risk up to 52% increased risk.

Figure C7D. Adult (18+) 1-year Conditional deceased donor graft failure HR estimate

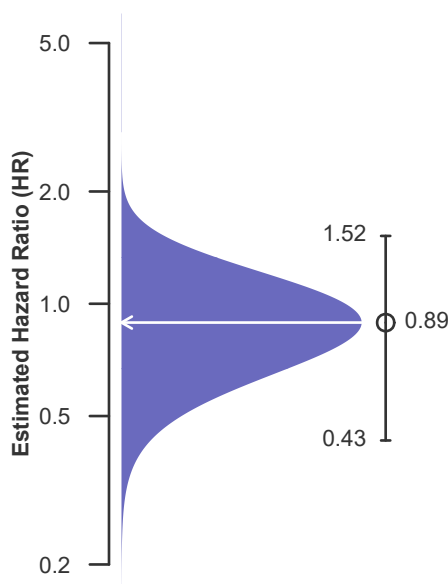
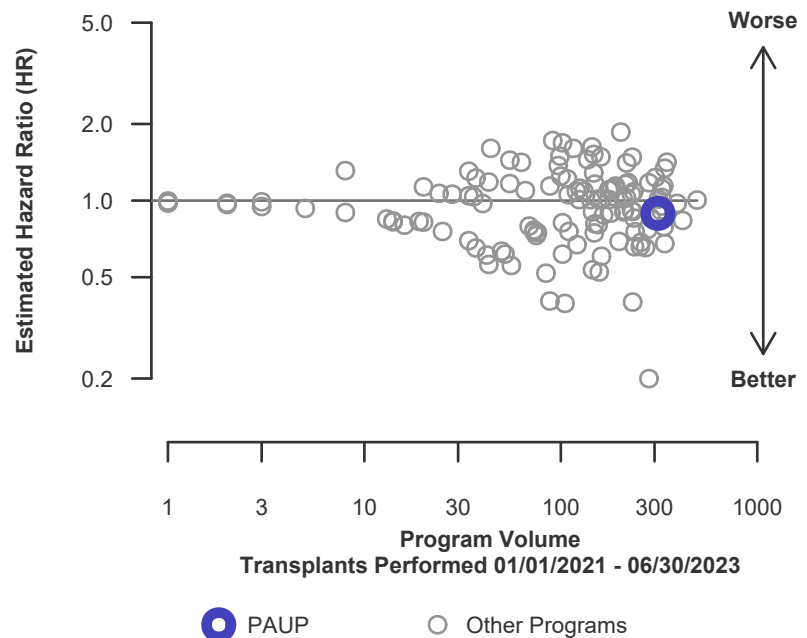


Figure C8D. Adult (18+) 1-year Conditional deceased donor graft failure HR program comparison





C. Transplant Information

Table C8L. Adult (18+) 1-year Conditional survival with a functioning living donor graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

	PAUP	U.S.
Number of transplants evaluated	39	1,250
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	97.42% [97.07%-97.77%]
Expected probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (adjusted for patient and donor characteristics)	97.42%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	0	29
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	0.90	--
Estimated hazard ratio*	0.69	--
95% credible interval for the hazard ratio**	[0.08, 1.92]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.08, 1.92], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 31% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 92% reduced risk up to 92% increased risk.

Figure C7L. Adult (18+) 1-year Conditional living donor graft failure HR estimate

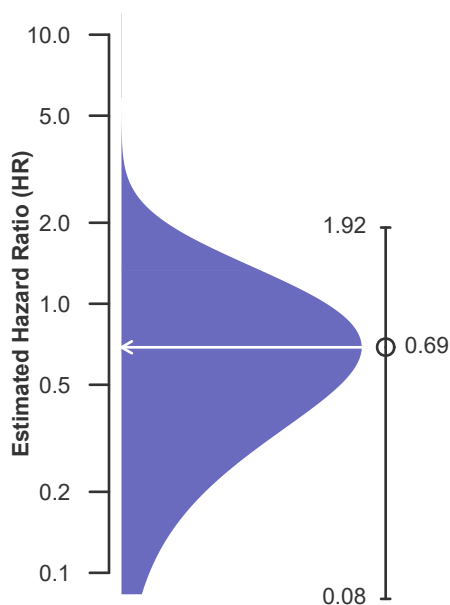
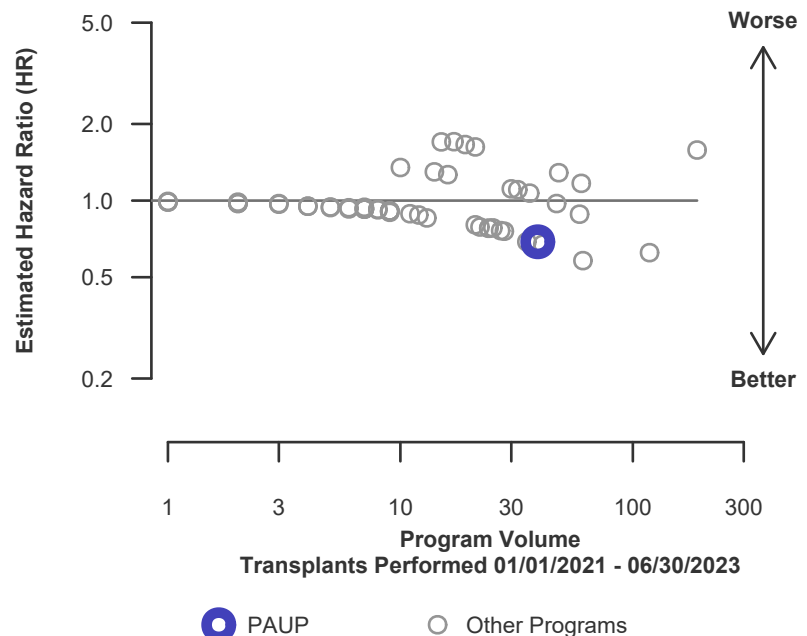


Figure C8L. Adult (18+) 1-year Conditional living donor graft failure HR program comparison





C. Transplant Information

Table C9. Adult (18+) 3-year survival with a functioning graft

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Deaths and retransplants are considered graft failures

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	279	16,846
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	85.58% [79.74%-91.83%]	85.73% [84.95%-86.53%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	85.21%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	26	1,509
Number of expected graft failures (including deaths) during the first 3 years after transplant	25.63	--
Estimated hazard ratio*	1.01	--
95% credible interval for the hazard ratio**	[0.67, 1.42]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.67, 1.42], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 1% higher risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 33% reduced risk up to 42% increased risk.

Figure C9. Adult (18+) 3-year graft failure HR estimate

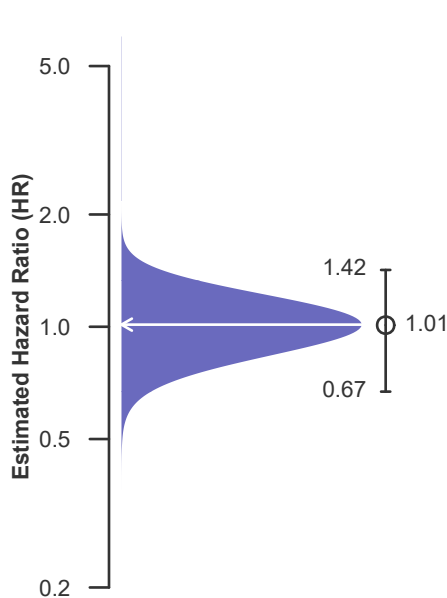
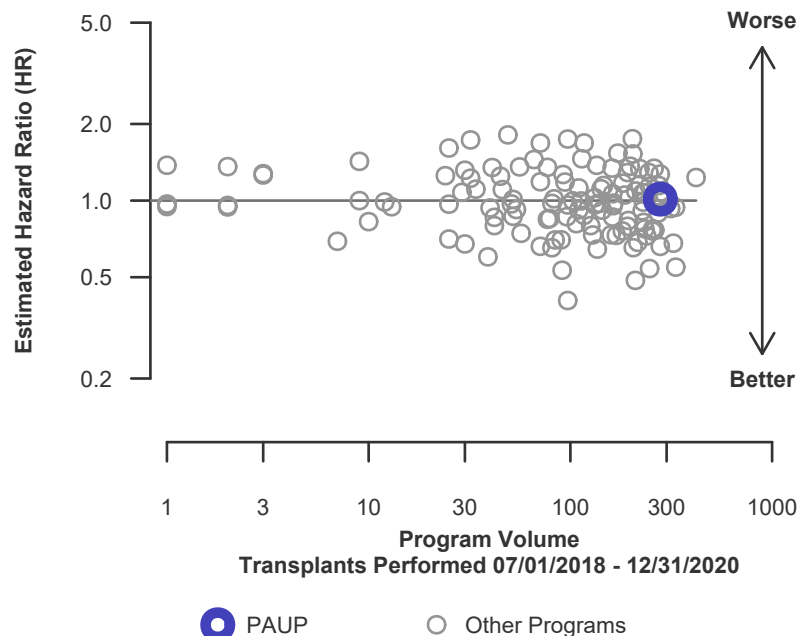


