User Guide

This report contains a wide range of useful information about the liver 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. As part of this comparison, we provide a measure of how certain we are that this program is performing as expected or significantly better or worse than expected. These statements of certainty are provided as footnotes to the figures, so please interpret the numbers in the figures carefully after considering the information in the footnotes. 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 center 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

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was higher than the expected rate. However, the level of uncertainty must be considered when interpreting these numbers. The 95% confidence interval is also shown on Figure B2. This confidence 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 sy that this program's observed transplant rate is different from what would be expected. The observed transplant rate at this program was 147.5 per 100 person-years, and this was higher than would be expected with a 95% confidence interval of [2.10, 3.16] for the ratio of observed to expected transplant rates. 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 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 these tables and figures is to describe risk of death once candidates are listed rather than while they are listed. 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 confidence 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.

Table B6 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 B7 and B8 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 B7 and B8 presents the percent of candidates who received a deceased donor transplant by each time point. Table B9 presents data on the time it took for different percentages of patients to be transplanted for candidates added to the list between 07/01/2010 and 12/31/2015. The time it took for 5% (the 5th percentile) of patients to receive a transplant at this center was 0.1 months. If "Not Observed" is displayed in the table, then too few candidates received transplants before 06/30/2016 to calculate a particular percentile of transplant times.

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

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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.

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

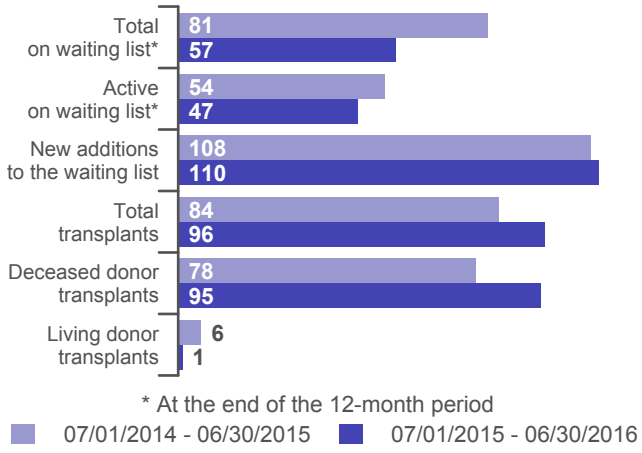
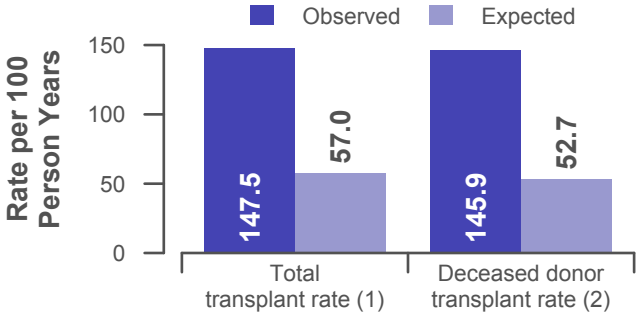


Table A1. Census of transplant recipients

Recipients	07/01/2014-06/30/2015	07/01/2015-06/30/2016
Transplanted at this center	84	96
Followed by this center*	510	504
...transplanted at this program	463	465
...transplanted elsewhere	47	39

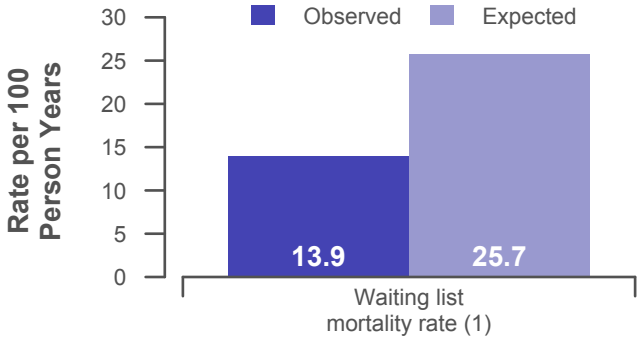
* Recipients followed are transplant recipients for whom the center has submitted a post-transplant follow-up form for a transplant that took place before the 12-month interval for each column.

Figure A2. Transplant rates 07/01/2015 - 06/30/2016



(1) Statistically higher (p<0.01)
(2) Statistically higher (p<0.01)

Figure A3. Waiting list mortality rates 07/01/2015 - 06/30/2016



(1) Statistically lower (p=0.049)

Figure A4. First-year adult graft and patient survival: 07/01/2013 - 12/31/2015

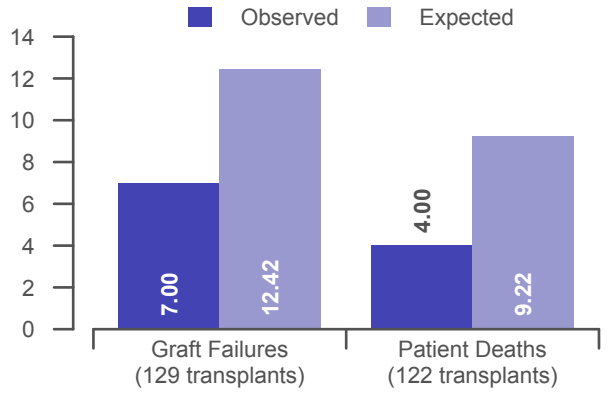
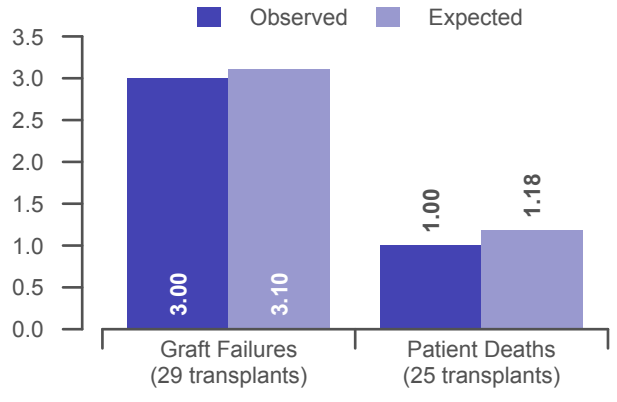


Figure A5. First-year pediatric graft and patient survival: 07/01/2013 - 12/31/2015



B. Waiting List Information

Table B1. Waiting list activity summary: 07/01/2014 - 06/30/2016

Waiting List Registrations	Counts for this center		Activity for 07/01/2015 to 06/30/2016 as percent of registrants on waiting list on 07/01/2015		
	07/01/2014-06/30/2015	07/01/2015-06/30/2016	This Center (%)	OPTN Region (%)	U.S. (%)
On waiting list at start	70	81	100.0	100.0	100.0
Additions					
New listings at this center	108	110	135.8	114.4	79.3
Removals					
Transferred to another center	0	2	2.5	1.2	1.6
Received living donor transplant*	6	1	1.2	0.8	2.2
Received deceased donor transplant*	78	95	117.3	82.0	45.6
Died	2	2	2.5	11.4	8.8
Transplanted at another center	0	2	2.5	2.9	2.4
Deteriorated	6	14	17.3	8.9	9.6
Recovered	4	12	14.8	6.1	6.0
Other reasons	1	6	7.4	7.1	7.4
On waiting list at end of period	81	57	70.4	94.0	95.5

* 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 07/01/2015 and 06/30/2016

Demographic Characteristic	New Waiting List Registrations 07/01/2015 to 06/30/2016 (%)			All Waiting List Registrations on 06/30/2016 (%)		
	This Center (N=110)	OPTN Region (N=1,027)	U.S. (N=12,364)	This Center (N=57)	OPTN Region (N=844)	U.S. (N=14,893)
All (%)	100.0	100.0	100.0	100.0	100.0	100.0
Ethnicity/Race (%)*						
White	70.9	82.0	68.0	73.7	84.4	68.0
African-American	20.9	11.6	9.3	12.3	9.4	7.9
Hispanic/Latino	2.7	3.6	16.2	3.5	2.8	17.2
Asian	1.8	1.4	5.0	1.8	2.1	5.5
Other	3.6	1.5	1.5	8.8	1.3	1.4
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Age (%)						
<2 years	8.2	1.3	2.7	1.8	0.6	1.4
2-11 years	6.4	2.2	2.1	1.8	1.4	1.3
12-17 years	4.5	1.3	1.4	3.5	0.9	1.1
18-34 years	8.2	5.2	5.8	3.5	6.3	5.9
35-49 years	12.7	16.0	15.8	19.3	19.7	19.3
50-64 years	42.7	57.6	54.3	54.4	59.6	57.7
65+ years	17.3	16.5	18.0	15.8	11.5	13.4
Other (includes prenatal)	0.0	0.0	0.0	0.0	0.0	0.0
Gender (%)						
Male	60.9	65.1	63.0	61.4	60.7	61.2
Female	39.1	34.9	37.0	38.6	39.3	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%.

B. Waiting List Information

Table B3. Medical characteristics of waiting list candidates
Candidates registered on the waiting list between 07/01/2015 and 06/30/2016

Medical Characteristic	New Waiting List Registrations 07/01/2015 to 06/30/2016 (%)			All Waiting List Registrations on 06/30/2016 (%)		
	This Center (N=110)	OPTN Region (N=1,027)	U.S. (N=12,364)	This Center (N=57)	OPTN Region (N=844)	U.S. (N=14,893)
All (%)	100.0	100.0	100.0	100.0	100.0	100.0
Blood Type (%)						
O	40.9	46.4	46.8	33.3	44.9	47.9
A	34.5	39.0	36.4	50.9	44.5	38.1
B	20.0	11.0	12.9	15.8	8.8	11.5
AB	4.5	3.5	3.8	0.0	1.8	2.5
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Previous Transplant (%)						
Yes	9.1	5.2	5.2	7.0	2.8	3.7
No	90.9	94.8	94.8	93.0	97.2	96.3
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Primary Disease (%)						
Acute Hepatic Necrosis	4.5	2.6	3.8	0.0	1.1	1.9
Non-Cholestatic Cirrhosis	64.5	74.6	67.4	73.7	78.8	73.5
Cholestatic Liver Disease/Cirrhosis	9.1	6.3	7.7	15.8	9.2	8.2
Biliary Atresia	7.3	1.9	2.4	0.0	1.4	1.6
Metabolic Diseases	4.5	2.6	2.5	1.8	1.4	1.8
Malignant Neoplasms	1.8	7.9	10.9	3.5	4.1	7.4
Other	8.2	4.1	5.3	5.3	3.9	5.5
Missing	0.0	0.0	0.0	0.0	0.0	0.0
Medical Urgency Status/MELD/PELD at Listing (%)*						
Status 1A	5.5	2.7	2.9	0.0	0.0	0.3
Status 1B	0.0	0.0	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	0.5	0.1
Status 3	0.0	0.0	0.0	1.8	0.8	1.4
MELD 6-10	14.5	14.9	20.2	21.1	23.0	30.1
MELD 11-14	15.5	17.9	18.0	33.3	33.1	29.5
MELD 15-20	22.7	29.7	22.7	35.1	31.5	23.7
MELD 21-30	15.5	19.9	17.1	5.3	6.8	7.8
MELD 31-40	10.0	10.1	11.5	0.0	0.4	0.7
PELD less than or equal to 10	5.5	1.7	2.0	1.8	1.3	1.7
PELD 11-14	0.9	0.2	0.3	0.0	0.1	0.2
PELD 15-20	4.5	0.6	0.5	1.8	0.2	0.3
PELD 21-30	0.9	0.3	0.5	0.0	0.1	0.1
PELD 31 or greater	0.0	0.1	0.2	0.0	0.1	0.0
Temporarily Inactive	4.5	1.9	3.6	0.0	2.1	4.0

* 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: 07/01/2015 - 06/30/2016

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	81	152	897	15,572
Person Years**	65.1	128.3	843.1	14,702.1
Removals for Transplant	96	123	743	7,470
Adult (18+) Candidates				
Count on waiting list at start*	73	144	879	15,074
Person Years**	59.7	122.2	823.0	14,214.6
Removals for transpant	74	99	706	6,877
Pediatric (<18) Candidates				
Count on waiting list at start*	8	8	18	498
Person Years**	5.4	6.0	20.1	487.5
Removals for transplant	22	24	37	593

* 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 June 30.

Figure B1. Observed and expected transplant rates: 07/01/2015 - 06/30/2016

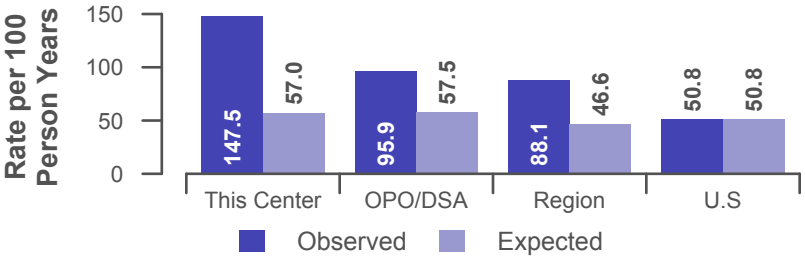
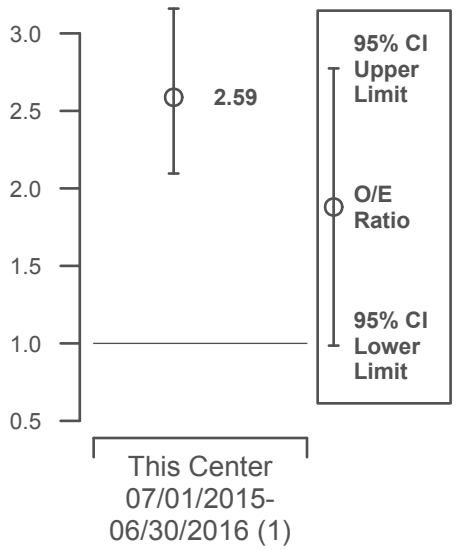
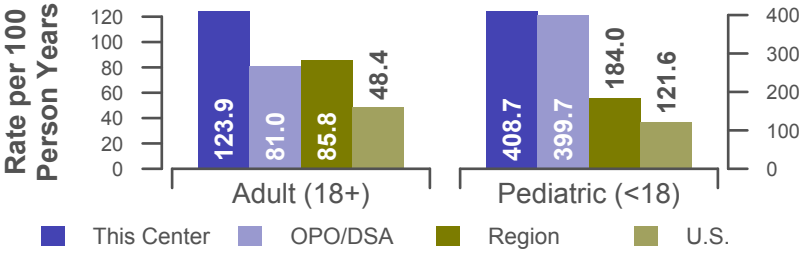


Figure B2. Ratio of observed to expected transplant rates



(1) Higher than expected (p<0.01, 95% CI=[2.10, 3.16])

Figure B3. Observed adult (18+) and pediatric (<18) transplant rates: 07/01/2015 - 06/30/2016



B. Waiting List Information

Table B4D. Deceased donor transplant rates: 07/01/2015 - 06/30/2016

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	81	152	897	15,572
Person Years**	65.1	128.3	843.1	14,702.1
Removals for Transplant	95	122	736	7,120
Adult (18+) Candidates				
Count on waiting list at start*	73	144	879	15,074
Person Years**	59.7	122.2	823.0	14,214.6
Removals for transpant	73	98	699	6,594
Pediatric (<18) Candidates				
Count on waiting list at start*	8	8	18	498
Person Years**	5.4	6.0	20.1	487.5
Removals for transplant	22	24	37	526

* 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 June 30.

Figure B1D. Observed and expected deceased donor transplant rates: 07/01/2015 - 06/30/2016

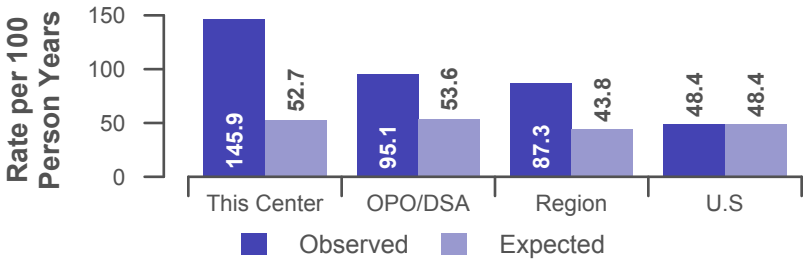


Figure B3D. Observed adult (18+) and pediatric (<18) deceased donor transplant rates: 07/01/2015 - 06/30/2016

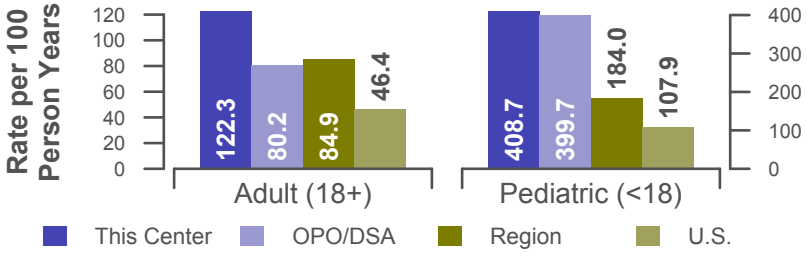
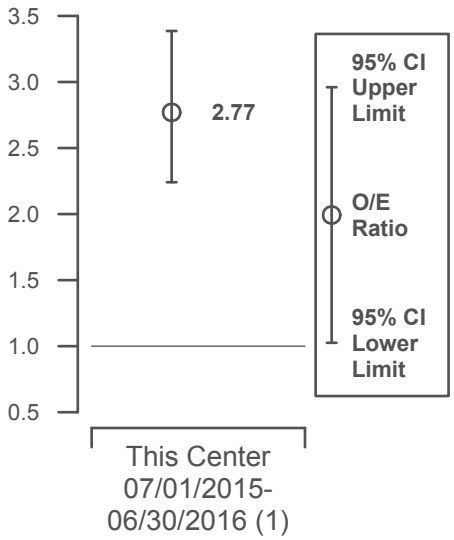


Figure B2D. Ratio of observed to expected deceased donor transplant rates



(1) Higher than expected (p<0.01, 95% CI=[2.24, 3.39])

B. Waiting List Information

Table B5. Waiting list mortality rates: 07/01/2015 - 06/30/2016

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	81	152	897	15,572
Person Years**	71.8	139.4	888.1	15,612.0
Number of deaths	10	27	167	2,502
Adult (18+) Candidates				
Count on waiting list at start*	73	144	879	15,074
Person Years**	66.1	133.1	867.5	15,103.6
Number of deaths	9	26	166	2,456
Pediatric (<18) Candidates				
Count on waiting list at start*	8	8	18	498
Person Years**	5.7	6.3	20.6	508.4
Number of deaths	1	1	1	46

* 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 June 30.

