



COVID-19 Guide

Adjustments to Transplant Program and OPO Evaluation Metrics

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

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

Modifications for the July 2023 reporting cycle were considered at the Analytic Methods Subcommittee of the SRTR Review Committee (SRC) at its meeting on March 24, 2021, and the full SRC meetings April 27, 2021 and on January 11, 2022. Both the Analytic Methods Subcommittee and the full SRC recommended an ongoing carve out of the first quarter of the pandemic (March 13, 2020 through June 12, 2020) from adjusted performance metrics, as detailed below. These recommendations were reviewed by HRSA's Division of Transplantation, which oversees SRTR. HRSA approved these recommendations, which SRTR will implement for the July 2023 reporting cycle. These changes will remain in force beyond the July 2023 reporting cycle, unless otherwise amended:

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

1-month, 90-day, 1-year & 1-year conditional on 90-day Patient and Graft Survival Evaluations: Transplants 1/1/2020-3/12/2020, follow-up through 3/12/2020. Transplants 6/13/2020-6/30/2022, follow-up through 12/31/2022.

3-year Patient and Graft Survival Evaluations: Transplants 7/1/2017-12/31/2019; follow-up through 3/12/2020.

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

Days after listing (and before transplant) between 1/1/2021 and 12/31/2022.



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

Candidates on the waitlist 1/1/2021-12/31/2022.

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

Evaluation period: 1/1/2021-12/31/2022.

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

Offers received 1/1/2022-12/31/2022.

These decisions will apply to the evaluations released in the SRTR's semi-annual program-specific reports scheduled for release on July 6, 2023. These changes have been communicated to the leadership of the Organ Procurement and Transplantation Network's (OPTN) Membership and Professional Standards Committee (MSPC). These decisions will then be re-evaluated as more information becomes available in preparation for the release scheduled for January 2024.

As with the January 2023 reports, SRTR will continue to report descriptive data beyond March 12, 2020, e.g., waitlist counts, transplant counts, recipient characteristics, donor counts, donor characteristics, etc., but will alter data for performance evaluation metrics as described above.



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

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

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

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

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

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



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confidence interval includes (crosses) 1.0, then we cannot say that this program's observed transplant rate is different from what would be expected. The observed transplant rate at this program was 142.0 per 100 person-years. Transplant rates are also provided for adult and pediatric patients separately along with comparisons to adult and pediatric rates in the DSA, the OPTN region, and the nation. Transplant rates are also presented excluding transplants from a living donor (Table B4D and Figures B1D-B3D). Please refer to the PSR Technical Methods documentation available at <http://www.srtr.org> for more detail regarding how expected rates are calculated.

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

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

Table B7 presents information on what happens to candidates on the waiting list by three different time points after listing: 6 months, 12 months, and 18 months. The table displays percentages of candidates who have died, been removed from the waiting list, been transplanted, or been transferred or lost-to-follow-up. Tables B8 and B9 provide more detail regarding how many candidates have received a deceased donor transplant by certain time points during the first 3 years after being put on the transplant waiting list. Each row of Tables B8 and B9 presents the percent of candidates who received a deceased donor transplant by each time point. Table B10 presents data on the time it took for different percentages of patients to be transplanted for candidates added to the list between 01/01/2017 and 06/30/2022. The time it took for 5% (the 5th percentile) of patients to receive a transplant at this program was 0.1 months. If "Not Observed" is displayed in the table, then too few candidates received transplants before 12/31/2022 to calculate a particular percentile of transplant times.

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



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of offers.

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

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

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

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

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

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



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A. Program Summary

Figure A1. Waiting list and transplant activity

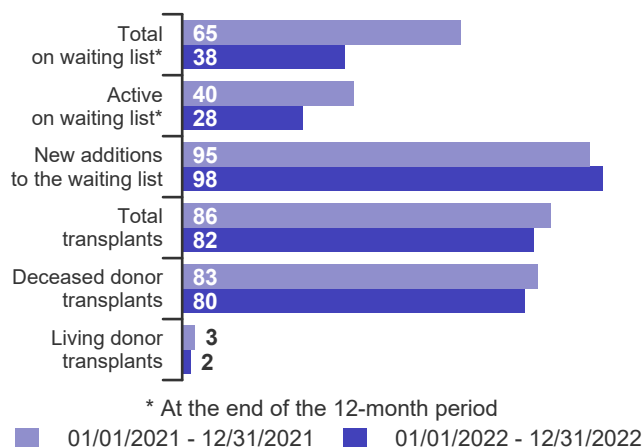


Table A1. Census of transplant recipients

Recipients	01/01/2021-12/31/2021	01/01/2022-12/31/2022
Transplanted at this center	86	82
Followed by this center*	1,128	1,150
...transplanted at this program	1,052	1,082
...transplanted elsewhere	76	68

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

Figure A2. Transplant rates
01/01/2021 - 12/31/2022

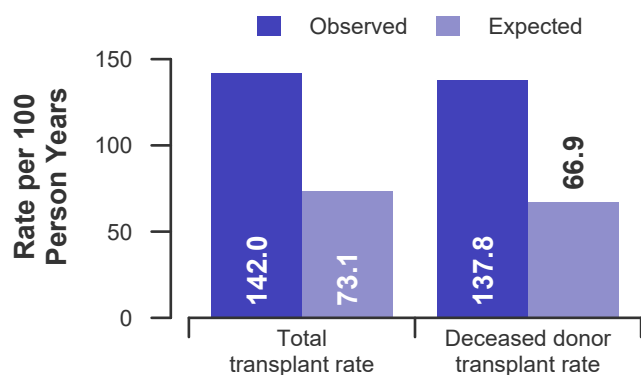


Figure A3. Pre-transplant mortality rates
01/01/2021 - 12/31/2022

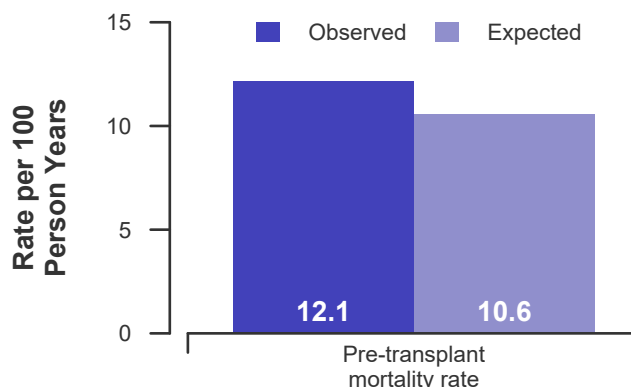


Figure A4. First-year adult graft and patient survival:
01/01/2020 - 03/12/2020, 06/13/2020 - 06/30/2022

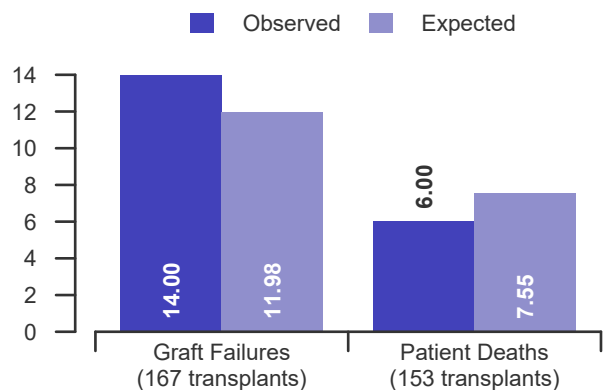
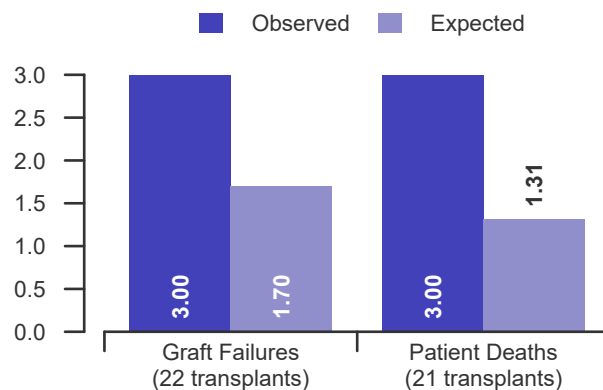


Figure A5. First-year pediatric graft & patient survival:
01/01/2020 - 03/12/2020, 06/13/2020 - 06/30/2022





B. Waiting List Information

Table B1. Waiting list activity summary: 01/01/2021 - 12/31/2022

Waiting List Registrations	Counts for this center		Activity for 01/01/2022 to 12/31/2022 as percent of registrants on waiting list on 01/01/2022		
	01/01/2021-12/31/2021	01/01/2022-12/31/2022	This Center (%)	OPTN Region (%)	U.S. (%)
On waiting list at start	92	65	100.0	100.0	100.0
Additions					
New listings at this center	95	98	150.8	160.0	116.1
Removals					
Transferred to another center	3	2	3.1	0.5	1.0
Received living donor transplant*	3	2	3.1	6.8	5.1
Received deceased donor transplant*	83	80	123.1	115.4	76.1
Died	4	6	9.2	10.0	8.9
Transplanted at another center	0	0	0.0	1.3	2.8
Deteriorated	4	8	12.3	10.9	9.6
Recovered	16	21	32.3	15.1	9.1
Other reasons	9	6	9.2	10.3	9.8
On waiting list at end of period	65	38	58.5	89.6	93.7

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



B. Waiting List Information

Table B2. Demographic characteristics of waiting list candidates**Candidates registered on the waiting list between 01/01/2022 and 12/31/2022**

Demographic Characteristic	New Waiting List Registrations 01/01/2022 to 12/31/2022 (%)			All Waiting List Registrations on 12/31/2022 (%)		
	This Center	OPTN Region	U.S.	This Center	OPTN Region	U.S.
	(N=98)	(N=1,216)	(N=13,611)	(N=38)	(N=681)	(N=10,983)
All (%)	100.0	100.0	100.0	100.0	100.0	100.0
Ethnicity/Race (%)*						
White	84.7	87.5	68.3	84.2	87.5	66.2
African-American	8.2	6.2	6.7	10.5	6.8	6.9
Hispanic/Latino	3.1	3.9	18.7	2.6	3.4	20.0
Asian	4.1	1.5	4.4	2.6	1.9	5.2
Other	0.0	1.0	1.9	0.0	0.4	1.7
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Age (%)						
<2 years	13.3	3.2	2.4	7.9	1.5	1.4
2-11 years	2.0	1.2	1.7	0.0	1.3	1.4
12-17 years	5.1	1.6	1.4	5.3	1.5	1.2
18-34 years	9.2	6.4	6.9	5.3	7.8	6.7
35-49 years	14.3	21.0	21.4	23.7	23.1	19.3
50-64 years	28.6	45.4	44.8	26.3	43.2	49.2
65-69 years	17.3	14.5	15.5	23.7	15.9	15.7
70+ years	10.2	6.8	6.0	7.9	5.9	5.1
Gender (%)						
Male	60.2	59.0	61.1	60.5	57.6	60.7
Female	39.8	41.0	38.9	39.5	42.4	39.3

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



B. Waiting List Information

Table B3. Medical characteristics of waiting list candidates

Candidates registered on the waiting list between 01/01/2022 and 12/31/2022

Medical Characteristic	New Waiting List Registrations 01/01/2022 to 12/31/2022 (%)			All Waiting List Registrations on 12/31/2022 (%)		
	This Center (N=98)	OPTN Region (N=1,216)	U.S. (N=13,611)	This Center (N=38)	OPTN Region (N=681)	U.S. (N=10,983)
All (%)	100.0	100.0	100.0	100.0	100.0	100.0
Blood Type (%)						
O	48.0	43.6	46.9	60.5	46.7	49.8
A	38.8	40.6	37.3	36.8	42.0	38.4
B	9.2	11.3	11.8	0.0	8.7	9.8
AB	4.1	4.4	3.9	2.6	2.6	2.0
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Previous Transplant (%)						
Yes	7.1	3.8	4.2	5.3	3.8	3.4
No	92.9	96.2	95.8	94.7	96.2	96.6
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
Primary Disease (%)						
Acute Hepatic Necrosis	2.0	2.6	3.7	0.0	0.7	1.5
Non-Cholestatic Cirrhosis	41.8	59.0	54.1	50.0	62.4	61.6
Cholestatic Liver Disease/Cirrhosis	11.2	7.9	6.3	23.7	9.1	7.6
Biliary Atresia	9.2	1.9	2.0	5.3	1.2	1.9
Metabolic Diseases	2.0	1.9	1.8	2.6	2.3	1.5
Malignant Neoplasms	12.2	5.1	10.5	7.9	4.7	11.3
Other	21.4	21.5	21.3	10.5	19.4	14.4
Missing	0.0	0.1	0.3	0.0	0.1	0.3
Medical Urgency Status/MELD/PELD at Listing (%)*						
Status 1A	5.1	2.2	2.9	0.0	0.4	0.3
Status 1B	0.0	0.3	0.4	0.0	0.1	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	0.0	0.0
Status 3	0.0	0.0	0.0	0.0	0.0	0.2
MELD 6-10	16.3	15.2	14.3	36.8	27.6	27.1
MELD 11-14	11.2	13.2	11.5	18.4	24.1	21.8
MELD 15-20	24.5	23.0	20.7	28.9	29.1	27.2
MELD 21-30	19.4	22.4	24.5	7.9	11.0	14.1
MELD 31-40	10.2	12.3	13.6	0.0	0.6	1.0
PELD less than or equal to 10	3.1	0.9	1.6	5.3	1.5	1.8
PELD 11-14	4.1	0.6	0.3	2.6	0.3	0.2
PELD 15-20	2.0	0.5	0.4	0.0	0.1	0.2
PELD 21-30	1.0	0.6	0.3	0.0	0.3	0.1
PELD 31 or greater	2.0	0.5	0.2	0.0	0.3	0.0
Temporarily Inactive	1.0	5.8	5.3	0.0	4.6	5.9

