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## User Guide

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Due to the pandemic's effect on the transplant system, adjustments have been made for this data reporting cycle and potentially future reporting cycles as well. For transplant programs, this means that SRTR will not include patient follow-up starting from March 12, 2020, the day prior to the emergency declaration, i.e., waitlist survival, transplant rate, and outcomes will not be assessed after that date.

This report contains a wide range of useful information about the lung transplant program at Duke University Hospital (NCDU). 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



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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 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 deceased donor transplant rate at this program was 1,364.0 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. Please refer to the PSR Technical Methods documentation available at <http://www.srtr.org> for more detail regarding how expected rates are calculated.

The death rate (also known as the 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 waiting list 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 07/01/2014 and 12/31/2019. 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 06/30/2020 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



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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 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-C10 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-C10 present data on graft survival, Tables C11-C16 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 C17 and C18 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.

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](mailto:srtr@srtr.org).



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## A. Program Summary

Figure A1. Waiting list and transplant activity

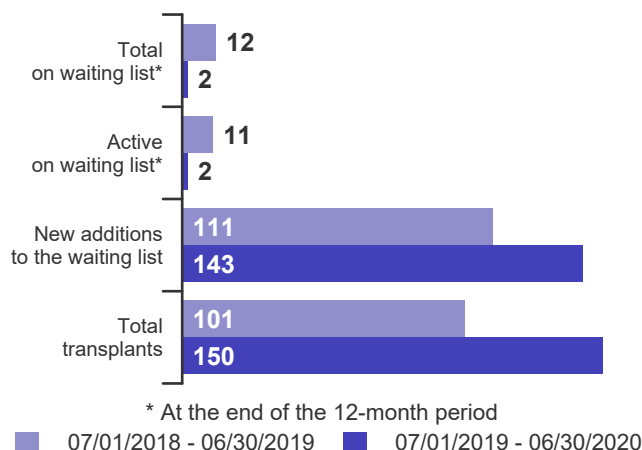


Table A1. Census of transplant recipients

Recipients	07/01/2018-06/30/2019	07/01/2019-06/30/2020
Transplanted at this center	101	150
Followed by this center*	668	649
...transplanted at this program	637	620
...transplanted elsewhere	31	29

\* 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  
07/01/2018 - 03/12/2020

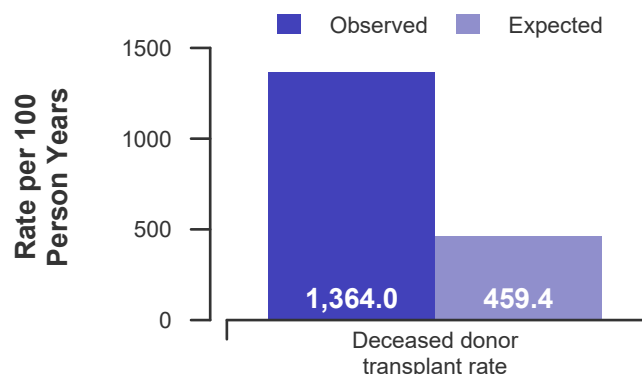


Figure A3. Waiting list mortality rates  
07/01/2018 - 03/12/2020

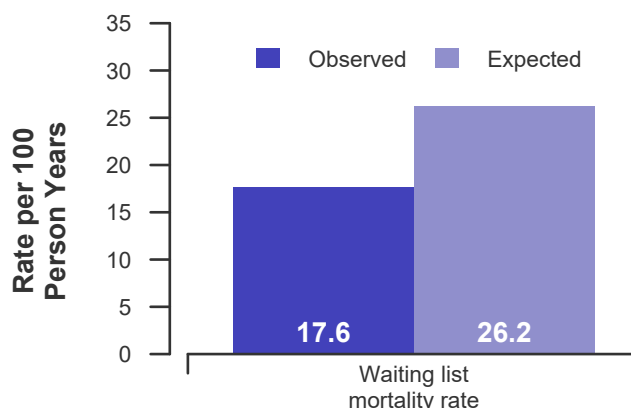


Figure A4. First-year adult graft and patient survival: 07/01/2017 - 12/31/2019

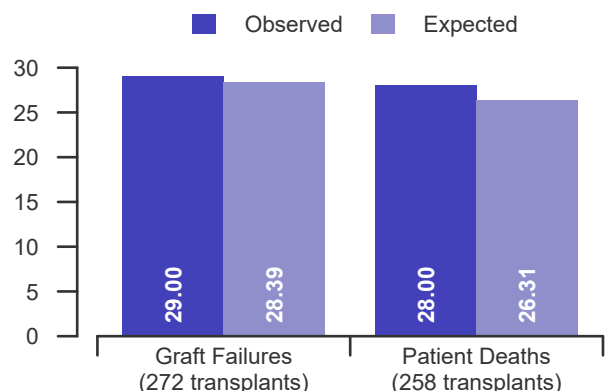
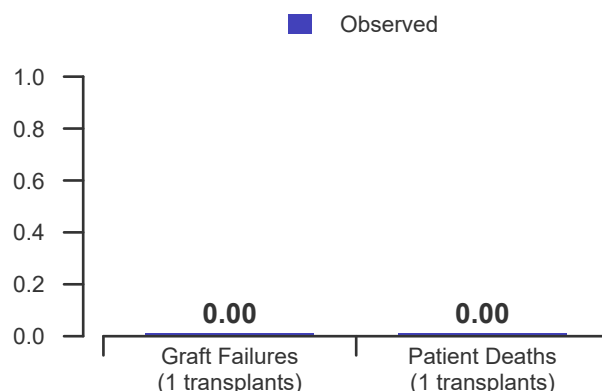


Figure A5. First-year pediatric graft and patient survival: 07/01/2017 - 12/31/2019





## B. Waiting List Information

Table B1. Waiting list activity summary: 07/01/2018 - 06/30/2020

Waiting List Registrations	Counts for this center		Activity for 07/01/2019 to 06/30/2020 as percent of registrants on waiting list on 07/01/2019		
	07/01/2018-06/30/2019	07/01/2019-06/30/2020	This Center (%)	OPTN Region (%)	U.S. (%)
<b>On waiting list at start</b>	9	12	100.0	100.0	100.0
<b>Additions</b>					
New listings at this center	111	143	1,191.7	457.6	203.2
<b>Removals</b>					
Transferred to another center	0	0	0.0	1.5	1.5
Received living donor transplant*	0	0	0.0	0.0	0.0
Received deceased donor transplant*	101	150	1,250.0	424.2	184.6
Died	2	0	0.0	15.2	11.5
Transplanted at another center	0	0	0.0	0.0	2.5
Deteriorated	1	1	8.3	12.1	10.8
Recovered	2	1	8.3	3.0	4.1
Other reasons	2	1	8.3	9.1	11.9
<b>On waiting list at end of period</b>	12	2	16.7	92.4	76.2

\* 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 07/01/2019 and 06/30/2020**

Demographic Characteristic	New Waiting List Registrations 07/01/2019 to 06/30/2020 (%)			All Waiting List Registrations on 06/30/2020 (%)		
	This Center (N=143)	OPTN Region (N=302)	U.S. (N=2,904)	This Center (N=2)	OPTN Region (N=61)	U.S. (N=1,089)
<b>All (%)</b>	100.0	100.0	100.0	100.0	100.0	100.0
<b>Ethnicity/Race (%)*</b>						
White	88.8	83.4	75.0	100.0	80.3	69.4
African-American	9.8	10.6	10.2	0.0	16.4	14.4
Hispanic/Latino	1.4	3.6	11.1	0.0	1.6	12.4
Asian	0.0	1.0	2.9	0.0	0.0	2.9
Other	0.0	1.3	0.8	0.0	1.6	0.8
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
<b>Age (%)</b>						
<2 years	0.0	0.0	0.5	0.0	0.0	0.6
2-11 years	0.0	0.0	0.2	0.0	0.0	0.7
12-17 years	0.0	0.3	1.2	0.0	1.6	1.0
18-34 years	10.5	7.9	7.2	0.0	9.8	9.0
35-49 years	11.9	13.2	10.6	50.0	13.1	13.7
50-64 years	28.0	38.7	44.1	50.0	45.9	48.4
65-69 years	29.4	26.5	23.7	0.0	23.0	19.1
70+ years	20.3	13.2	12.4	0.0	6.6	7.4
<b>Gender (%)</b>						
Male	60.8	58.9	58.1	0.0	50.8	39.8
Female	39.2	41.1	41.9	100.0	49.2	60.2

\* 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 07/01/2019 and 06/30/2020**

Medical Characteristic	New Waiting List Registrations 07/01/2019 to 06/30/2020 (%)			All Waiting List Registrations on 06/30/2020 (%)		
	This Center (N=143)	OPTN Region (N=302)	U.S. (N=2,904)	This Center (N=2)	OPTN Region (N=61)	U.S. (N=1,089)
<b>All (%)</b>	100.0	100.0	100.0	100.0	100.0	100.0
<b>Blood Type (%)</b>						
O	46.2	47.0	47.9	50.0	62.3	59.0
A	37.8	37.7	37.1	0.0	29.5	28.3
B	13.3	12.3	11.4	50.0	8.2	10.4
AB	2.8	3.0	3.7	0.0	0.0	2.4
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
<b>Previous Transplant (%)</b>						
Yes	7.7	5.3	4.2	0.0	3.3	3.2
No	92.3	94.7	95.8	100.0	96.7	96.8
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
<b>Primary Disease (%)</b>						
Idiopathic Pulmonary Arterial Hypertension	1.4	2.6	7.5	0.0	1.6	11.1
Cystic Fibrosis	7.0	7.0	5.9	0.0	9.8	7.5
Idiopathic Pulmonary Fibrosis	76.2	70.9	63.1	100.0	52.5	43.2
Emphysema/COPD	14.0	16.9	21.1	0.0	34.4	34.7
Other	1.4	2.6	2.3	0.0	1.6	3.5
Missing	0.0	0.0	0.0	0.0	0.0	0.0





## B. Waiting List Information

Table B4D. Deceased donor transplant rates: 07/01/2018 - 03/12/2020

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
<b>All Candidates</b>				
Count on waiting list at start*	9	10	70	1,469
Person Years**	15.2	27.8	107.7	2,447.5
Removals for Transplant	207	241	456	4,637
<b>Adult (18+) Candidates</b>				
Count on waiting list at start*	9	10	70	1,439
Person Years**	15.2	27.2	107.1	2,392.7
Removals for transplant	206	239	454	4,559
<b>Pediatric (&lt;18) Candidates</b>				
Count on waiting list at start*	0	0	0	30
Person Years**	0.0	0.6	0.6	54.8
Removals for transplant	1	2	2	78

\* 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 July 1 or from the date of first wait listing until death, transplant, removal from the waiting list or March 12, 2020.