Figure B4. Observed and expected waiting list mortality rates: 07/01/2015 - 06/30/2016

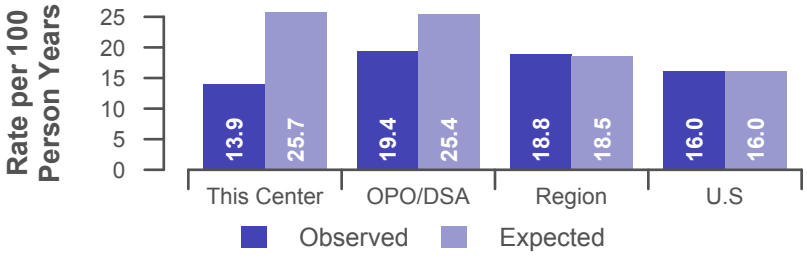


Figure B6. Observed adult (18+) and pediatric (<18) waiting list mortality rates: 07/01/2015 - 06/30/2016

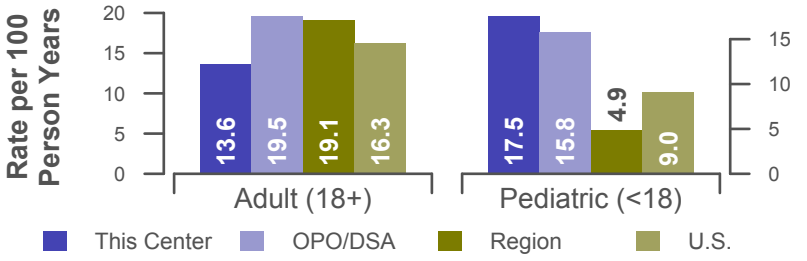
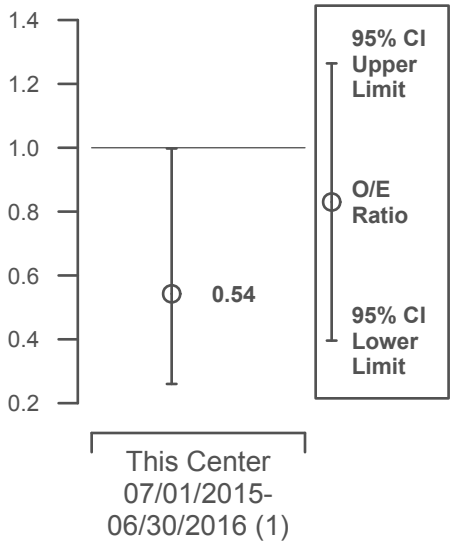


Figure B5. Ratio of observed to expected waiting list mortality rates



(1) Lower than expected (p=0.049, 95% CI=[0.26, 1.00])

B. Waiting List Information

Table B6. Waiting list candidate status after listing
Candidates registered on waiting list between 01/01/2014 and 12/31/2014

Waiting list status (survival status)	This Center (N=93) Months Since Listing			U.S. (N=11,964) Months Since Listing		
	6	12	18	6	12	18
Alive on waiting list (%)	34.4	18.3	14.0	48.6	32.6	23.1
Died on the waiting list without transplant (%)	1.1	2.2	2.2	5.7	7.7	8.6
Removed without transplant (%):						
Condition worsened (status unknown)	5.4	7.5	8.6	6.1	8.1	9.5
Condition improved (status unknown)	1.1	2.2	2.2	1.0	1.5	2.2
Refused transplant (status unknown)	0.0	0.0	0.0	0.2	0.3	0.4
Other	0.0	0.0	1.1	1.8	3.0	4.0
Transplant (living donor from waiting list only) (%):						
Functioning (alive)	2.2	2.2	1.1	1.4	1.8	1.3
Failed-Retransplanted (alive)	0.0	0.0	0.0	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	1.1	1.1	0.1	0.2	0.2
Status Yet Unknown**	0.0	0.0	1.1	0.0	0.1	0.7
Transplant (deceased donor) (%):						
Functioning (alive)	52.7	58.1	38.7	31.2	36.7	29.0
Failed-Retransplanted (alive)	0.0	1.1	1.1	0.4	0.6	0.7
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	2.2	3.2	3.2	1.7	2.7	3.6
Status Yet Unknown*	1.1	4.3	25.8	1.4	4.0	15.7
Lost or Transferred (status unknown) (%)	0.0	0.0	0.0	0.3	0.7	1.0
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0
Total % known died on waiting list or after transplant	3.2	6.5	6.5	7.5	10.5	12.4
Total % known died or removed as unstable	8.6	14.0	15.1	13.6	18.7	21.9
Total % removed for transplant	58.1	69.9	72.0	36.2	46.1	51.2
Total % with known functioning transplant (alive)	54.8	60.2	39.8	32.6	38.5	30.3

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

B. Waiting List Information

Table B6S1. Medical urgency status 1 candidate status after listing
Candidates registered on the waiting list between 01/01/2014 and 12/31/2014

Waiting list status (survival status)	This Center (N=3) Months Since listing			U.S. (N=466) Months Since listing		
	6	12	18	6	12	18
Alive on waiting list (%)	0.0	0.0	0.0	1.5	1.1	1.1
Died on the waiting list without transplant (%)	0.0	0.0	0.0	9.2	9.2	9.2
Removed without transplant (%):						
Condition worsened (status unknown)	0.0	0.0	0.0	10.1	10.1	10.1
Condition improved (status unknown)	0.0	0.0	0.0	13.5	13.9	13.9
Refused transplant (status unknown)	0.0	0.0	0.0	0.2	0.2	0.2
Other	0.0	0.0	0.0	0.9	0.9	0.9
Transplant (living donor from waiting list only) (%):						
Functioning (alive)	0.0	0.0	0.0	0.9	0.9	0.6
Failed-Retransplanted (alive)	0.0	0.0	0.0	0.2	0.2	0.2
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	0.0	0.0
Status Yet Unknown**	0.0	0.0	0.0	0.0	0.0	0.2
Transplant (deceased donor) (%):						
Functioning (alive)	100.0	100.0	100.0	54.1	48.5	36.9
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	0.0	0.0	0.0
Died	0.0	0.0	0.0	7.3	8.2	8.8
Status Yet Unknown*	0.0	0.0	0.0	0.9	5.4	16.3
Lost or Transferred (status unknown) (%)	0.0	0.0	0.0	0.2	0.2	0.2
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	16.5	17.4	18.0
Total % known died or removed as unstable	0.0	0.0	0.0	26.6	27.5	28.1
Total % removed for transplant	100.0	100.0	100.0	64.4	64.4	64.4
Total % with known functioning transplant (alive)	100.0	100.0	100.0	54.9	49.4	37.6

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

B. Waiting List Information

Table B7. Percent of candidates with deceased donor transplants: demographic characteristics
Candidates registered on the waiting list between 07/01/2010 and 06/30/2013

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	251	30.7	72.5	76.1	77.7	34,795	16.4	42.1	48.7	50.6
Ethnicity/Race*										
White	179	28.5	72.6	76.5	78.8	24,117	15.9	42.2	48.5	50.4
African-American	43	32.6	72.1	74.4	74.4	3,362	22.3	49.7	55.8	57.6
Hispanic/Latino	9	33.3	77.8	88.9	88.9	5,278	15.3	37.2	44.5	46.5
Asian	7	85.7	100.0	100.0	100.0	1,629	14.5	40.0	50.5	52.0
Other	13	23.1	53.8	53.8	53.8	409	16.4	43.8	50.4	51.3
Unknown	0	--	--	--	--	0	--	--	--	--
Age										
<2 years	25	56.0	88.0	88.0	88.0	905	28.7	70.2	73.7	74.7
2-11 years	16	50.0	81.2	87.5	87.5	677	30.4	67.4	71.9	74.0
12-17 years	5	40.0	80.0	80.0	80.0	419	23.4	51.1	58.9	61.8
18-34 years	12	16.7	66.7	75.0	75.0	1,745	23.4	42.1	47.7	50.4
35-49 years	48	31.2	68.8	75.0	77.1	5,873	19.7	42.0	47.5	49.4
50-64 years	130	25.4	73.1	76.2	77.7	20,769	14.4	40.2	47.5	49.5
65+ years	15	20.0	46.7	46.7	53.3	4,407	13.3	40.3	47.0	48.1
Other (includes prenatal)	0	--	--	--	--	0	--	--	--	--
Gender										
Male	156	31.4	74.4	77.6	79.5	22,252	15.9	43.0	50.1	52.0
Female	95	29.5	69.5	73.7	74.7	12,543	17.4	40.5	46.2	48.2

* 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 B8. Percent of candidates with deceased donor transplants: medical characteristics
Candidates registered on the waiting list between 07/01/2010 and 06/30/2013

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	251	30.7	72.5	76.1	77.7	34,795	16.4	42.1	48.7	50.6
Blood Type										
O	112	32.1	70.5	73.2	75.9	16,193	15.9	39.6	46.8	48.8
A	102	26.5	73.5	77.5	78.4	12,999	14.9	40.7	47.3	49.2
B	29	31.0	69.0	75.9	75.9	4,246	19.0	49.1	54.8	56.5
AB	8	62.5	100.0	100.0	100.0	1,357	28.4	62.0	66.2	67.3
Previous Transplant										
Yes	29	31.0	65.5	72.4	72.4	2,156	27.3	47.3	50.3	51.7
No	222	30.6	73.4	76.6	78.4	32,639	15.7	41.7	48.6	50.5
Primary Disease										
Acute Hepatic Necrosis	18	66.7	72.2	77.8	77.8	1,601	41.3	50.3	52.7	53.3
Non-Cholestatic Cirrhosis	113	28.3	68.1	70.8	74.3	23,250	14.9	38.5	45.0	47.0
Cholestatic Liver Disease/Cirrhosis	29	17.2	55.2	62.1	62.1	2,427	14.3	41.7	48.5	51.7
Biliary Atresia	14	57.1	92.9	92.9	92.9	687	20.2	66.7	72.5	74.8
Metabolic Diseases	7	42.9	85.7	85.7	85.7	791	22.8	60.1	66.2	68.5
Malignant Neoplasms	44	29.5	86.4	90.9	90.9	3,798	10.4	49.6	60.3	60.9
Other	26	15.4	73.1	76.9	76.9	2,238	22.7	47.1	52.2	54.2
Missing	0	--	--	--	--	3	0.0	33.3	33.3	33.3
Medical Urgency Status/MELD/PELD at Listing*										
Status 1	0	--	--	--	--	0	--	--	--	--
Status 1A	17	82.4	82.4	82.4	82.4	1,322	57.4	57.9	58.0	58.0
Status 1B	2	100.0	100.0	100.0	100.0	80	57.5	77.5	77.5	77.5
Status 2A	0	--	--	--	--	0	--	--	--	--
Status 2B	0	--	--	--	--	0	--	--	--	--
Status 3	0	--	--	--	--	0	--	--	--	--
MELD 6-10	35	11.4	85.7	88.6	88.6	6,489	3.9	33.7	45.0	47.1
MELD 11-14	41	14.6	43.9	51.2	56.1	7,257	3.6	26.8	35.7	39.1
MELD 15-20	69	17.4	69.6	72.5	75.4	8,169	7.4	38.5	45.8	48.2
MELD 21-30	43	39.5	79.1	83.7	83.7	5,678	28.2	57.5	59.8	60.4
MELD 31-40	13	69.2	69.2	69.2	69.2	3,153	57.7	64.9	65.1	65.1
PELD less than or equal to 10	16	31.2	81.2	81.2	81.2	677	14.9	67.7	74.0	76.7
PELD 11-14	4	50.0	100.0	100.0	100.0	114	21.1	71.9	77.2	78.1
PELD 15-20	4	25.0	100.0	100.0	100.0	200	21.0	76.5	80.5	82.0
PELD 21-30	1	100.0	100.0	100.0	100.0	149	35.6	69.8	69.8	69.8
PELD 31 or greater	4	75.0	75.0	100.0	100.0	70	50.0	75.7	78.6	78.6
Temporarily Inactive	2	50.0	100.0	100.0	100.0	1,437	7.4	26.3	35.7	37.4

* 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 B9. Time to transplant for waiting list candidates*
Candidates registered on the waiting list between 07/01/2010 and 12/31/2015

	Months to Transplant**			
Percentile	**Center**	**OPO/DSA**	**Region**	**U.S.**
5th	0.1	0.1	0.1	0.2
10th	0.2	0.3	0.2	0.4
25th	0.8	1.4	1.1	2.4
50th (median time to transplant)	3.4	6.4	4.9	15.2
75th	13.7	Not Observed	Not Observed	Not Observed

* If cells contain "Not Observed" fewer than that percentile of patients had recieved 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 tranplant will not be observed.

** Censored on 06/30/2016. Calculated as the months after listing, during which the corresponding percent of all patients initially listed had recieved a transplant.

C. Transplant Information

Table C1D. Deceased donor transplant recipient demographic characteristics
Patients transplanted between 07/01/2015 and 06/30/2016

Characteristic	Percentage in each category		
	Center (N=95)	Region (N=736)	U.S. (N=7,119)
Ethnicity/Race (%)*			
White	68.4	80.6	69.2
African-American	24.2	13.7	10.1
Hispanic/Latino	2.1	2.9	14.8
Asian	2.1	1.1	4.5
Other	3.2	1.8	1.4
Unknown	0.0	0.0	0.0
Age (%)			
<2 years	13.7	1.9	2.7
2-11 years	6.3	2.0	3.1
12-17	2.1	1.0	1.5
18-34	7.4	5.2	5.6
35-49 years	14.7	15.4	15.1
50-64 years	42.1	57.1	54.1
65+ years	13.7	17.5	17.9
Unknown	0.0	0.0	0.0
Gender (%)			
Male	64.2	69.0	65.5
Female	35.8	31.0	34.5

* 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 07/01/2015 and 06/30/2016

Characteristic	Percentage in each category		
	Center (N=1)	Region (N=7)	U.S. (N=351)
Ethnicity/Race (%)*			
White	100.0	100.0	72.9
African-American	0.0	0.0	6.0
Hispanic/Latino	0.0	0.0	14.0
Asian	0.0	0.0	6.3
Other	0.0	0.0	0.9
Unknown	0.0	0.0	0.0
Age (%)			
<2 years	0.0	0.0	10.0
2-11 years	0.0	0.0	6.3
12-17	0.0	0.0	2.8
18-34	0.0	0.0	9.7
35-49 years	0.0	28.6	16.2
50-64 years	100.0	14.3	38.7
65+ years	0.0	57.1	16.2
Unknown	0.0	0.0	0.0
Gender (%)			
Male	100.0	42.9	51.9
Female	0.0	57.1	48.1

* 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 07/01/2015 and 06/30/2016

Characteristic	Percentage in each category		
	Center (N=95)	Region (N=736)	U.S. (N=7,119)
Blood Type (%)			
O	48.4	48.1	45.6
A	28.4	36.7	35.8
B	17.9	12.0	14.1
AB	5.3	3.3	4.5
Previous Transplant (%)			
Yes	7.4	5.3	5.4
No	92.6	94.7	94.6
Body Mass Index (%)			
0-20	23.2	8.6	13.3
21-25	23.2	21.7	26.5
26-30	27.4	33.0	29.5
31+	26.3	36.0	29.6
Unknown	0.0	0.7	1.2
Primary Disease (%)			
Acute Hepatic Necrosis	2.1	3.3	4.0
Non-Cholestatic Cirrhosis	60.0	70.0	62.3
Cholestatic Liver Disease/Cirrhosis	11.6	9.0	8.1
Biliary Atresia	10.5	2.3	2.9
Metabolic Diseases	4.2	3.1	3.1
Malignant Neoplasms	5.3	9.8	15.9
Other	6.3	2.6	3.7
Missing	0.0	0.0	0.0
Medical Urgency Statust/MELD/PELD at Transplant (%)*			
Status 1A	3.2	2.6	3.5
Status 1B	0.0	0.1	1.6
MELD 6-10	12.6	11.3	13.9
MELD 11-14	7.4	8.6	11.6
MELD 15-20	22.1	25.5	19.7
MELD 21-30	21.1	31.2	22.2
MELD 31-40	15.8	17.5	24.0
PELD less than or equal to 10	10.5	1.8	1.9
PELD 11-14	3.2	0.4	0.5
PELD 15-20	1.1	0.3	0.4
PELD 21-30	3.2	0.7	0.5
PELD 31 or greater	0.0	0.0	0.3
Temporarily Inactive	0.0	0.0	0.0
Recipient Medical Condition at Transplant (%)			
Not Hospitalized	74.7	71.6	63.6
Hospitalized	13.7	15.8	19.7
ICU	11.6	12.2	16.3
Unknown	0.0	0.4	0.5

* 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 07/01/2015 and 06/30/2016

Characteristic	Percentage in each category		
	Center (N=1)	Region (N=7)	U.S. (N=351)
Blood Type (%)			
O	0.0	14.3	44.2
A	100.0	57.1	42.7
B	0.0	14.3	12.0
AB	0.0	14.3	1.1
Previous Transplant (%)			
Yes	0.0	0.0	0.3
No	100.0	100.0	99.7
Body Mass Index (%)			
0-20	0.0	0.0	26.5
21-25	0.0	14.3	31.1
26-30	100.0	42.9	26.8
31+	0.0	42.9	14.8
Unknown	0.0	0.0	0.9
Primary Disease (%)			
Acute Hepatic Necrosis	0.0	0.0	2.0
Non-Cholestatic Cirrhosis	100.0	71.4	41.6
Cholestatic Liver Disease/Cirrhosis	0.0	14.3	25.4
Biliary Atresia	0.0	0.0	13.1
Metabolic Diseases	0.0	14.3	4.0
Malignant Neoplasms	0.0	0.0	9.7
Other	0.0	0.0	4.3
Missing	0.0	0.0	0.0
Medical Urgency Statust/MELD/PELD at Transplant (%)*			
Status 1A	0.0	0.0	1.7
Status 1B	0.0	0.0	1.1
MELD 6-10	0.0	28.6	19.7
MELD 11-14	100.0	14.3	22.8
MELD 15-20	0.0	57.1	25.9
MELD 21-30	0.0	0.0	13.4
MELD 31-40	0.0	0.0	0.9
PELD less than or equal to 10	0.0	0.0	5.4
PELD 11-14	0.0	0.0	1.7
PELD 15-20	0.0	0.0	2.0
PELD 21-30	0.0	0.0	3.7
PELD 31 or greater	0.0	0.0	0.9
Temporarily Inactive	0.0	0.0	0.9
Recipient Medical Condition at Transplant (%)			
Not Hospitalized	100.0	71.4	85.5
Hospitalized	0.0	28.6	11.4
ICU	0.0	0.0	2.8
Unknown	0.0	0.0	0.3

* 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 07/01/2015 and 06/30/2016

Donor Characteristic	Percentage in each category		
	Center (N=95)	Region (N=736)	U.S. (N=7,119)
Cause of Death (%)			
Deceased: Stroke	27.4	33.6	30.2
Deceased: MVA	18.9	14.1	14.8
Deceased: Other	53.7	52.3	55.0
Ethnicity/Race (%)*			
White	54.7	69.7	64.7
African-American	32.6	24.5	19.2
Hispanic/Latino	7.4	4.1	12.7
Asian	2.1	1.4	2.7
Other	3.2	0.4	0.7
Not Reported	0.0	0.0	0.0
Age (%)			
<2 years	11.6	1.8	1.6
2-11 years	9.5	2.7	3.4
12-17	9.5	7.1	5.4
18-34	25.3	37.2	34.0
35-49 years	22.1	23.1	25.6
50-64 years	16.8	22.8	23.5
65+ years	5.3	5.3	6.4
Unknown	0.0	0.0	0.0
Gender (%)			
Male	54.7	58.7	60.0
Female	45.3	41.3	40.0
Blood Type (%)			
O	51.6	49.9	49.4
A	29.5	37.5	36.6
B	15.8	10.9	11.3
AB	3.2	1.8	2.8
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 07/01/2015 and 06/30/2016

Donor Characteristic	Percentage in each category		
	Center (N=1)	Region (N=7)	U.S. (N=351)
Ethnicity/Race (%)*			
White	100.0	100.0	73.5
African-American	0.0	0.0	5.1
Hispanic/Latino	0.0	0.0	16.2
Asian	0.0	0.0	4.6
Other	0.0	0.0	0.6
Not Reported	0.0	0.0	0.0
Age (%)			
0-11 years	0.0	0.0	0.0
12-17	0.0	0.0	0.6
18-34	100.0	28.6	50.4
35-49 years	0.0	57.1	37.6
50-64 years	0.0	14.3	9.1
65+ years	0.0	0.0	0.3
Unknown	0.0	0.0	2.0
Gender (%)			
Male	0.0	42.9	47.6
Female	100.0	57.1	52.4
Blood Type (%)			
O	100.0	57.1	70.4
A	0.0	28.6	23.6
B	0.0	14.3	5.7
AB	0.0	0.0	0.3
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 07/01/2015 and 06/30/2016

Transplant Characteristic	Percentage in each category		
	Center (N=95)	Region (N=736)	U.S. (N=7,119)
Cold Ischemic Time (Hours): Local (%)			
Deceased: 0-5 hr	79.2	71.2	58.7
Deceased: 6-10 hr	18.9	27.4	38.3
Deceased: 11-15 hr	0.0	0.4	1.6
Deceased: 16-20 hr	0.0	0.2	0.2
Deceased: 21+ hr	0.0	0.0	0.1
Not Reported	1.9	0.8	1.2
Cold Ischemic Time (Hours): Shared (%)			
Deceased: 0-5 hr	57.1	54.3	35.2
Deceased: 6-10 hr	42.9	43.7	58.9
Deceased: 11-15 hr	0.0	1.2	4.5
Deceased: 16-20 hr	0.0	0.0	0.3
Deceased: 21+ hr	0.0	0.4	0.2
Not Reported	0.0	0.4	0.9
Procedure Type (%)			
Liver alone	86.3	90.8	89.0
Liver and another organ	13.7	9.2	11.0
Sharing (%)			
Local	55.8	66.4	62.5
Shared	44.2	33.6	37.5
Median Time in Hospital After Transplant*	8.0 Days	8.0 Days	10.0 Days

* Multiple organ transplants are excluded from this statistic.