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



B. Waiting List Information

Table B4. Transplant rates: 01/01/2021 - 12/31/2022

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	92	251	878	12,165
Person Years**	118.3	424.4	1,518.2	23,323.3
Removals for Transplant	168	450	1,866	18,762
Adult (18+) Candidates				
Count on waiting list at start*	91	248	848	11,763
Person Years**	114.7	417.9	1,467.6	22,500.3
Removals for transplant	148	427	1,765	17,712
Pediatric (<18) Candidates				
Count on waiting list at start*	1	3	30	402
Person Years**	3.7	6.6	50.6	823.0
Removals for transplant	20	23	101	1,050

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

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

Figure B1. Observed and expected transplant rates: 01/01/2021 - 12/31/2022

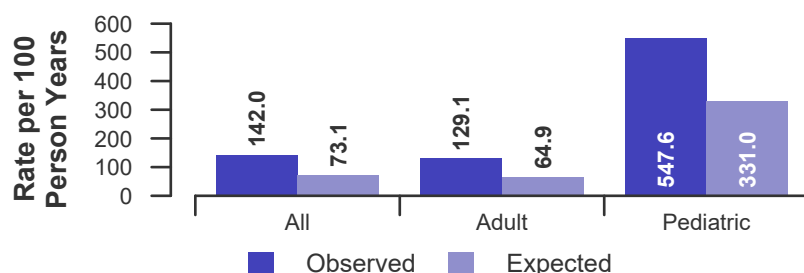


Figure B2. Transplant rate ratio estimate

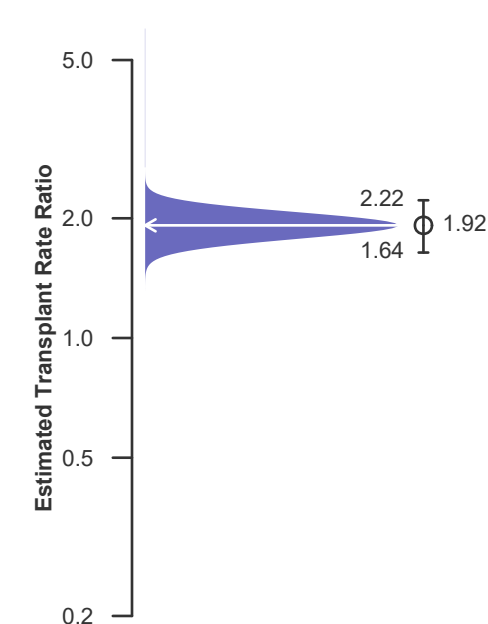
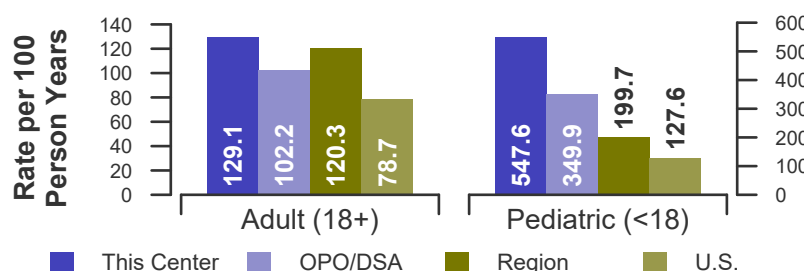


Figure B3. Observed adult (18+) and pediatric (<18) transplant rates: 01/01/2021 - 12/31/2022





B. Waiting List Information

Table B4D. Deceased donor transplant rates: 01/01/2021 - 12/31/2022

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	92	251	878	12,165
Person Years**	118.3	424.4	1,518.2	23,323.3
Removals for Transplant	163	433	1,754	17,590
Adult (18+) Candidates				
Count on waiting list at start*	91	248	848	11,763
Person Years**	114.7	417.9	1,467.6	22,500.3
Removals for transplant	143	410	1,660	16,705
Pediatric (<18) Candidates				
Count on waiting list at start*	1	3	30	402
Person Years**	3.7	6.6	50.6	823.0
Removals for transplant	20	23	94	885

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

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

Figure B1D. Observed and expected deceased donor transplant rates: 01/01/2021 - 12/31/2022

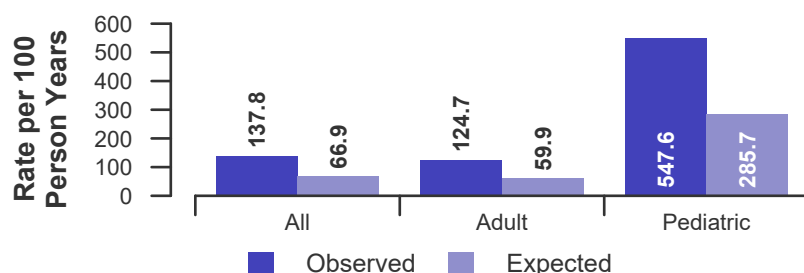


Figure B2D. Deceased donor transplant rate ratio estimate

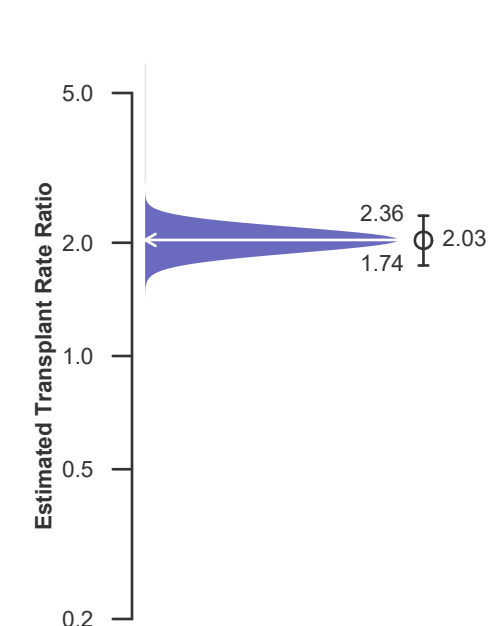
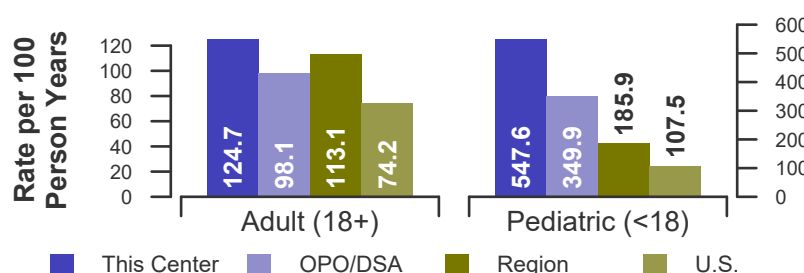


Figure B3D. Observed adult (18+) and pediatric (<18) deceased donor transplant rates: 01/01/2021 - 12/31/2022





B. Waiting List Information

Table B5. Pre-transplant mortality rates: 01/01/2021 - 12/31/2022

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Candidates				
Count on waiting list at start*	92	251	878	12,165
Person Years**	148.2	504.0	1,780.5	27,268.0
Number of deaths	18	55	235	3,414
Adult (18+) Candidates				
Count on waiting list at start*	91	248	848	11,763
Person Years**	144.2	495.9	1,721.9	26,355.0
Number of deaths	16	53	231	3,364
Pediatric (<18) Candidates				
Count on waiting list at start*	1	3	30	402
Person Years**	4.0	8.1	58.6	913.0
Number of deaths	2	2	4	50

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

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

Figure B4. Observed and expected pre-transplant mortality rates: 01/01/2021 - 12/31/2022

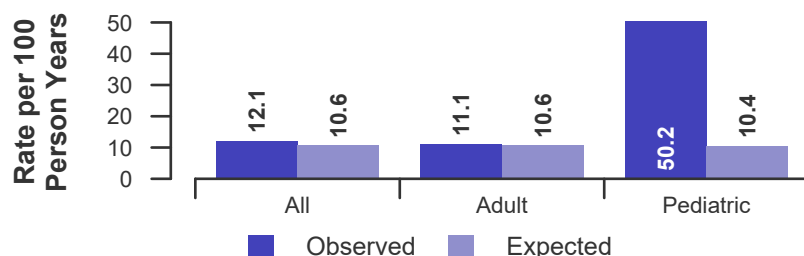


Figure B6. Observed adult (18+) and pediatric (<18) pre-transplant mortality rates: 01/01/2021 - 12/31/2022

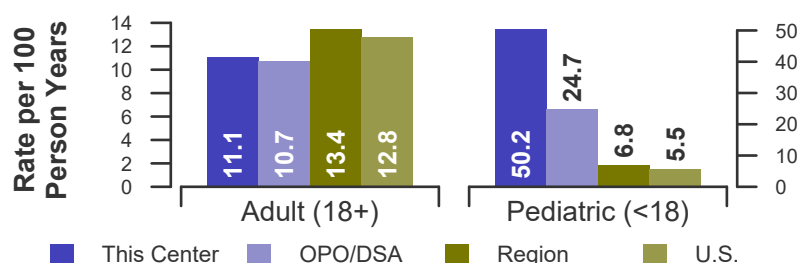
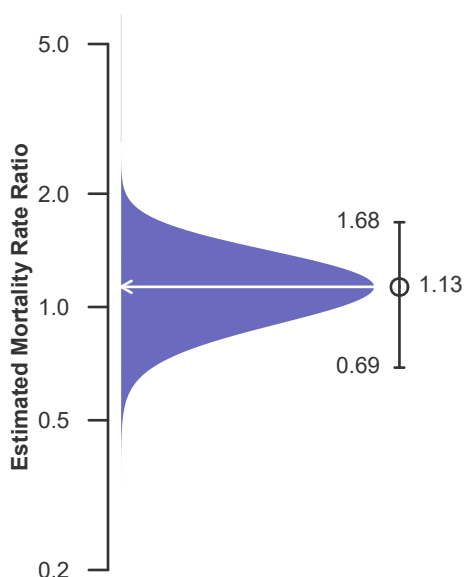


Figure B5. Pre-transplant mortality rate ratio estimate





B. Waiting List Information

Table B6. Rates of patient mortality after listing: 01/01/2021 - 12/31/2022

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
All Patients				
Count at risk during the evaluation period	630	1,841	6,867	78,092
Person-years*	843.5	2,391.0	9,170.2	104,795.6
Number of Deaths	43	139	605	7,187
Adult (18+) Patients				
Count at risk during the evaluation period	561	1,748	6,461	73,681
Person-years*	755.4	2,274.8	8,613.0	98,781.2
Number of Deaths	40	136	586	7,039
Pediatric (<18) Patients				
Count at risk during the evaluation period	69	93	406	4,411
Person-years*	88.1	116.3	557.2	6,014.4
Number of Deaths	3	3	19	148

* Person-years are calculated as days (converted to fractional years). The number of days from 01/01/2021, or from the date of first wait listing until death, reaching 5 years after listing or December 31, 2022.

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

Figure B7. Observed and expected rates of patient mortality after listing: 01/01/2021 - 12/31/2022

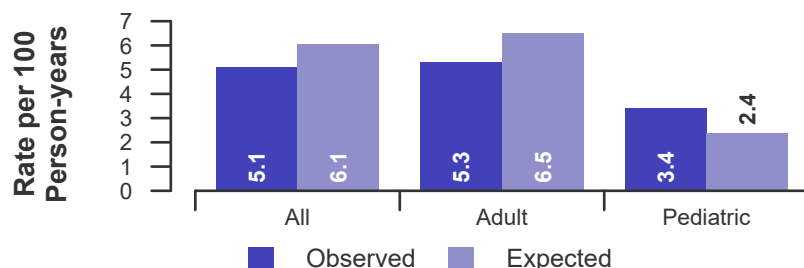


Figure B8. HR estimate of patient mortality after listing

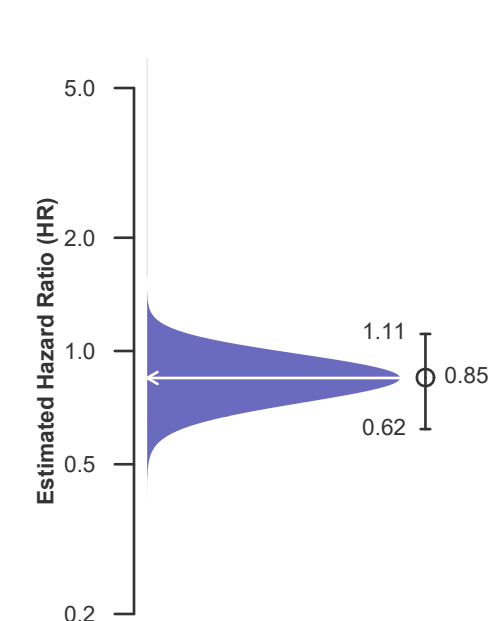
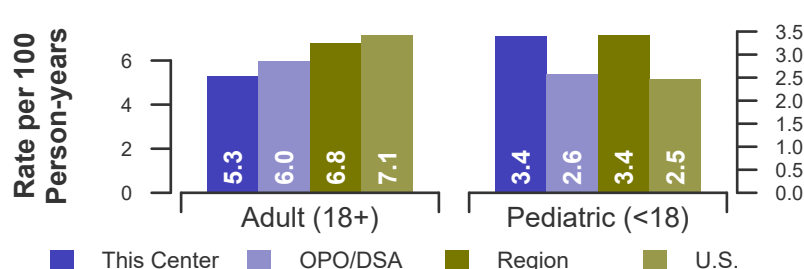


Figure B9. Observed adult (18+) and pediatric (<18) rates of patient mortality after listing: 01/01/2021 - 12/31/2022





B. Waiting List Information

Table B7. Waiting list candidate status after listing
Candidates registered on waiting list between 07/01/2020 and 06/30/2021