Figure C10. Adult (18+) 3-year graft failure HR program comparison





C. Transplant Information

Table C9D. Adult (18+) 3-year survival with a functioning deceased donor graft

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Deaths and retransplants are considered graft failures

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	251	15,864
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	84.00% [77.63%-90.89%]	85.62% [84.81%-86.45%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	84.97%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	26	1,429
Number of expected graft failures (including deaths) during the first 3 years after transplant	23.19	--
Estimated hazard ratio*	1.11	--
95% credible interval for the hazard ratio**	[0.74, 1.56]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.74, 1.56], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 11% higher risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 26% reduced risk up to 56% increased risk.

Figure C9D. Adult (18+) 3-year deceased donor graft failure HR estimate

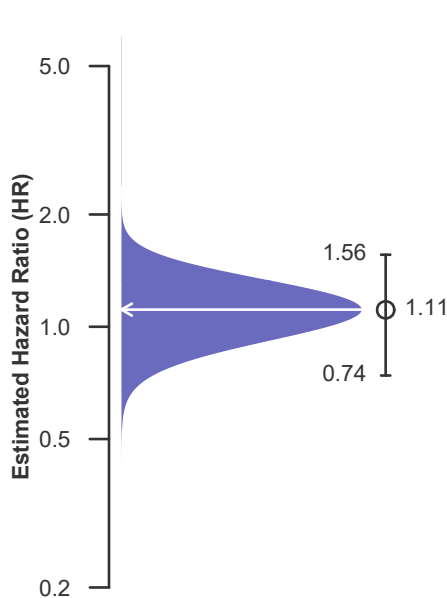
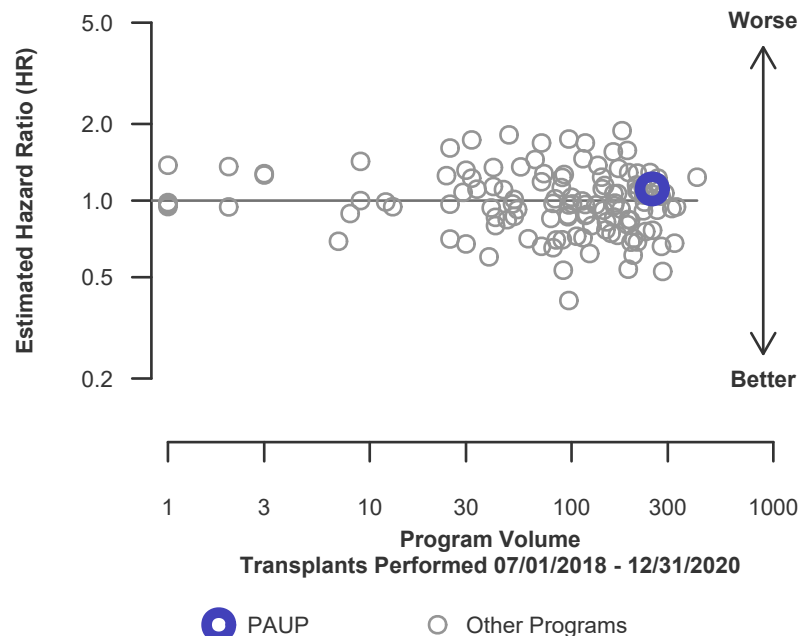


Figure C10D. Adult (18+) 3-year deceased donor graft failure HR program comparison





C. Transplant Information

Table C9L. Adult (18+) 3-year survival with a functioning living donor graft

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Deaths and retransplants are considered graft failures

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	28	982
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	87.38% [84.49%-90.36%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	87.39%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	0	80
Number of expected graft failures (including deaths) during the first 3 years after transplant	2.44	--
Estimated hazard ratio*	0.45	--
95% credible interval for the hazard ratio**	[0.05, 1.25]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.05, 1.25], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 55% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 95% reduced risk up to 25% increased risk.

Figure C9L. Adult (18+) 3-year living donor graft failure HR estimate

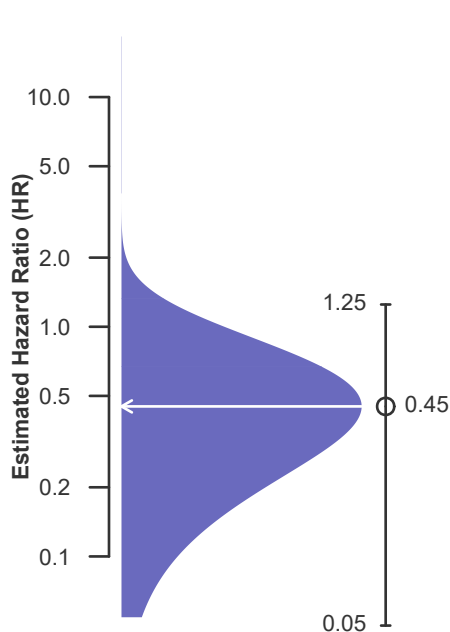
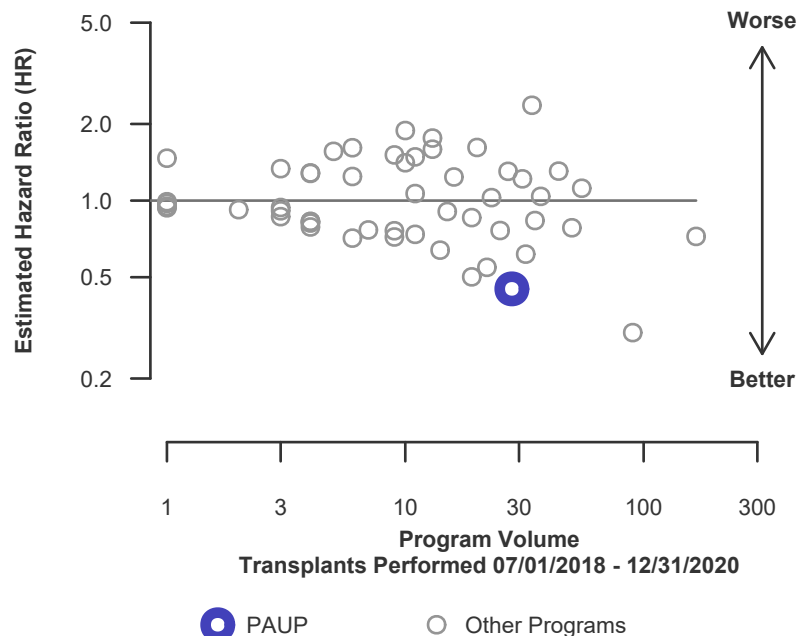


Figure C10L. Adult (18+) 3-year living donor graft failure HR program comparison





C. Transplant Information

Table C10. Pediatric (<18) 1-month survival with a functioning graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

**Figure C11. Pediatric (<18)
1-month graft failure HR estimate**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

**Figure C12. Pediatric (<18) 1-month graft failure HR program
comparison**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C10D. Pediatric (<18) 1-month survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

**Figure C11D. Pediatric (<18)
1-month deceased donor graft
failure HR estimate**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

**Figure C12D. Pediatric (<18) 1-month deceased donor graft
failure HR program comparison**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C10L. Pediatric (<18) 1-month survival with a functioning living donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C11L. Pediatric (<18) 1-month living donor graft failure HR estimate

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C12L. Pediatric (<18) 1-month living donor graft failure HR program comparison

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C11. Pediatric (<18) 90-Day survival with a functioning graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

**Figure C13. Pediatric (<18)
90-Day graft failure HR estimate**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

**Figure C14. Pediatric (<18) 90-Day graft failure HR program
comparison**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C11D. Pediatric (<18) 90-Day survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C13D. Pediatric (<18) 90-Day deceased donor graft failure HR estimate