C. Transplant Information

Table C4L. Living donor transplant characteristics
Transplants performed between 07/01/2015 and 06/30/2016

Transplant Characteristic	Percentage in each category		
	Center (N=1)	Region (N=7)	U.S. (N=351)
Relation with Donor (%)			
Related	0.0	57.1	64.4
Unrelated	100.0	42.9	35.3
Not Reported	0.0	0.0	0.3
Procedure Type (%)			
Liver alone	100.0	100.0	100.0
Liver and another organ	0.0	0.0	0.0
Median Time in Hospital After Transplant*	12.0 Days	8.0 Days	11.0 Days

* Multiple organ transplants are excluded from this statistic.

C. Transplant Information

Table C5. Adult (18+) 1-month survival with a functioning graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	129	14,220
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	98.45%	95.97%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	96.16%	--
Number of observed graft failures (including deaths) during the first month after transplant	2	573
Number of expected graft failures (including deaths) during the first month after transplant	4.96	573
Estimated hazard ratio*	0.57	1.00
95% credible interval for the hazard ratio**	[0.16, 1.26]	--

* 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, [0.16, 1.26], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 43% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 84% reduced risk up to 26% increased risk.

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

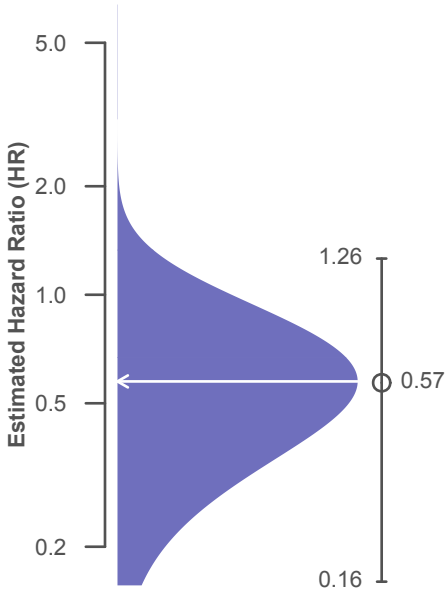
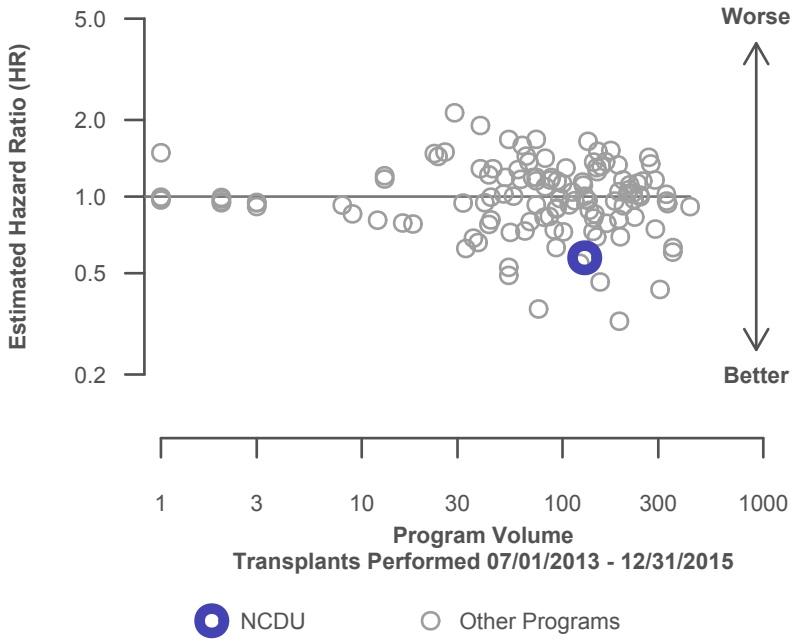


Figure C2. Adult (18+) 1-month graft failure HR program comparison



C. Transplant Information

Table C5D. Adult (18+) 1-month survival with a functioning deceased donor graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	125	13,612
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	98.40%	96.07%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	96.22%	--
Number of observed graft failures (including deaths) during the first month after transplant	2	535
Number of expected graft failures (including deaths) during the first month after transplant	4.72	535
Estimated hazard ratio*	0.60	1.00
95% credible interval for the hazard ratio**	[0.16, 1.30]	--

* 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, [0.16, 1.30], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 40% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 84% reduced risk up to 30% increased risk.

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

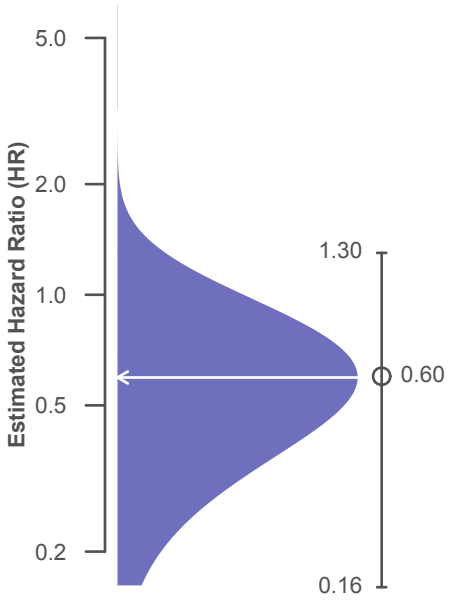
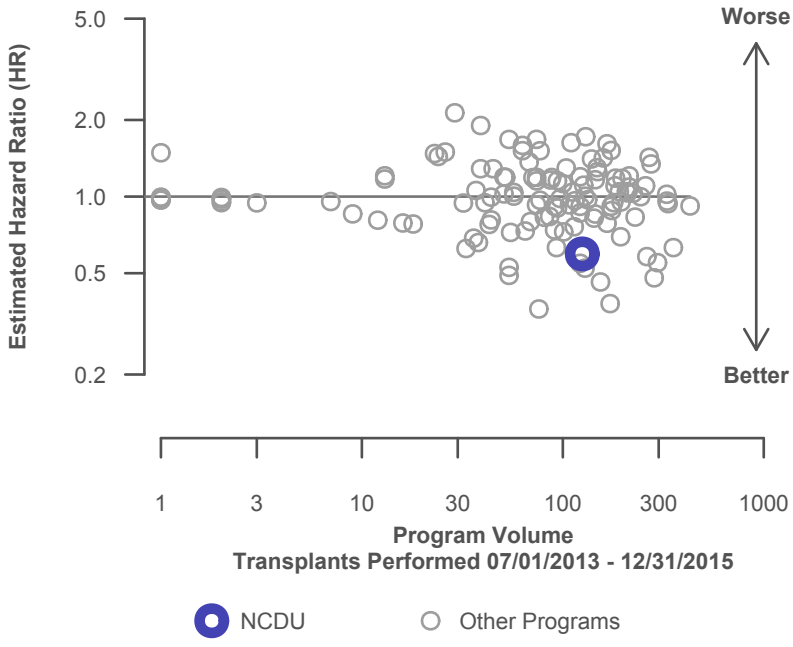


Figure C2D. Adult (18+) 1-month deceased donor graft failure HR program comparison



C. Transplant Information

Table C5L. Adult (18+) 1-month survival with a functioning living donor graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	4	608
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	100.00%	93.75%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	94.19%	--
Number of observed graft failures (including deaths) during the first month after transplant	0	38
Number of expected graft failures (including deaths) during the first month after transplant	0.24	38
Estimated hazard ratio*	0.89	1.00
95% credible interval for the hazard ratio**	[0.11, 2.49]	--

* 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, [0.11, 2.49], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 11% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 89% reduced risk up to 149% increased risk.

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

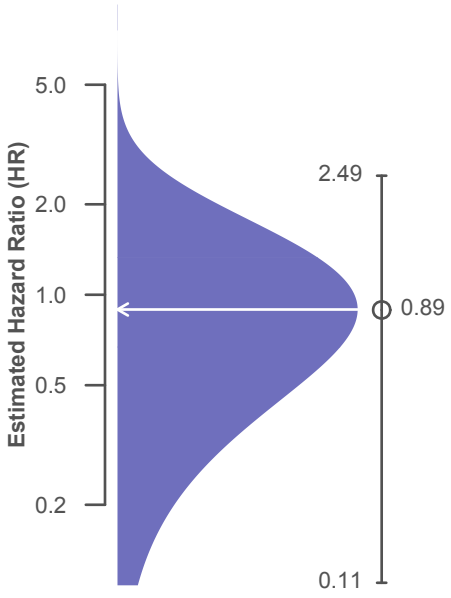
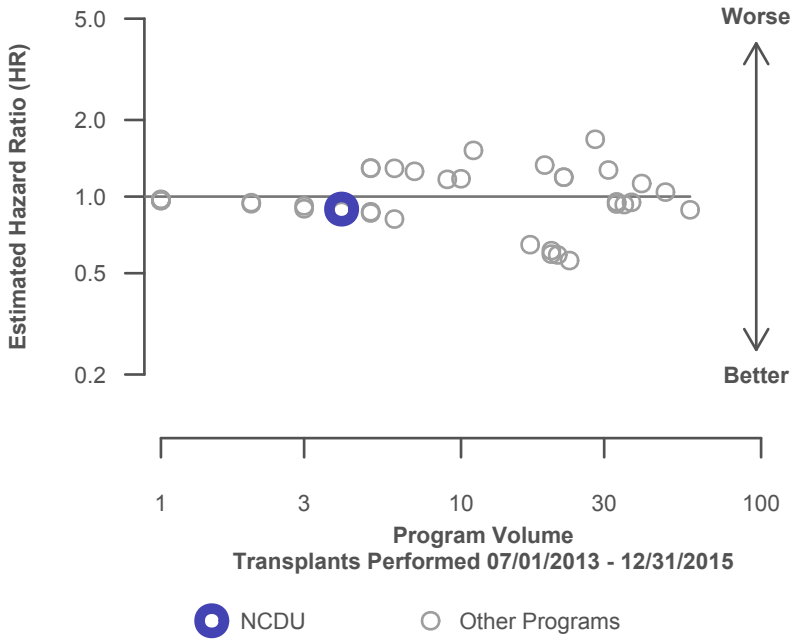


Figure C2L. Adult (18+) 1-month living donor graft failure HR program comparison



C. Transplant Information

Table C6. Adult (18+) 1-year survival with a functioning graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	129	14,220
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	94.57%	89.52%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	89.99%	--
Number of observed graft failures (including deaths) during the first year after transplant	7	1,413
Number of expected graft failures (including deaths) during the first year after transplant	12.42	1,413
Estimated hazard ratio*	0.62	1.00
95% credible interval for the hazard ratio**	[0.29, 1.09]	--

* 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, [0.29, 1.09], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 38% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 71% reduced risk up to 9% increased risk.

Figure C3. Adult (18+) 1-year graft failure HR estimate

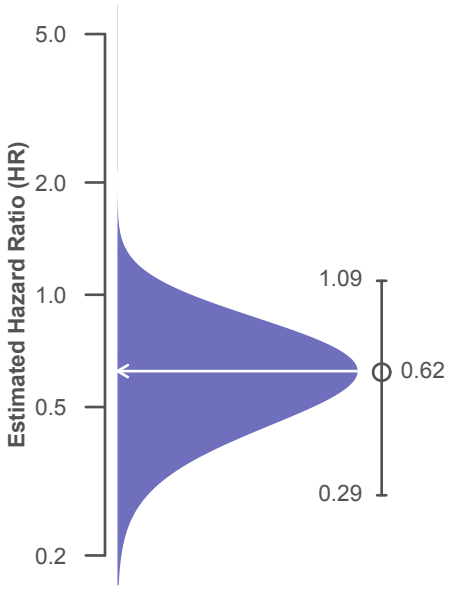
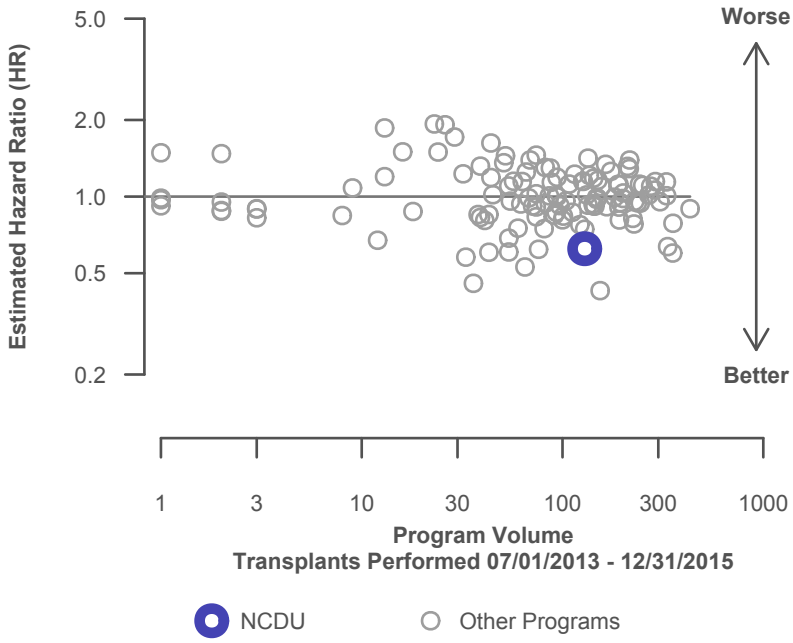


Figure C4. Adult (18+) 1-year graft failure HR program comparison



C. Transplant Information

Table C6D. Adult (18+) 1-year survival with a functioning deceased donor graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	125	13,612
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	95.20%	89.63%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	90.05%	--
Number of observed graft failures (including deaths) during the first year after transplant	6	1,338
Number of expected graft failures (including deaths) during the first year after transplant	11.96	1,338
Estimated hazard ratio*	0.57	1.00
95% credible interval for the hazard ratio**	[0.25, 1.03]	--

* 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, [0.25, 1.03], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 43% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 75% reduced risk up to 3% increased risk.

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

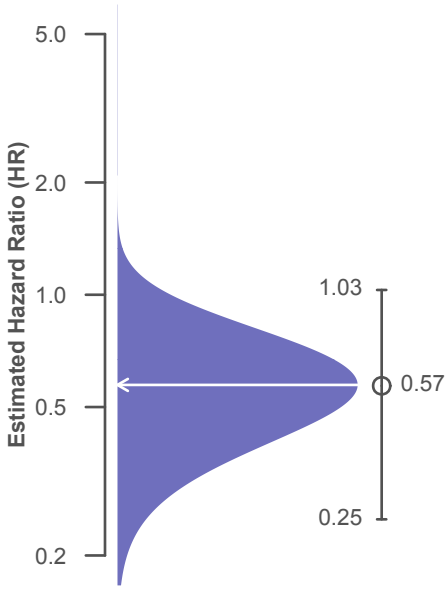
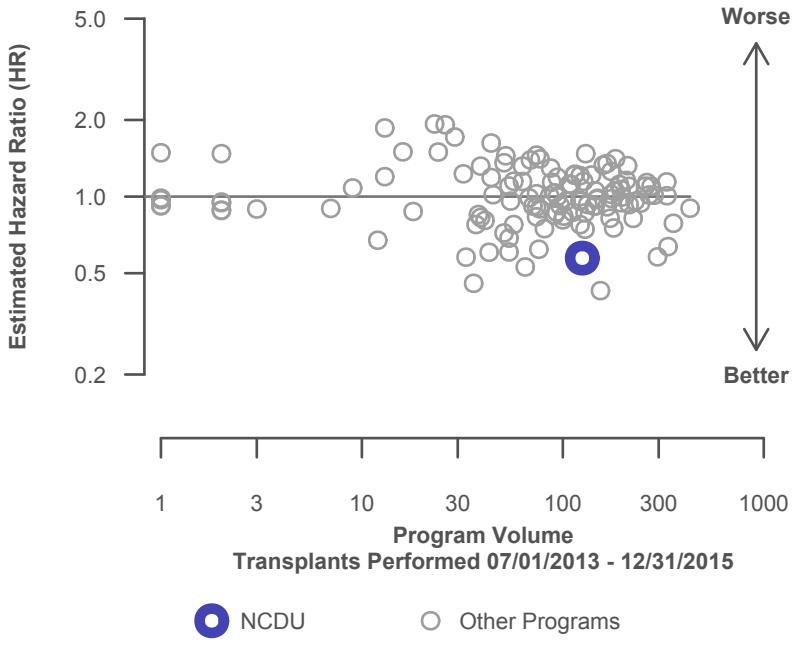


Figure C4D. Adult (18+) 1-year deceased donor graft failure HR program comparison



C. Transplant Information

Table C6L. Adult (18+) 1-year survival with a functioning living donor graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	4	608
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	75.00%	87.15%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	88.02%	--
Number of observed graft failures (including deaths) during the first year after transplant	1	75
Number of expected graft failures (including deaths) during the first year after transplant	0.46	75
Estimated hazard ratio*	1.22	1.00
95% credible interval for the hazard ratio**	[0.25, 2.93]	--

* 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, [0.25, 2.93], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 22% higher risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 75% reduced risk up to 193% increased risk.