Waiting list status (survival status)	This Center (N=85)			U.S. (N=13,827)		
	Months Since Listing			Months Since Listing		
	6	12	18	6	12	18
Alive on waiting list (%)	27.1	12.9	4.7	38.4	22.8	15.4
Died on the waiting list without transplant (%)	4.7	4.7	4.7	4.3	5.5	6.2
Removed without transplant (%):						
Condition worsened (status unknown)	0.0	1.2	1.2	4.0	5.5	6.4
Condition improved (status unknown)	3.5	5.9	8.2	1.4	2.4	3.4
Refused transplant (status unknown)	0.0	0.0	0.0	0.2	0.3	0.5
Other	2.4	2.4	4.7	1.8	2.9	4.1
Transplant (living donor from waiting list only) (%):						
Functioning (alive)	2.4	3.5	3.5	2.5	3.1	2.0
Failed-Retransplanted (alive)	0.0	0.0	0.0	0.0	0.0	0.1
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	0.0	0.0	0.0	0.1	0.1	0.2
Status Yet Unknown**	0.0	0.0	0.0	0.0	0.2	1.4
Transplant (deceased donor) (%):						
Functioning (alive)	60.0	58.8	48.2	43.3	46.6	33.0
Failed-Retransplanted (alive)	0.0	1.2	1.2	0.4	0.6	0.7
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	0.0	3.5	4.7	1.9	3.0	4.2
Status Yet Unknown*	0.0	5.9	18.8	1.6	6.3	21.9
Lost or Transferred (status unknown) (%)	0.0	0.0	0.0	0.2	0.4	0.6
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0
Total % known died on waiting list or after transplant	4.7	8.2	9.4	6.2	8.7	10.5
Total % known died or removed as unstable	4.7	9.4	10.6	10.3	14.2	16.9
Total % removed for transplant	62.4	72.9	76.5	49.8	60.0	63.5
Total % with known functioning transplant (alive)	62.4	62.4	51.8	45.8	49.7	35.0

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



B. Waiting List Information

Table B7S1. Medical urgency status 1 candidate status after listing

Candidates registered on the waiting list between 07/01/2020 and 06/30/2021

Waiting list status (survival status)	This Center (N=7)			U.S. (N=447)		
	Months Since listing			Months Since listing		
	6	12	18	6	12	18
Alive on waiting list (%)	0.0	0.0	0.0	2.5	1.6	0.9
Died on the waiting list without transplant (%)	28.6	28.6	28.6	5.4	5.4	5.4
Removed without transplant (%):						
Condition worsened (status unknown)	0.0	0.0	0.0	7.2	7.2	7.2
Condition improved (status unknown)	28.6	28.6	28.6	15.9	16.8	17.4
Refused transplant (status unknown)	0.0	0.0	0.0	0.4	0.4	0.4
Other	0.0	0.0	0.0	0.7	0.7	0.7
Transplant (living donor from waiting list only) (%):						
Functioning (alive)	0.0	0.0	0.0	1.3	1.3	1.3
Failed-Retransplanted (alive)	0.0	0.0	0.0	0.0	0.0	0.0
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	0.0	0.0	0.0	0.2	0.2	0.2
Status Yet Unknown**	0.0	0.0	0.0	0.0	0.0	0.0
Transplant (deceased donor) (%):						
Functioning (alive)	42.9	42.9	42.9	56.4	45.0	32.7
Failed-Retransplanted (alive)	0.0	0.0	0.0	0.9	0.9	0.9
Failed-alive not retransplanted	0.0	0.0	0.0	0.0	0.0	0.0
Died	0.0	0.0	0.0	6.7	8.5	8.9
Status Yet Unknown*	0.0	0.0	0.0	2.0	11.6	23.5
Lost or Transferred (status unknown) (%)	0.0	0.0	0.0	0.4	0.4	0.4
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0
Total % known died on waiting list or after transplant	28.6	28.6	28.6	12.3	14.1	14.5
Total % known died or removed as unstable	28.6	28.6	28.6	19.5	21.3	21.7
Total % removed for transplant	42.9	42.9	42.9	67.6	67.6	67.6
Total % with known functioning transplant (alive)	42.9	42.9	42.9	57.7	46.3	34.0

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



B. Waiting List Information

Table B8. Percent of candidates with deceased donor transplants: demographic characteristics
Candidates registered on the waiting list between 01/01/2017 and 12/31/2019

Characteristic	N	Percent transplanted at time periods since listing									
		This Center					United States				
		30 day	1 year	2 years	3 years		30 day	1 year	2 years	3 years	
All	331	22.1	58.0	65.0	66.8	38,721	21.2	51.2	57.7	59.5	
Ethnicity/Race*											
White	284	22.2	55.6	62.0	64.1	26,571	21.2	52.0	58.1	59.7	
African-American	20	15.0	55.0	75.0	75.0	3,169	24.1	54.8	61.3	63.0	
Hispanic/Latino	17	23.5	88.2	88.2	88.2	6,476	19.8	47.8	55.4	57.5	
Asian	6	33.3	83.3	100.0	100.0	1,815	19.4	44.5	53.6	56.1	
Other	4	25.0	75.0	75.0	75.0	690	24.8	52.5	58.1	59.9	
Unknown	0	--	--	--	--	0	--	--	--	--	
Age											
<2 years	16	18.8	81.2	87.5	87.5	861	22.1	72.0	75.0	76.2	
2-11 years	11	45.5	90.9	90.9	90.9	671	27.4	70.2	75.6	76.9	
12-17 years	8	37.5	100.0	100.0	100.0	446	20.9	58.1	65.9	67.7	
18-34 years	32	21.9	50.0	53.1	59.4	2,314	31.2	53.2	58.1	59.9	
35-49 years	58	36.2	67.2	75.9	75.9	6,650	30.7	54.8	59.8	61.4	
50-64 years	149	17.4	51.0	59.1	60.4	19,523	19.4	50.1	57.0	58.9	
65-69 years	48	10.4	50.0	56.2	60.4	6,512	14.2	46.0	53.8	55.9	
70+ years	9	33.3	66.7	77.8	77.8	1,744	14.4	46.3	53.6	54.5	
Gender											
Male	203	23.6	58.1	67.0	69.0	24,131	20.9	52.3	59.1	60.9	
Female	128	19.5	57.8	61.7	63.3	14,590	21.5	49.3	55.4	57.1	

* 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%.



B. Waiting List Information

Table B9. Percent of candidates with deceased donor transplants: medical characteristics
Candidates registered on the waiting list between 01/01/2017 and 12/31/2019

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	331	22.1	58.0	65.0	66.8	38,721	21.2	51.2	57.7	59.5
Blood Type										
O	138	20.3	53.6	59.4	63.0	18,066	20.1	48.7	55.6	57.6
A	147	23.1	59.9	67.3	68.0	14,419	20.1	49.6	56.2	58.0
B	31	25.8	64.5	71.0	71.0	4,721	24.6	59.1	64.8	66.2
AB	15	20.0	66.7	80.0	80.0	1,515	32.8	70.7	74.0	74.7
Previous Transplant										
Yes	20	45.0	65.0	65.0	65.0	1,894	29.1	53.2	58.1	59.3
No	311	20.6	57.6	65.0	66.9	36,827	20.8	51.1	57.7	59.5
Primary Disease										
Acute Hepatic Necrosis	12	75.0	75.0	75.0	75.0	1,738	53.2	62.1	64.4	65.2
Non-Cholestatic Cirrhosis	212	21.7	55.2	63.2	64.6	25,688	21.9	50.4	56.2	58.0
Cholestatic Liver Disease/Cirrhosis	37	16.2	48.6	51.4	59.5	2,632	17.3	49.1	57.3	59.8
Biliary Atresia	17	29.4	82.4	88.2	88.2	759	15.4	65.0	70.4	72.3
Metabolic Diseases	13	30.8	69.2	84.6	84.6	932	25.3	68.7	73.4	75.3
Malignant Neoplasms	33	6.1	63.6	69.7	69.7	4,872	7.9	47.4	58.0	59.7
Other	7	14.3	57.1	57.1	57.1	2,084	21.4	50.4	57.8	59.8
Missing	0	--	--	--	--	16	25.0	31.2	37.5	37.5
Medical Urgency Status/MELD/PELD at Listing*										
Status 1	0	--	--	--	--	0	--	--	--	--
Status 1A	10	100.0	100.0	100.0	100.0	1,215	60.6	61.1	61.2	61.3
Status 1B	3	0.0	100.0	100.0	100.0	142	47.2	82.4	82.4	82.4
Status 2A	0	--	--	--	--	0	--	--	--	--
Status 2B	0	--	--	--	--	0	--	--	--	--
Status 3	0	--	--	--	--	0	--	--	--	--
MELD 6-10	56	5.4	48.2	57.1	58.9	7,437	2.6	37.7	49.1	51.8
MELD 11-14	45	0.0	31.1	48.9	53.3	5,205	2.8	33.2	43.4	46.6
MELD 15-20	83	3.6	36.1	42.2	45.8	8,259	9.5	44.7	52.8	55.0
MELD 21-30	81	35.8	80.2	85.2	85.2	8,751	26.8	61.0	64.6	65.7
MELD 31-40	21	85.7	90.5	90.5	90.5	4,079	69.6	79.1	79.3	79.5
PELD less than or equal to 10	10	10.0	90.0	90.0	90.0	687	10.6	70.7	77.6	79.9
PELD 11-14	1	100.0	100.0	100.0	100.0	107	16.8	74.8	80.4	81.3
PELD 15-20	5	20.0	100.0	100.0	100.0	172	19.8	76.2	78.5	79.1
PELD 21-30	5	60.0	60.0	60.0	60.0	133	30.8	78.2	79.7	79.7
PELD 31 or greater	0	--	--	--	--	36	44.4	66.7	66.7	66.7
Temporarily Inactive	11	36.4	54.5	63.6	63.6	2,498	35.9	53.8	57.4	58.1

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



B. Waiting List Information

Table B10. Time to transplant for waiting list candidates*

Candidates registered on the waiting list between 01/01/2017 and 06/30/2022

Percentile	Center	Months to Transplant**		U.S.
		OPO/DSA	Region	
5th	0.1	0.1	0.1	0.1
10th	0.2	0.2	0.2	0.2
25th	1.0	1.0	0.9	0.9
50th (median time to transplant)	5.5	7.0	5.2	7.5
75th	36.6	Not Observed	Not Observed	Not Observed

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

** Censored on 12/31/2022. Calculated as the months after listing, during which the corresponding percent of all patients initially listed had received a transplant.



B. Waiting List Information

Table B11. Offer Acceptance Practices: 01/01/2022 - 12/31/2022

Offers Acceptance Characteristics	This Center	OPO/DSA	Region	U.S.
Overall				
Number of Offers	1,047	5,982	21,169	285,031
Number of Acceptances	73	187	758	7,816
Expected Acceptances	33.7	182.6	587.1	7,816.0
Offer Acceptance Ratio*	2.10	1.02	1.29	1.00
95% Credible Interval**	[1.65, 2.61]	--	--	--
PHS increased infectious risk				
Number of Offers	163	1,209	4,539	51,802
Number of Acceptances	8	36	153	1,498
Expected Acceptances	5.0	35.0	123.7	1,497.0
Offer Acceptance Ratio*	1.44	1.03	1.23	1.00
95% Credible Interval**	[0.69, 2.46]	--	--	--
DCD donor				
Number of Offers	199	1,445	5,241	73,823
Number of Acceptances	2	23	121	914
Expected Acceptances	3.3	24.3	80.7	916.3
Offer Acceptance Ratio*	0.75	0.95	1.49	1.00
95% Credible Interval**	[0.21, 1.65]	--	--	--
HCV+ donor				
Number of Offers	31	328	1,106	11,031
Number of Acceptances	6	13	54	381
Expected Acceptances	1.8	11.8	41.5	382.6
Offer Acceptance Ratio*	2.12	1.09	1.29	1.00
95% Credible Interval**	[0.92, 3.82]	--	--	--
Hard-to-Place Livers (Over 50 Offers)				
Number of Offers	723	3,822	13,123	173,665
Number of Acceptances	21	34	189	1,085
Expected Acceptances	11.4	39.3	108.0	1,198.8
Offer Acceptance Ratio*	1.71	0.87	1.74	0.91
95% Credible Interval**	[1.08, 2.48]	--	--	--
Donor more than 500 miles away				
Number of Offers	424	1,728	5,485	83,150
Number of Acceptances	10	25	94	942
Expected Acceptances	7.6	27.1	77.2	882.5
Offer Acceptance Ratio*	1.25	0.93	1.21	1.07
95% Credible Interval**	[0.65, 2.05]	--	--	--

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

** As an example, the 95% Credible Interval for the overall offer acceptance ratio, [1.65, 2.61], indicates the location of MIUM's true offer acceptance ratio with 95% probability. The best estimate is 110% more likely to accept an offer compared to national acceptance behavior, but MIUM's performance could plausibly range from 65% higher acceptance up to 161% higher acceptance.