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C14D. Pediatric (<18) 90-Day deceased donor graft failure HR program comparison

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C11L. Pediatric (<18) 90-Day survival with a functioning living donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C13L. Pediatric (<18) 90-Day living donor graft failure HR estimate

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C14L. Pediatric (<18) 90-Day living donor graft failure HR program comparison

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C12. Pediatric (<18) 1-year survival with a functioning graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

**Figure C15. Pediatric (<18) 1-year
graft failure HR estimate**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

**Figure C16. Pediatric (<18) 1-year graft failure HR program
comparison**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C12D. Pediatric (<18) 1-year survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

This center did not perform any transplants relevant to this table during 01/01/2021-06/30/2023

Figure C15D. Pediatric (<18) 1-year deceased donor graft failure HR estimate

This center did not perform any transplants relevant to this figure during 01/01/2021-06/30/2023

Figure C16D. Pediatric (<18) 1-year deceased donor graft failure HR program comparison

This center did not perform any transplants relevant to this figure during 01/01/2021-06/30/2023



C. Transplant Information

Table C12L. Pediatric (<18) 1-year survival with a functioning living donor graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C15L. Pediatric (<18) 1-year living donor graft failure HR estimate

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C16L. Pediatric (<18) 1-year living donor graft failure HR program comparison

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C13. Pediatric (<18) 1-year Conditional survival with a functioning graft

Single organ transplants performed between 01/01/2021 and 06/30/2023

Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C17. Pediatric (<18) 1-year Conditional graft failure HR estimate

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C18. Pediatric (<18) 1-year Conditional graft failure HR program comparison

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C13D. Pediatric (<18) 1-year Conditional survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

**Figure C17D. Pediatric (<18)
1-year Conditional deceased
donor graft failure HR estimate**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

**Figure C18D. Pediatric (<18) 1-year Conditional deceased
donor graft failure HR program comparison**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C13L. Pediatric (<18) 1-year Conditional survival with a functioning living donor graft
Single organ transplants performed between 01/01/2021 and 06/30/2023
Deaths and retransplants are considered graft failures

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

**Figure C17L. Pediatric (<18)
1-year Conditional living donor
graft failure HR estimate**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

**Figure C18L. Pediatric (<18) 1-year Conditional living donor
graft failure HR program comparison**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C14. Pediatric (<18) 3-year survival with a functioning graft

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020
Deaths and retransplants are considered graft failures
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	2	1,142
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	89.47% [87.14%-91.87%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	92.72%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	0	91
Number of expected graft failures (including deaths) during the first 3 years after transplant	0.08	--
Estimated hazard ratio*	0.96	--
95% credible interval for the hazard ratio**	[0.12, 2.67]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.12, 2.67], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 4% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 88% reduced risk up to 167% increased risk.

Figure C19. Pediatric (<18) 3-year graft failure HR estimate

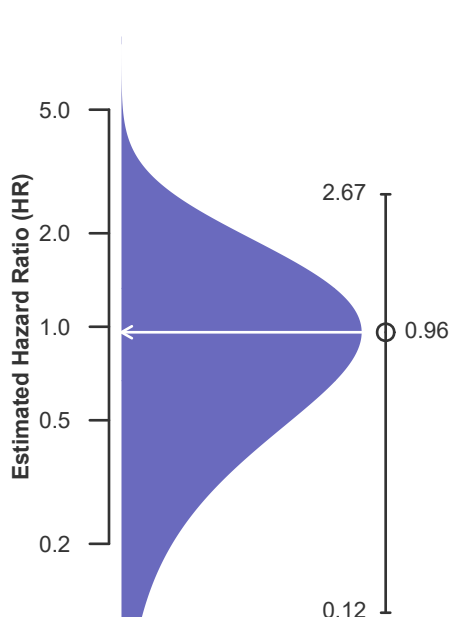
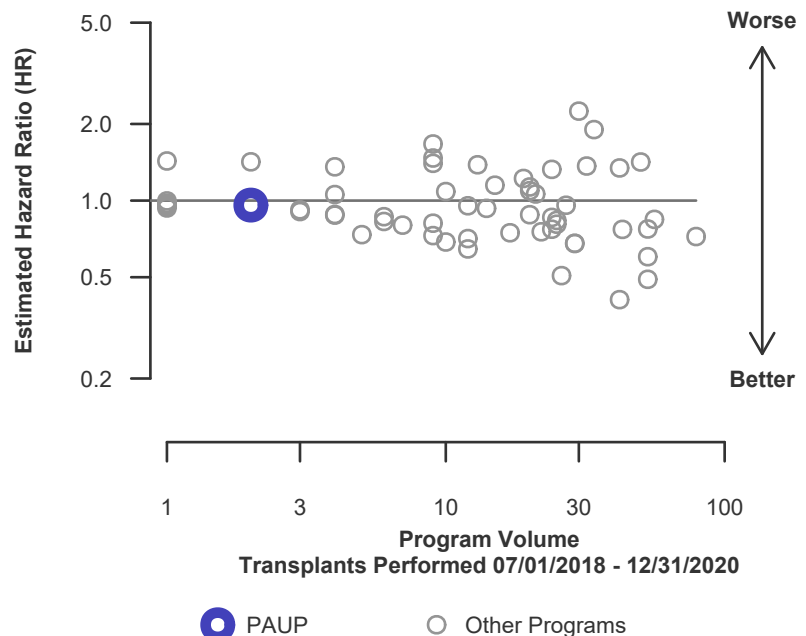


Figure C20. Pediatric (<18) 3-year graft failure HR program comparison





C. Transplant Information

Table C14D. Pediatric (<18) 3-year survival with a functioning deceased donor graft
Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020
Deaths and retransplants are considered graft failures
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	2	970
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	89.21% [86.71%-91.79%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	92.72%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	0	81
Number of expected graft failures (including deaths) during the first 3 years after transplant	0.08	--
Estimated hazard ratio*	0.96	--
95% credible interval for the hazard ratio**	[0.12, 2.67]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected graft failure rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.12, 2.67], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 4% lower risk of graft failure compared to an average program, but PAUP's performance could plausibly range from 88% reduced risk up to 167% increased risk.

Figure C19D. Pediatric (<18) 3-year deceased donor graft failure HR estimate

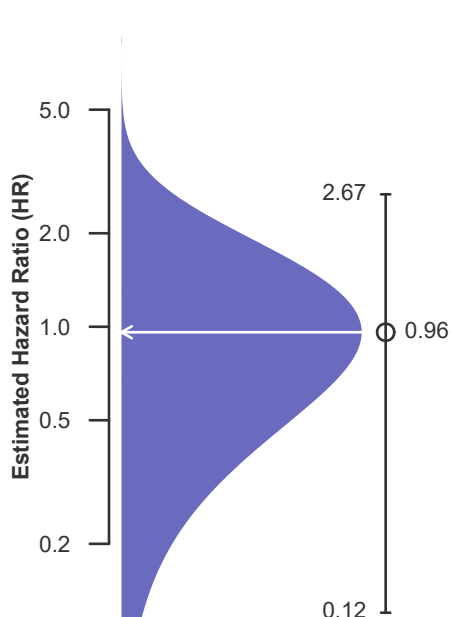
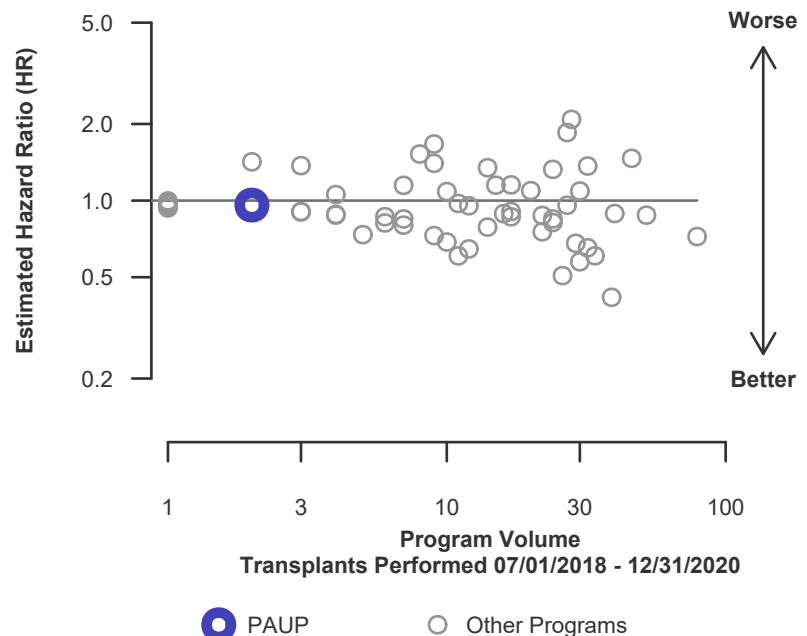