Figure C3L. Adult (18+) 1-year living donor graft failure HR estimate

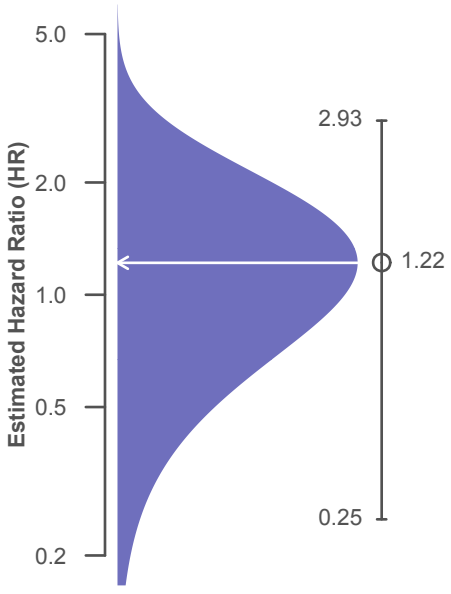
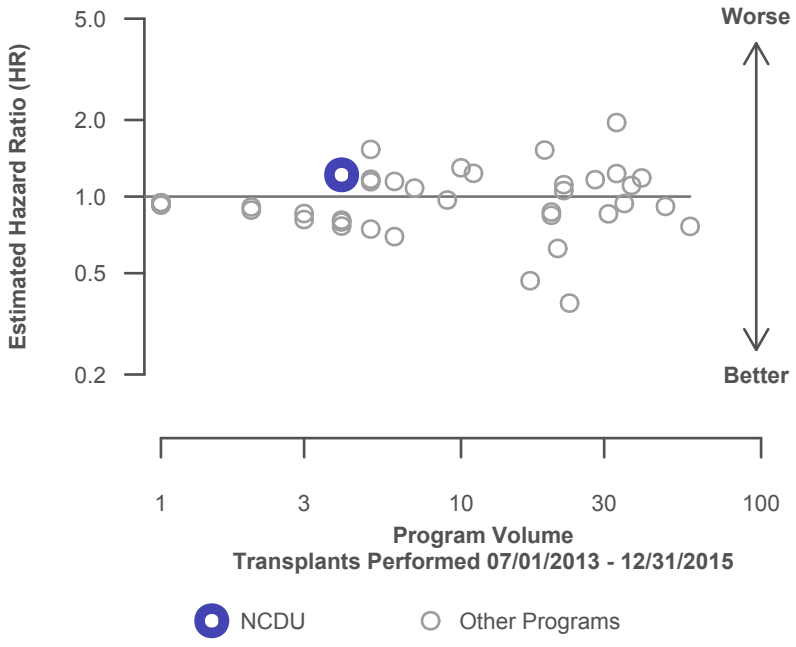


Figure C4L. Adult (18+) 1-year living donor graft failure HR program comparison



C. Transplant Information

Table C7. Adult (18+) 3-year survival with a functioning graft
Single organ transplants performed between 01/01/2011 and 06/30/2013
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	113	13,245
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	92.04%	80.48%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	84.40%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	9	2,586
Number of expected graft failures (including deaths) during the first 3 years after transplant	18.64	2,586
Estimated hazard ratio*	0.53	1.00
95% credible interval for the hazard ratio**	[0.27, 0.89]	--

* 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, [0.27, 0.89], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 47% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 73% reduced risk up to 11% reduced risk.

Figure C5. Adult (18+) 3-year graft failure HR estimate

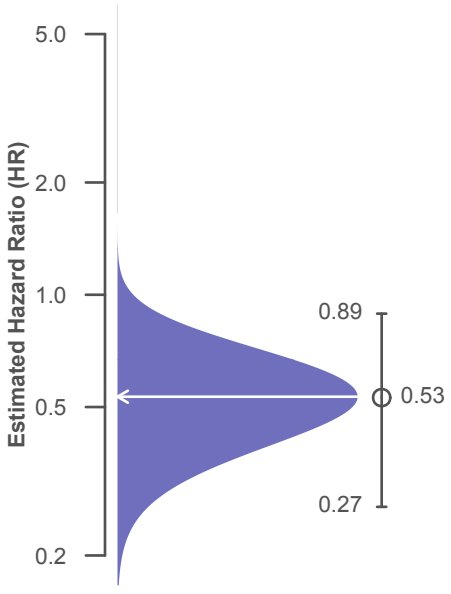
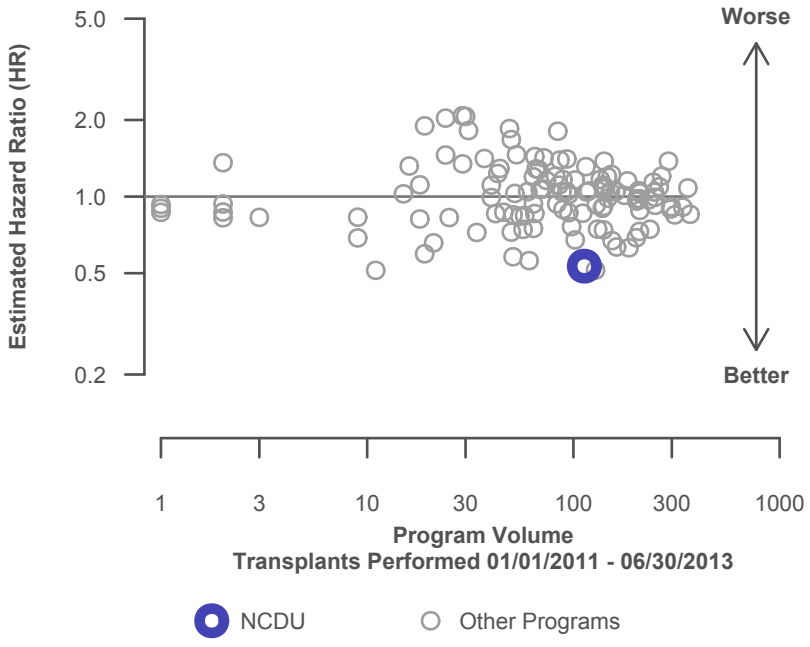


Figure C6. Adult (18+) 3-year graft failure HR program comparison



C. Transplant Information

Table C7D. Adult (18+) 3-year survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2011 and 06/30/2013
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	112	12,755
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	91.96%	80.53%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	84.38%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	9	2,484
Number of expected graft failures (including deaths) during the first 3 years after transplant	18.50	2,484
Estimated hazard ratio*	0.54	1.00
95% credible interval for the hazard ratio**	[0.27, 0.90]	--

* 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, [0.27, 0.90], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 46% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 73% reduced risk up to 10% reduced risk.

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

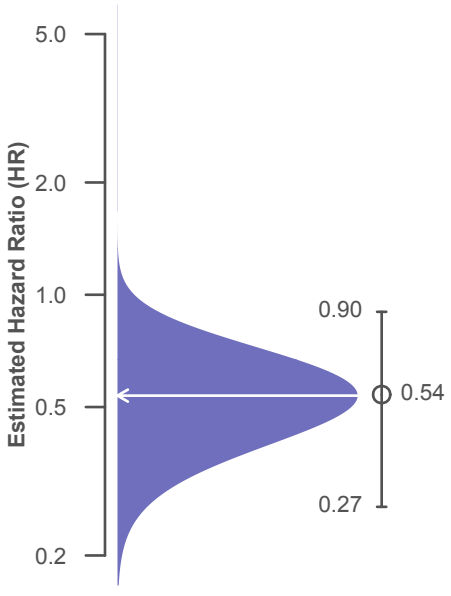
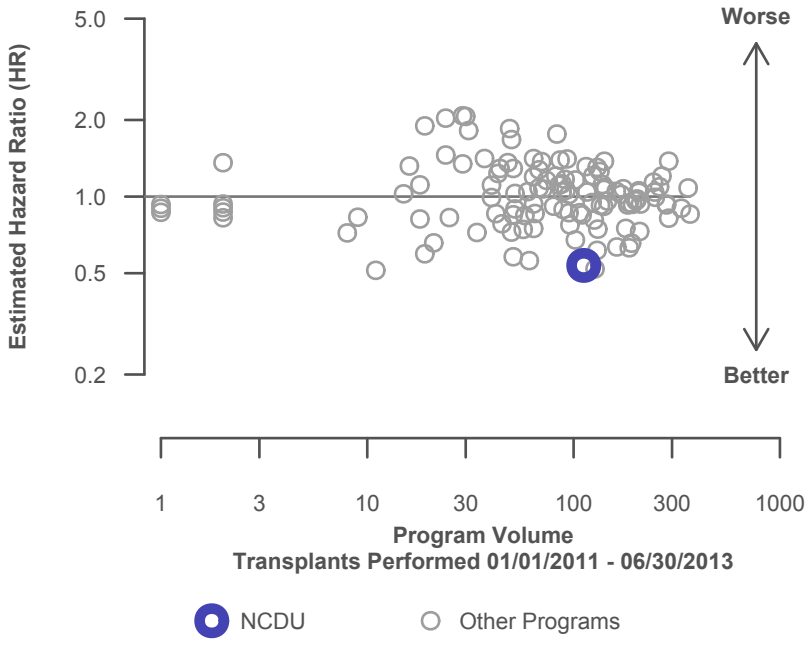


Figure C6D. Adult (18+) 3-year deceased donor graft failure HR program comparison



C. Transplant Information

Table C7L. Adult (18+) 3-year survival with a functioning living donor graft
Single organ transplants performed between 01/01/2011 and 06/30/2013
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	1	490
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	100.00%	79.18%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	87.05%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	0	102
Number of expected graft failures (including deaths) during the first 3 years after transplant	0.14	102
Estimated hazard ratio*	0.94	1.00
95% credible interval for the hazard ratio**	[0.11, 2.61]	--

* 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, [0.11, 2.61], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 6% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 89% reduced risk up to 161% increased risk.

Figure C5L. Adult (18+) 3-year living donor graft failure HR estimate

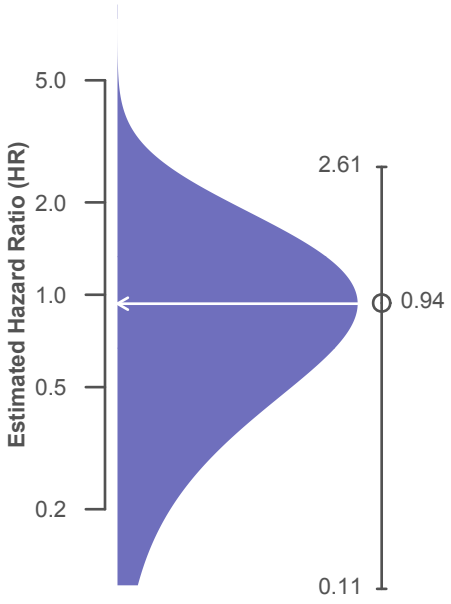
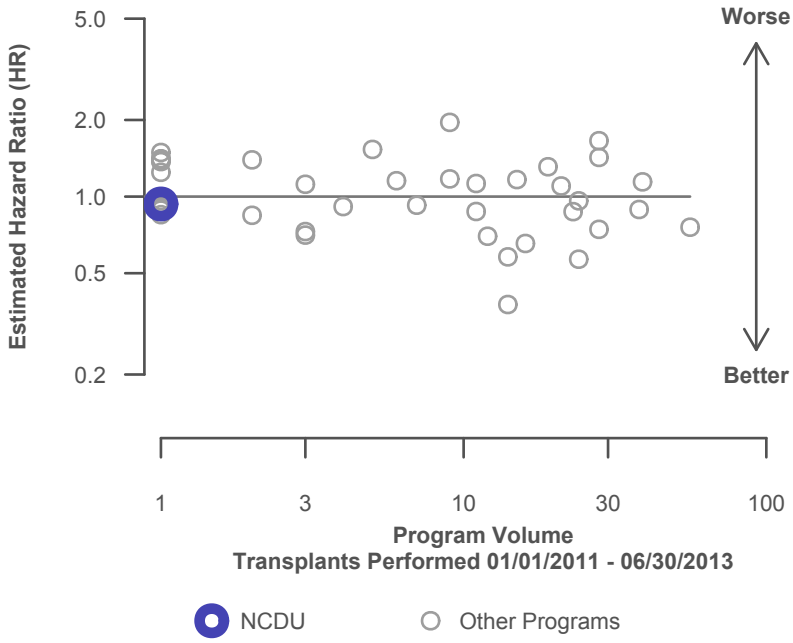


Figure C6L. Adult (18+) 3-year living donor graft failure HR program comparison



C. Transplant Information

Table C8. Pediatric (<18) 1-month survival with a functioning graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	29	1,241
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	89.66%	93.15%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	92.30%	--
Number of observed graft failures (including deaths) during the first month after transplant	3	85
Number of expected graft failures (including deaths) during the first month after transplant	2.17	85
Estimated hazard ratio*	1.20	1.00
95% credible interval for the hazard ratio**	[0.39, 2.45]	--

* 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, [0.39, 2.45], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 20% higher risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 61% reduced risk up to 145% increased risk.

Figure C7. Pediatric (<18) 1-month graft failure HR estimate

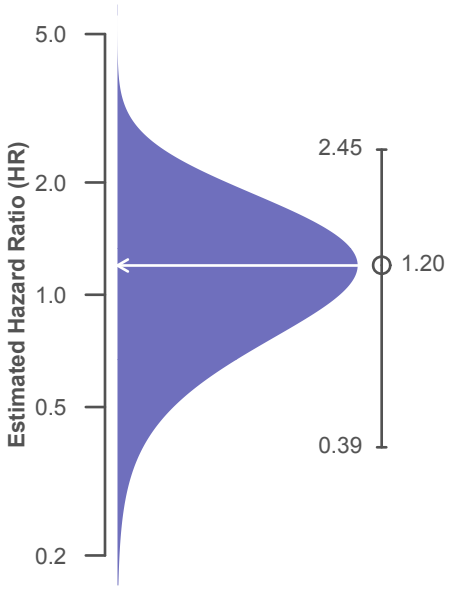
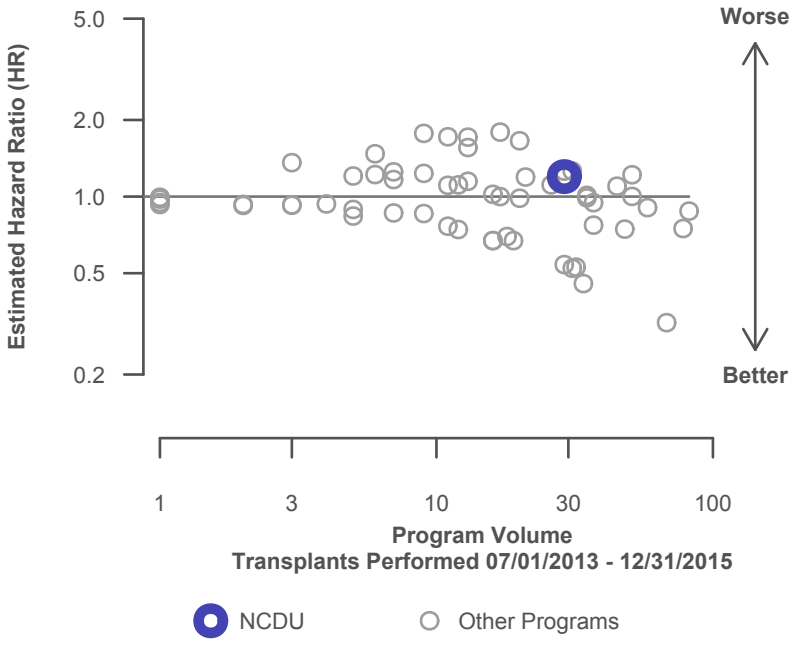


Figure C8. Pediatric (<18) 1-month graft failure HR program comparison



C. Transplant Information

Table C8D. Pediatric (<18) 1-month survival with a functioning deceased donor graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	27	1,089
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	88.89%	92.75%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	92.02%	--
Number of observed graft failures (including deaths) during the first month after transplant	3	79
Number of expected graft failures (including deaths) during the first month after transplant	2.09	79
Estimated hazard ratio*	1.22	1.00
95% credible interval for the hazard ratio**	[0.40, 2.50]	--

* 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, [0.40, 2.50], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 22% higher risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 60% reduced risk up to 150% increased risk.

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

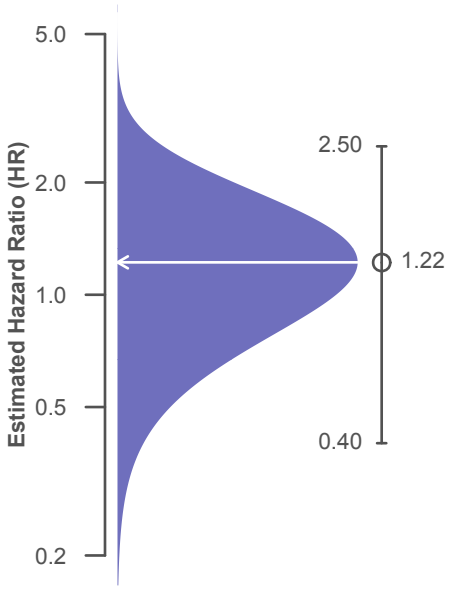
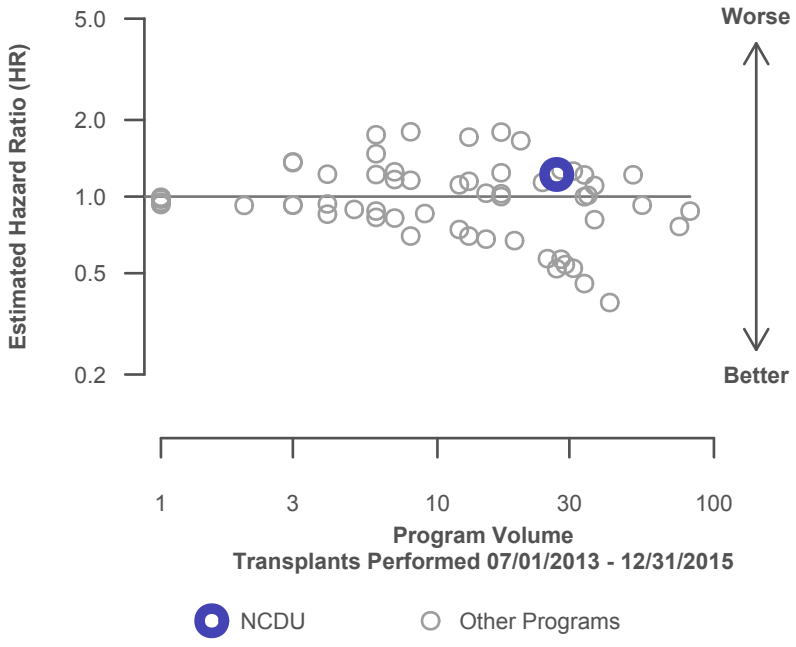


Figure C8D. Pediatric (<18) 1-month deceased donor graft failure HR program comparison



C. Transplant Information

Table C8L. Pediatric (<18) 1-month survival with a functioning living donor graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	2	152
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	100.00%	96.05%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	96.08%	--
Number of observed graft failures (including deaths) during the first month after transplant	0	6
Number of expected graft failures (including deaths) during the first month after transplant	0.08	6
Estimated hazard ratio*	0.96	1.00
95% credible interval for the hazard ratio**	[0.12, 2.68]	--

* 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, 2.68], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 4% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 88% reduced risk up to 168% increased risk.

Figure C7L. Pediatric (<18) 1-month living donor graft failure HR estimate

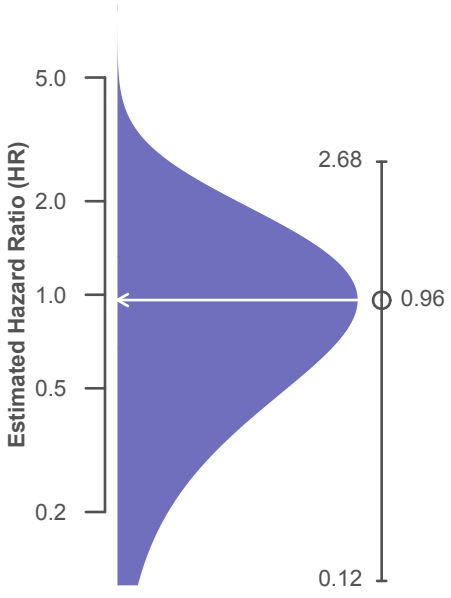
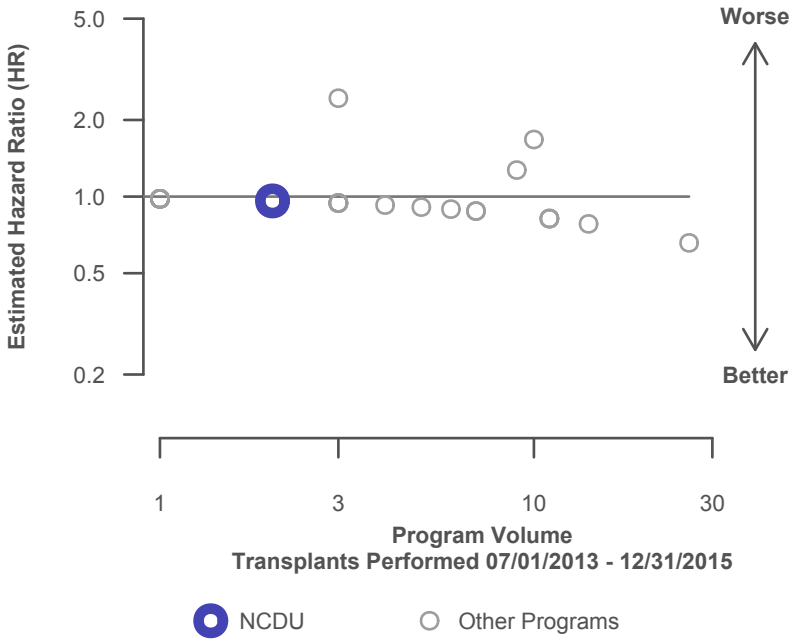


Figure C8L. Pediatric (<18) 1-month living donor graft failure HR program comparison



C. Transplant Information

Table C9. Pediatric (<18) 1-year survival with a functioning graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	29	1,241
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	89.66%	90.15%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	88.84%	--
Number of observed graft failures (including deaths) during the first year after transplant	3	120
Number of expected graft failures (including deaths) during the first year after transplant	3.10	120
Estimated hazard ratio*	0.98	1.00
95% credible interval for the hazard ratio**	[0.32, 2.01]	--

* 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, [0.32, 2.01], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 2% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 68% reduced risk up to 101% increased risk.