B. Waiting List Information

Figure B10. Offer acceptance: Overall

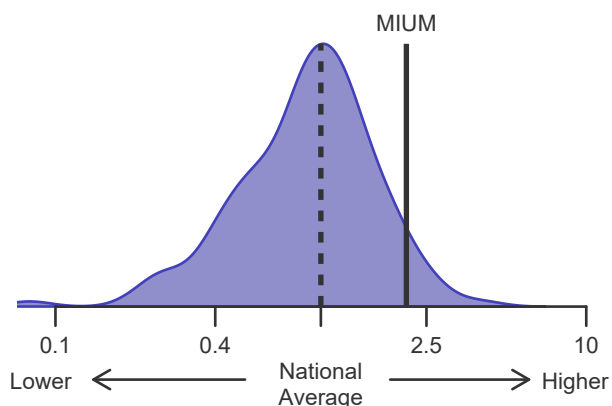


Figure B11. Offer acceptance:
PHS increased infectious risk

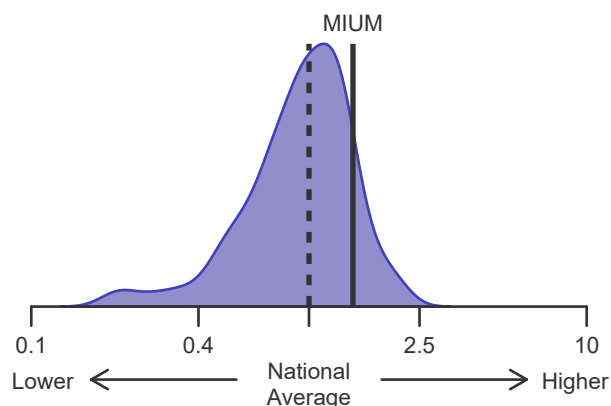


Figure B12. Offer acceptance: DCD Donor

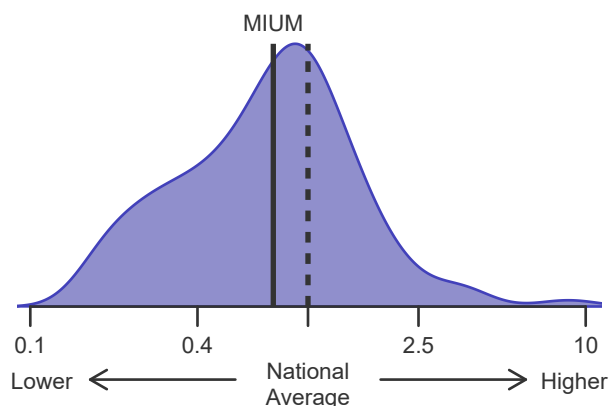


Figure B13. Offer acceptance: HCV+ Donor

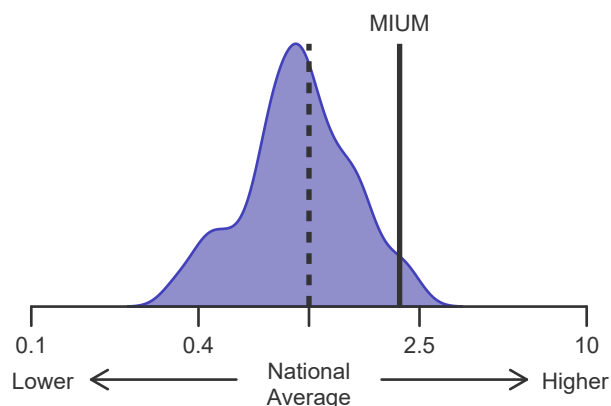


Figure B14. Offer acceptance: Offer number > 50

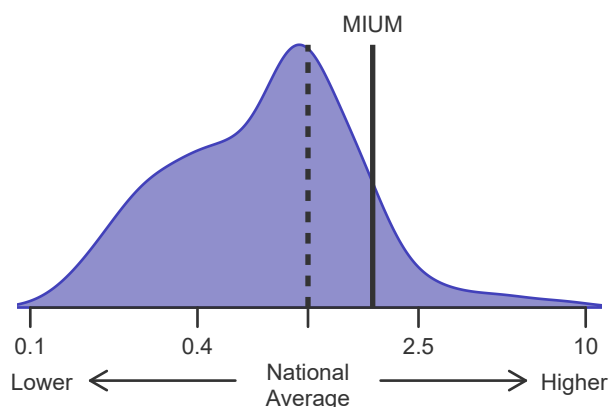
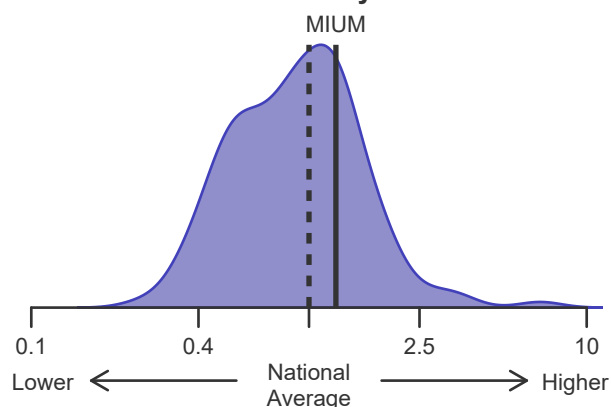


Figure B15. Offer acceptance:
Donor more than 500 miles away





C. Transplant Information

Table C1D. Deceased donor transplant recipient demographic characteristics**Patients transplanted between 01/01/2022 and 12/31/2022**

Characteristic	Percentage in each category		
	Center (N=80)	Region (N=877)	U.S. (N=8,924)
Ethnicity/Race (%)*			
White	85.0	87.6	68.5
African-American	7.5	6.4	7.0
Hispanic/Latino	5.0	3.8	18.3
Asian	2.5	1.5	4.4
Other	0.0	0.8	1.8
Unknown	0.0	0.0	0.0
Age (%)			
<2 years	11.2	2.7	1.9
2-11 years	3.8	1.6	1.6
12-17	2.5	0.9	1.4
18-34	5.0	5.0	6.8
35-49 years	11.2	21.0	21.7
50-64 years	38.8	47.3	45.7
65-69 years	18.8	14.6	14.9
70+ years	8.8	6.8	5.8
Gender (%)			
Male	67.5	60.8	62.6
Female	32.5	39.2	37.4

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



C. Transplant Information

Table C1L. Living donor transplant recipient demographic characteristics**Patients transplanted between 01/01/2022 and 12/31/2022**

Characteristic	Percentage in each category		
	Center (N=2)	Region (N=52)	U.S. (N=603)
Ethnicity/Race (%)*			
White	100.0	80.8	74.1
African-American	0.0	7.7	4.5
Hispanic/Latino	0.0	5.8	16.3
Asian	0.0	0.0	3.8
Other	0.0	5.8	1.3
Unknown	0.0	0.0	0.0
Age (%)			
<2 years	0.0	5.8	9.0
2-11 years	0.0	1.9	4.5
12-17	0.0	0.0	1.0
18-34	50.0	13.5	10.8
35-49 years	0.0	13.5	18.4
50-64 years	0.0	44.2	37.1
65-69 years	50.0	17.3	13.4
70+ years	0.0	3.8	5.8
Gender (%)			
Male	0.0	50.0	51.7
Female	100.0	50.0	48.3

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



C. Transplant Information

Table C2D. Deceased donor transplant recipient medical characteristics
Patients transplanted between 01/01/2022 and 12/31/2022

Characteristic	Percentage in each category		
	Center (N=80)	Region (N=877)	U.S. (N=8,924)
Blood Type (%)			
O	50.0	43.0	45.6
A	35.0	40.3	35.9
B	11.2	11.9	13.7
AB	3.8	4.9	4.9
Previous Transplant (%)			
Yes	7.5	3.9	4.3
No	92.5	96.1	95.7
Body Mass Index (%)			
0-20	20.0	9.9	11.1
21-25	23.8	24.3	26.3
26-30	27.5	29.3	29.5
31-35	18.8	20.1	18.7
36-40	7.5	9.9	8.8
41+	2.5	6.4	3.8
Unknown	0.0	0.1	1.6
Primary Disease (%)			
Acute Hepatic Necrosis	0.0	2.7	3.9
Non-Cholestatic Cirrhosis	43.8	59.7	51.1
Cholestatic Liver Disease/Cirrhosis	7.5	6.8	5.9
Biliary Atresia	10.0	2.3	1.8
Metabolic Diseases	2.5	2.4	2.3
Malignant Neoplasms	12.5	4.9	11.8
Other	23.8	21.1	23.3
Missing	0.0	0.0	0.0
Medical Urgency Statust/MELD/PELD at Transplant (%)*			
Status 1A	2.5	1.9	3.0
Status 1B	1.2	0.9	1.2
MELD 6-10	15.0	11.2	10.2
MELD 11-14	10.0	7.9	6.8
MELD 15-20	25.0	18.8	15.2
MELD 21-30	22.5	31.8	30.3
MELD 31-40	10.0	21.3	24.7
PELD less than or equal to 10	2.5	0.9	1.0
PELD 11-14	0.0	0.0	0.1
PELD 15-20	2.5	0.7	0.4
PELD 21-30	6.2	1.0	0.4
PELD 31 or greater	1.2	0.2	0.2
Temporarily Inactive	0.0	0.0	0.0
Recipient Medical Condition at Transplant (%)			
Not Hospitalized	81.2	69.1	57.6
Hospitalized	16.2	20.3	25.3
ICU	2.5	10.6	16.8
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 C2L. Living donor transplant recipient medical characteristics
Patients transplanted between 01/01/2022 and 12/31/2022

Characteristic	Percentage in each category		
	Center (N=2)	Region (N=52)	U.S. (N=603)
Blood Type (%)			
O	50.0	38.5	46.8
A	50.0	50.0	41.8
B	0.0	5.8	9.5
AB	0.0	5.8	2.0
Previous Transplant (%)			
Yes	0.0	1.9	1.8
No	100.0	98.1	98.2
Body Mass Index (%)			
0-20	0.0	15.4	24.2
21-25	50.0	38.5	29.9
26-30	50.0	26.9	27.5
31-35	0.0	11.5	12.3
36-40	0.0	7.7	5.0
41+	0.0	0.0	0.8
Unknown	0.0	0.0	0.3
Primary Disease (%)			
Acute Hepatic Necrosis	0.0	1.9	3.0
Non-Cholestatic Cirrhosis	100.0	40.4	42.5
Cholestatic Liver Disease/Cirrhosis	0.0	26.9	20.9
Biliary Atresia	0.0	5.8	11.1
Metabolic Diseases	0.0	0.0	1.8
Malignant Neoplasms	0.0	9.6	10.0
Other	0.0	15.4	10.8
Missing	0.0	0.0	0.0
Medical Urgency Statust/MELD/PELD at Transplant (%)*			
Status 1A	0.0	1.9	2.0
Status 1B	0.0	0.0	1.0
MELD 6-10	50.0	30.8	24.0
MELD 11-14	0.0	17.3	19.9
MELD 15-20	0.0	26.9	26.4
MELD 21-30	50.0	7.7	12.9
MELD 31-40	0.0	0.0	1.0
PELD less than or equal to 10	0.0	3.8	4.6
PELD 11-14	0.0	0.0	1.5
PELD 15-20	0.0	1.9	2.2
PELD 21-30	0.0	0.0	1.2
PELD 31 or greater	0.0	0.0	1.3
Temporarily Inactive	0.0	9.6	2.0
Recipient Medical Condition at Transplant (%)			
Not Hospitalized	50.0	94.2	88.1
Hospitalized	50.0	3.8	8.5
ICU	0.0	1.9	3.5
Unknown	0.0	0.0	0.0

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



C. Transplant Information

Table C3D. Deceased donor characteristics**Transplants performed between 01/01/2022 and 12/31/2022**

Donor Characteristic	Percentage in each category		
	Center (N=80)	Region (N=877)	U.S. (N=8,924)
Cause of Death (%)			
Deceased: Stroke	22.5	23.0	25.4
Deceased: MVA	20.0	8.8	12.4
Deceased: Other	57.5	68.2	62.2
Ethnicity/Race (%)*			
White	68.8	71.7	61.5
African-American	21.2	19.5	18.9
Hispanic/Latino	7.5	7.4	15.6
Asian	2.5	1.0	2.9
Other	0.0	0.3	1.1
Not Reported	0.0	0.0	0.0
Age (%)			
<2 years	5.0	0.7	0.8
2-11 years	6.2	2.6	2.1
12-17	10.0	4.3	4.5
18-34	27.5	30.8	31.4
35-49 years	23.8	29.9	30.4
50-64 years	21.2	25.0	23.4
65-69 years	2.5	2.6	4.3
70+ years	3.8	4.1	3.1
Gender (%)			
Male	50.0	59.5	62.5
Female	50.0	40.5	37.5
Blood Type (%)			
O	53.8	47.8	49.4
A	35.0	39.3	36.5
B	8.8	9.9	11.4
AB	2.5	3.0	2.7
Unknown	0.0	0.0	0.0

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



C. Transplant Information

Table C3L. Living donor characteristics**Transplants performed between 01/01/2022 and 12/31/2022**

Donor Characteristic	Percentage in each category		
	Center (N=2)	Region (N=52)	U.S. (N=603)
Ethnicity/Race (%)*			
White	100.0	92.3	78.4
African-American	0.0	5.8	3.6
Hispanic/Latino	0.0	1.9	13.6
Asian	0.0	0.0	3.6
Other	0.0	0.0	0.7
Not Reported	0.0	0.0	0.0
Age (%)			
0-11 years	0.0	0.0	0.3
12-17	0.0	0.0	0.5
18-34	50.0	40.4	43.6
35-49 years	50.0	36.5	41.6
50-64 years	0.0	23.1	13.9
65-69 years	0.0	0.0	0.0
70+ years	0.0	0.0	0.0
Gender (%)			
Male	0.0	44.2	41.5
Female	100.0	55.8	58.5
Blood Type (%)			
O	50.0	63.5	65.2
A	50.0	30.8	28.4
B	0.0	1.9	5.6
AB	0.0	3.8	0.8
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 C4D. Deceased donor transplant characteristics
Transplants performed between 01/01/2022 and 12/31/2022

Transplant Characteristic	Percentage in each category		
	Center (N=80)	Region (N=877)	U.S. (N=8,924)
Cold Ischemic Time (Hours): Local (%)			
Deceased: 0-5 hr	71.4	64.9	63.7
Deceased: 6-10 hr	17.9	24.8	28.6
Deceased: 11-15 hr	3.6	7.9	4.5
Deceased: 16-20 hr	7.1	2.5	1.0
Deceased: 21+ hr	0.0	0.0	0.1
Not Reported	0.0	0.0	2.0
Cold Ischemic Time (Hours): Shared (%)			
Deceased: 0-5 hr	61.5	48.3	43.0
Deceased: 6-10 hr	34.6	43.1	49.7
Deceased: 11-15 hr	1.9	6.4	4.6
Deceased: 16-20 hr	1.9	1.6	1.1
Deceased: 21+ hr	0.0	0.1	0.2
Not Reported	0.0	0.4	1.4
Procedure Type (%)			
Single organ	93.8	88.3	89.7
Multi organ	6.2	11.7	10.3
Donor Location (%)			
Local Donation Service Area (DSA)	35.0	23.0	35.6
Another Donation Service Area (DSA)	65.0	77.0	64.4
Median Time in Hospital After Transplant	9.0 Days	11.0 Days	10.0 Days



C. Transplant Information

Table C4L. Living donor transplant characteristics
Transplants performed between 01/01/2022 and 12/31/2022

Transplant Characteristic	Percentage in each category		
	Center (N=2)	Region (N=52)	U.S. (N=603)
Relation with Donor (%)			
Related	0.0	42.3	53.7
Unrelated	100.0	57.7	44.4
Not Reported	0.0	0.0	1.8
Procedure Type (%)			
Single organ	100.0	100.0	99.8
Multi organ	0.0	0.0	0.2
Median Time in Hospital After Transplant	10.0 Days	11.0 Days	10.0 Days



C. Transplant Information

Table C5. Adult (18+) 1-month survival with a functioning graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	167	17,587
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	95.69%	96.76%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	96.92%	--
Number of observed graft failures (including deaths) during the first month after transplant	7	563
Number of expected graft failures (including deaths) during the first month after transplant	4.99	--
Estimated hazard ratio*	1.29	--
95% credible interval for the hazard ratio**	[0.59, 2.26]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.59, 2.26], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 29% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 41% reduced risk up to 126% increased risk.