Figure B1D. Observed and expected deceased donor transplant rates: 07/01/2018 - 03/12/2020

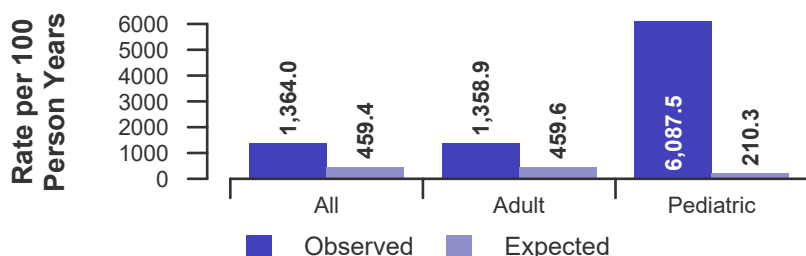


Figure B2D. Deceased donor transplant rate ratio estimate

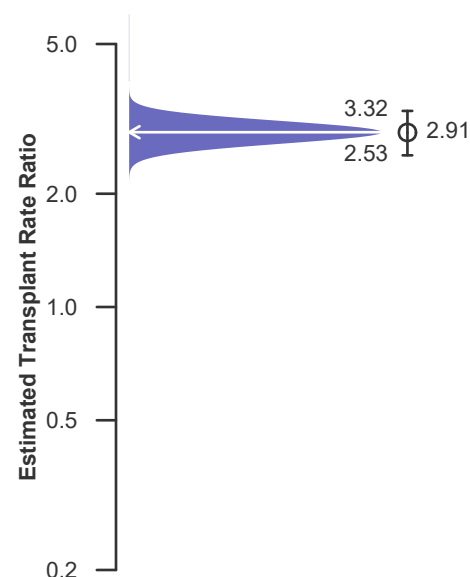
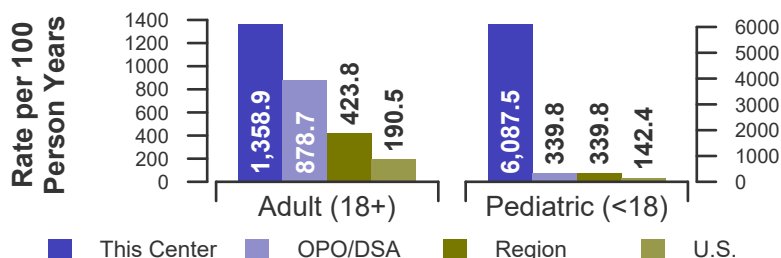


Figure B3D. Observed adult (18+) and pediatric (<18) deceased donor transplant rates: 07/01/2018 - 03/12/2020





## B. Waiting List Information

Table B5. Waiting list mortality rates: 07/01/2018 - 03/12/2020

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
<b>All Candidates</b>				
Count on waiting list at start*	9	10	70	1,469
Person Years**	17.0	29.7	122.0	2,742.6
Number of deaths	3	7	24	420
<b>Adult (18+) Candidates</b>				
Count on waiting list at start*	9	10	70	1,439
Person Years**	17.0	29.1	121.4	2,680.5
Number of deaths	3	6	23	406
<b>Pediatric (&lt;18) Candidates</b>				
Count on waiting list at start*	0	0	0	30
Person Years**	0.0	0.6	0.6	62.1
Number of deaths	0	1	1	14

\* 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 July 1 or from the date of first wait listing until death, transplant, 60 days after recovery, transfer or March 12, 2020.

Figure B4. Observed and expected waiting list mortality rates: 07/01/2018 - 03/12/2020

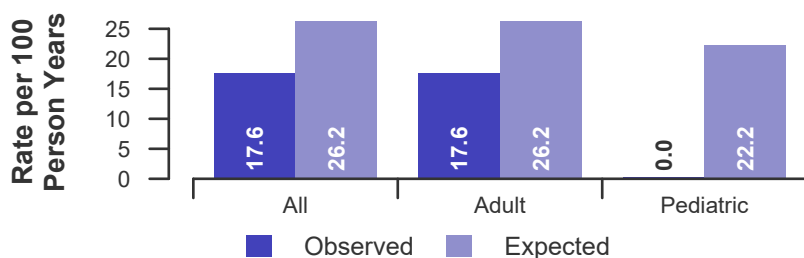


Figure B5. Waiting list mortality rate ratio estimate

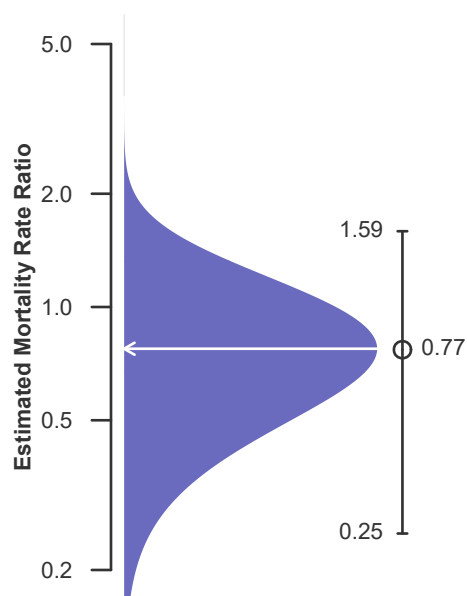
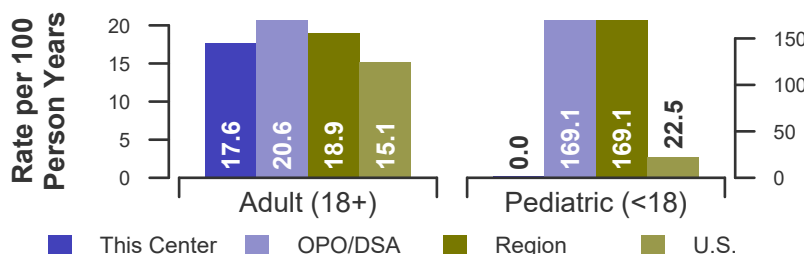


Figure B6. Observed adult (18+) and pediatric (<18) waiting list mortality rates: 07/01/2018 - 03/12/2020





## B. Waiting List Information

Table B6. Rates of patient mortality after listing: 07/01/2018 - 03/12/2020

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
<b>All Patients</b>				
Count at risk during the evaluation period	611	710	1,365	15,261
Person-years*	680.6	790.3	1,535.1	18,014.3
Number of Deaths	71	87	163	1,895
<b>Adult (18+) Patients</b>				
Count at risk during the evaluation period	610	703	1,355	14,966
Person-years*	679.7	781.3	1,523.1	17,671.3
Number of Deaths	71	85	161	1,853
<b>Pediatric (&lt;18) Patients</b>				
Count at risk during the evaluation period	1	7	10	295
Person-years*	0.9	9.1	12.0	343.1
Number of Deaths	0	2	2	42

\* Person-years are calculated as days (converted to fractional years). The number of days from 07/01/2018, or from the date of first wait listing until death, reaching 5 years after listing or March 12, 2020.

\*\* 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: 07/01/2018 - 03/12/2020

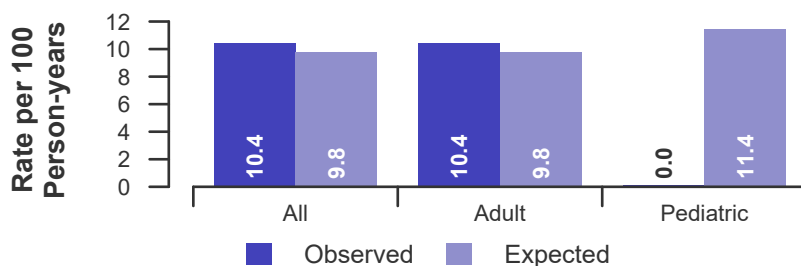


Figure B8. HR estimate of patient mortality after listing

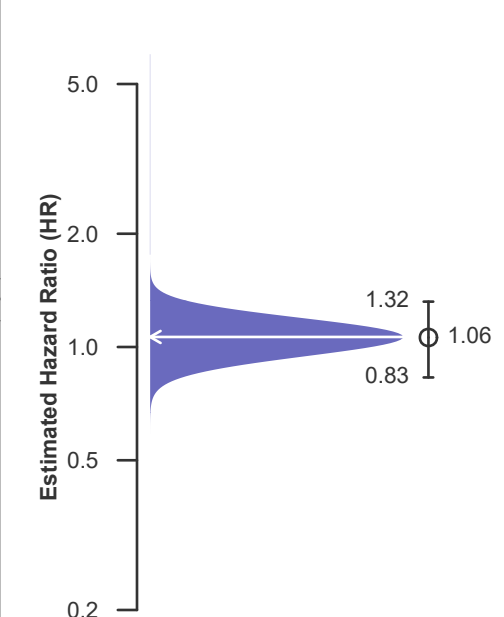
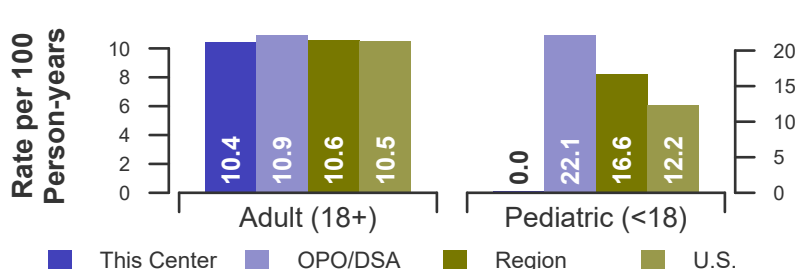