Figure C9. Pediatric (<18) 1-year graft failure HR estimate

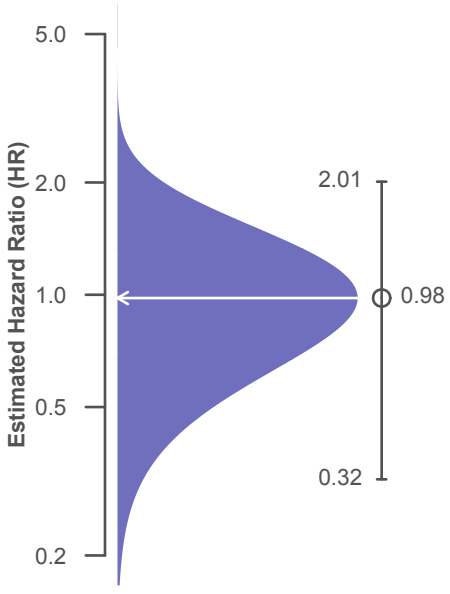
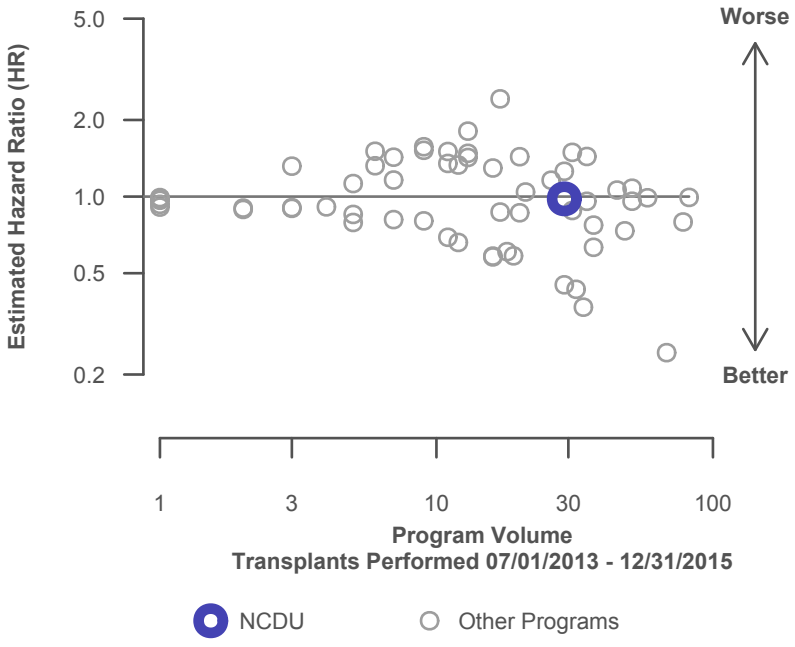


Figure C10. Pediatric (<18) 1-year graft failure HR program comparison



C. Transplant Information

Table C9D. Pediatric (<18) 1-year survival with a functioning deceased donor graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	27	1,089
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	88.89%	89.61%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	88.45%	--
Number of observed graft failures (including deaths) during the first year after transplant	3	111
Number of expected graft failures (including deaths) during the first year after transplant	2.98	111
Estimated hazard ratio*	1.00	1.00
95% credible interval for the hazard ratio**	[0.33, 2.06]	--

* 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, [0.33, 2.06], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 0% higher risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 67% reduced risk up to 106% increased risk.

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

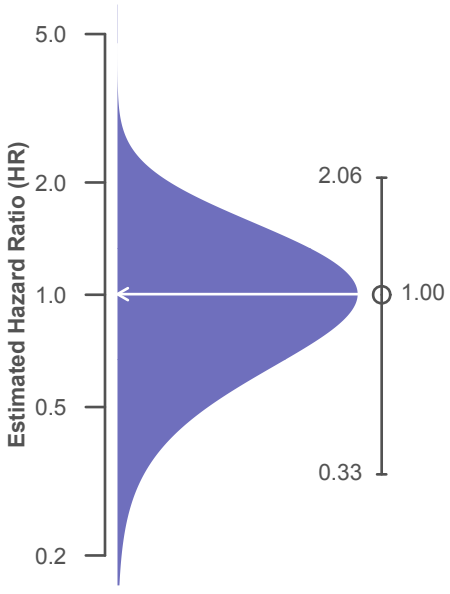
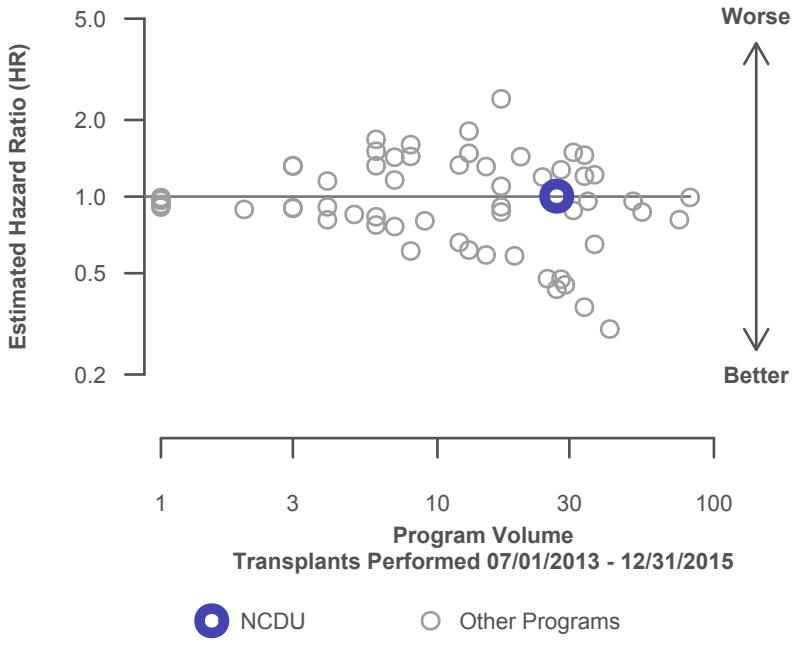


Figure C10D. Pediatric (<18) 1-year deceased donor graft failure HR program comparison



C. Transplant Information

Table C9L. Pediatric (<18) 1-year survival with a functioning living donor graft
Single organ transplants performed between 07/01/2013 and 12/31/2015
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	2	152
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	100.00%	94.08%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	94.11%	--
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	0.12	9
Estimated hazard ratio*	0.94	1.00
95% credible interval for the hazard ratio**	[0.11, 2.63]	--

* 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, [0.11, 2.63], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 6% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 89% reduced risk up to 163% increased risk.

Figure C9L. Pediatric (<18) 1-year living donor graft failure HR estimate

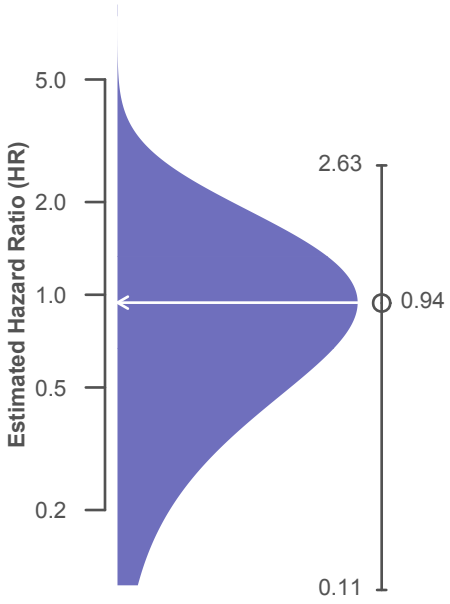
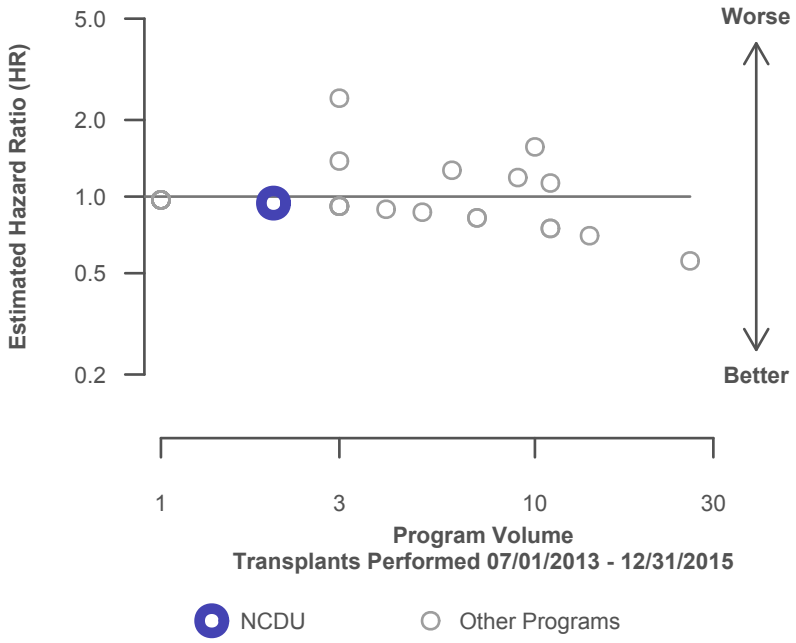


Figure C10L. Pediatric (<18) 1-year living donor graft failure HR program comparison



C. Transplant Information

Table C10. Pediatric (<18) 3-year survival with a functioning graft
Single organ transplants performed between 01/01/2011 and 06/30/2013
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	31	1,207
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	77.42%	86.33%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	84.12%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	7	165
Number of expected graft failures (including deaths) during the first 3 years after transplant	4.42	165
Estimated hazard ratio*	1.40	1.00
95% credible interval for the hazard ratio**	[0.64, 2.46]	--

* 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, [0.64, 2.46], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 40% higher risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 36% reduced risk up to 146% increased risk.

Figure C11. Pediatric (<18) 3-year graft failure HR estimate

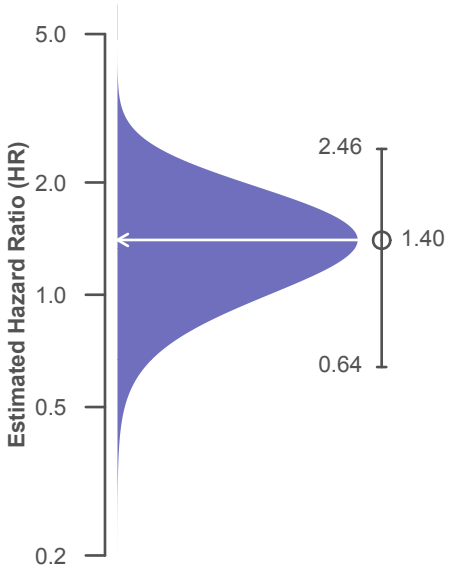
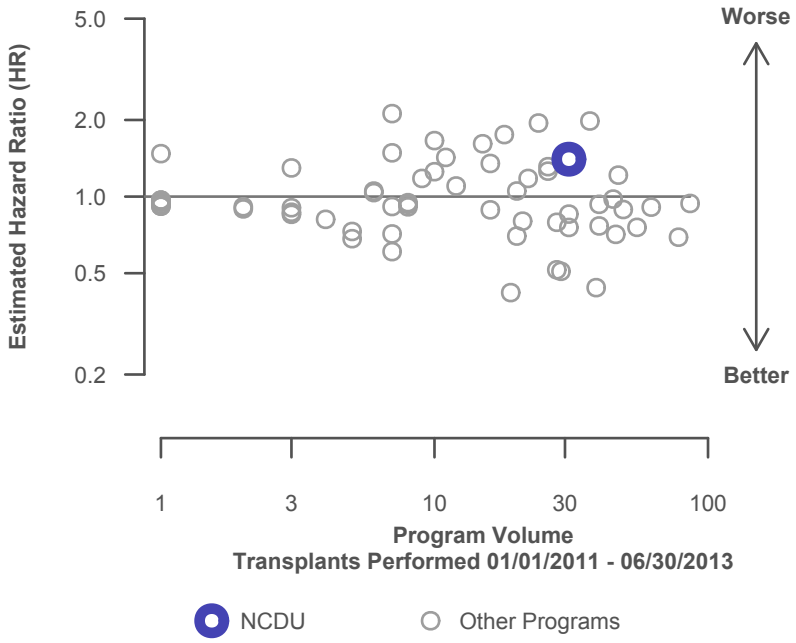


Figure C12. Pediatric (<18) 3-year graft failure HR program comparison



C. Transplant Information

Table C10D. Pediatric (<18) 3-year survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2011 and 06/30/2013
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	29	1,076
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	75.86%	85.50%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	83.50%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	7	156
Number of expected graft failures (including deaths) during the first 3 years after transplant	4.28	156
Estimated hazard ratio*	1.43	1.00
95% credible interval for the hazard ratio**	[0.66, 2.51]	--

* 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, [0.66, 2.51], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 43% higher risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 34% reduced risk up to 151% increased risk.

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

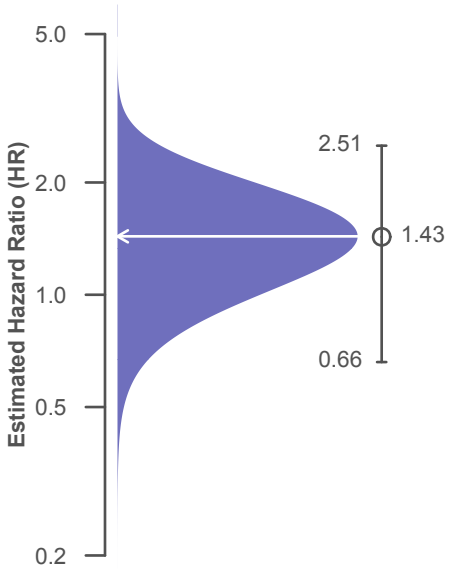
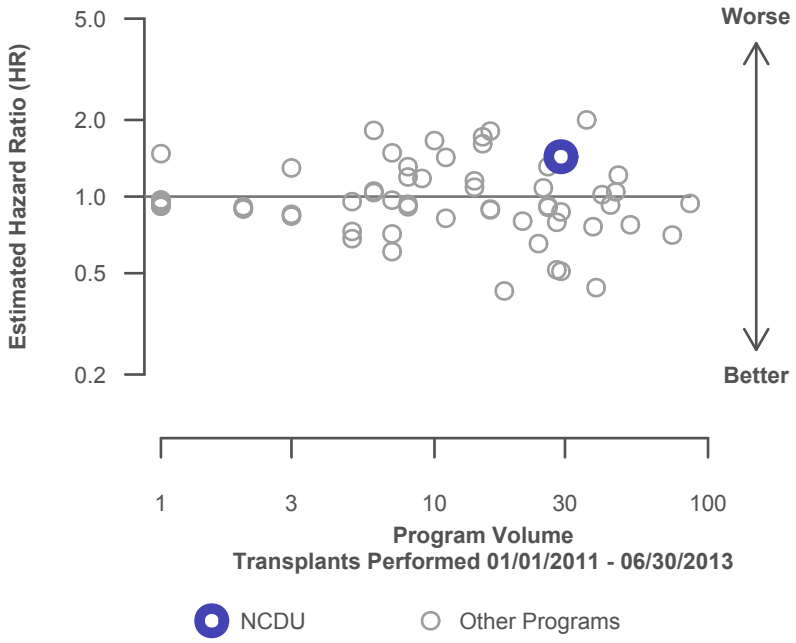


Figure C12D. Pediatric (<18) 3-year deceased donor graft failure HR program comparison



C. Transplant Information

Table C10L. Pediatric (<18) 3-year survival with a functioning living donor graft
Single organ transplants performed between 01/01/2011 and 06/30/2013
Deaths and retransplants are considered graft failures

	NCDU	U.S.
Number of transplants evaluated	2	131
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	100.00%	93.13%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	93.16%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	0	9
Number of expected graft failures (including deaths) during the first 3 years after transplant	0.14	9
Estimated hazard ratio*	0.93	1.00
95% credible interval for the hazard ratio**	[0.11, 2.60]	--

* 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, [0.11, 2.60], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 7% lower risk of graft failure compared to an average program, but NCDU's performance could plausibly range from 89% reduced risk up to 160% increased risk.

Figure C11L. Pediatric (<18) 3-year living donor graft failure HR estimate

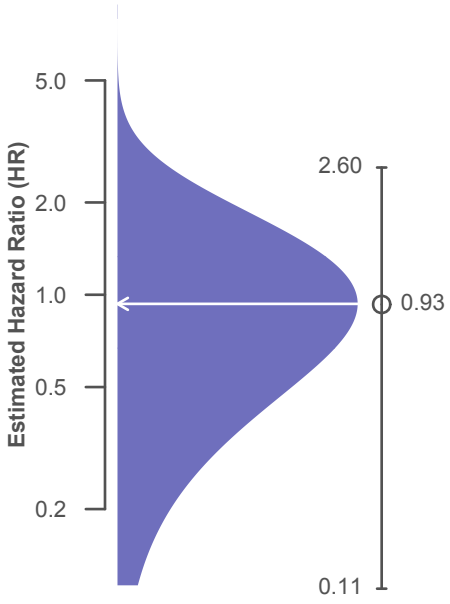
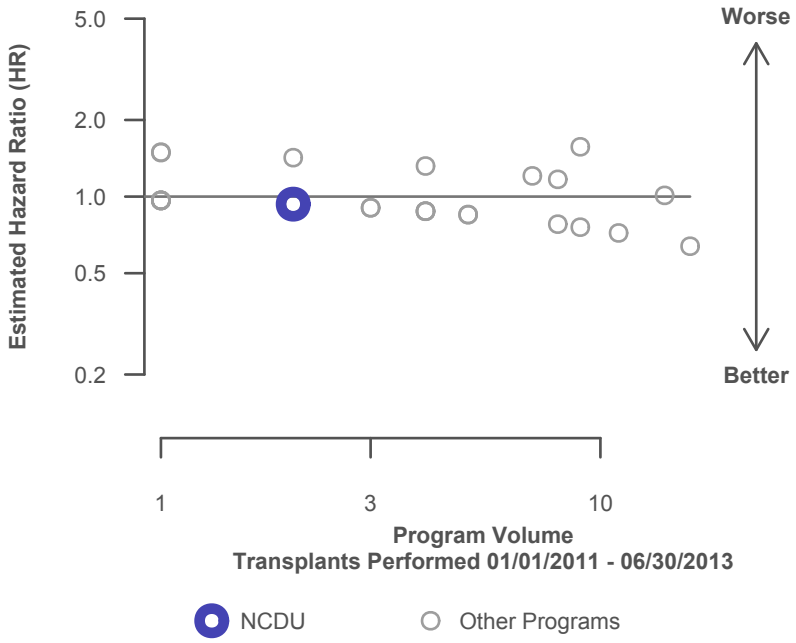


Figure C12L. Pediatric (<18) 3-year living donor graft failure HR program comparison



C. Transplant Information

Table C11. Adult (18+) 1-month patient survival
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	122	13,608
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	100.00%	97.33%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	97.52%	--
Number of observed deaths during the first month after transplant	0	363
Number of expected deaths during the first month after transplant	3.07	363
Estimated hazard ratio*	0.39	1.00
95% credible interval for the hazard ratio**	[0.05, 1.10]	--

* 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, [0.05, 1.10], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 61% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 95% reduced risk up to 10% increased risk.