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

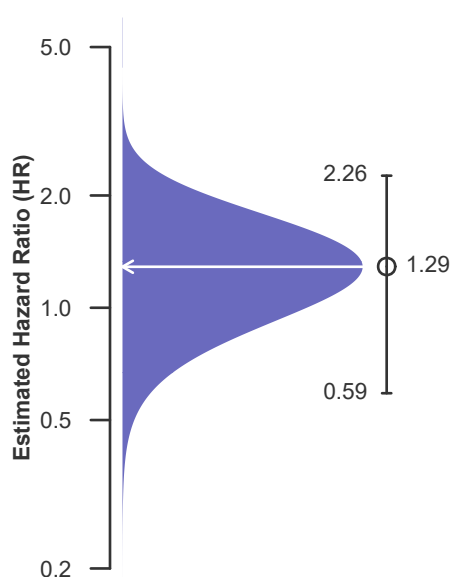
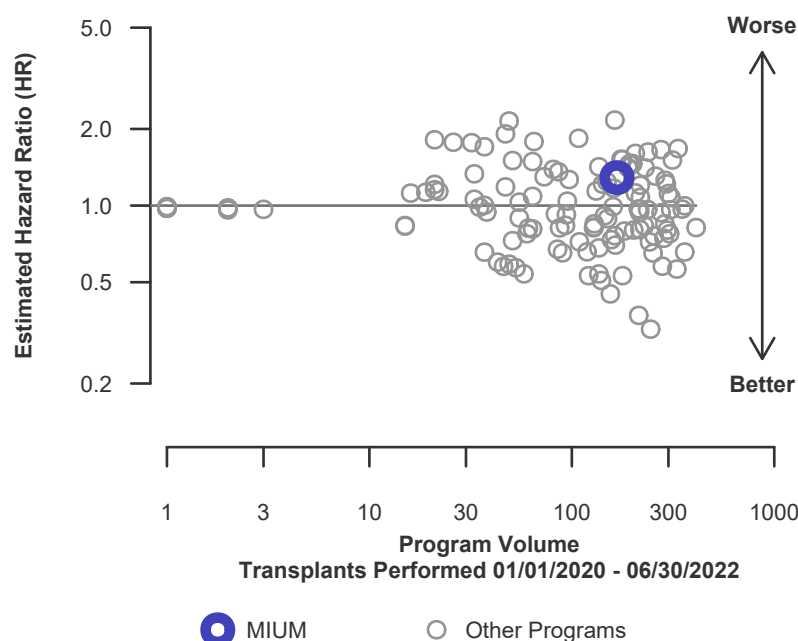


Figure C2. Adult (18+) 1-month graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	160	16,486
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	95.50%	96.72%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	96.90%	--
Number of observed graft failures (including deaths) during the first month after transplant	7	534
Number of expected graft failures (including deaths) during the first month after transplant	4.80	--
Estimated hazard ratio*	1.32	--
95% credible interval for the hazard ratio**	[0.61, 2.32]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.61, 2.32], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 32% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 39% reduced risk up to 132% increased risk.

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

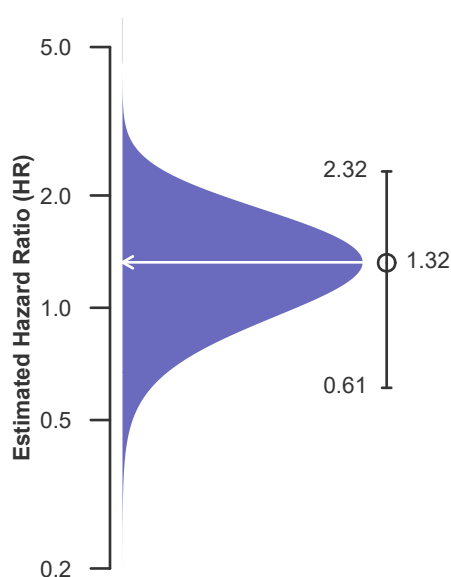
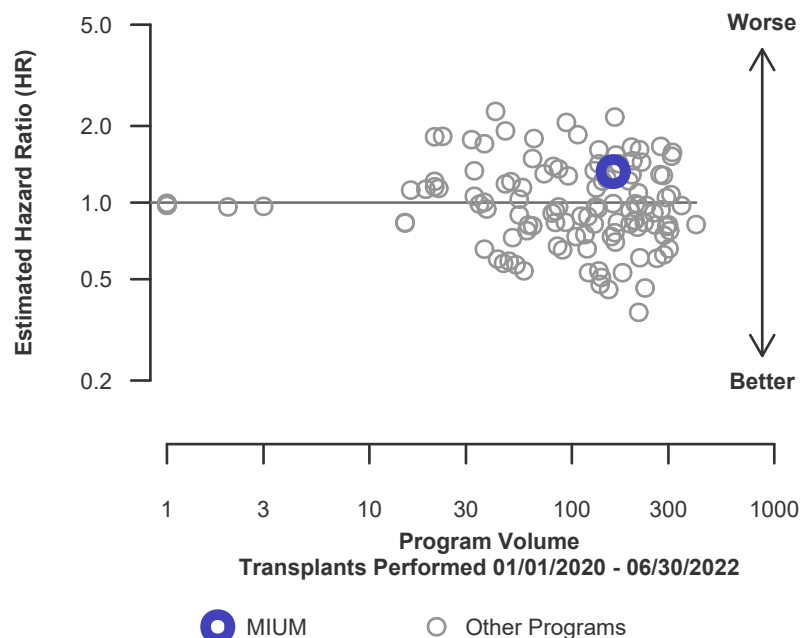


Figure C2D. Adult (18+) 1-month deceased donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	7	1,101
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	100.00%	97.33%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	97.33%	--
Number of observed graft failures (including deaths) during the first month after transplant	0	29
Number of expected graft failures (including deaths) during the first month after transplant	0.19	--
Estimated hazard ratio*	0.91	--
95% credible interval for the hazard ratio**	[0.11, 2.55]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure 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 MIUM's true hazard ratio with 95% probability. The best estimate is 9% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 89% reduced risk up to 155% increased risk.

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

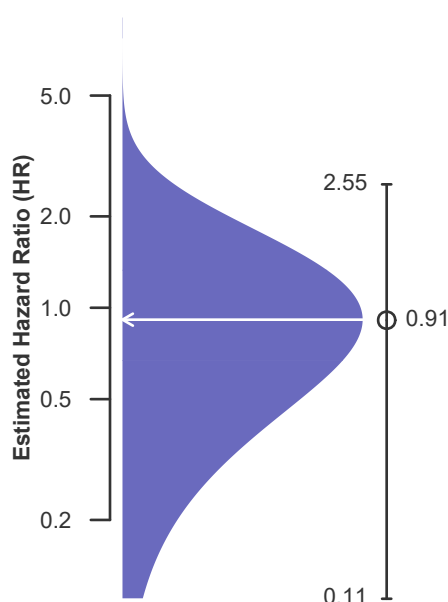
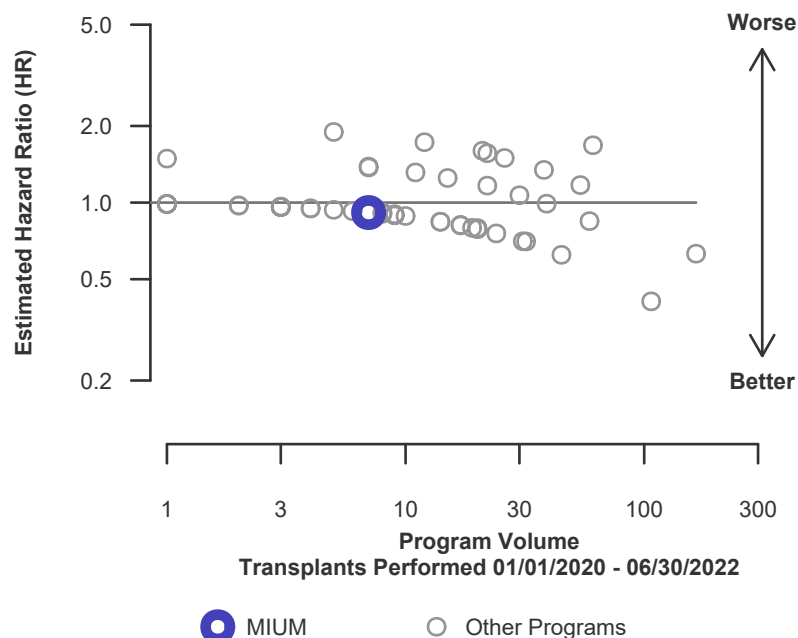


Figure C2L. Adult (18+) 1-month living donor graft failure HR program comparison





C. Transplant Information

Table C6. Adult (18+) 90-Day survival with a functioning graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	167	17,587
Estimated probability of surviving with a functioning graft at 90 days (unadjusted for patient and donor characteristics)	95.02%	95.02%
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	95.12%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	8	848
Number of expected graft failures (including deaths) during the first 90 days after transplant	7.65	--
Estimated hazard ratio*	1.04	--
95% credible interval for the hazard ratio**	[0.50, 1.77]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.50, 1.77], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 4% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 50% reduced risk up to 77% increased risk.

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

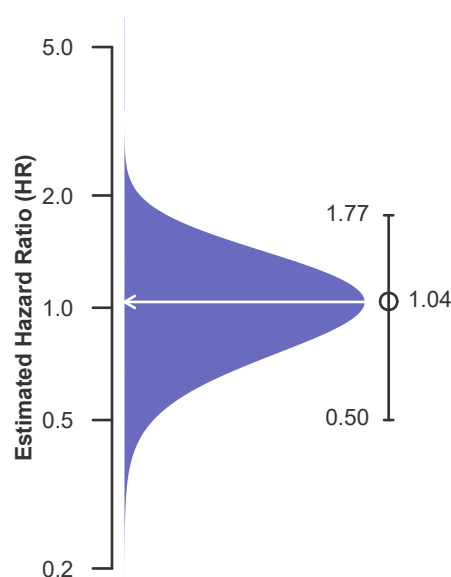
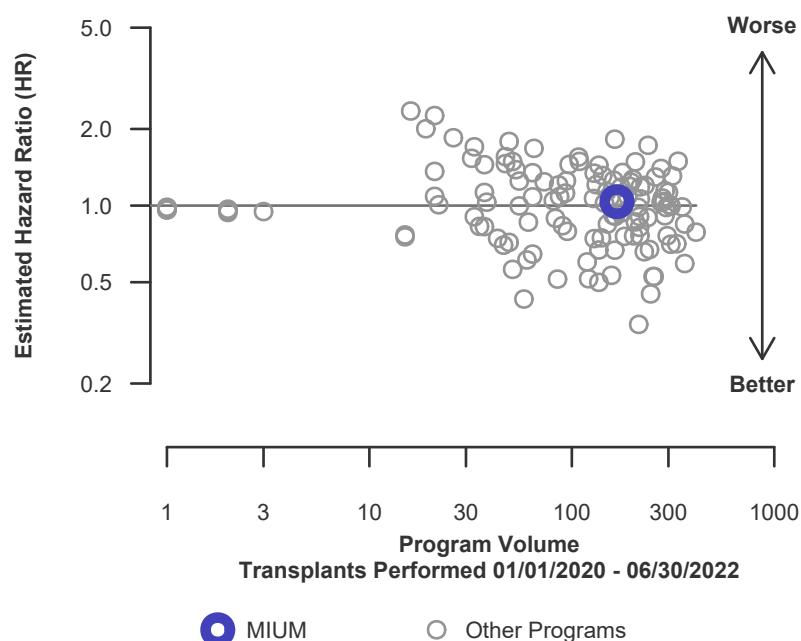


Figure C4. Adult (18+) 90-Day graft failure HR program comparison





C. Transplant Information

Table C6D. Adult (18+) 90-Day survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	160	16,486
Estimated probability of surviving with a functioning graft at 90 days (unadjusted for patient and donor characteristics)	94.80%	94.97%
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	95.10%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	8	802
Number of expected graft failures (including deaths) during the first 90 days after transplant	7.35	--
Estimated hazard ratio*	1.07	--
95% credible interval for the hazard ratio**	[0.51, 1.83]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.51, 1.83], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 7% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 49% reduced risk up to 83% increased risk.