Figure C20D. Pediatric (<18) 3-year deceased donor graft failure HR program comparison





C. Transplant Information

Table C14L. Pediatric (<18) 3-year survival with a functioning living donor graft

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Deaths and retransplants are considered graft failures

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

This center did not perform any
transplants relevant to
this table during
07/01/2018-12/31/2020

Figure C19L. Pediatric (<18) 3-year living donor graft failure HR estimate

This center did not perform any
transplants relevant to
this figure during
07/01/2018-12/31/2020

Figure C20L. Pediatric (<18) 3-year living donor graft failure HR program comparison

This center did not perform any
transplants relevant to
this figure during
07/01/2018-12/31/2020



C. Transplant Information

Table C15. Adult (18+) 1-month patient survival

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

	PAUP	U.S.
Number of transplants evaluated	348	19,818
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	98.85% [97.74%-99.98%]	98.28% [98.10%-98.46%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	98.48%	--
Number of observed deaths during the first month after transplant	4	341
Number of expected deaths during the first month after transplant	5.32	--
Estimated hazard ratio*	0.82	--
95% credible interval for the hazard ratio**	[0.30, 1.59]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.30, 1.59], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 18% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 70% reduced risk up to 59% increased risk.

Figure C21. Adult (18+) 1-month patient death HR estimate

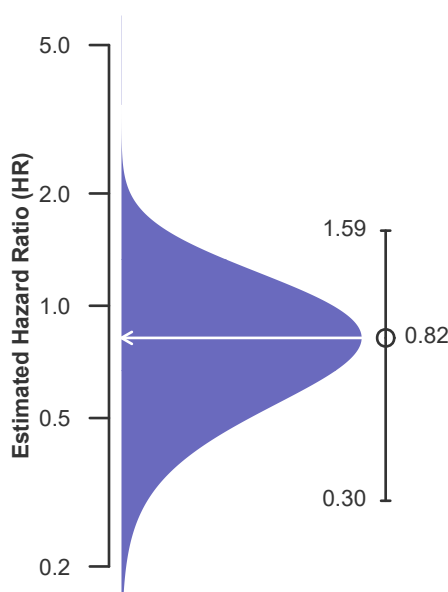
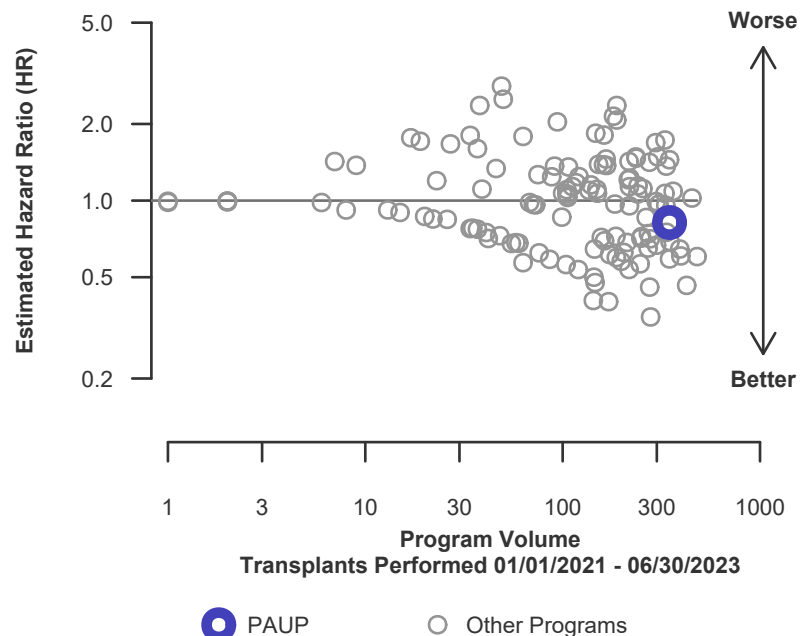


Figure C22. Adult (18+) 1-month patient death HR program comparison





C. Transplant Information

Table C15D. Adult (18+) 1-month patient survival (deceased donor graft recipients)

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

	PAUP	U.S.
Number of transplants evaluated	307	18,532
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	98.70% [97.44%-99.97%]	98.21% [98.02%-98.40%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	98.36%	--
Number of observed deaths during the first month after transplant	4	332
Number of expected deaths during the first month after transplant	5.04	--
Estimated hazard ratio*	0.85	--
95% credible interval for the hazard ratio**	[0.31, 1.66]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.31, 1.66], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 15% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 69% reduced risk up to 66% increased risk.

Figure C21D. Adult (18+) 1-month patient death HR estimate (deceased donor grafts)

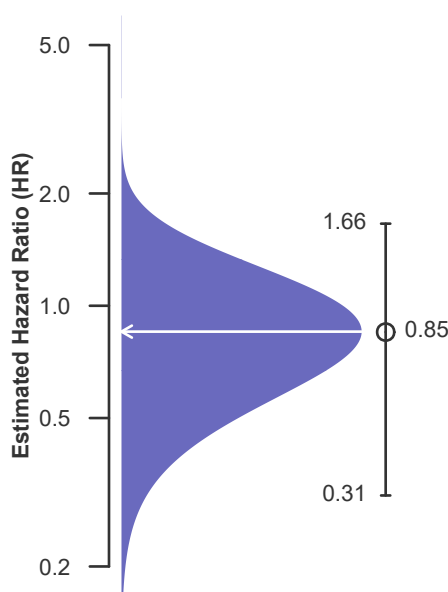
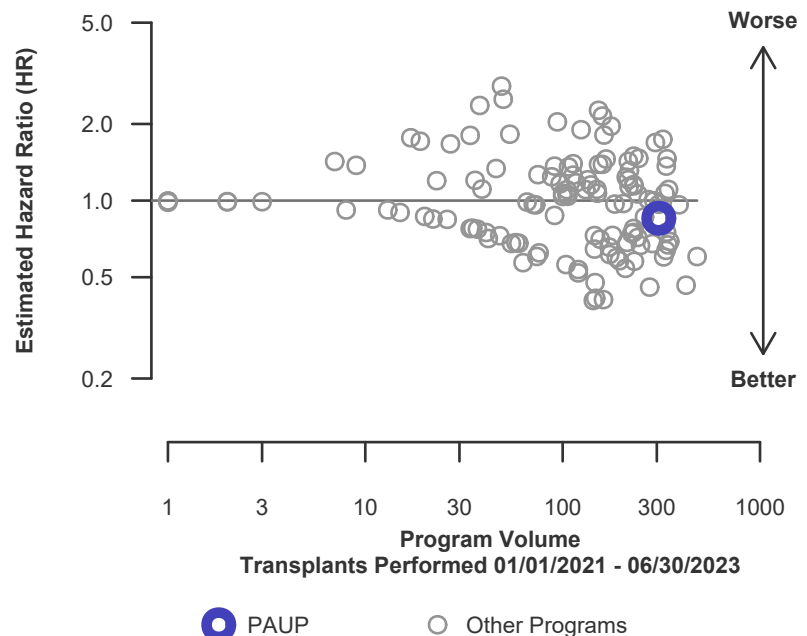


Figure C22D. Adult (18+) 1-month patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C15L. Adult (18+) 1-month patient survival (living donor graft recipients)

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

	PAUP	U.S.
Number of transplants evaluated	41	1,286
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	99.30% [98.85%-99.76%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	99.32%	--
Number of observed deaths during the first month after transplant	0	9
Number of expected deaths during the first month after transplant	0.28	--
Estimated hazard ratio*	0.88	--
95% credible interval for the hazard ratio**	[0.11, 2.44]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.11, 2.44], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 12% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 89% reduced risk up to 144% increased risk.