Figure C13. Adult (18+) 1-month patient death HR estimate

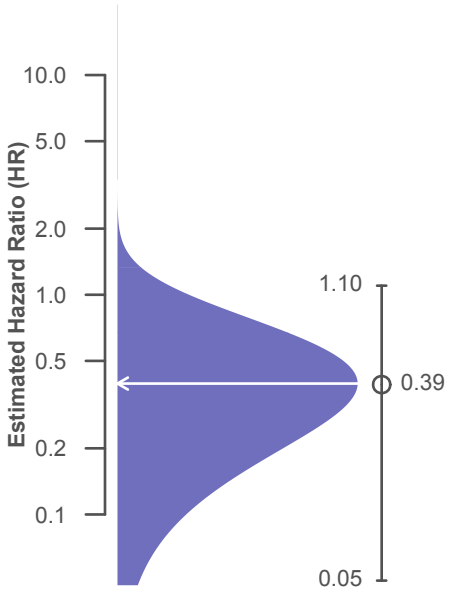
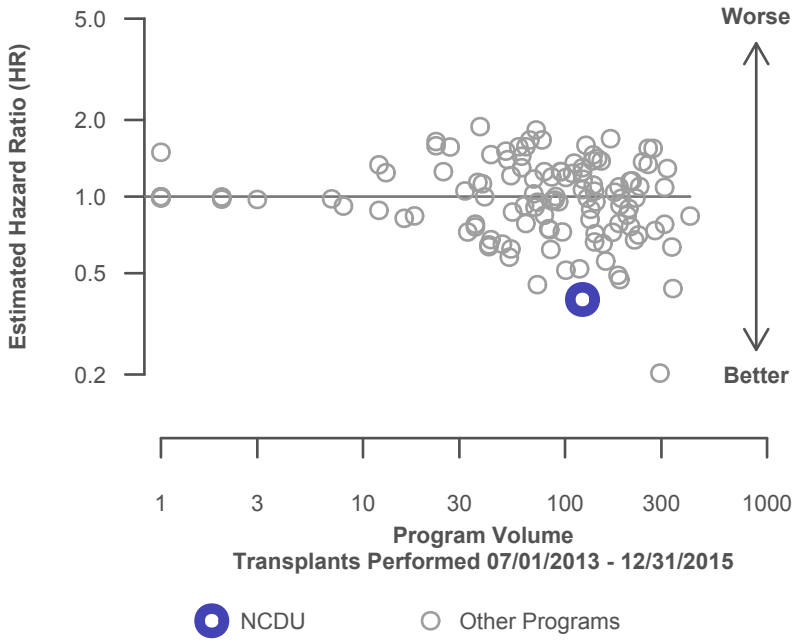


Figure C14. Adult (18+) 1-month patient death HR program comparison



C. Transplant Information

Table C11D. Adult (18+) 1-month patient survival (deceased donor graft recipients)
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	118	13,006
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	100.00%	97.36%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	97.60%	--
Number of observed deaths during the first month after transplant	0	343
Number of expected deaths during the first month after transplant	2.88	343
Estimated hazard ratio*	0.41	1.00
95% credible interval for the hazard ratio**	[0.05, 1.14]	--

* 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, [0.05, 1.14], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 59% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 95% reduced risk up to 14% increased risk.

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

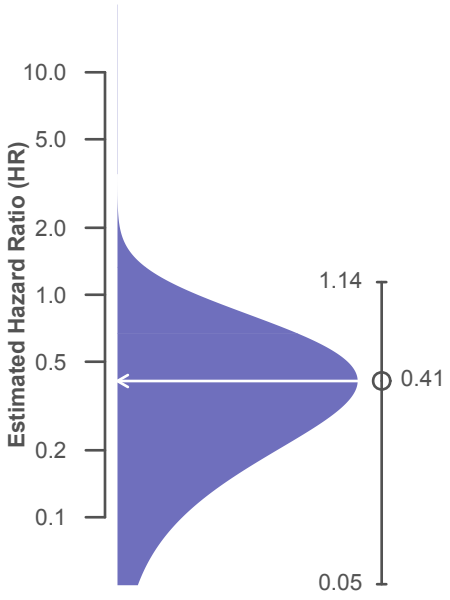
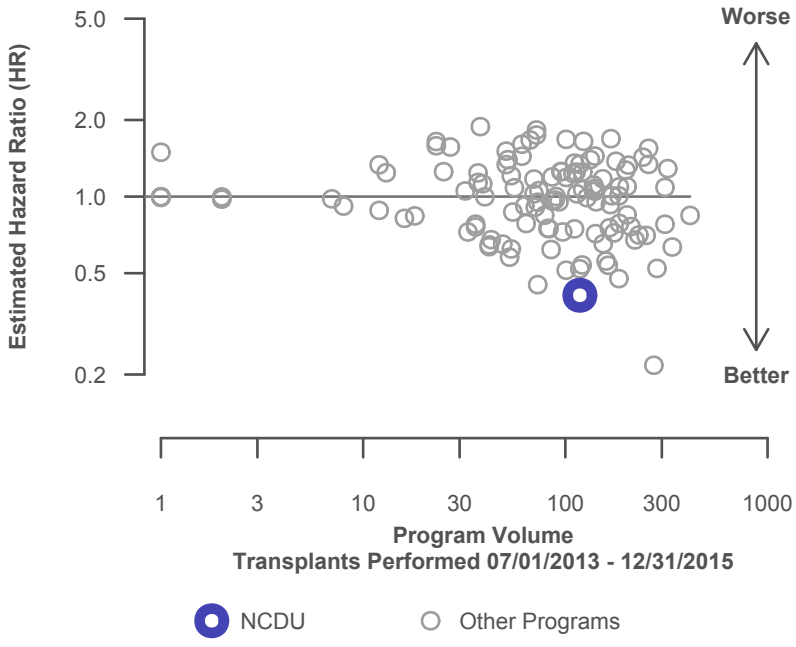


Figure C14D. Adult (18+) 1-month patient death HR program comparison (deceased donor grafts)



C. Transplant Information

Table C11L. Adult (18+) 1-month patient survival (living donor graft recipients)
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	4	602
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	100.00%	96.68%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	95.40%	--
Number of observed deaths during the first month after transplant	0	20
Number of expected deaths during the first month after transplant	0.19	20
Estimated hazard ratio*	0.91	1.00
95% credible interval for the hazard ratio**	[0.11, 2.55]	--

* 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, [0.11, 2.55], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 9% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 89% reduced risk up to 155% increased risk.

Figure C13L. Adult (18+) 1-month patient death HR estimate (living donor grafts)

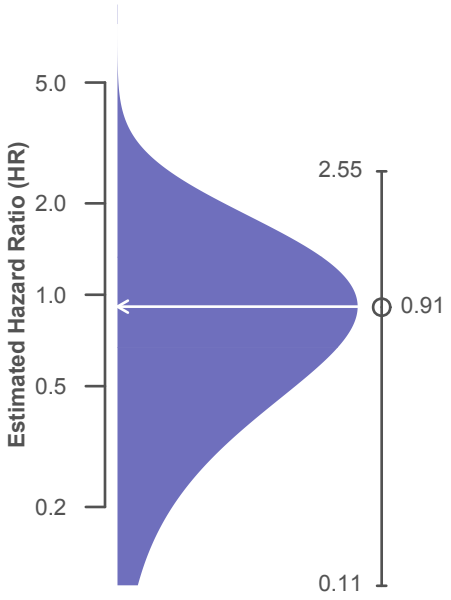
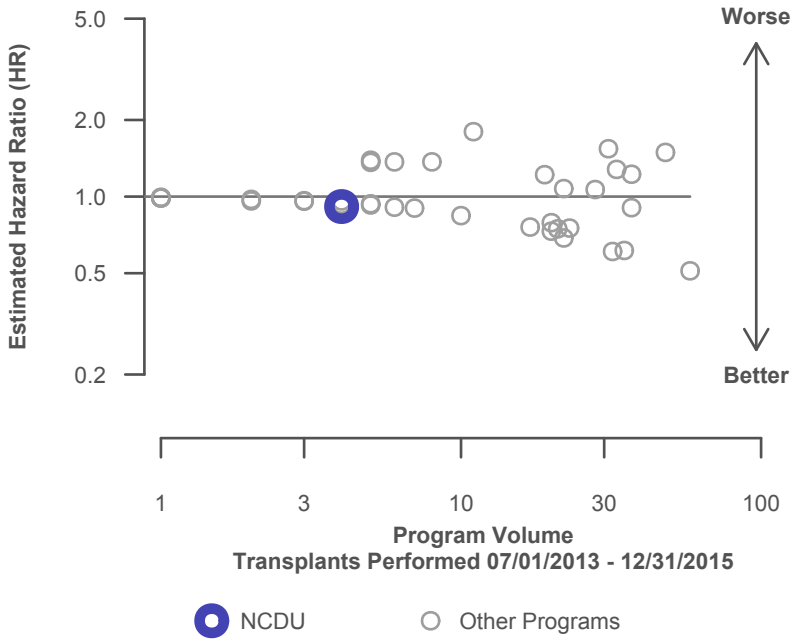


Figure C14L. Adult (18+) 1-month patient death HR program comparison (living donor grafts)



C. Transplant Information

Table C12. Adult (18+) 1-year patient survival
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	122	13,608
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	96.72%	91.57%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	92.12%	--
Number of observed deaths during the first year after transplant	4	1,079
Number of expected deaths during the first year after transplant	9.22	1,079
Estimated hazard ratio*	0.53	1.00
95% credible interval for the hazard ratio**	[0.20, 1.04]	--

* 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, [0.20, 1.04], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 47% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 80% reduced risk up to 4% increased risk.

Figure C15. Adult (18+) 1-year patient death HR estimate

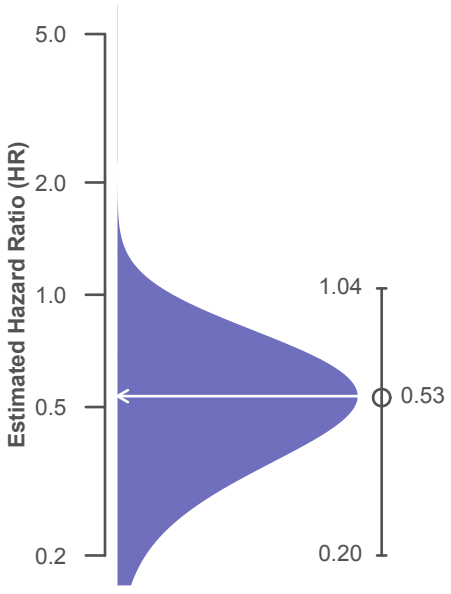
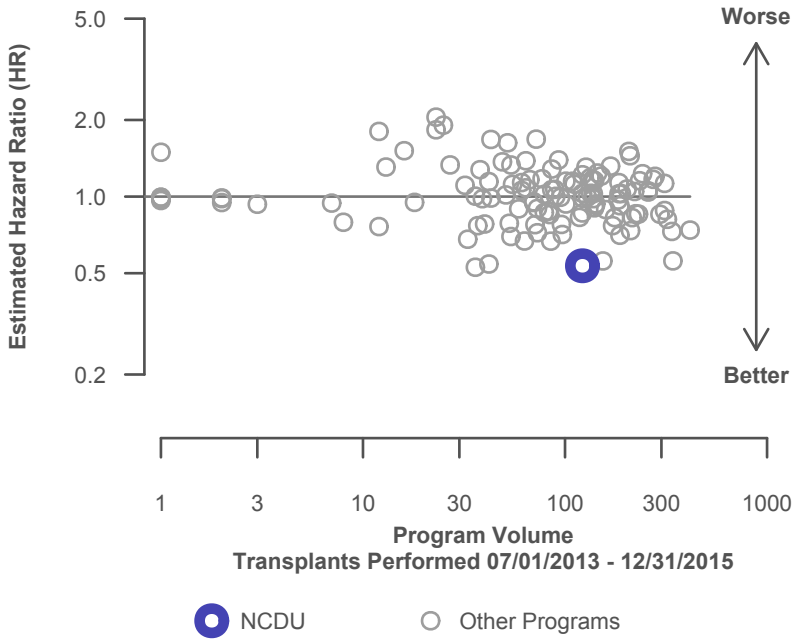


Figure C16. Adult (18+) 1-year patient death HR program comparison



C. Transplant Information

Table C12D. Adult (18+) 1-year patient survival (deceased donor graft recipients)
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	118	13,006
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	97.46%	91.59%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	92.26%	--
Number of observed deaths during the first year after transplant	3	1,029
Number of expected deaths during the first year after transplant	8.75	1,029
Estimated hazard ratio*	0.47	1.00
95% credible interval for the hazard ratio**	[0.15, 0.95]	--

* 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, [0.15, 0.95], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 53% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 85% reduced risk up to 5% reduced risk.

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

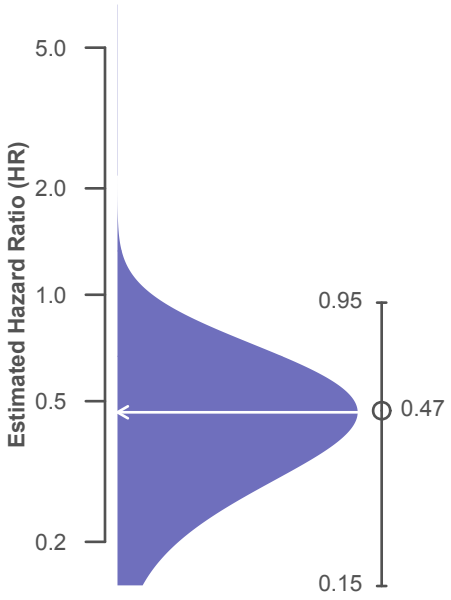
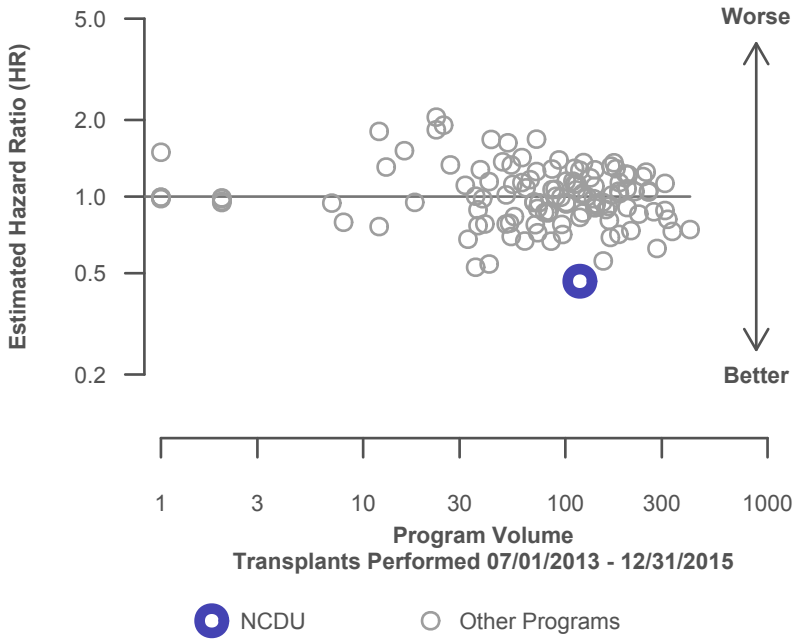


Figure C16D. Adult (18+) 1-year patient death HR program comparison (deceased donor grafts)



C. Transplant Information

Table C12L. Adult (18+) 1-year patient survival (living donor graft recipients)
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	4	602
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	75.00%	91.22%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	87.95%	--
Number of observed deaths during the first year after transplant	1	50
Number of expected deaths during the first year after transplant	0.47	50
Estimated hazard ratio*	1.22	1.00
95% credible interval for the hazard ratio**	[0.25, 2.93]	--

* 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, [0.25, 2.93], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 22% higher risk of patient death compared to an average program, but NCDU's performance could plausibly range from 75% reduced risk up to 193% increased risk.

Figure C15L. Adult (18+) 1-year patient death HR estimate (living donor grafts)

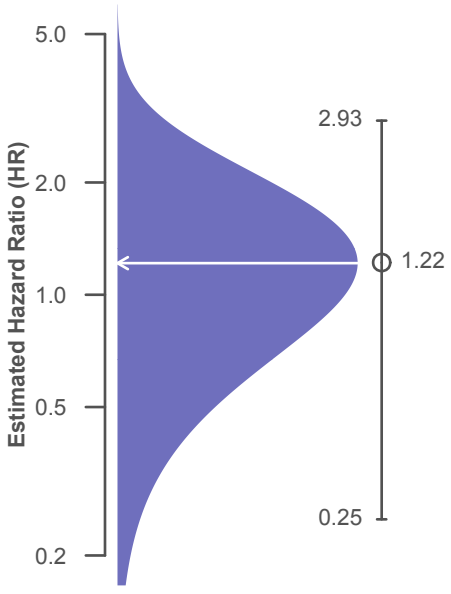
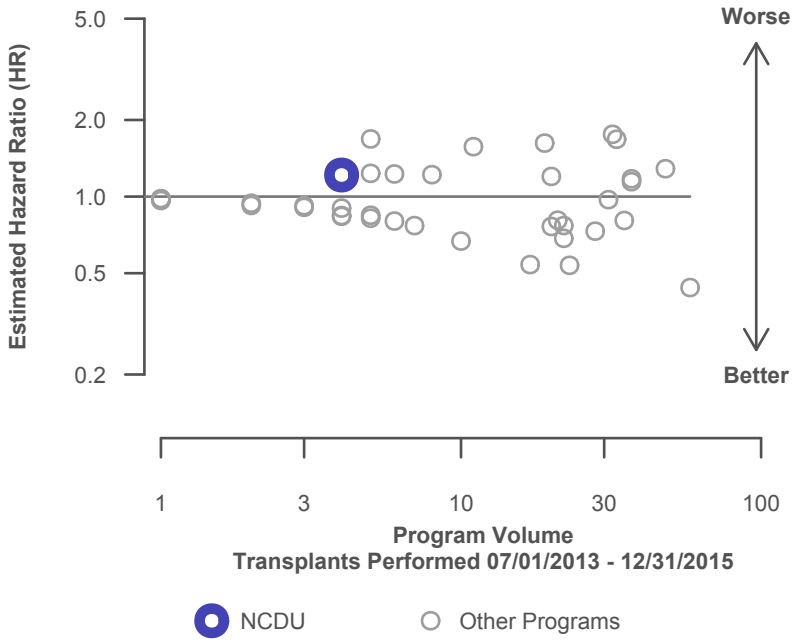


Figure C16L. Adult (18+) 1-year patient death HR program comparison (living donor grafts)



C. Transplant Information

Table C13. Adult (18+) 3-year patient survival
Single organ transplants performed between 01/01/2011 and 06/30/2013
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	104	12,588
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	94.23%	83.43%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	87.35%	--
Number of observed deaths during the first 3 years after transplant	6	2,086
Number of expected deaths during the first 3 years after transplant	13.61	2,086
Estimated hazard ratio*	0.51	1.00
95% credible interval for the hazard ratio**	[0.22, 0.92]	--

* 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, [0.22, 0.92], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 49% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 78% reduced risk up to 8% reduced risk.