Figure B9. Observed adult (18+) and pediatric (<18) rates of patient mortality after listing: 07/01/2018 - 03/12/2020





## B. Waiting List Information

**Table B7. Waiting list candidate status after listing**

**Candidates registered on waiting list between 01/01/2018 and 12/31/2018**

Waiting list status (survival status)	This Center (N=98)			U.S. (N=3,205)		
	Months Since Listing			Months Since Listing		
	6	12	18	6	12	18
<b>Alive on waiting list (%)</b>	0.0	0.0	0.0	24.8	13.4	7.6
<b>Died on the waiting list without transplant (%)</b>	2.0	2.0	2.0	4.5	5.1	5.3
<b>Removed without transplant (%):</b>						
Condition worsened (status unknown)	2.0	2.0	2.0	3.1	4.0	4.3
Condition improved (status unknown)	0.0	0.0	0.0	0.3	0.5	0.9
Refused transplant (status unknown)	0.0	0.0	0.0	0.3	0.3	0.4
Other	2.0	2.0	2.0	1.5	2.2	2.9
<b>Transplant (living or deceased donor) (%):</b>						
Functioning (alive)	83.7	69.4	46.9	61.0	64.4	40.6
Failed-Retransplanted (alive)	0.0	0.0	1.0	0.2	0.2	0.4
Failed-alive not retransplanted	0.0	0.0	0.0	0.1	0.1	0.0
Died	10.2	14.3	17.3	3.6	6.8	10.2
Status Yet Unknown*	0.0	10.2	28.6	0.6	2.8	27.1
<b>Lost or Transferred (status unknown) (%)</b>	0.0	0.0	0.0	0.1	0.2	0.3
<b>TOTAL (%)</b>	100.0	100.0	100.0	100.0	100.0	100.0
Total % known died on waiting list or after transplant	12.2	16.3	19.4	8.0	11.9	15.5
Total % known died or removed as unstable	14.3	18.4	21.4	11.2	15.9	19.8
Total % removed for transplant	93.9	93.9	93.9	65.4	74.3	78.3
Total % with known functioning transplant (alive)	83.7	69.4	46.9	61.0	64.4	40.6

\* 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 07/01/2014 and 06/30/2017

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
<b>All</b>	324	66.7	94.8	95.7	96.0	8,281	29.0	71.2	76.6	78.4
<b>Ethnicity/Race*</b>										
White	284	67.6	95.1	96.1	96.5	6,552	29.5	72.4	77.8	79.6
African-American	28	60.7	96.4	96.4	96.4	803	24.8	68.0	74.2	76.0
Hispanic/Latino	8	62.5	87.5	87.5	87.5	655	31.8	67.9	73.0	74.5
Asian	3	66.7	66.7	66.7	66.7	223	22.0	59.2	63.7	65.5
Other	1	0.0	100.0	100.0	100.0	48	25.0	58.3	64.6	70.8
Unknown	0	--	--	--	--	0	--	--	--	--
<b>Age</b>										
<2 years	0	--	--	--	--	28	17.9	57.1	60.7	60.7
2-11 years	0	--	--	--	--	52	3.8	51.9	57.7	61.5
12-17 years	0	--	--	--	--	114	21.9	59.6	66.7	66.7
18-34 years	59	72.9	93.2	93.2	93.2	821	29.8	68.7	75.6	77.1
35-49 years	54	59.3	85.2	88.9	88.9	1,018	25.5	65.3	71.0	73.4
50-64 years	118	63.6	97.5	97.5	98.3	3,938	28.1	71.6	77.4	79.7
65-69 years	58	62.1	96.6	98.3	98.3	1,685	30.5	73.3	78.0	79.2
70+ years	35	85.7	100.0	100.0	100.0	625	39.0	80.0	82.1	82.7
<b>Gender</b>										
Male	186	70.4	96.8	97.3	97.3	4,651	35.0	78.2	82.0	83.0
Female	138	61.6	92.0	93.5	94.2	3,630	21.3	62.2	69.7	72.6

\* 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 07/01/2014 and 06/30/2017

Characteristic	N	Percent transplanted at time periods since listing					United States				
		This Center									
		30 day	1 year	2 years	3 years	N	30 day	1 year	2 years	3 years	
<b>All</b>	324	66.7	94.8	95.7	96.0	8,281	29.0	71.2	76.6	78.4	
<b>Blood Type</b>											
O	164	62.2	92.1	93.3	93.9	3,778	27.7	68.3	74.6	76.6	
A	119	68.9	97.5	98.3	98.3	3,234	30.1	74.1	78.7	80.4	
B	35	80.0	100.0	100.0	100.0	962	28.8	71.6	76.7	78.6	
AB	6	66.7	83.3	83.3	83.3	307	34.5	75.2	79.2	80.1	
<b>Previous Transplant</b>											
Yes	15	60.0	100.0	100.0	100.0	316	31.3	68.7	69.9	70.9	
No	309	67.0	94.5	95.5	95.8	7,965	28.9	71.3	76.9	78.7	
<b>Primary Disease</b>											
Congenital Disease	0	--	--	--	--	0	--	--	--	--	
Retransplant/Graft Failure	0	--	--	--	--	0	--	--	--	--	
Idiopathic Pulmonary Arterial Hypertension	15	33.3	60.0	60.0	60.0	405	17.5	53.6	57.8	60.0	
Cystic Fibrosis	66	71.2	97.0	97.0	97.0	907	26.9	71.3	78.6	80.2	
Idiopathic Pulmonary Fibrosis	178	75.8	97.8	98.3	98.3	4,726	34.4	74.4	78.1	79.1	
Alpha-1-Antitrypsin Deficiency	0	--	--	--	--	0	--	--	--	--	
Emphysema/COPD	54	42.6	92.6	96.3	98.1	1,999	20.0	68.0	76.8	80.7	
Other	11	54.5	90.9	90.9	90.9	244	24.2	63.9	70.5	72.1	
Missing	0	--	--	--	--	0	--	--	--	--	



## B. Waiting List Information

**Table B10. Time to transplant for waiting list candidates\***

**Candidates registered on the waiting list between 07/01/2014 and 12/31/2019**

Percentile	Center	Months to Transplant**		U.S.
		OPO/DSA	Region	
5th	0.1	0.1	0.1	0.2
10th	0.1	0.1	0.2	0.3
25th	0.2	0.3	0.4	0.7
50th (median time to transplant)	0.5	0.6	1.0	2.7
75th	1.3	1.5	4.0	13.1

\* 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 06/30/2020. 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: 07/01/2019 - 03/12/2020

Offers Acceptance Characteristics	This Center	OPO/DSA	Region	U.S.
<b>Overall</b>				
Number of Offers	473	872	2,661	39,493
Number of Acceptances	101	114	194	1,946
Expected Acceptances	35.0	55.9	162.2	1,946.0
Offer Acceptance Ratio*	2.78	2.00	1.19	1.00
95% Credible Interval**	[2.27, 3.35]	--	--	--
<b>PHS increased infectious risk</b>				
Number of Offers	161	295	933	12,234
Number of Acceptances	36	41	68	555
Expected Acceptances	12.2	20.4	57.0	561.1
Offer Acceptance Ratio*	2.68	1.92	1.19	0.99
95% Credible Interval**	[1.90, 3.59]	--	--	--
<b>Donor was current smoker</b>				
Number of Offers	65	117	366	4,119
Number of Acceptances	13	14	21	134
Expected Acceptances	4.1	5.4	15.3	134.6
Offer Acceptance Ratio*	2.47	2.16	1.33	1.00
95% Credible Interval**	[1.38, 3.86]	--	--	--
<b>Donor age &gt;= 55</b>				
Number of Offers	64	133	294	4,453
Number of Acceptances	8	10	15	227
Expected Acceptances	4.0	6.3	15.7	224.6
Offer Acceptance Ratio*	1.67	1.44	0.96	1.01
95% Credible Interval**	[0.80, 2.86]	--	--	--
<b>Hard-to-Place Lungs (Over 50 Offers)</b>				
Number of Offers	110	207	574	11,753
Number of Acceptances	17	17	20	240
Expected Acceptances	3.1	5.1	12.6	242.2
Offer Acceptance Ratio*	3.69	2.67	1.51	0.99
95% Credible Interval**	[2.22, 5.53]	--	--	--
<b>Donor more than 500 miles away</b>				
Number of Offers	108	200	530	7,442
Number of Acceptances	27	27	36	289
Expected Acceptances	5.3	8.0	21.3	257.4
Offer Acceptance Ratio*	3.95	2.90	1.63	1.12
95% Credible Interval**	[2.65, 5.51]	--	--	--

\* The offer acceptance ratio estimates the relative offer acceptance practice of Duke University Hospital (NCDU) compared to the national offer acceptance practice. A ratio above one indicates the program is more likely to accept an offer compared to national offer acceptance practices (e.g., an offer acceptance ratio of 1.25 indicates a 25% more likely to accept an offer), while a ratio below one indicates the program is less likely to accept an offer compared to national offer acceptance practices (e.g., an offer acceptance ratio of 0.75 indicates a 25% less likely to accept an offer).