Figure C21L. Adult (18+) 1-month patient death HR estimate (living donor grafts)

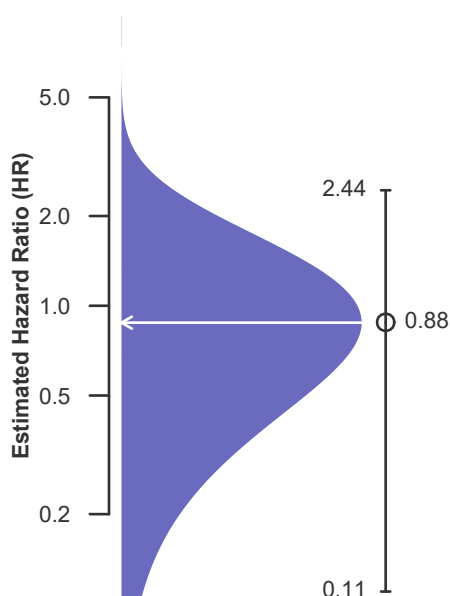
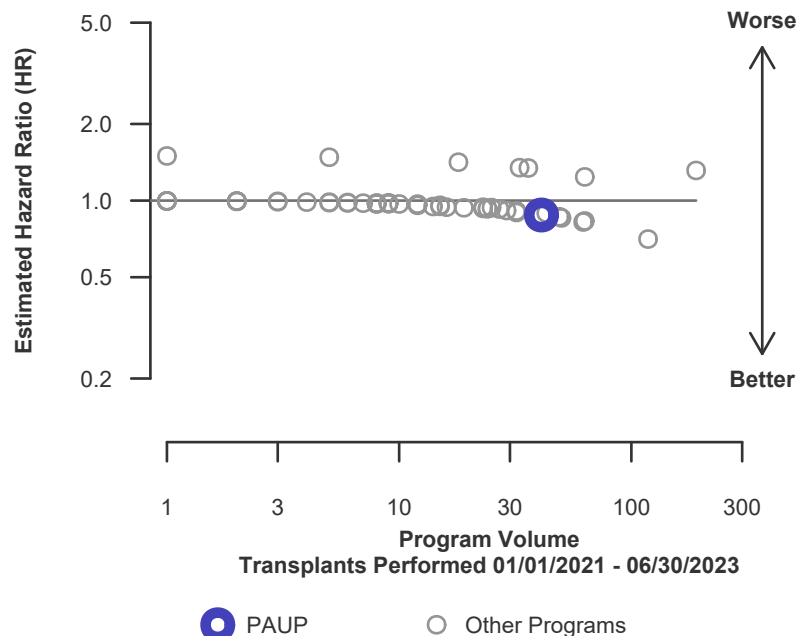


Figure C22L. Adult (18+) 1-month patient death HR program comparison (living donor grafts)





C. Transplant Information

Table C16. Adult (18+) 1-year patient survival

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

	PAUP	U.S.
Number of transplants evaluated	348	19,818
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	95.86% [93.67%-98.11%]	94.25% [93.92%-94.59%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	94.53%	--
Number of observed deaths during the first year after transplant	13	1,073
Number of expected deaths during the first year after transplant	18.16	--
Estimated hazard ratio*	0.74	--
95% credible interval for the hazard ratio**	[0.42, 1.17]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.42, 1.17], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 26% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 58% reduced risk up to 17% increased risk.

Figure C23. Adult (18+) 1-year patient death HR estimate

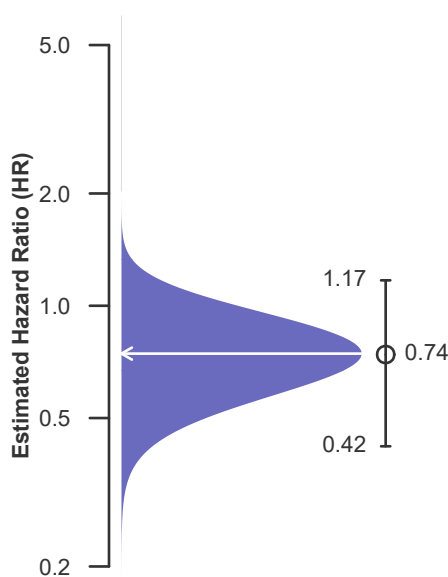
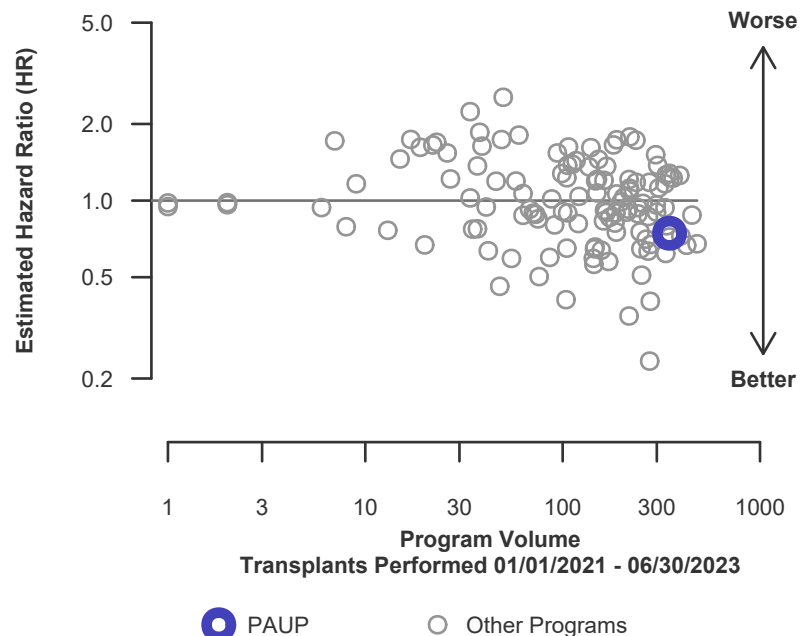


Figure C24. Adult (18+) 1-year patient death HR program comparison





C. Transplant Information

Table C16D. Adult (18+) 1-year patient survival (deceased donor graft recipients)

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

	PAUP	U.S.
Number of transplants evaluated	307	18,532
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	95.33% [92.86%-97.86%]	94.14% [93.79%-94.49%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	94.34%	--
Number of observed deaths during the first year after transplant	13	1,023
Number of expected deaths during the first year after transplant	16.58	--
Estimated hazard ratio*	0.81	--
95% credible interval for the hazard ratio**	[0.45, 1.26]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.45, 1.26], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 19% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 55% reduced risk up to 26% increased risk.

Figure C23D. Adult (18+) 1-year patient death HR estimate (deceased donor grafts)

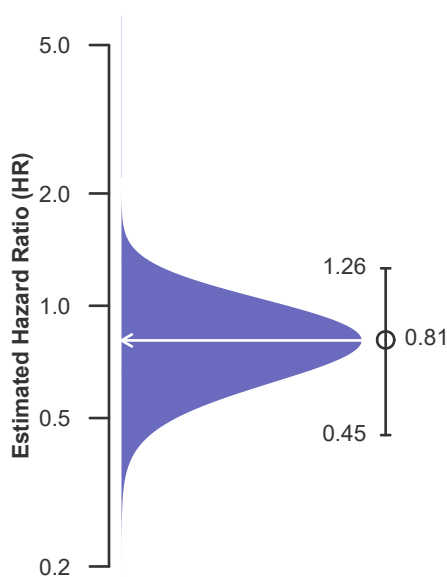
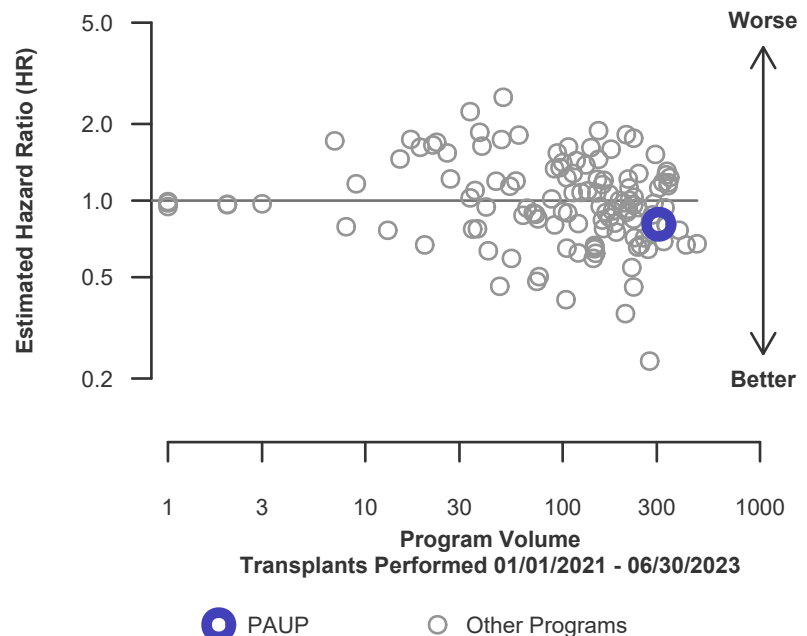


Figure C24D. Adult (18+) 1-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C16L. Adult (18+) 1-year patient survival (living donor graft recipients)

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

	PAUP	U.S.
Number of transplants evaluated	41	1,286
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	95.86% [94.74%-97.00%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	95.95%	--
Number of observed deaths during the first year after transplant	0	50
Number of expected deaths during the first year after transplant	1.58	--
Estimated hazard ratio*	0.56	--
95% credible interval for the hazard ratio**	[0.07, 1.56]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.07, 1.56], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 44% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 93% reduced risk up to 56% increased risk.