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

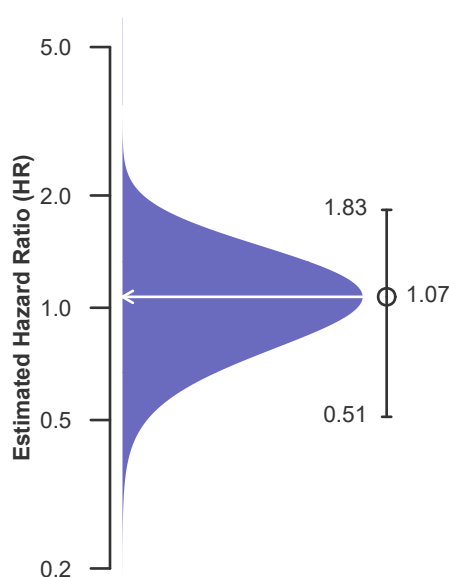
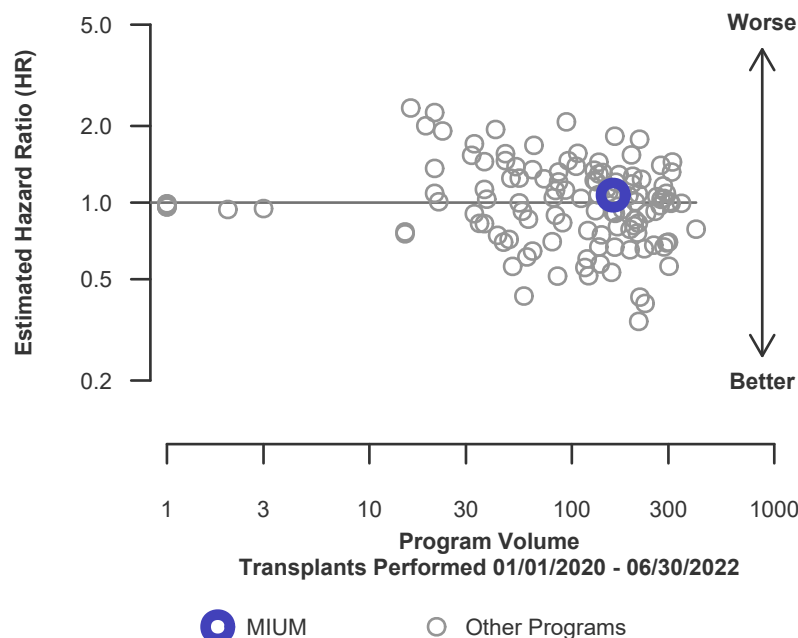


Figure C4D. Adult (18+) 90-Day deceased donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	7	1,101
Estimated probability of surviving with a functioning graft at 90 days (unadjusted for patient and donor characteristics)	100.00%	95.67%
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	95.68%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	0	46
Number of expected graft failures (including deaths) during the first 90 days after transplant	0.30	--
Estimated hazard ratio*	0.87	--
95% credible interval for the hazard ratio**	[0.11, 2.42]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.11, 2.42], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 13% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 89% reduced risk up to 142% increased risk.

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

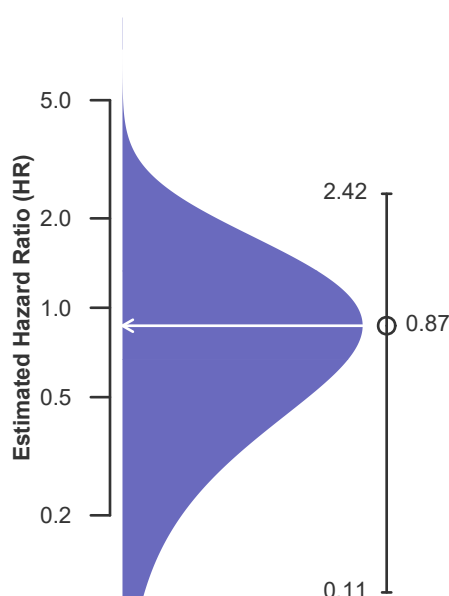
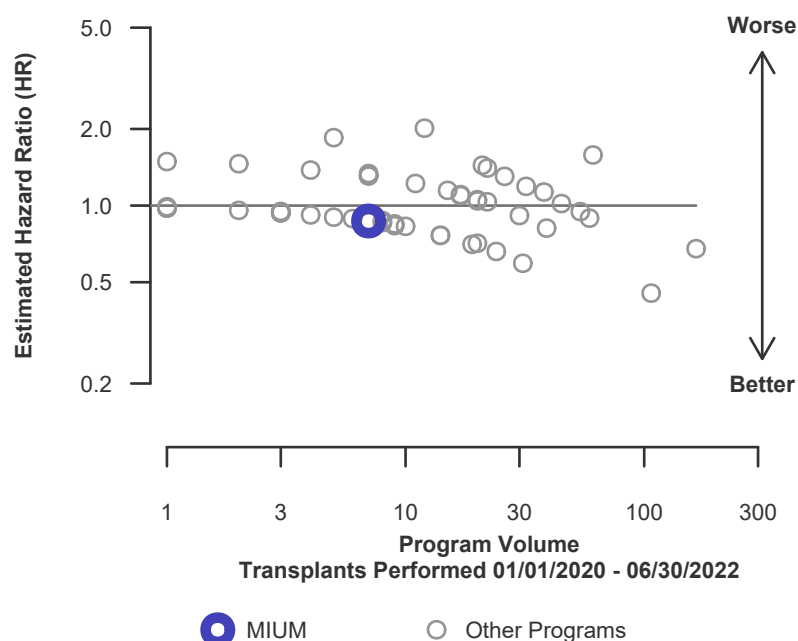


Figure C4L. Adult (18+) 90-Day living donor graft failure HR program comparison





C. Transplant Information

Table C7. Adult (18+) 1-year survival with a functioning graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	167	17,587
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	89.88%	91.74%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	91.76%	--
Number of observed graft failures (including deaths) during the first year after transplant	14	1,300
Number of expected graft failures (including deaths) during the first year after transplant	11.98	--
Estimated hazard ratio*	1.14	--
95% credible interval for the hazard ratio**	[0.65, 1.77]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.65, 1.77], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 14% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 35% reduced risk up to 77% increased risk.

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

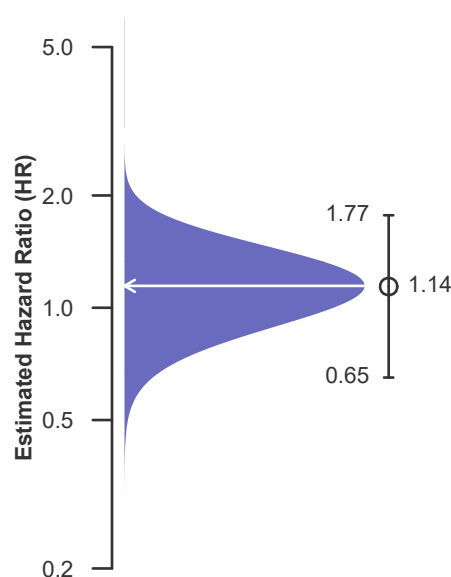
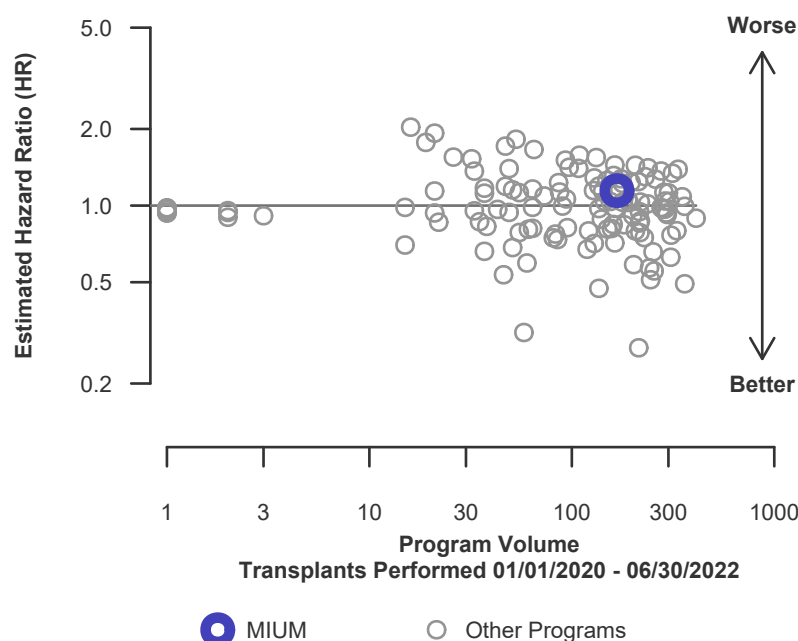


Figure C6. Adult (18+) 1-year graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	160	16,486
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	89.42%	91.66%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	91.71%	--
Number of observed graft failures (including deaths) during the first year after transplant	14	1,231
Number of expected graft failures (including deaths) during the first year after transplant	11.52	--
Estimated hazard ratio*	1.18	--
95% credible interval for the hazard ratio**	[0.68, 1.83]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.68, 1.83], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 18% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 32% reduced risk up to 83% increased risk.

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

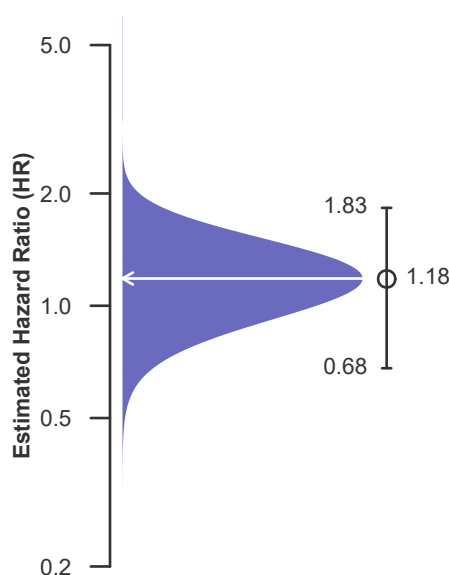
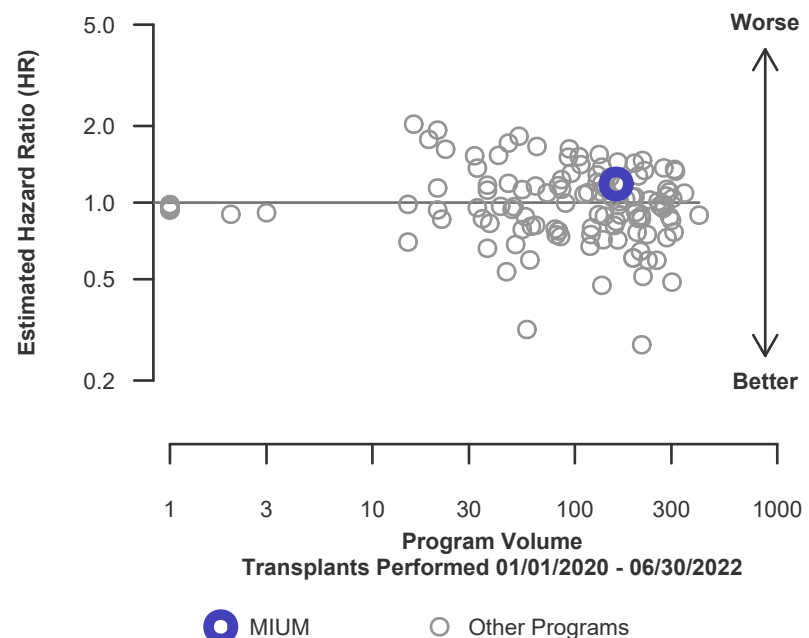


Figure C6D. Adult (18+) 1-year deceased donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	7	1,101
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	100.00%	92.95%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	92.95%	--
Number of observed graft failures (including deaths) during the first year after transplant	0	69
Number of expected graft failures (including deaths) during the first year after transplant	0.45	--
Estimated hazard ratio*	0.82	--
95% credible interval for the hazard ratio**	[0.10, 2.27]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.10, 2.27], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 18% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 90% reduced risk up to 127% increased risk.

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

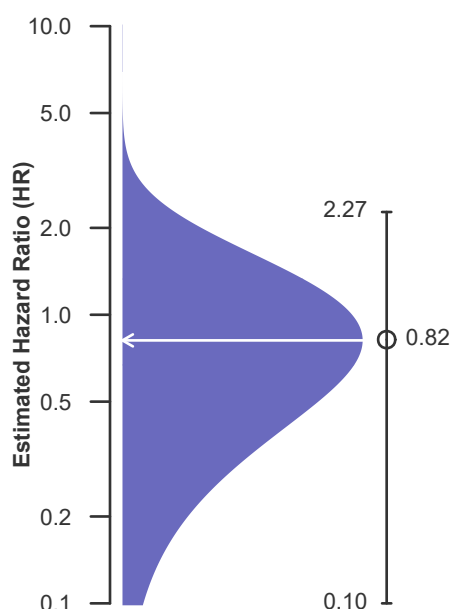
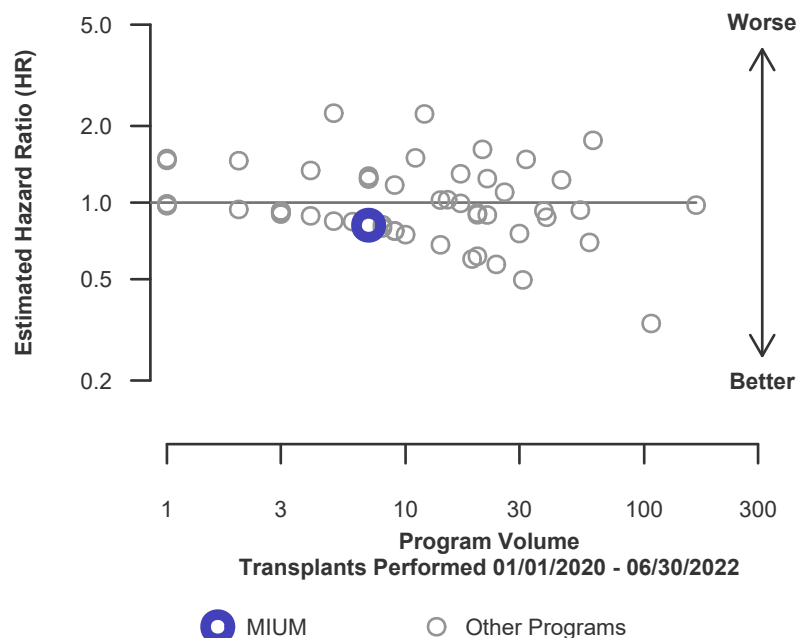


Figure C6L. Adult (18+) 1-year living donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	137	15,233
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (unadjusted for patient and donor characteristics)	94.59%	96.55%
Expected probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (adjusted for patient and donor characteristics)	96.47%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	6	452
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	4.33	--
Estimated hazard ratio*	1.26	--
95% credible interval for the hazard ratio**	[0.55, 2.28]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.55, 2.28], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 26% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 45% reduced risk up to 128% increased risk.