\*\* As an example, the 95% Credible Interval for the overall offer acceptance ratio, [2.27, 3.35], indicates the location of NCDU's true offer acceptance ratio with 95% probability. The best estimate is 178% more likely to accept an offer compared to national acceptance behavior, but NCDU's performance could plausibly range from 127% higher acceptance up to 235% higher acceptance.





## B. Waiting List Information

Figure B10. Offer acceptance: Overall

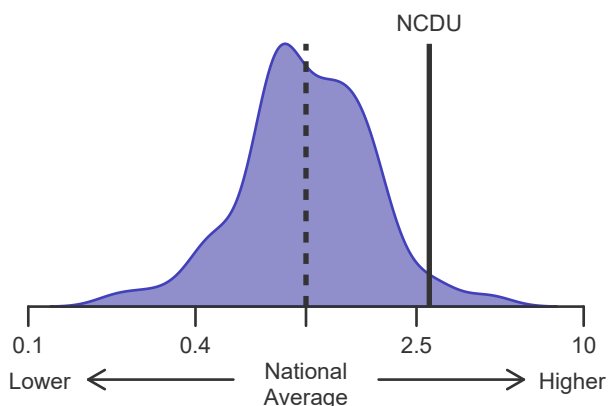


Figure B11. Offer acceptance: PHS increased infectious risk

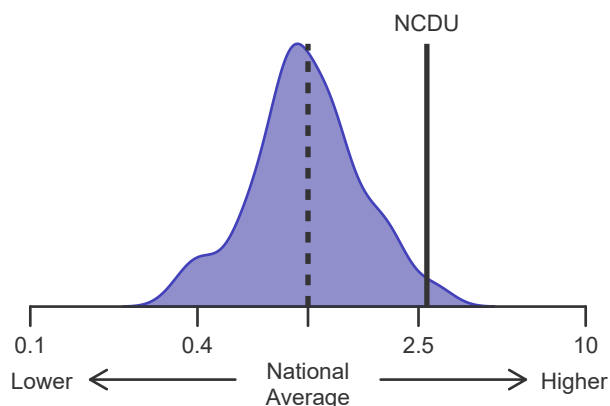


Figure B12. Offer acceptance: Donor was current smoker

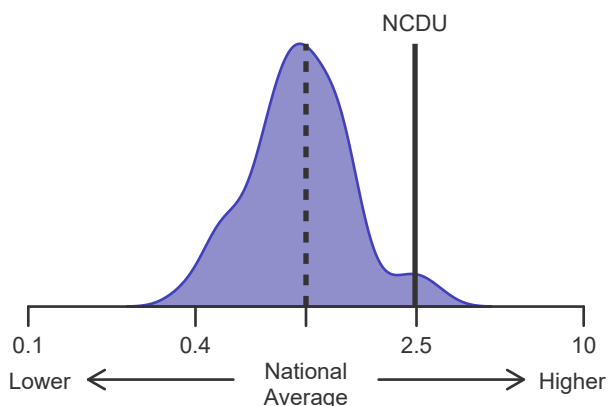


Figure B13. Offer acceptance: Donor age  $\geq 55$

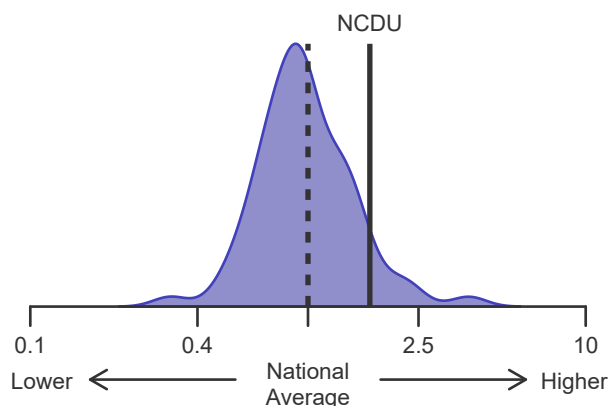


Figure B14. Offer acceptance: Offer number  $> 50$

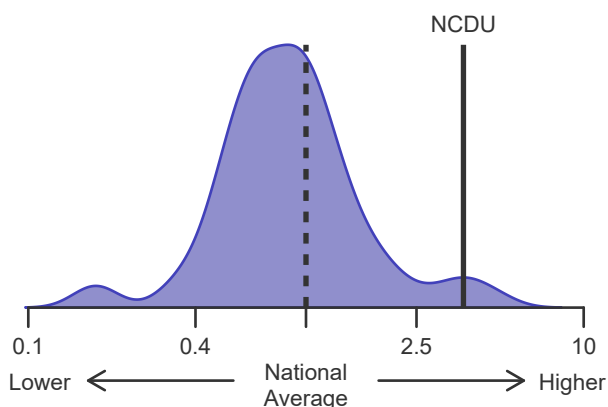
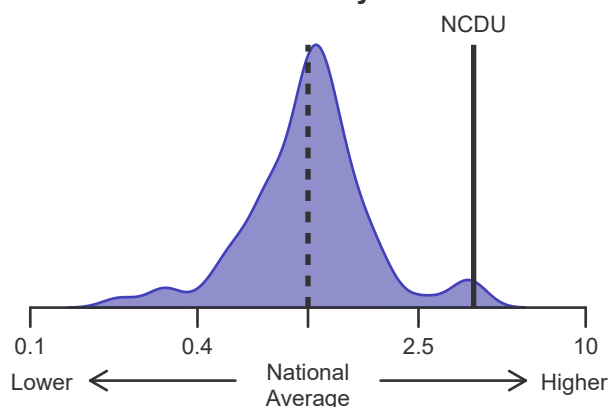


Figure B15. Offer acceptance: Donor more than 500 miles away





## C. Transplant Information

**Table C1D. Deceased donor transplant recipient demographic characteristics****Patients transplanted between 07/01/2019 and 06/30/2020**

Characteristic	Percentage in each category		
	Center (N=150)	Region (N=280)	U.S. (N=2,638)
<b>Ethnicity/Race (%)*</b>			
White	88.0	85.4	76.0
African-American	10.7	9.6	9.6
Hispanic/Latino	1.3	2.9	10.8
Asian	0.0	1.1	2.9
Other	0.0	1.1	0.8
Unknown	0.0	0.0	0.0
<b>Age (%)</b>			
<2 years	0.0	0.0	0.3
2-11 years	0.0	0.0	0.2
12-17	0.0	0.0	0.9
18-34	11.3	8.9	6.7
35-49 years	12.0	12.1	10.5
50-64 years	29.3	36.8	43.4
65-69 years	27.3	26.4	24.2
70+ years	20.0	15.7	13.7
<b>Gender (%)</b>			
Male	59.3	59.3	59.7
Female	40.7	40.7	40.3

\* 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 07/01/2019 and 06/30/2020**

Characteristic	Percentage in each category		
	Center (N=150)	Region (N=280)	U.S. (N=2,638)
<b>Blood Type (%)</b>			
O	44.0	43.6	44.0
A	38.0	37.5	40.6
B	15.3	14.6	11.7
AB	2.7	4.3	3.7
<b>Previous Transplant (%)</b>			
Yes	7.3	5.4	4.0
No	92.7	94.6	96.0
<b>Body Mass Index (%)</b>			
0-20	22.7	20.0	17.3
21-25	34.7	31.8	31.2
26-30	40.0	38.6	37.0
31-35	2.7	7.9	12.4
36-40	0.0	0.7	0.7
41+	0.0	0.7	0.2
Unknown	0.0	0.4	1.2
<b>Primary Disease (%)</b>			
Idiopathic Pulmonary Arterial Hypertension	4.7	4.3	6.4
Cystic Fibrosis	13.3	10.4	6.8
Idiopathic Pulmonary Fibrosis	66.0	64.3	59.9
Emphysema/COPD	14.7	18.6	24.6
Other	1.3	2.5	2.2
Missing	0.0	0.0	0.1
<b>Recipient Medical Condition at Transplant (%)</b>			
Not Hospitalized	78.0	75.7	74.4
Hospitalized	8.0	6.8	9.2
ICU	14.0	17.5	15.0
Unknown	0.0	0.0	1.4



## C. Transplant Information

**Table C3D. Deceased donor characteristics**

Transplants performed between 07/01/2019 and 06/30/2020

Donor Characteristic	Percentage in each category		
	Center (N=150)	Region (N=280)	U.S. (N=2,638)
<b>Cause of Death (%)</b>			
Deceased: Stroke	24.7	23.6	26.1
Deceased: MVA	13.3	14.3	12.9
Deceased: Other	62.0	62.1	61.0
<b>Ethnicity/Race (%)*</b>			
White	72.0	70.0	61.4
African-American	16.7	20.4	16.6
Hispanic/Latino	5.3	5.7	17.1
Asian	3.3	2.5	3.7
Other	2.7	1.4	1.3
Not Reported	0.0	0.0	0.0
<b>Age (%)</b>			
<2 years	0.0	0.0	0.3
2-11 years	0.7	0.4	0.7
12-17	6.0	8.2	6.1
18-34	44.7	46.4	45.0
35-49 years	36.7	32.9	29.3
50-64 years	11.3	11.4	17.4
65-69 years	0.7	0.7	1.1
70+ years	0.0	0.0	0.2
<b>Gender (%)</b>			
Male	57.3	61.8	60.0
Female	42.7	38.2	40.0
<b>Blood Type (%)</b>			
O	54.7	53.2	50.2
A	32.0	32.9	36.5
B	12.7	12.1	11.6
AB	0.7	1.8	1.7
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 07/01/2019 and 06/30/2020