Figure C23L. Adult (18+) 1-year patient death HR estimate (living donor grafts)

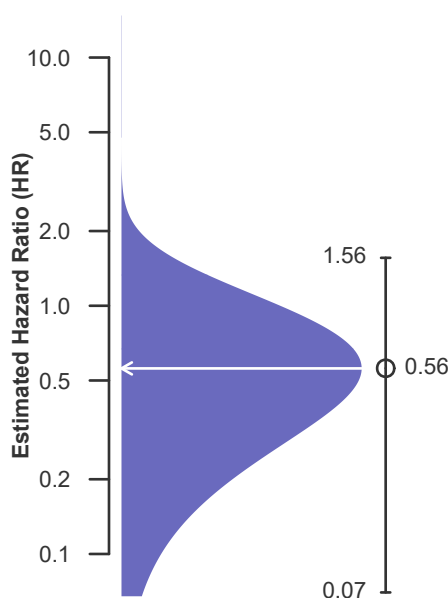
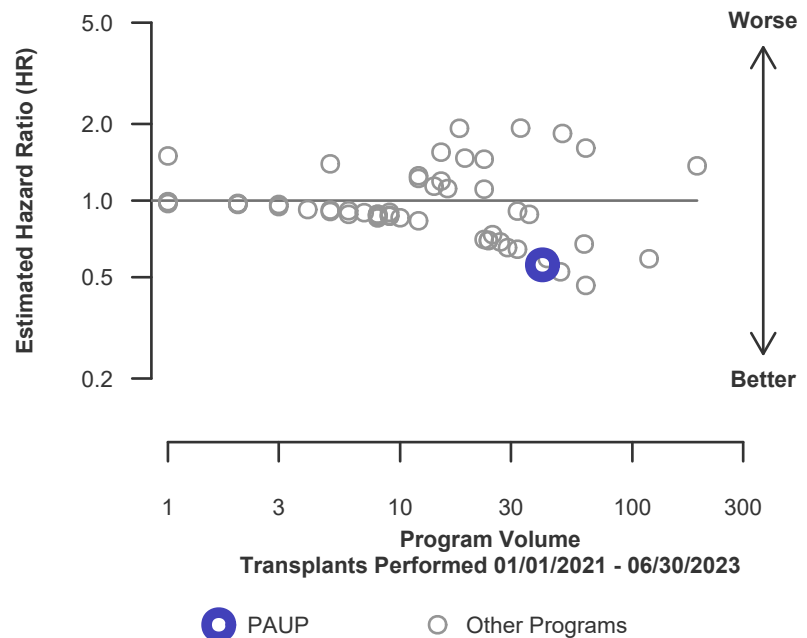


Figure C24L. Adult (18+) 1-year patient death HR program comparison (living donor grafts)





C. Transplant Information

Table C17. Adult (18+) 3-year patient survival

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Retransplants excluded

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	267	16,222
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	88.34% [82.64%-94.44%]	88.09% [87.33%-88.86%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	87.24%	--
Number of observed deaths during the first 3 years after transplant	18	1,139
Number of expected deaths during the first 3 years after transplant	20.07	--
Estimated hazard ratio*	0.91	--
95% credible interval for the hazard ratio**	[0.55, 1.34]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.55, 1.34], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 9% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 45% reduced risk up to 34% increased risk.

Figure C25. Adult (18+) 3-year patient death HR estimate

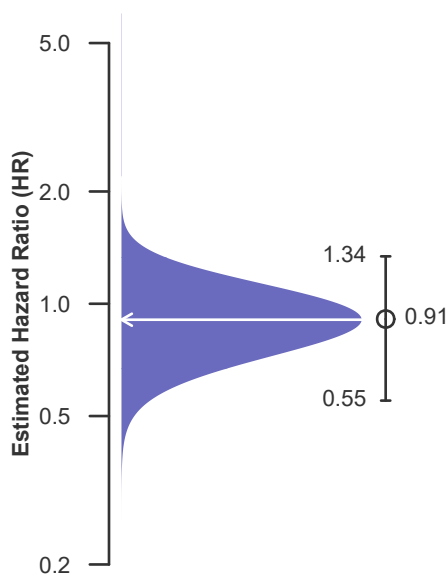
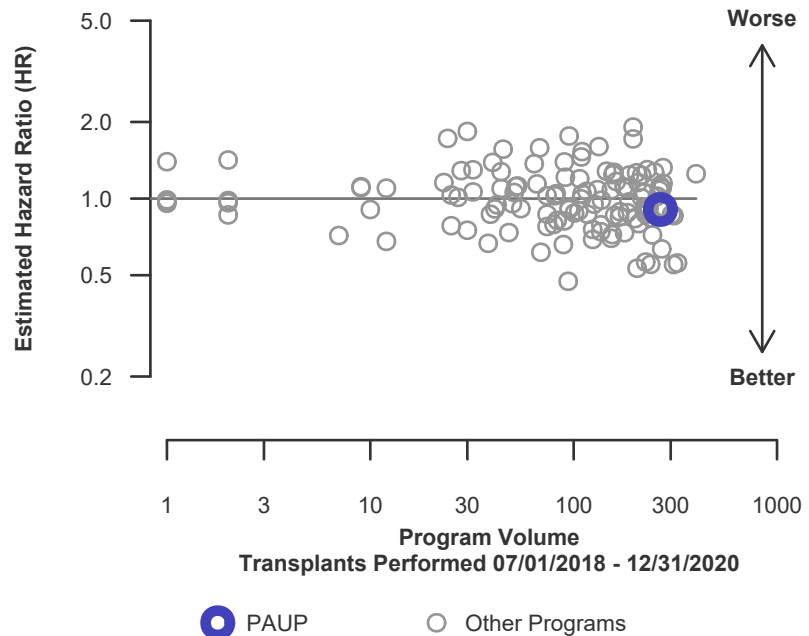


Figure C26. Adult (18+) 3-year patient death HR program comparison





C. Transplant Information

Table C17D. Adult (18+) 3-year patient survival (deceased donor graft recipients)

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Retransplants excluded

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	239	15,249
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	87.02% [80.76%-93.77%]	87.90% [87.11%-88.71%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	86.82%	--
Number of observed deaths during the first 3 years after transplant	18	1,088
Number of expected deaths during the first 3 years after transplant	18.56	--
Estimated hazard ratio*	0.97	--
95% credible interval for the hazard ratio**	[0.59, 1.44]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.59, 1.44], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 3% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 41% reduced risk up to 44% increased risk.