Figure C17. Adult (18+) 3-year patient death HR estimate

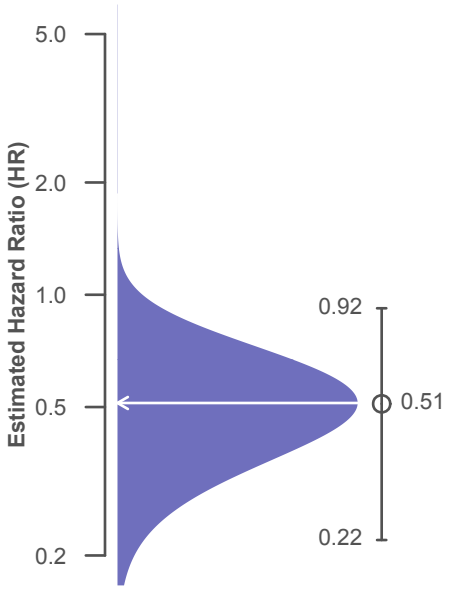
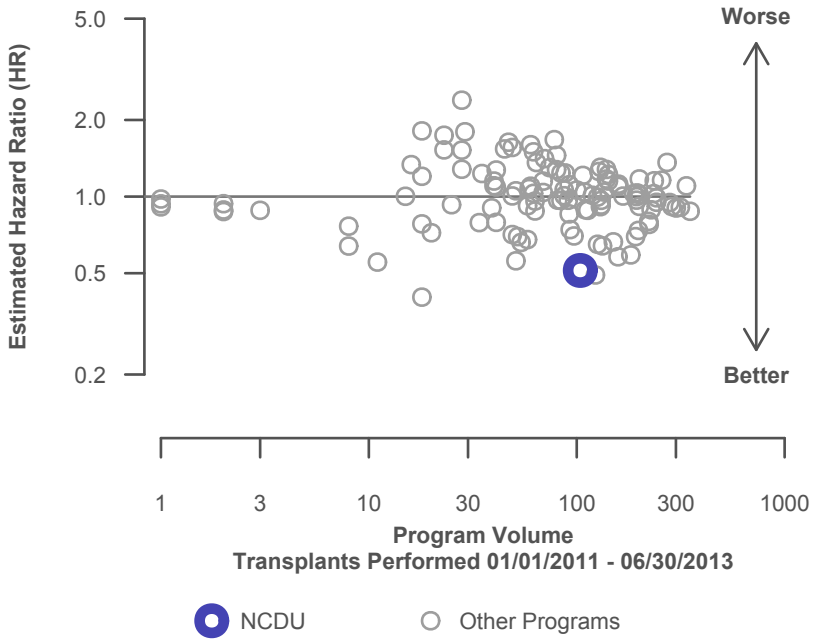


Figure C18. Adult (18+) 3-year patient death HR program comparison



C. Transplant Information

Table C13D. Adult (18+) 3-year patient survival (deceased donor graft recipients)
Single organ transplants performed between 01/01/2011 and 06/30/2013
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	103	12,106
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	94.17%	83.33%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	87.31%	--
Number of observed deaths during the first 3 years after transplant	6	2,018
Number of expected deaths during the first 3 years after transplant	13.51	2,018
Estimated hazard ratio*	0.52	1.00
95% credible interval for the hazard ratio**	[0.22, 0.93]	--

* 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, [0.22, 0.93], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 48% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 78% reduced risk up to 7% reduced risk.

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

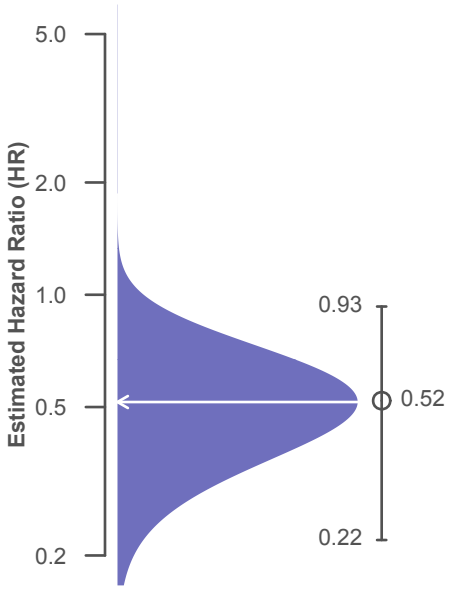
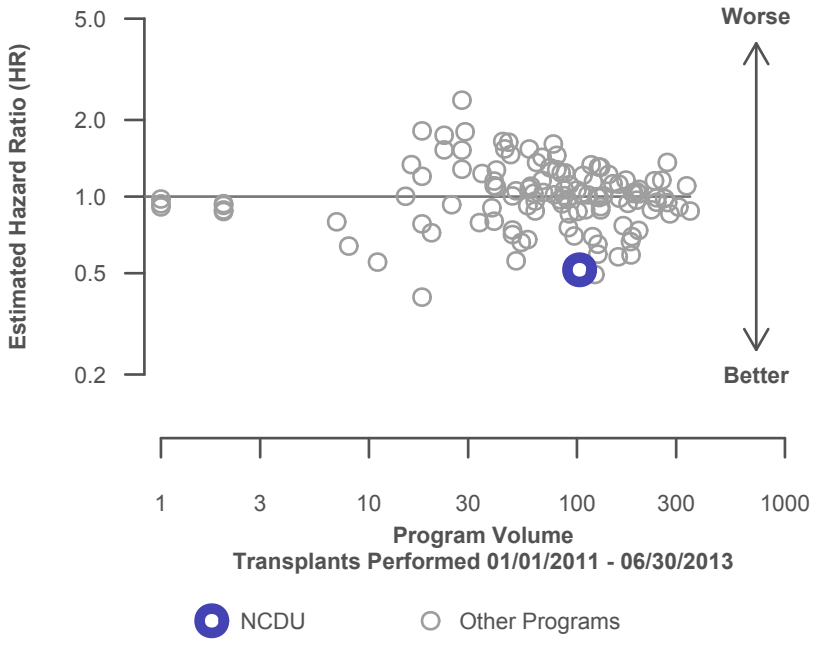


Figure C18D. Adult (18+) 3-year patient death HR program comparison (deceased donor grafts)



C. Transplant Information

Table C13L. Adult (18+) 3-year patient survival (living donor graft recipients)
Single organ transplants performed between 01/01/2011 and 06/30/2013
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	1	482
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	100.00%	85.89%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	91.06%	--
Number of observed deaths during the first 3 years after transplant	0	68
Number of expected deaths during the first 3 years after transplant	0.09	68
Estimated hazard ratio*	0.96	1.00
95% credible interval for the hazard ratio**	[0.12, 2.66]	--

* 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, 2.66], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 4% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 88% reduced risk up to 166% increased risk.

Figure C17L. Adult (18+) 3-year patient death HR estimate (living donor grafts)

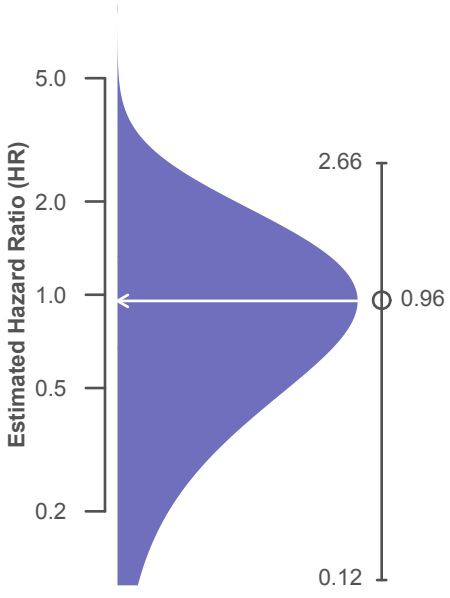
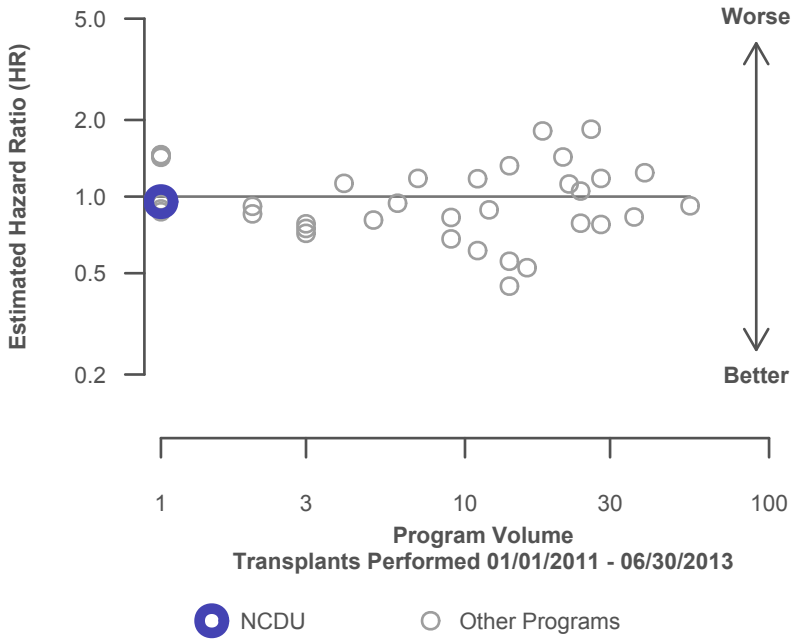


Figure C18L. Adult (18+) 3-year patient death HR program comparison (living donor grafts)



C. Transplant Information

Table C14. Pediatric (<18) 1-month patient survival
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	25	1,137
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	96.00%	97.89%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	97.63%	--
Number of observed deaths during the first month after transplant	1	24
Number of expected deaths during the first month after transplant	0.59	24
Estimated hazard ratio*	1.16	1.00
95% credible interval for the hazard ratio**	[0.24, 2.79]	--

* 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, [0.24, 2.79], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 16% higher risk of patient death compared to an average program, but NCDU's performance could plausibly range from 76% reduced risk up to 179% increased risk.

Figure C19. Pediatric (<18) 1-month patient death HR estimate

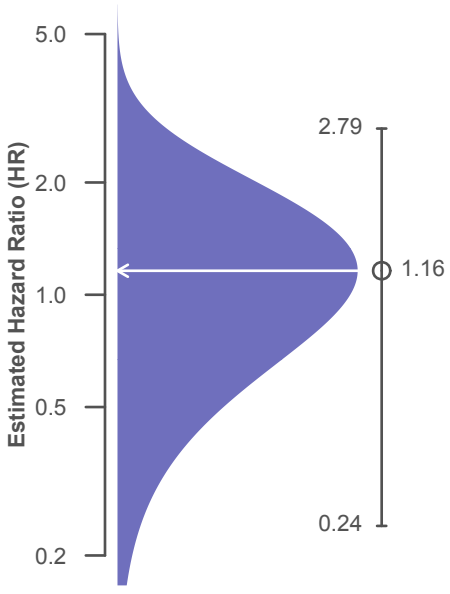
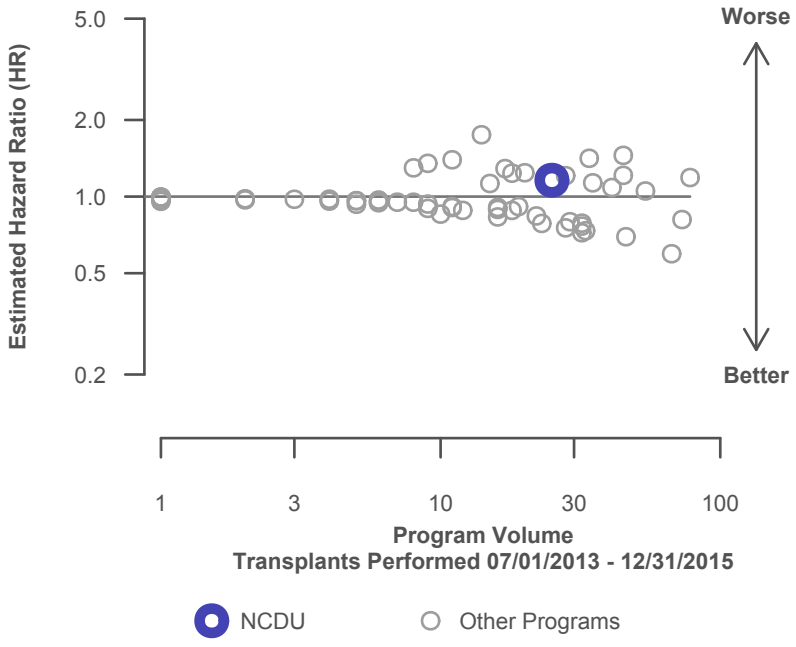


Figure C20. Pediatric (<18) 1-month patient death HR program comparison



C. Transplant Information

Table C14D. Pediatric (<18) 1-month patient survival (deceased donor graft recipients)
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	23	990
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	95.65%	97.78%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	97.54%	--
Number of observed deaths during the first month after transplant	1	22
Number of expected deaths during the first month after transplant	0.56	22
Estimated hazard ratio*	1.17	1.00
95% credible interval for the hazard ratio**	[0.24, 2.82]	--

* 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, [0.24, 2.82], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 17% higher risk of patient death compared to an average program, but NCDU's performance could plausibly range from 76% reduced risk up to 182% increased risk.

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

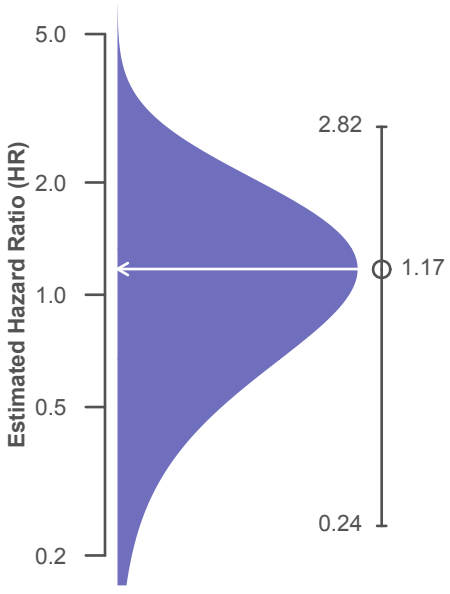
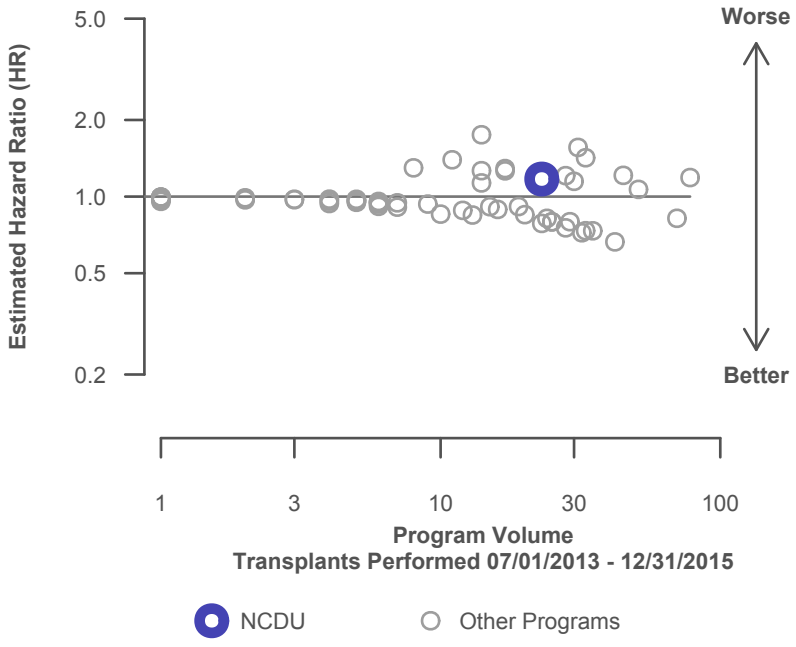


Figure C20D. Pediatric (<18) 1-month patient death HR program comparison (deceased donor grafts)



C. Transplant Information

Table C14L. Pediatric (<18) 1-month patient survival (living donor graft recipients)
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	2	147
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	100.00%	98.64%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	98.64%	--
Number of observed deaths during the first month after transplant	0	2
Number of expected deaths during the first month after transplant	0.03	2
Estimated hazard ratio*	0.99	1.00
95% credible interval for the hazard ratio**	[0.12, 2.75]	--

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

Figure C19L. Pediatric (<18) 1-month patient death HR estimate (living donor grafts)

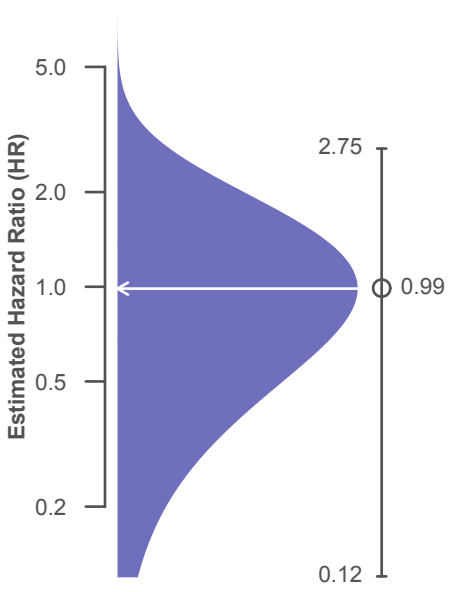
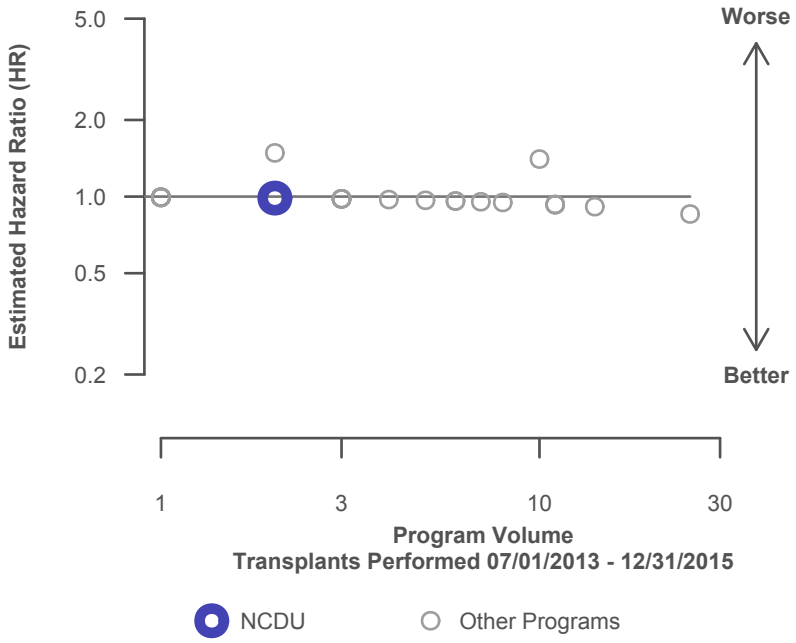


Figure C20L. Pediatric (<18) 1-month patient death HR program comparison (living donor grafts)



C. Transplant Information

Table C15. Pediatric (<18) 1-year patient survival
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	25	1,137
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	96.00%	95.52%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	95.00%	--
Number of observed deaths during the first year after transplant	1	49
Number of expected deaths during the first year after transplant	1.18	49
Estimated hazard ratio*	0.94	1.00
95% credible interval for the hazard ratio**	[0.19, 2.27]	--

* 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, [0.19, 2.27], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 6% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 81% reduced risk up to 127% increased risk.