Transplant Characteristic	Percentage in each category		
	Center (N=150)	Region (N=280)	U.S. (N=2,638)
<b>Total Ischemic Time (Minutes): Local (%)</b>			
Deceased: 0-90 min	0.0	0.0	0.5
Deceased: 91-180 min	0.0	6.2	9.2
Deceased: 181-270 min	4.2	12.5	34.8
Deceased: 271-360 min	12.5	22.9	31.5
Deceased: 361+ min	83.3	58.3	22.0
Not Reported	0.0	0.0	2.1
<b>Total Ischemic Time (Minutes): Shared (%)</b>			
Deceased: 0-90 min	0.0	0.0	0.3
Deceased: 91-180 min	0.0	0.0	1.4
Deceased: 181-270 min	1.6	5.2	14.8
Deceased: 271-360 min	9.5	26.3	37.8
Deceased: 361+ min	88.9	67.7	43.9
Not Reported	0.0	0.9	1.8
<b>Procedure Type (%)</b>			
Lung alone	98.0	98.9	99.0
Lung and another organ	2.0	1.1	1.0
<b>Sharing (%)</b>			
Local	16.0	17.1	29.3
Shared	84.0	82.9	70.7
<b>Median Time in Hospital After Transplant*</b>	25.0 Days	21.0 Days	19.0 Days

\* Multiple organ transplants are excluded from this statistic.



## C. Transplant Information

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

**Single organ transplants performed between 07/01/2017 and 12/31/2019**

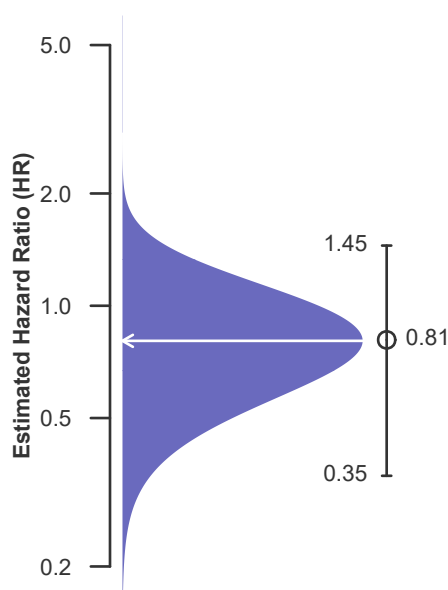
**Deaths and retransplants are considered graft failures**

	NCDU	U.S.
Number of transplants evaluated	272	6,308
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	97.79%	97.38%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	97.10%	--
Number of observed graft failures (including deaths) during the first month after transplant	6	165
Number of expected graft failures (including deaths) during the first month after transplant	7.94	--
Estimated hazard ratio*	0.81	--
95% credible interval for the hazard ratio**	[0.35, 1.45]	--

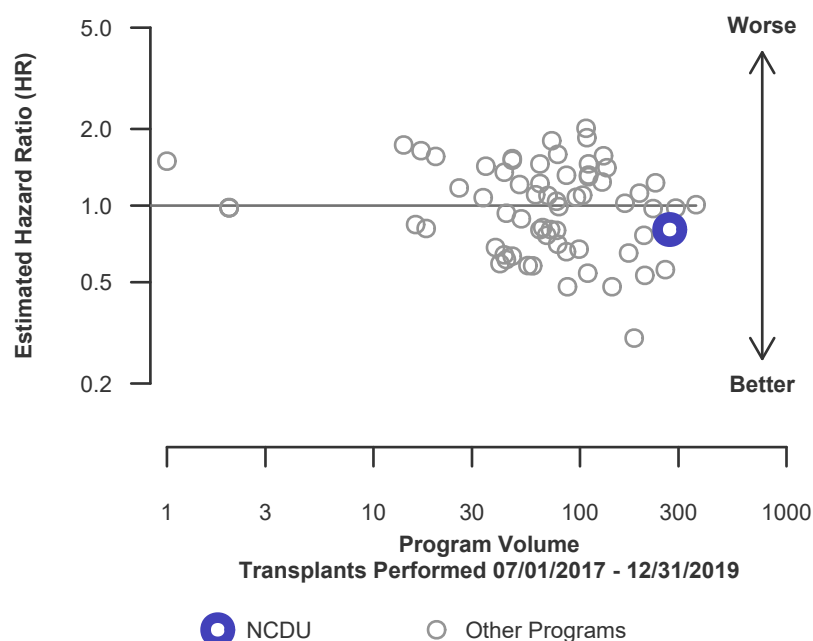
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.35, 1.45], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 19% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 65% reduced risk up to 45% 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

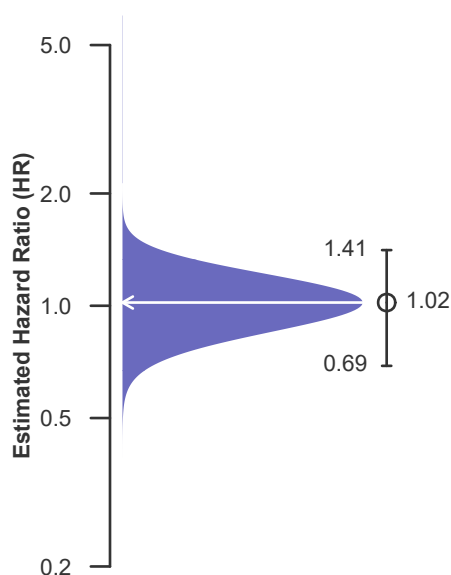
**Table C6D. Adult (18+) 1-year survival with a functioning deceased donor graft**  
**Single organ transplants performed between 07/01/2017 and 12/31/2019**  
**Deaths and retransplants are considered graft failures**

	NCDU	U.S.
Number of transplants evaluated	272	6,308
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	87.61%	89.15%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	88.00%	--
Number of observed graft failures (including deaths) during the first year after transplant	29	606
Number of expected graft failures (including deaths) during the first year after transplant	28.39	--
Estimated hazard ratio*	1.02	--
95% credible interval for the hazard ratio**	[0.69, 1.41]	--

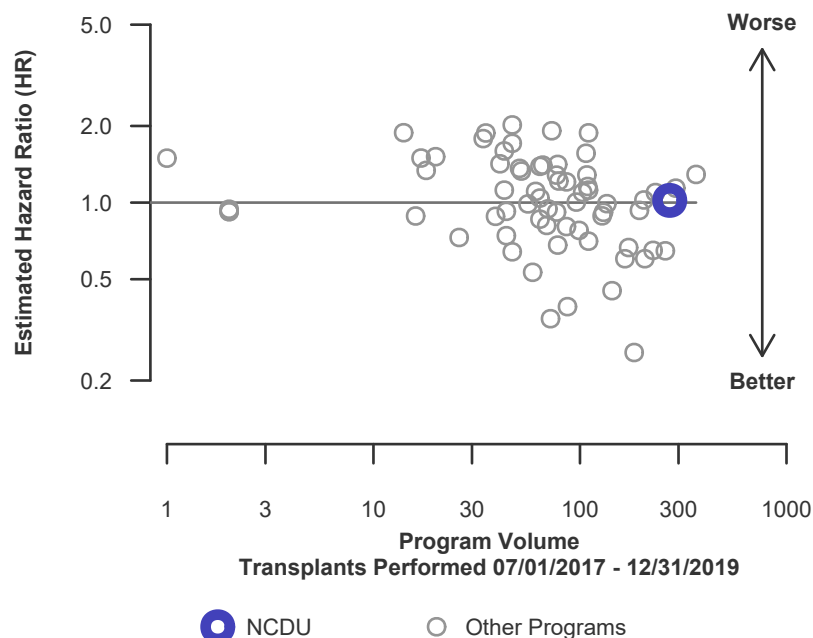
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.69, 1.41], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 2% higher risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 31% reduced risk up to 41% increased risk.