Figure C25D. Adult (18+) 3-year patient death HR estimate (deceased donor grafts)

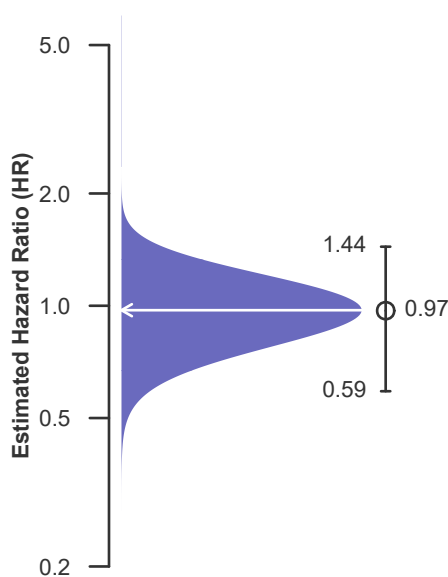
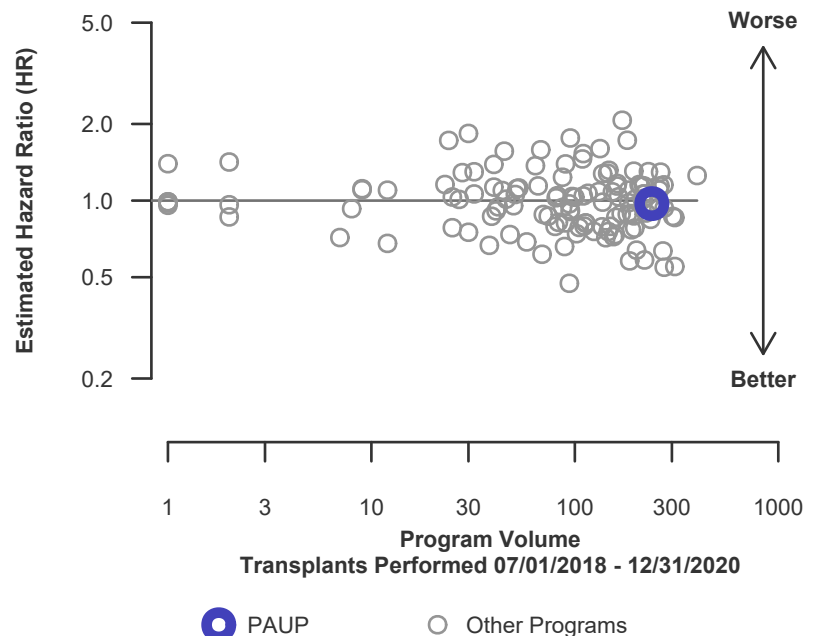


Figure C26D. Adult (18+) 3-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C17L. Adult (18+) 3-year patient survival (living donor graft recipients)

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Retransplants excluded

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	28	973
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	90.88% [88.22%-93.61%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	90.84%	--
Number of observed deaths during the first 3 years after transplant	0	51
Number of expected deaths during the first 3 years after transplant	1.51	--
Estimated hazard ratio*	0.57	--
95% credible interval for the hazard ratio**	[0.07, 1.59]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.07, 1.59], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 43% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 93% reduced risk up to 59% increased risk.

Figure C25L. Adult (18+) 3-year patient death HR estimate (living donor grafts)

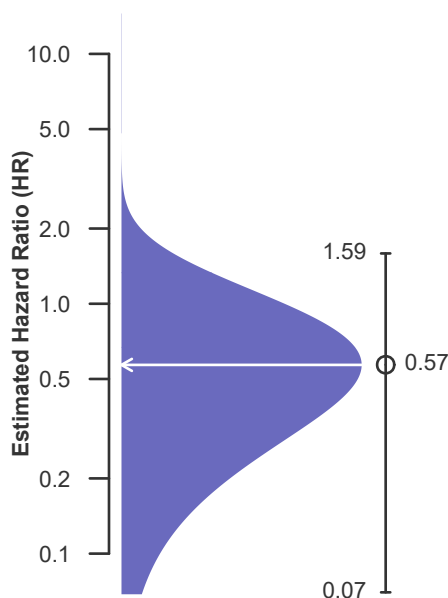
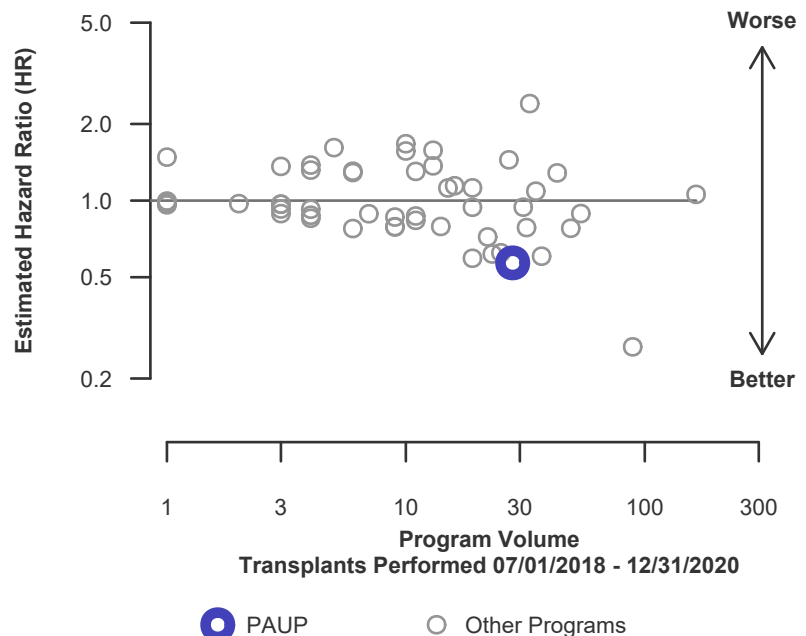


Figure C26L. Adult (18+) 3-year patient death HR program comparison (living donor grafts)





C. Transplant Information

Table C18. Pediatric (<18) 1-month patient survival
Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

**Figure C27. Pediatric (<18)
1-month patient death HR
estimate**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

**Figure C28. Pediatric (<18) 1-month patient death HR program
comparison**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C18D. Pediatric (<18) 1-month patient survival (deceased donor graft recipients)

Single organ transplants performed between 01/01/2021 and 06/30/2023

Retransplants excluded

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C27D. Pediatric (<18) 1-month patient death HR estimate (deceased donor grafts)

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C28D. Pediatric (<18) 1-month patient death HR program comparison (deceased donor grafts)

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C18L. Pediatric (<18) 1-month patient survival (living donor graft recipients)

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C27L. Pediatric (<18) 1-month patient death HR estimate (living donor grafts)

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C28L. Pediatric (<18) 1-month patient death HR program comparison (living donor grafts)

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C19. Pediatric (<18) 1-year patient survival

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C29. Pediatric (<18) 1-year patient death HR estimate

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C30. Pediatric (<18) 1-year patient death HR program comparison

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C19D. Pediatric (<18) 1-year patient survival (deceased donor graft recipients)
Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

**Figure C29D. Pediatric (<18)
1-year patient death HR estimate
(deceased donor grafts)**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

**Figure C30D. Pediatric (<18) 1-year patient death HR program
comparison (deceased donor grafts)**

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C19L. Pediatric (<18) 1-year patient survival (living donor graft recipients)

Single organ transplants performed between 01/01/2021 and 06/30/2023
Retransplants excluded

This center did not perform any
transplants relevant to
this table during
01/01/2021-06/30/2023

Figure C29L. Pediatric (<18) 1-year patient death HR estimate (living donor grafts)

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023

Figure C30L. Pediatric (<18) 1-year patient death HR program comparison (living donor grafts)

This center did not perform any
transplants relevant to
this figure during
01/01/2021-06/30/2023



C. Transplant Information

Table C20. Pediatric (<18) 3-year patient survival

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Retransplants excluded

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	1	1,064
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	92.63% [90.45%-94.86%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	95.57%	--
Number of observed deaths during the first 3 years after transplant	0	54
Number of expected deaths during the first 3 years after transplant	0.02	--
Estimated hazard ratio*	0.99	--
95% credible interval for the hazard ratio**	[0.12, 2.75]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.12, 2.75], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 1% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 88% reduced risk up to 175% increased risk.