Figure C21. Pediatric (<18) 1-year patient death HR estimate

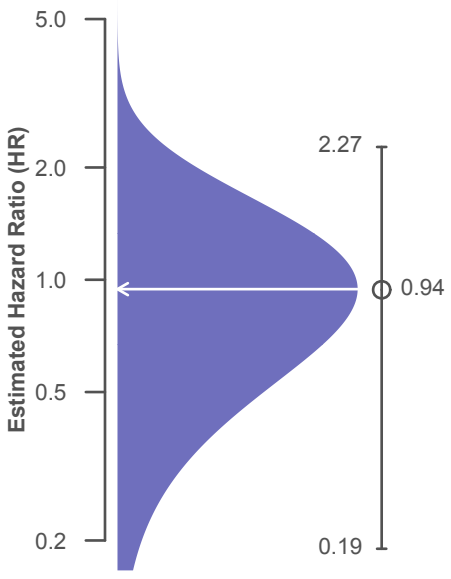
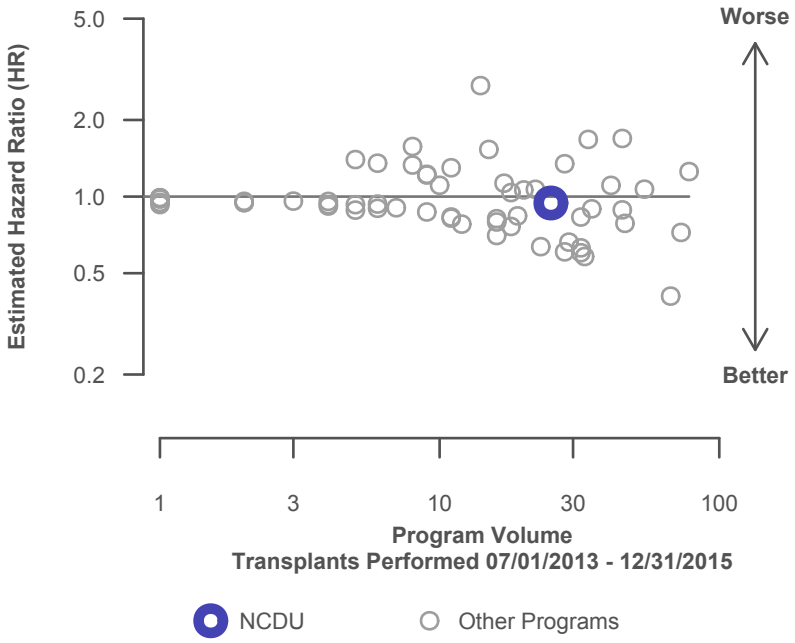


Figure C22. Pediatric (<18) 1-year patient death HR program comparison



C. Transplant Information

Table C15D. Pediatric (<18) 1-year patient survival (deceased donor graft recipients)
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	23	990
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	95.65%	95.37%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	94.86%	--
Number of observed deaths during the first year after transplant	1	44
Number of expected deaths during the first year after transplant	1.11	44
Estimated hazard ratio*	0.96	1.00
95% credible interval for the hazard ratio**	[0.20, 2.32]	--

* 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, [0.20, 2.32], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 4% lower risk of patient death compared to an average program, but NCDU's performance could plausibly range from 80% reduced risk up to 132% increased risk.

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

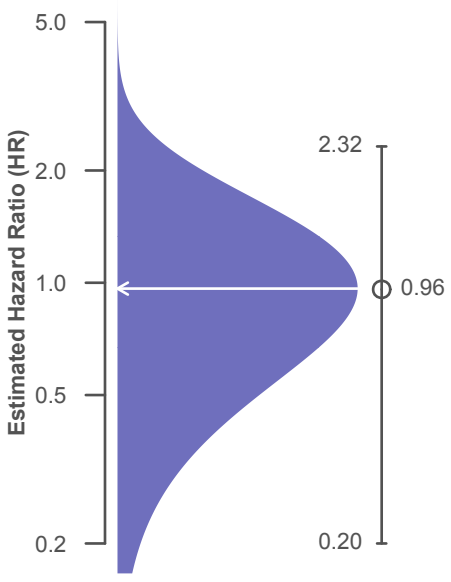
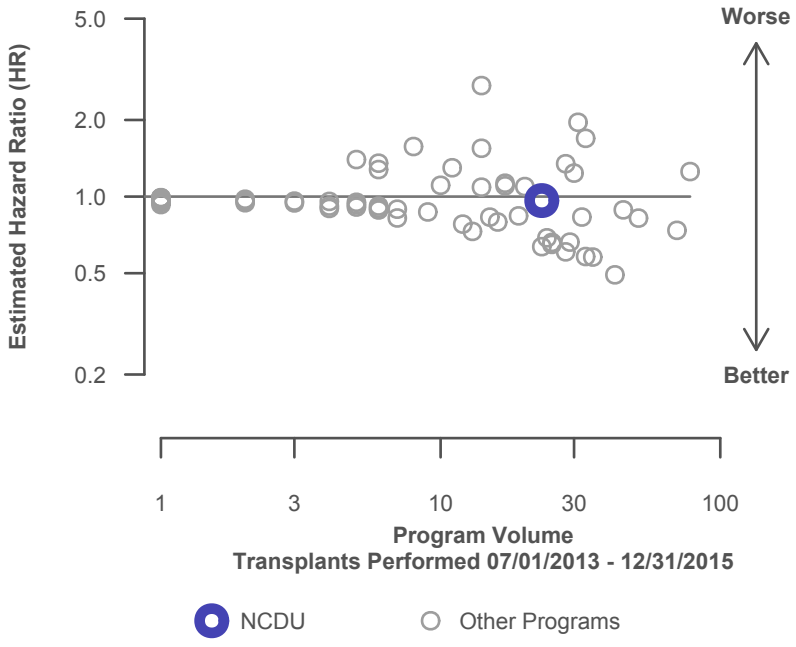


Figure C22D. Pediatric (<18) 1-year patient death HR program comparison (deceased donor grafts)



C. Transplant Information

Table C15L. Pediatric (<18) 1-year patient survival (living donor graft recipients)
Single organ transplants performed between 07/01/2013 and 12/31/2015
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	2	147
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	100.00%	96.60%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	96.61%	--
Number of observed deaths during the first year after transplant	0	5
Number of expected deaths during the first year after transplant	0.07	5
Estimated hazard ratio*	0.97	1.00
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 C21L. Pediatric (<18) 1-year patient death HR estimate (living donor grafts)

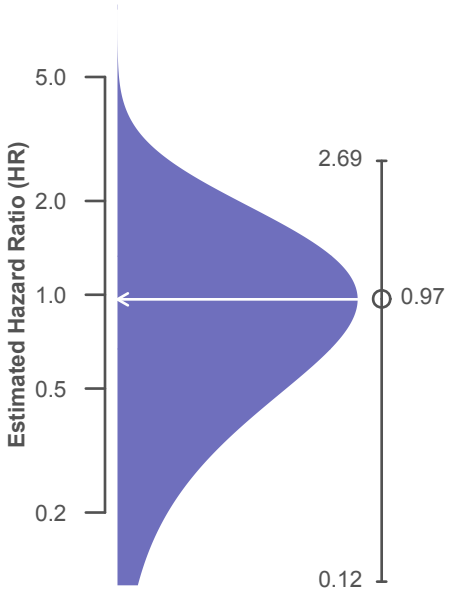
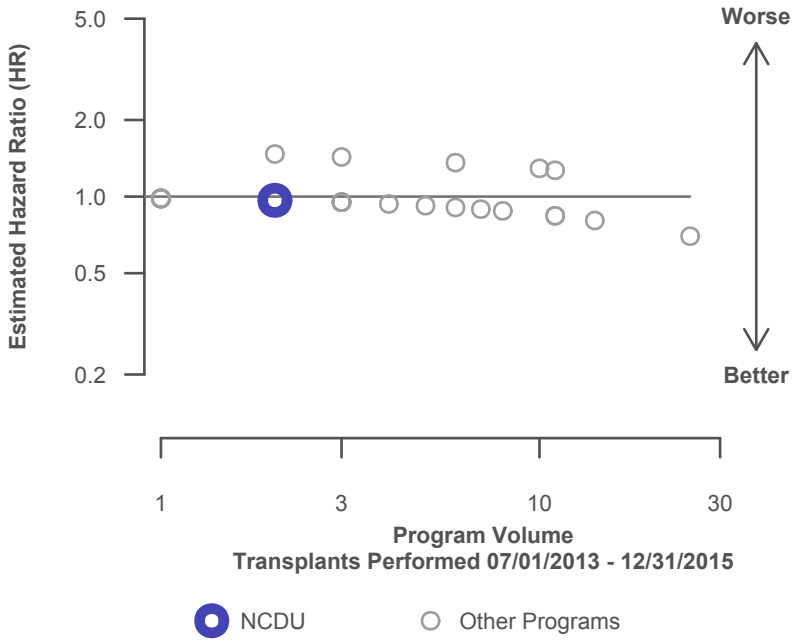


Figure C22L. Pediatric (<18) 1-year patient death HR program comparison (living donor grafts)



C. Transplant Information

Table C16. Pediatric (<18) 3-year patient survival
Single organ transplants performed between 01/01/2011 and 06/30/2013
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	26	1,091
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	92.31%	93.40%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	92.93%	--
Number of observed deaths during the first 3 years after transplant	2	72
Number of expected deaths during the first 3 years after transplant	1.84	72
Estimated hazard ratio*	1.04	1.00
95% credible interval for the hazard ratio**	[0.28, 2.28]	--

* 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, [0.28, 2.28], indicates the location of NCDU's true hazard ratio with 95% probability. The best estimate is 4% higher risk of patient death compared to an average program, but NCDU's performance could plausibly range from 72% reduced risk up to 128% increased risk.

Figure C23. Pediatric (<18) 3-year patient death HR estimate

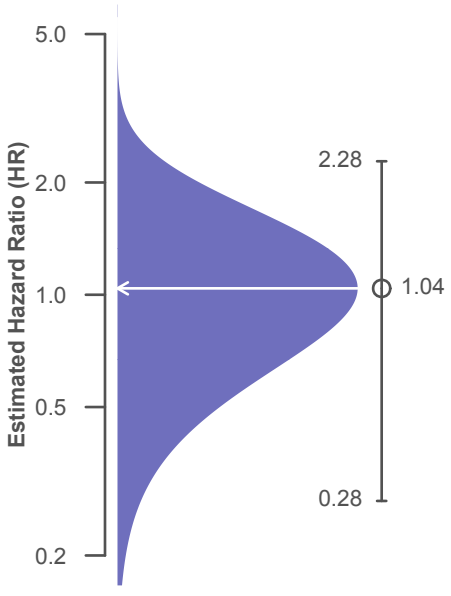
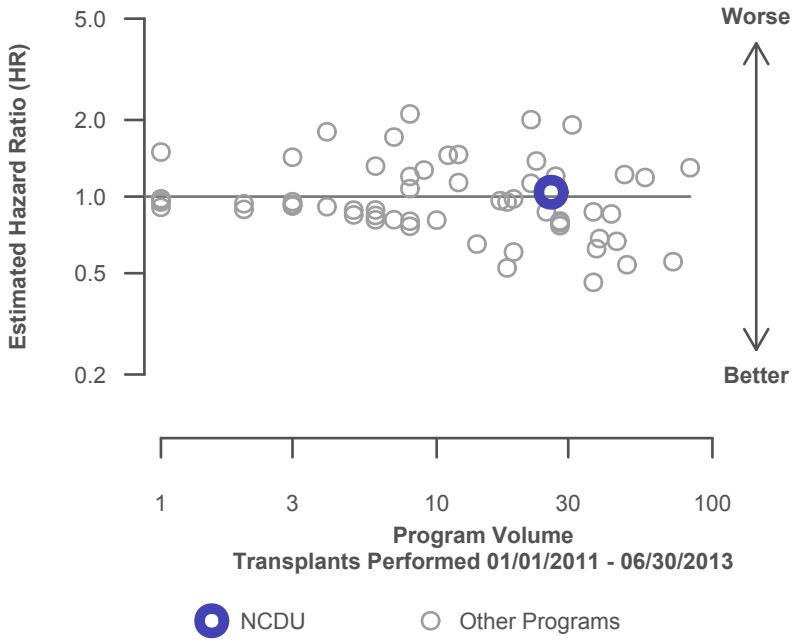


Figure C24. Pediatric (<18) 3-year patient death HR program comparison



C. Transplant Information

Table C16D. Pediatric (<18) 3-year patient survival (deceased donor graft recipients)
Single organ transplants performed between 01/01/2011 and 06/30/2013
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	24	962
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	91.67%	92.93%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	92.60%	--
Number of observed deaths during the first 3 years after transplant	2	68
Number of expected deaths during the first 3 years after transplant	1.78	68
Estimated hazard ratio*	1.06	1.00
95% credible interval for the hazard ratio**	[0.29, 2.32]	--

* 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, [0.29, 2.32], 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 71% reduced risk up to 132% increased risk.

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

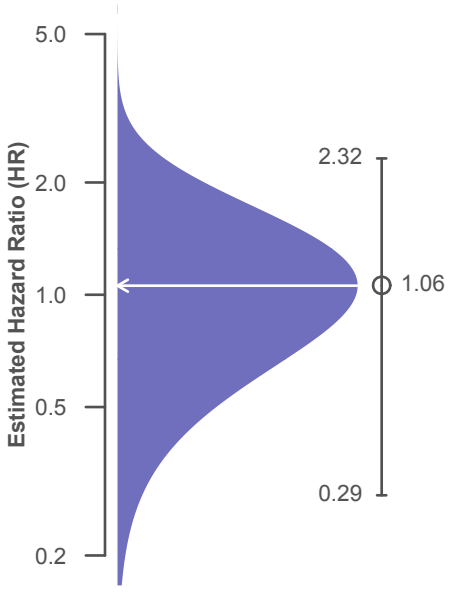
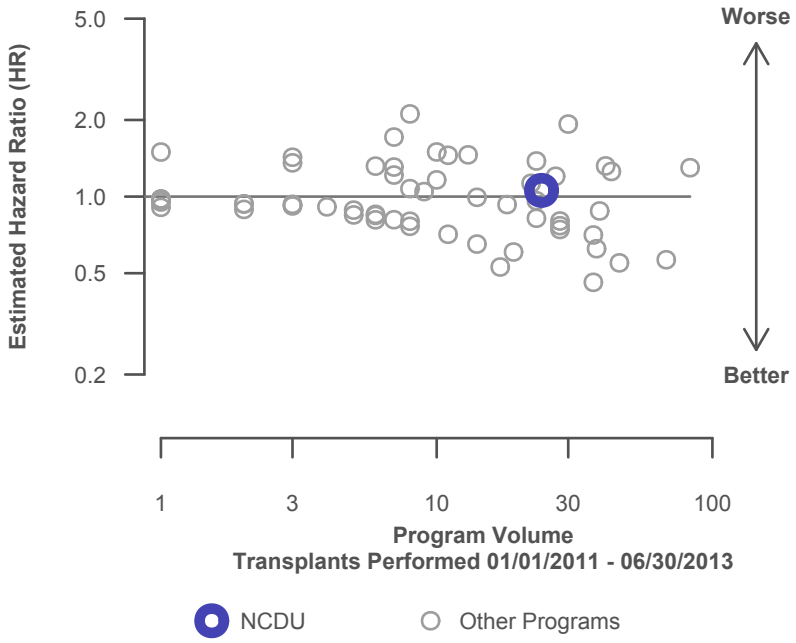


Figure C24D. Pediatric (<18) 3-year patient death HR program comparison (deceased donor grafts)



C. Transplant Information

Table C16L. Pediatric (<18) 3-year patient survival (living donor graft recipients)
Single organ transplants performed between 01/01/2011 and 06/30/2013
Retransplants excluded

	NCDU	U.S.
Number of transplants evaluated	2	129
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	100.00%	96.90%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	96.91%	--
Number of observed deaths during the first 3 years after transplant	0	4
Number of expected deaths during the first 3 years after transplant	0.06	4
Estimated hazard ratio*	0.97	1.00
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 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, 2.70], 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 170% increased risk.

Figure C23L. Pediatric (<18) 3-year patient death HR estimate (living donor grafts)

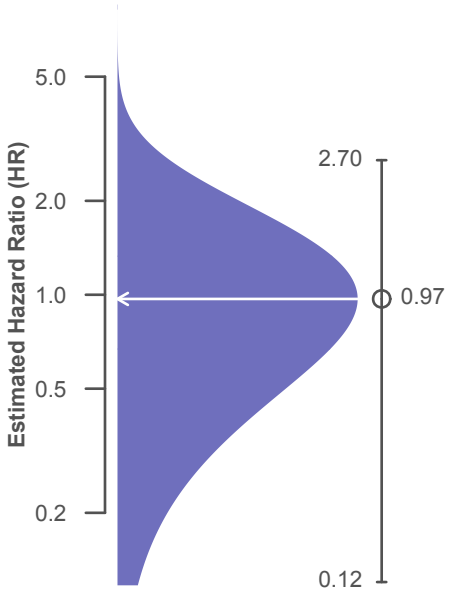
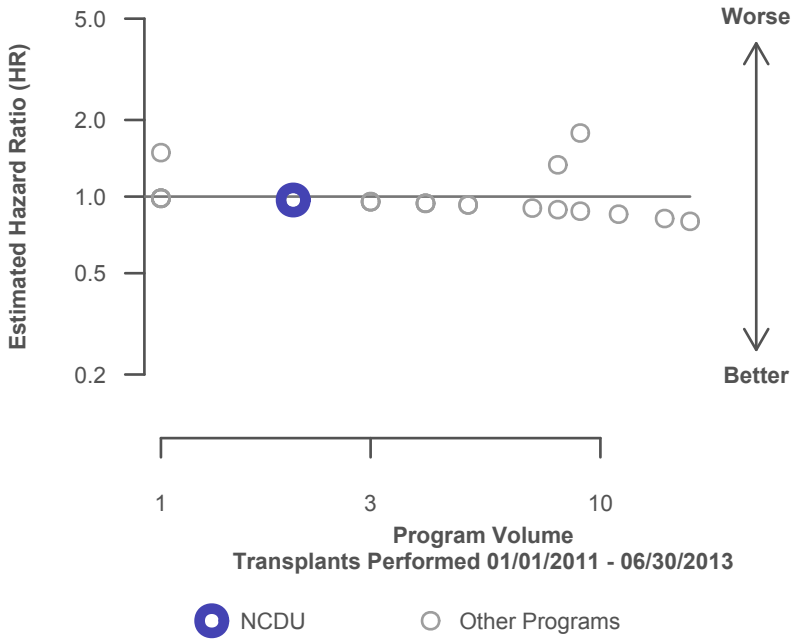


Figure C24L. Pediatric (<18) 3-year patient death HR program comparison (living donor grafts)



D. Living Donor Information

Table D1. Living donor summary: 07/01/2013 - 06/30/2016

Living Donor Follow-Up	This Center			United States		
	07/2013-06/2014	07/2014-06/2015	07/2015-12/2015	07/2013-06/2014	07/2014-06/2015	07/2015-12/2015
Number of Living Donors	0	5	0	245	310	175
6-Month Follow-Up						
Donors due for follow-up	0	5	0	245	310	83
Timely clinical data	0 --%	5 100.0%	0 --%	164 66.9%	247 79.7%	69 83.1%
Timely lab data	0 --%	5 100.0%	0 --%	165 67.3%	256 82.6%	65 78.3%
12-Month Follow-Up						
Donors due for follow-up	0	3		245	218	
Timely clinical data	0 --%	3 100.0%		169 69.0%	152 69.7%	
Timely lab data	0 --%	3 100.0%		166 67.8%	135 61.9%	
24-Month Follow-Up						
Donors due for follow-up	0			172		
Timely clinical data	0 --%			105 61.0%		
Timely lab data	0 --%			84 48.8%		

Follow-up completion standards through 2 years post-donation were implemented in policy on February 1, 2013.