**Figure C3D. Adult (18+) 1-year deceased donor graft failure HR estimate**



**Figure C4D. Adult (18+) 1-year deceased donor graft failure HR program comparison**





## C. Transplant Information

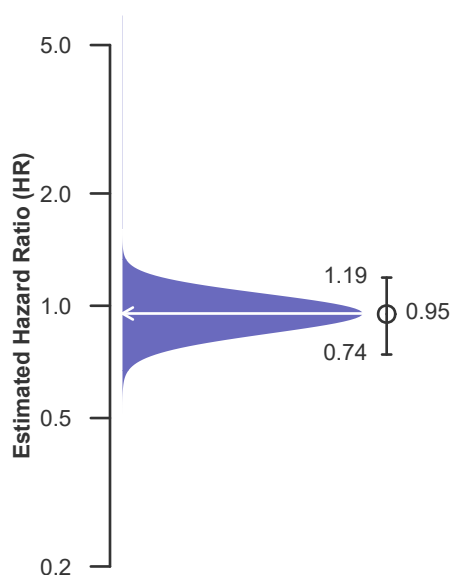
**Table C7D. Adult (18+) 3-year survival with a functioning deceased donor graft**  
**Single organ transplants performed between 01/01/2015 and 06/30/2017**  
**Deaths and retransplants are considered graft failures**

	NCDU	U.S.
Number of transplants evaluated	250	5,462
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	73.42%	72.60%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	71.70%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	65	1,463
Number of expected graft failures (including deaths) during the first 3 years after transplant	68.28	--
Estimated hazard ratio*	0.95	--
95% credible interval for the hazard ratio**	[0.74, 1.19]	--

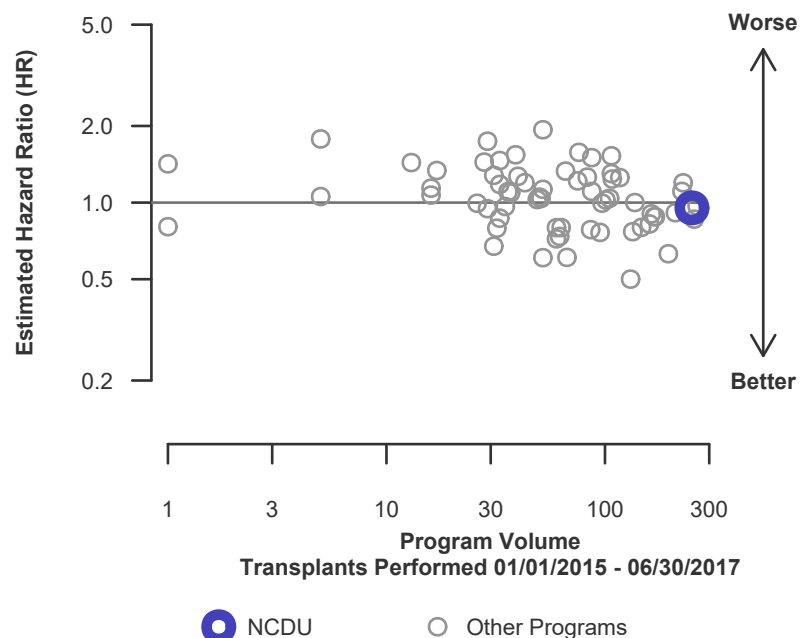
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.74, 1.19], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 5% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 26% reduced risk up to 19% increased risk.

**Figure C5D. Adult (18+) 3-year deceased donor graft failure HR estimate**



**Figure C6D. Adult (18+) 3-year deceased donor graft failure HR program comparison**







## C. Transplant Information

**Table C8D. Pediatric (<18) 1-month survival with a functioning deceased donor graft**

**Single organ transplants performed between 07/01/2017 and 12/31/2019**

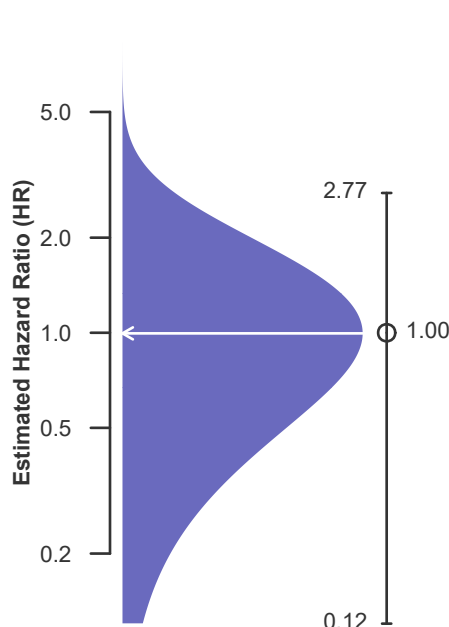
**Deaths and retransplants are considered graft failures**

	NCDU	U.S.
Number of transplants evaluated	1	112
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	100.00%	99.11%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	99.11%	--
Number of observed graft failures (including deaths) during the first month after transplant	0	1
Number of expected graft failures (including deaths) during the first month after transplant	0.01	--
Estimated hazard ratio*	1.00	--
95% credible interval for the hazard ratio**	[0.12, 2.77]	--

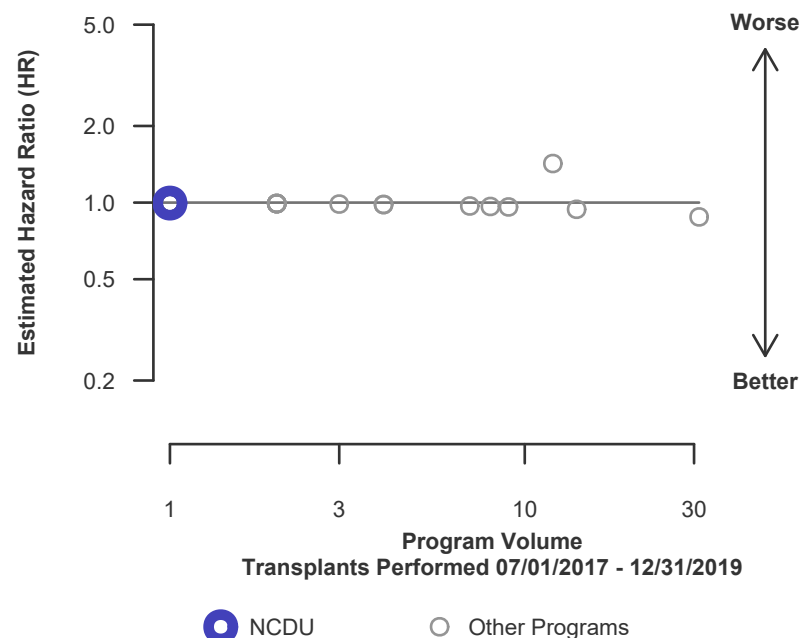
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.12, 2.77], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 0% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 88% reduced risk up to 177% increased risk.

**Figure C7D. Pediatric (<18) 1-month deceased donor graft failure HR estimate**



**Figure C8D. Pediatric (<18) 1-month deceased donor graft failure HR program comparison**





## C. Transplant Information

**Table C9D. Pediatric (<18) 1-year survival with a functioning deceased donor graft**

**Single organ transplants performed between 07/01/2017 and 12/31/2019**

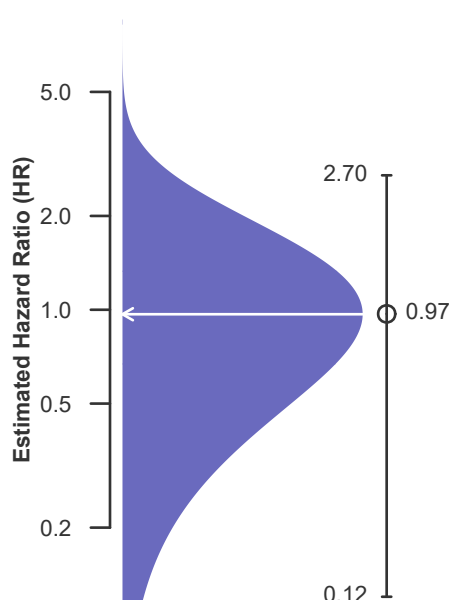
**Deaths and retransplants are considered graft failures**

	NCDU	U.S.
Number of transplants evaluated	1	112
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	100.00%	89.08%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	89.14%	--
Number of observed graft failures (including deaths) during the first year after transplant	0	9
Number of expected graft failures (including deaths) during the first year after transplant	0.07	--
Estimated hazard ratio*	0.97	--
95% credible interval for the hazard ratio**	[0.12, 2.70]	--

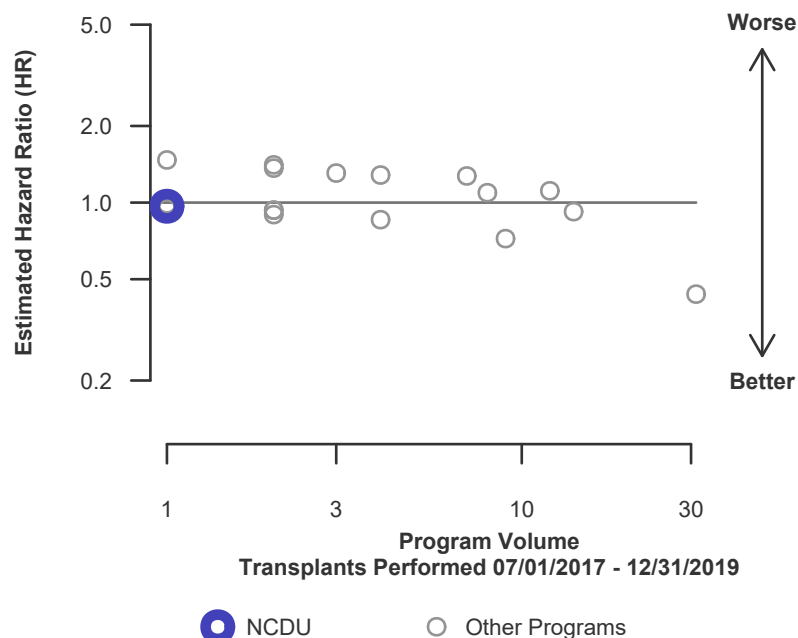
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.12, 2.70], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 3% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 88% reduced risk up to 170% increased risk.