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

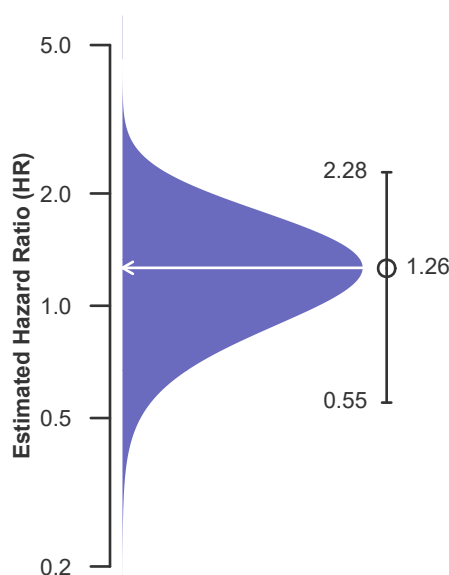
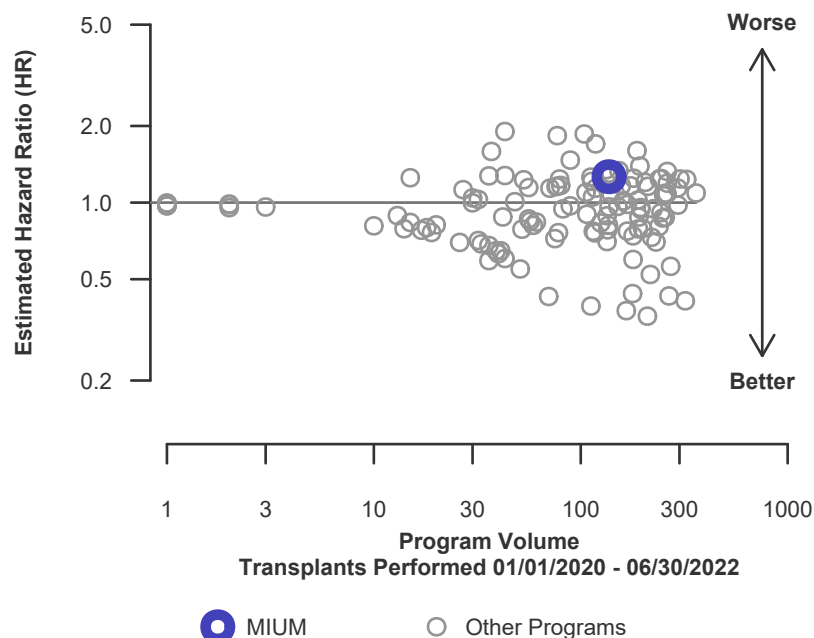


Figure C8. Adult (18+) 1-year Conditional graft failure HR program comparison





C. Transplant Information

Table C8D. Adult (18+) 1-year Conditional survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	131	14,270
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (unadjusted for patient and donor characteristics)	94.32%	96.51%
Expected probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (adjusted for patient and donor characteristics)	96.44%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	6	429
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	4.18	--
Estimated hazard ratio*	1.30	--
95% credible interval for the hazard ratio**	[0.56, 2.34]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.56, 2.34], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 30% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 44% reduced risk up to 134% increased risk.

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

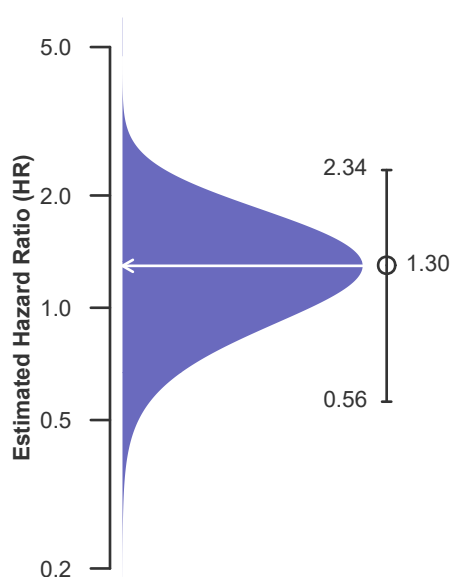
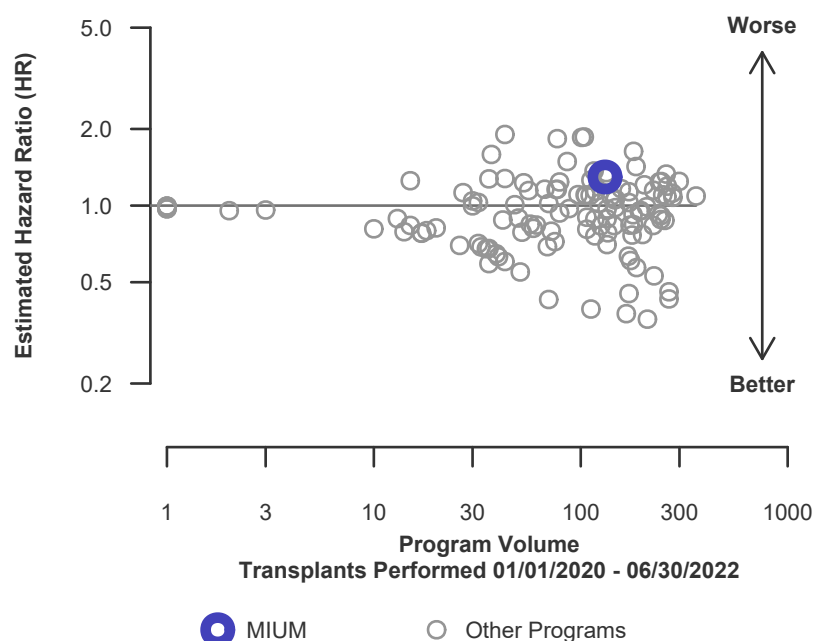


Figure C8D. Adult (18+) 1-year Conditional deceased donor graft failure HR program comparison





C. Transplant Information

Table C8L. Adult (18+) 1-year Conditional survival with a functioning living donor graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	6	963
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (unadjusted for patient and donor characteristics)	100.00%	97.15%
Expected probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (adjusted for patient and donor characteristics)	97.15%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	0	23
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	0.15	--
Estimated hazard ratio*	0.93	--
95% credible interval for the hazard ratio**	[0.11, 2.59]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.11, 2.59], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 7% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 89% reduced risk up to 159% increased risk.

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

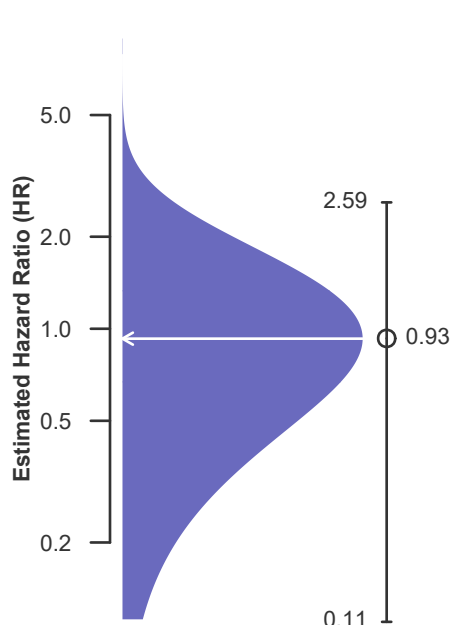
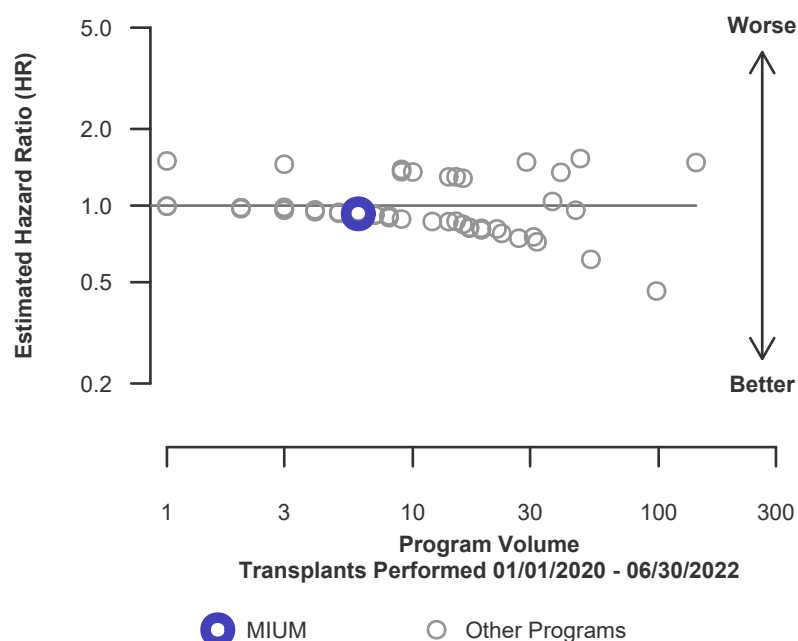


Figure C8L. Adult (18+) 1-year Conditional living donor graft failure HR program comparison





C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	174	17,821
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	87.84%	87.29%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	87.74%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	20	1,614
Number of expected graft failures (including deaths) during the first 3 years after transplant	14.34	--
Estimated hazard ratio*	1.35	--
95% credible interval for the hazard ratio**	[0.84, 1.96]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.84, 1.96], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 35% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 16% reduced risk up to 96% increased risk.

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

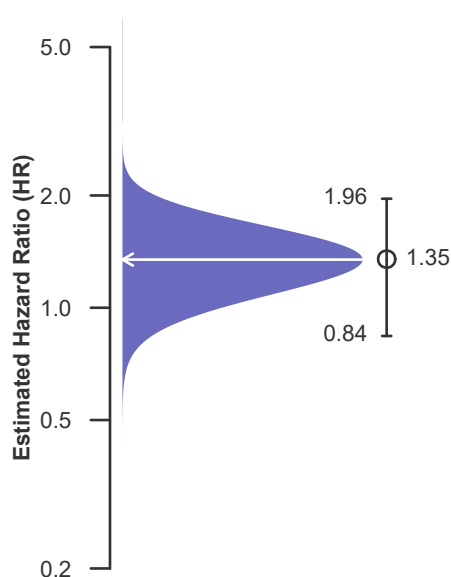
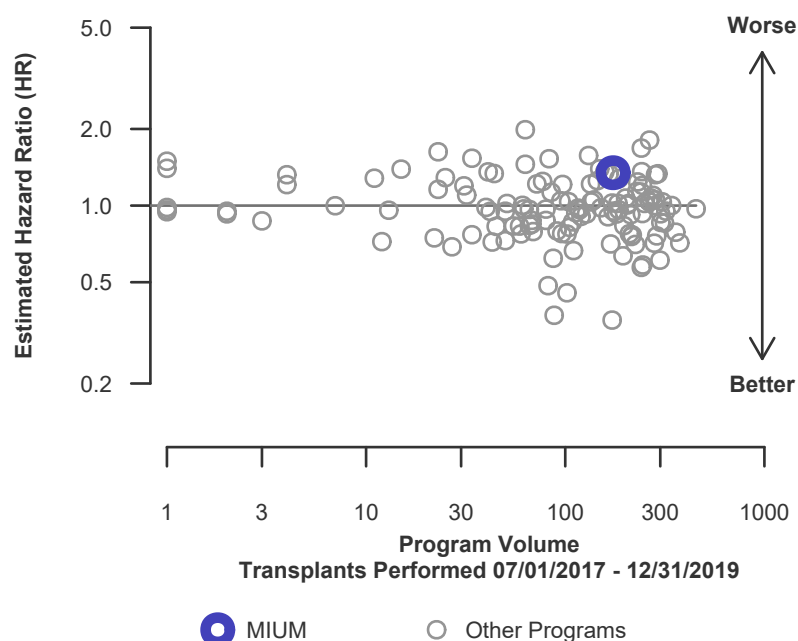


Figure C10. Adult (18+) 3-year graft failure HR program comparison





C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	159	16,891
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	88.05%	87.22%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	87.63%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	18	1,538
Number of expected graft failures (including deaths) during the first 3 years after transplant	13.13	--
Estimated hazard ratio*	1.32	--
95% credible interval for the hazard ratio**	[0.81, 1.96]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.81, 1.96], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 32% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 19% reduced risk up to 96% increased risk.

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

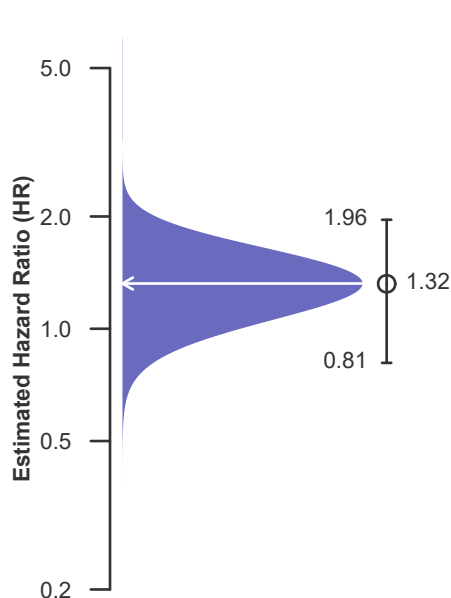
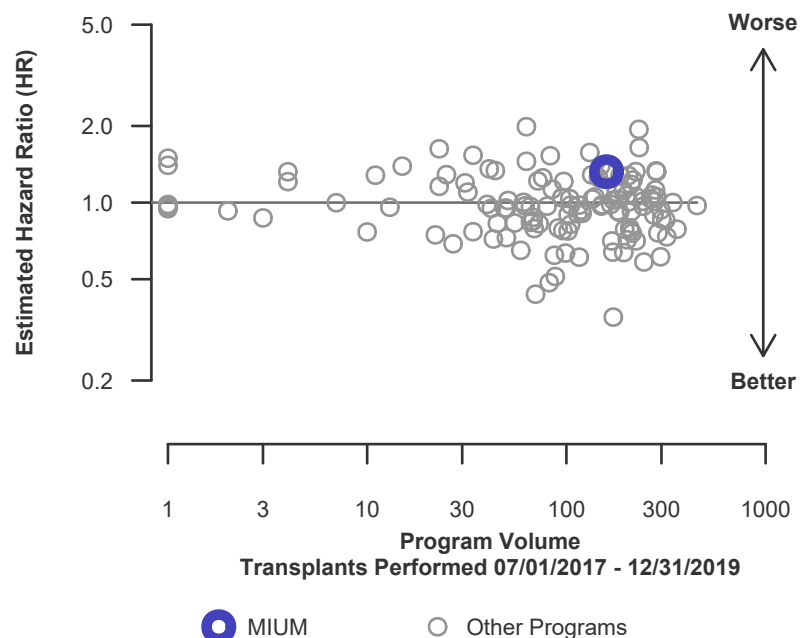


Figure C10D. Adult (18+) 3-year deceased donor graft failure HR program comparison





C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	15	930
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	85.56%	88.93%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	88.94%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	2	76
Number of expected graft failures (including deaths) during the first 3 years after transplant	1.22	--
Estimated hazard ratio*	1.24	--
95% credible interval for the hazard ratio**	[0.34, 2.73]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.34, 2.73], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 24% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 66% reduced risk up to 173% increased risk.