Figure C31. Pediatric (<18) 3-year patient death HR estimate

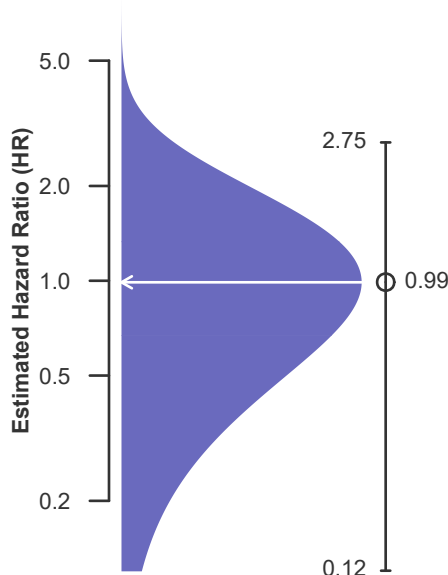
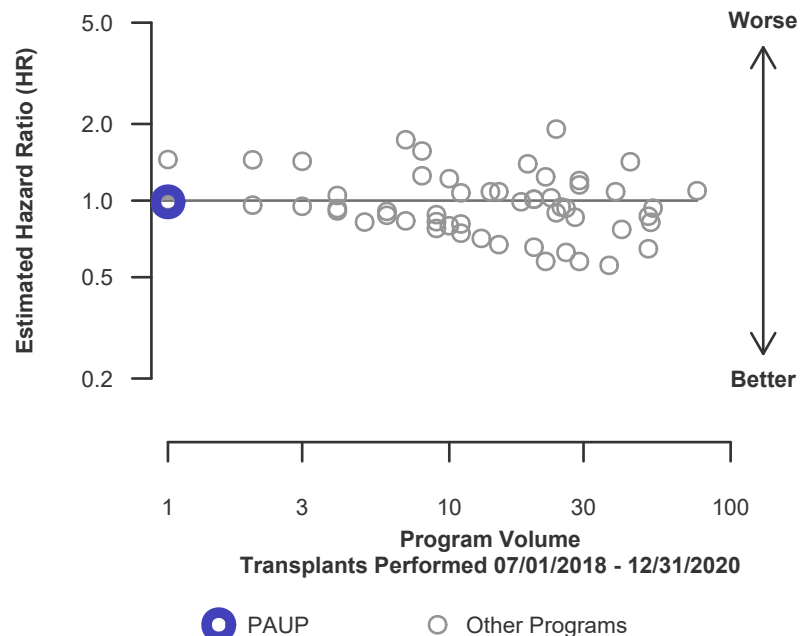


Figure C32. Pediatric (<18) 3-year patient death HR program comparison





C. Transplant Information

Table C20D. Pediatric (<18) 3-year patient survival (deceased donor graft recipients)

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Retransplants excluded

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	PAUP	U.S.
Number of transplants evaluated	1	894
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	92.46% [90.13%-94.85%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	95.57%	--
Number of observed deaths during the first 3 years after transplant	0	48
Number of expected deaths during the first 3 years after transplant	0.02	--
Estimated hazard ratio*	0.99	--
95% credible interval for the hazard ratio**	[0.12, 2.75]	--

* The hazard ratio provides an estimate of how Hospital of the University of Pennsylvania's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50% higher risk), and a ratio below 1 indicates lower than expected patient death rates (e.g., a hazard ratio of 0.75 would indicate 25% lower risk). If PAUP's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.12, 2.75], indicates the location of PAUP's true hazard ratio with 95% probability. The best estimate is 1% lower risk of patient death compared to an average program, but PAUP's performance could plausibly range from 88% reduced risk up to 175% increased risk.

Figure C31D. Pediatric (<18) 3-year patient death HR estimate (deceased donor grafts)

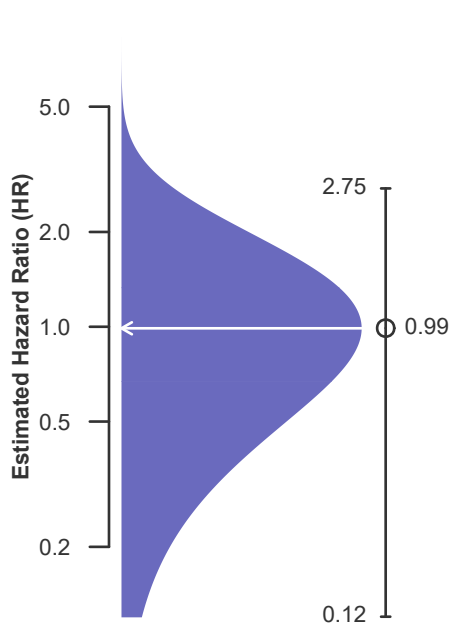
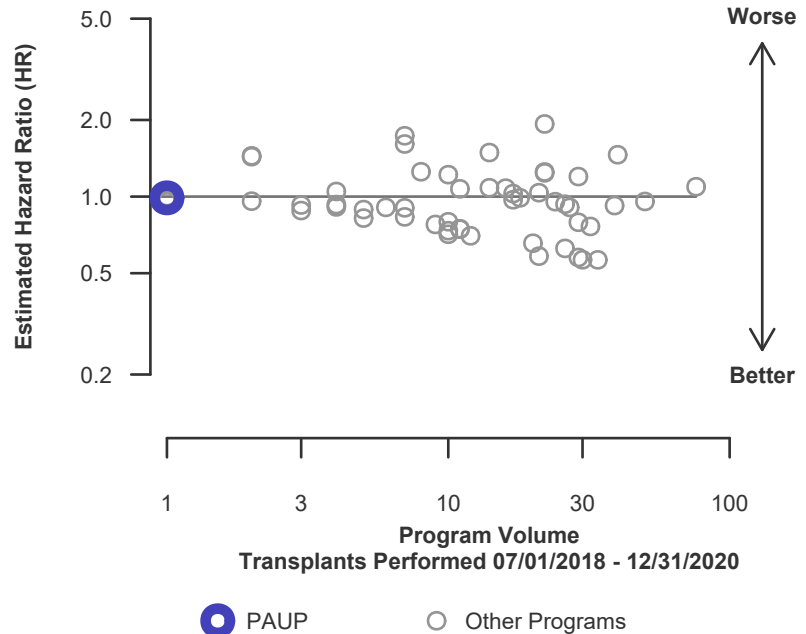


Figure C32D. Pediatric (<18) 3-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

Table C20L. Pediatric (<18) 3-year patient survival (living donor graft recipients)

Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020

Retransplants excluded

Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

This center did not perform any
transplants relevant to
this table during
07/01/2018-12/31/2020

Figure C31L. Pediatric (<18) 3-year patient death HR estimate (living donor grafts)

This center did not perform any
transplants relevant to
this figure during
07/01/2018-12/31/2020

Figure C32L. Pediatric (<18) 3-year patient death HR program comparison (living donor grafts)

This center did not perform any
transplants relevant to
this figure during
07/01/2018-12/31/2020



C. Transplant Information

Table C21. Multi-organ transplant graft survival: 01/01/2021 - 06/30/2023

Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Liver Graft Failures		Estimated Liver Graft Survival	
	PAUP-TX1	USA	PAUP-TX1	USA	PAUP-TX1	USA
Kidney-Liver	33	1,933	2	179	93.9%	90.7%
Liver-Heart	2	150	1	29	50.0%	80.7%
Liver-Lung	1	37	0	7	100.0%	81.1%

Pediatric (<18) Transplants

No pediatric (<18) multi-organ transplants were performed

Table C22. Multi-organ transplant patient survival: 01/01/2021 - 06/30/2023

Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Patient Deaths		Estimated Patient Survival	
	PAUP-TX1	USA	PAUP-TX1	USA	PAUP-TX1	USA
Kidney-Liver	33	1,933	2	169	93.9%	91.3%
Liver-Heart	2	150	1	28	50.0%	81.3%
Liver-Lung	1	37	0	7	100.0%	81.1%

Pediatric (<18) Transplants

No pediatric (<18) multi-organ transplants were performed



D. Living Donor Information

Table D1. Living donor summary: 01/01/2021 - 12/31/2023

Living Donor Follow-Up	This Center			United States		
	01/2021-12/2021	01/2022-12/2022	01/2023-06/2023	01/2021-12/2021	01/2022-12/2022	01/2023-06/2023
Number of Living Donors	17	15	11	566	595	330
6-Month Follow-Up						
Donors due for follow-up	17	15	8	566	595	272
Timely clinical data	17 100.0%	13 86.7%	8 100.0%	501 88.5%	485 81.5%	232 85.3%
Timely lab data	17 100.0%	13 86.7%	8 100.0%	497 87.8%	497 83.5%	237 87.1%
12-Month Follow-Up						
Donors due for follow-up	17	14		565	555	
Timely clinical data	14 82.4%	13 92.9%		457 80.9%	448 80.7%	
Timely lab data	14 82.4%	13 92.9%		446 78.9%	445 80.2%	
24-Month Follow-Up						
Donors due for follow-up	15			515		
Timely clinical data	15 100.0%			342 66.4%		
Timely lab data	15 100.0%			349 67.8%		

Follow-up forms due during the COVID-19 amnesty period from 3/13/2020-3/31/2021 are not included in timely clinical and lab data calculations