**Figure C9D. Pediatric (<18) 1-year deceased donor graft failure HR estimate**



**Figure C10D. Pediatric (<18) 1-year deceased donor graft failure HR program comparison**





## C. Transplant Information

### Table C10D. Pediatric (<18) 3-year survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2015 and 06/30/2017

Deaths and retransplants are considered graft failures

This center did not perform any  
transplants relevant to  
this table during  
01/01/2015-06/30/2017

### Figure C11D. Pediatric (<18) 3-year deceased donor graft failure HR estimate

This center did not perform any  
transplants relevant to  
this figure during  
01/01/2015-06/30/2017

### Figure C12D. Pediatric (<18) 3-year deceased donor graft failure HR program comparison

This center did not perform any  
transplants relevant to  
this figure during  
01/01/2015-06/30/2017



## C. Transplant Information

**Table C11D. Adult (18+) 1-month patient survival (deceased donor graft recipients)**

**Single organ transplants performed between 07/01/2017 and 12/31/2019**

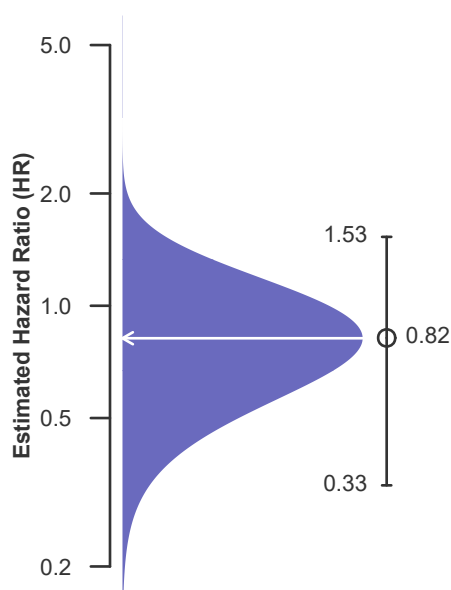
**Retransplants excluded**

	NCDU	U.S.
Number of transplants evaluated	258	6,122
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	98.06%	97.79%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	97.47%	--
Number of observed deaths during the first month after transplant	5	135
Number of expected deaths during the first month after transplant	6.55	--
Estimated hazard ratio*	0.82	--
95% credible interval for the hazard ratio**	[0.33, 1.53]	--

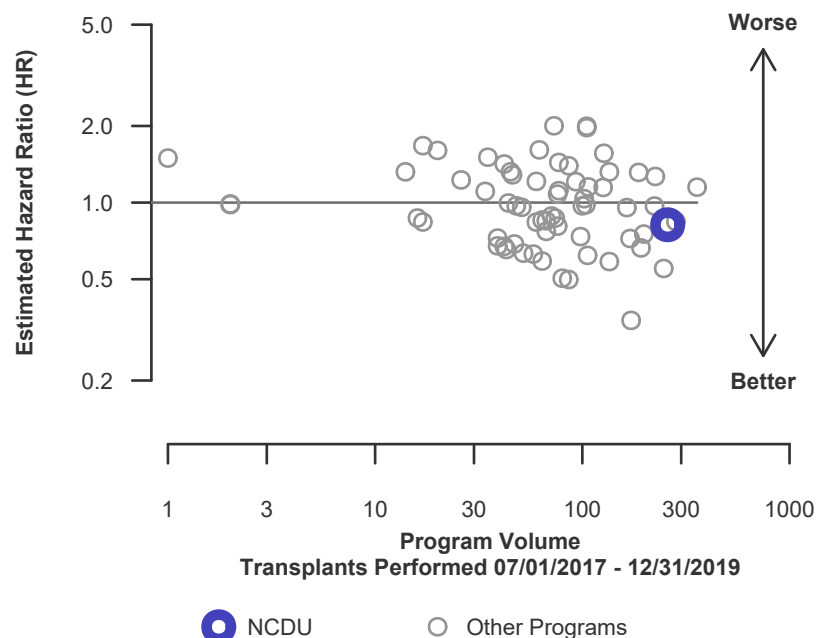
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.33, 1.53], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 18% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 67% reduced risk up to 53% increased risk.

**Figure C13D. Adult (18+) 1-month patient death HR estimate (deceased donor grafts)**



**Figure C14D. Adult (18+) 1-month patient death HR program comparison (deceased donor grafts)**





## C. Transplant Information

**Table C12D. Adult (18+) 1-year patient survival (deceased donor graft recipients)**

**Single organ transplants performed between 07/01/2017 and 12/31/2019**

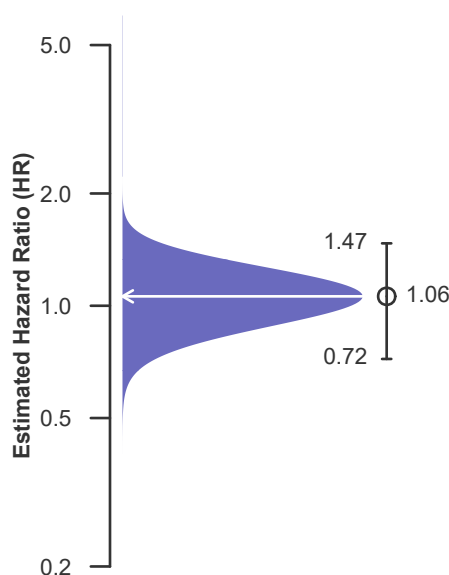
**Retransplants excluded**

	NCDU	U.S.
Number of transplants evaluated	258	6,122
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	87.66%	89.86%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	88.33%	--
Number of observed deaths during the first year after transplant	28	556
Number of expected deaths during the first year after transplant	26.31	--
Estimated hazard ratio*	1.06	--
95% credible interval for the hazard ratio**	[0.72, 1.47]	--

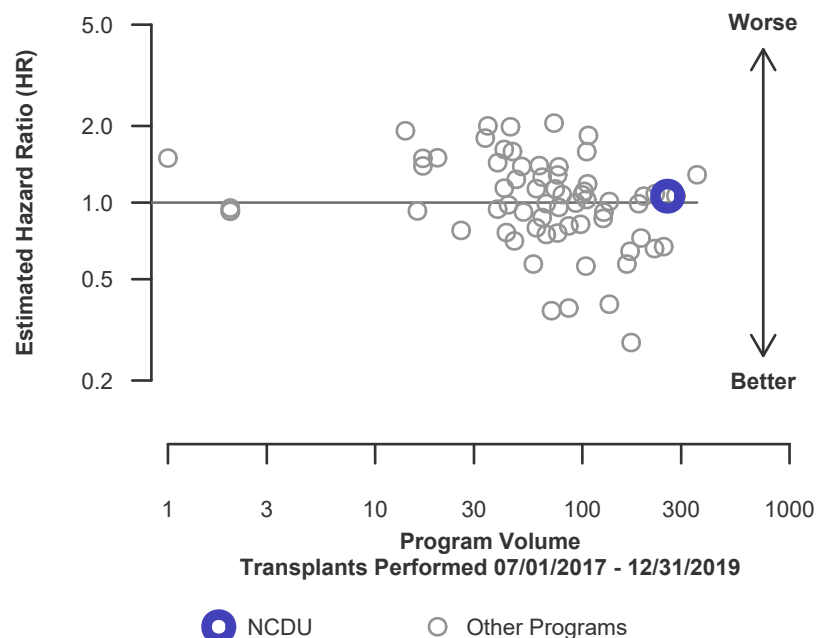
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.72, 1.47], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 6% higher risk of patient death compared to an average program, but NCDU's performance could plausibly range from 28% reduced risk up to 47% increased risk.

**Figure C15D. Adult (18+) 1-year patient death HR estimate (deceased donor grafts)**



**Figure C16D. Adult (18+) 1-year patient death HR program comparison (deceased donor grafts)**





## C. Transplant Information

**Table C13D. Adult (18+) 3-year patient survival (deceased donor graft recipients)**

Single organ transplants performed between 01/01/2015 and 06/30/2017

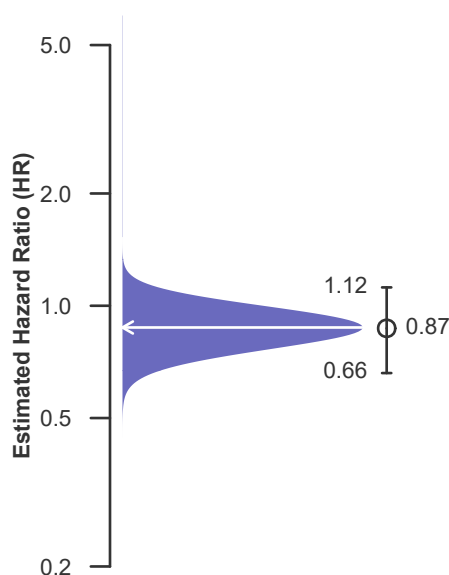
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	239	5,282
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	76.90%	74.33%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	73.51%	--
Number of observed deaths during the first 3 years after transplant	55	1,349
Number of expected deaths during the first 3 years after transplant	63.18	--
Estimated hazard ratio*	0.87	--
95% credible interval for the hazard ratio**	[0.66, 1.12]	--

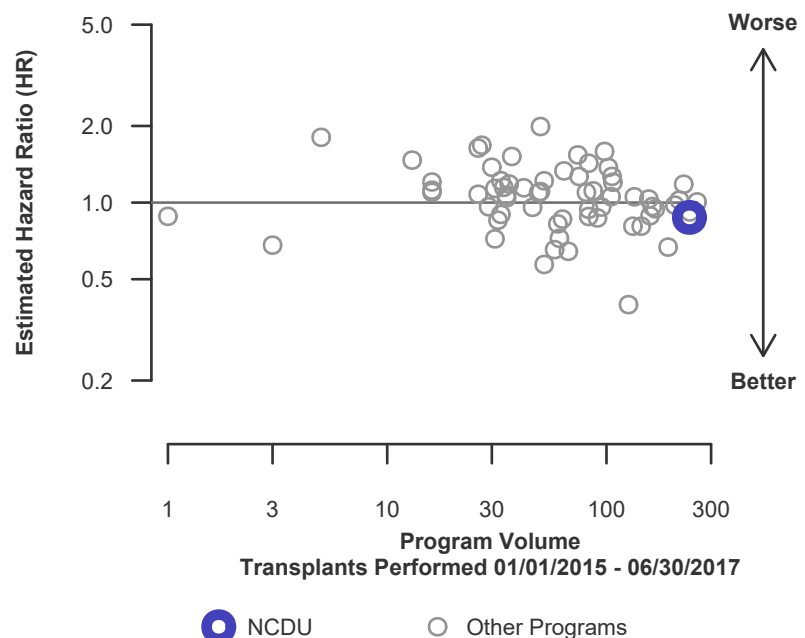
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.66, 1.12], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 13% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 34% reduced risk up to 12% increased risk.

**Figure C17D. Adult (18+) 3-year patient death HR estimate (deceased donor grafts)**



**Figure C18D. Adult (18+) 3-year patient death HR program comparison (deceased donor grafts)**





## C. Transplant Information

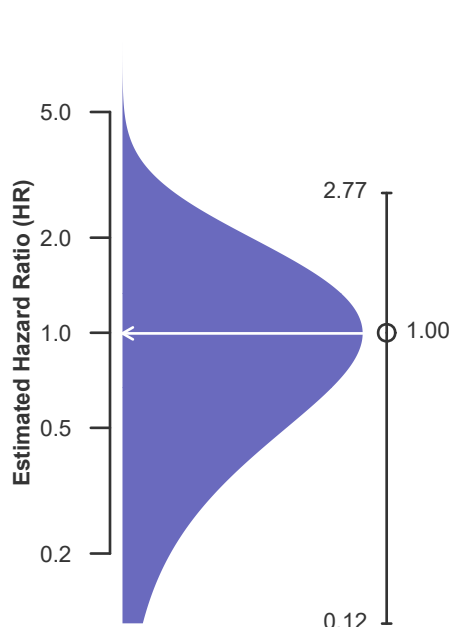
**Table C14D. Pediatric (<18) 1-month patient survival (deceased donor graft recipients)**  
**Single organ transplants performed between 07/01/2017 and 12/31/2019**  
**Retransplants excluded**

	NCDU	U.S.
Number of transplants evaluated	1	106
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	100.00%	99.06%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	99.06%	--
Number of observed deaths during the first month after transplant	0	1
Number of expected deaths during the first month after transplant	0.01	--
Estimated hazard ratio*	1.00	--
95% credible interval for the hazard ratio**	[0.12, 2.77]	--

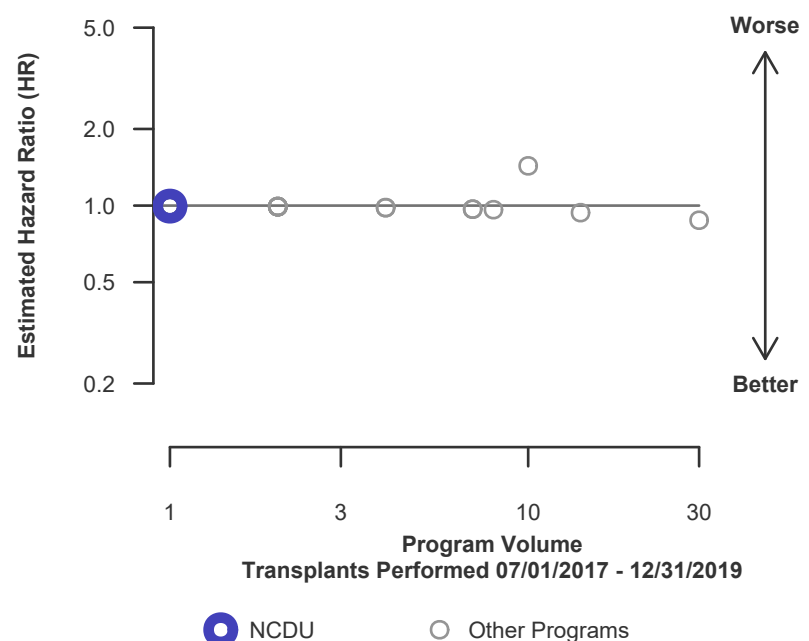
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.12, 2.77], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 0% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 88% reduced risk up to 177% increased risk.

**Figure C19D. Pediatric (<18) 1-month patient death HR estimate (deceased donor grafts)**



**Figure C20D. Pediatric (<18) 1-month patient death HR program comparison (deceased donor grafts)**





## C. Transplant Information

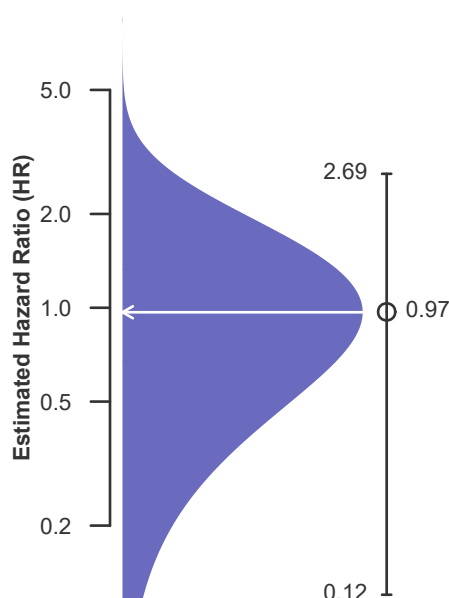
**Table C15D. Pediatric (<18) 1-year patient survival (deceased donor graft recipients)**  
**Single organ transplants performed between 07/01/2017 and 12/31/2019**  
**Retransplants excluded**

	NCDU	U.S.
Number of transplants evaluated	1	106
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	100.00%	89.18%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	89.25%	--
Number of observed deaths during the first year after transplant	0	9
Number of expected deaths during the first year after transplant	0.07	--
Estimated hazard ratio*	0.97	--
95% credible interval for the hazard ratio**	[0.12, 2.69]	--

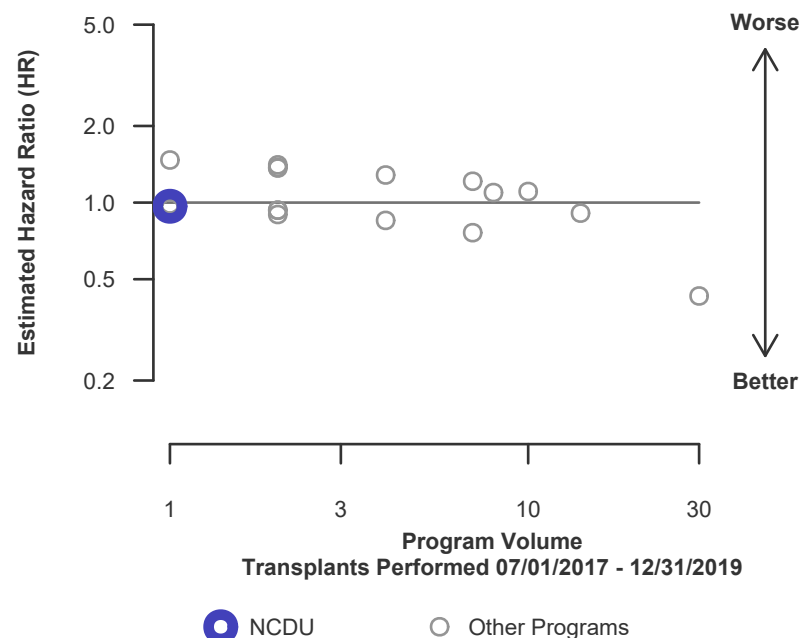
\* The hazard ratio provides an estimate of how Duke University Hospital (NCDU)'s results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 50%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

\*\* The 95% credible interval, [0.12, 2.69], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 3% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 88% reduced risk up to 169% increased risk.

**Figure C21D. Pediatric (<18) 1-year patient death HR estimate (deceased donor grafts)**



**Figure C22D. Pediatric (<18) 1-year patient death HR program comparison (deceased donor grafts)**







## C. Transplant Information

**Table C16D. Pediatric (<18) 3-year patient survival (deceased donor graft recipients)**  
**Single organ transplants performed between 01/01/2015 and 06/30/2017**  
**Retransplants excluded**

This center did not perform any  
transplants relevant to  
this table during  
01/01/2015-06/30/2017

**Figure C23D. Pediatric (<18)  
3-year patient death HR estimate  
(deceased donor grafts)**

This center did not perform any  
transplants relevant to  
this figure during  
01/01/2015-06/30/2017

**Figure C24D. Pediatric (<18) 3-year patient death HR program  
comparison (deceased donor grafts)**

This center did not perform any  
transplants relevant to  
this figure during  
01/01/2015-06/30/2017



## C. Transplant Information

Table C17. Multi-organ transplant graft survival: 07/01/2017 - 12/31/2019

### Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Lung Graft Failures		Estimated Lung Graft Survival	
	NCDU-TX1	USA	NCDU-TX1	USA	NCDU-TX1	USA
Heart-Lung	3	81	2	12	33.3%	84.0%
Kidney Lung	2	25	1	4	50.0%	84.0%
Liver-Lung	4	28	0	4	100.0%	85.4%

### Pediatric (<18) Transplants

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

Table C18. Multi-organ transplant patient survival: 07/01/2017 - 12/31/2019

### Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Patient Deaths		Estimated Patient Survival	
	NCDU-TX1	USA	NCDU-TX1	USA	NCDU-TX1	USA
Heart-Lung	3	81	2	12	33.3%	84.0%
Kidney Lung	2	25	1	4	50.0%	84.0%
Liver-Lung	4	28	0	4	100.0%	85.7%

### Pediatric (<18) Transplants

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