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

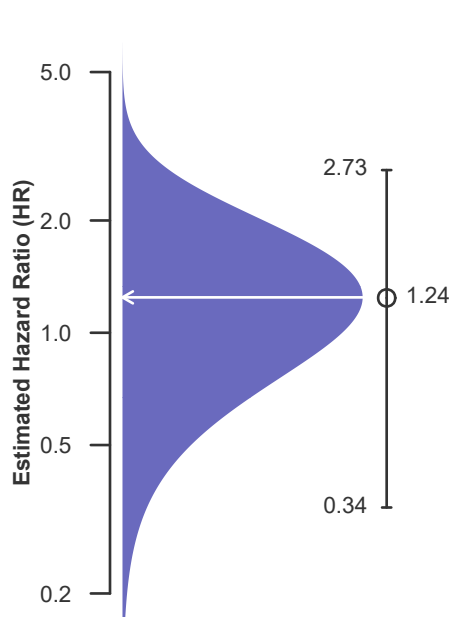
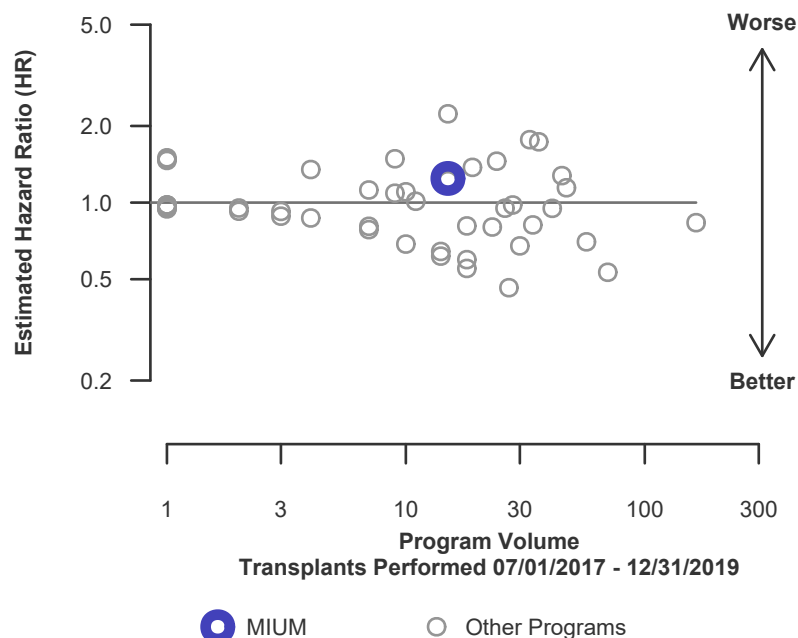


Figure C10L. Adult (18+) 3-year living donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	22	1,111
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	90.91%	95.81%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	94.91%	--
Number of observed graft failures (including deaths) during the first month after transplant	2	46
Number of expected graft failures (including deaths) during the first month after transplant	1.07	--
Estimated hazard ratio*	1.30	--
95% credible interval for the hazard ratio**	[0.36, 2.86]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.36, 2.86], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 30% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 64% reduced risk up to 186% increased risk.

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

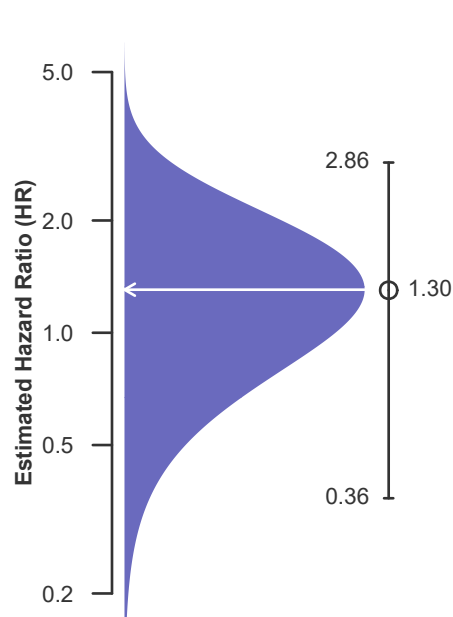
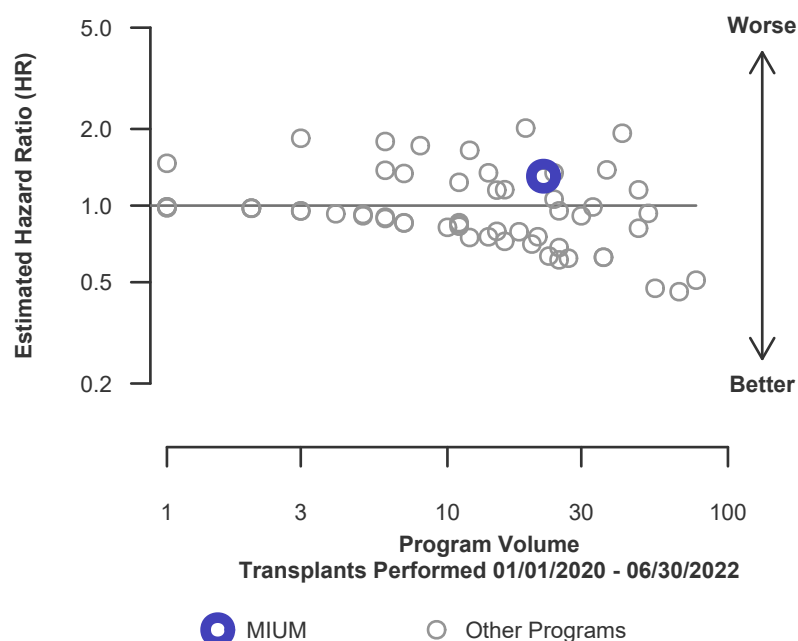


Figure C12. Pediatric (<18) 1-month graft failure HR program comparison





C. Transplant Information

Table C10D. Pediatric (<18) 1-month survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	22	937
Estimated probability of surviving with a functioning graft at 1 month (unadjusted for patient and donor characteristics)	90.91%	95.47%
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	94.91%	--
Number of observed graft failures (including deaths) during the first month after transplant	2	42
Number of expected graft failures (including deaths) during the first month after transplant	1.07	--
Estimated hazard ratio*	1.30	--
95% credible interval for the hazard ratio**	[0.36, 2.86]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.36, 2.86], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 30% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 64% reduced risk up to 186% increased risk.

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

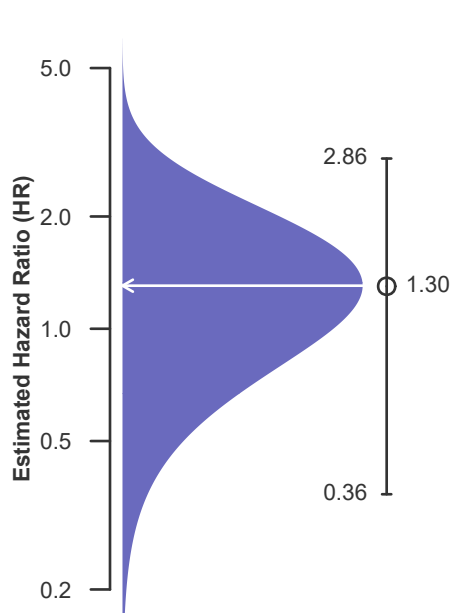
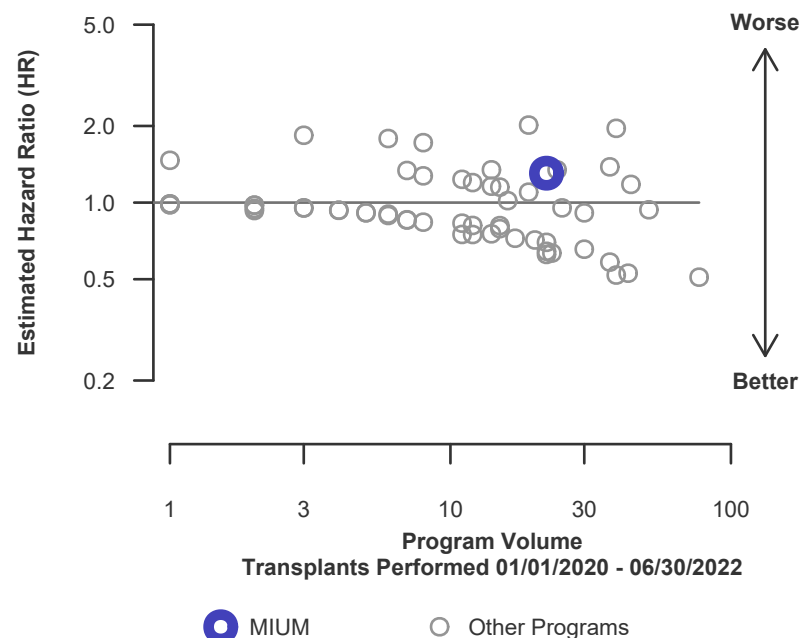


Figure C12D. Pediatric (<18) 1-month deceased donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

This center did not perform any
transplants relevant to
this table during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022



C. Transplant Information

Table C11. Pediatric (<18) 90-Day survival with a functioning graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	22	1,111
Estimated probability of surviving with a functioning graft at 90 days (unadjusted for patient and donor characteristics)	90.91%	94.54%
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	93.40%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	2	59
Number of expected graft failures (including deaths) during the first 90 days after transplant	1.36	--
Estimated hazard ratio*	1.19	--
95% credible interval for the hazard ratio**	[0.32, 2.61]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.32, 2.61], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 19% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 68% reduced risk up to 161% increased risk.

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

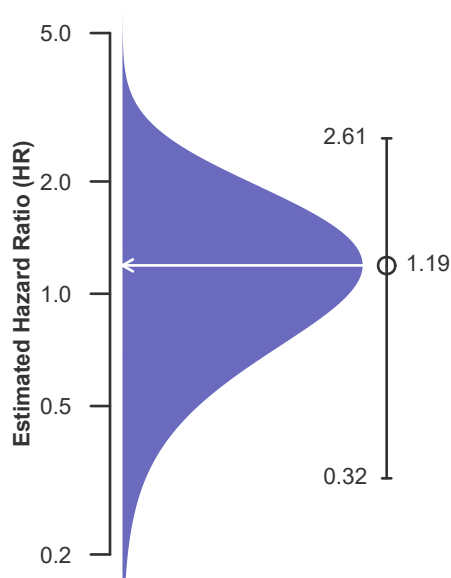
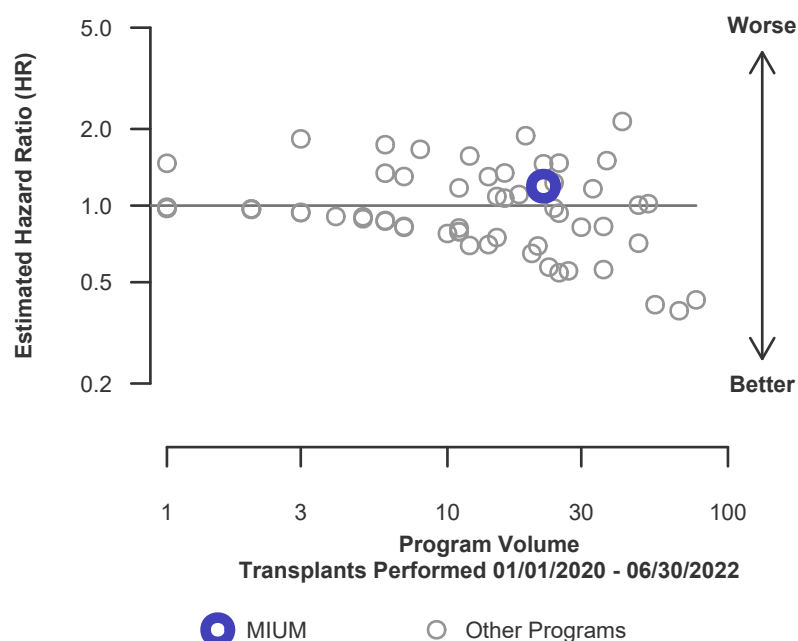


Figure C14. Pediatric (<18) 90-Day graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	22	937
Estimated probability of surviving with a functioning graft at 90 days (unadjusted for patient and donor characteristics)	90.91%	94.21%
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	93.40%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	2	53
Number of expected graft failures (including deaths) during the first 90 days after transplant	1.36	--
Estimated hazard ratio*	1.19	--
95% credible interval for the hazard ratio**	[0.32, 2.61]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.32, 2.61], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 19% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 68% reduced risk up to 161% increased risk.

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

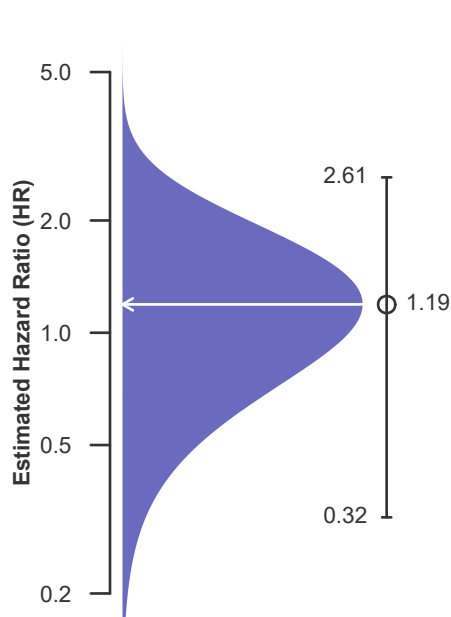
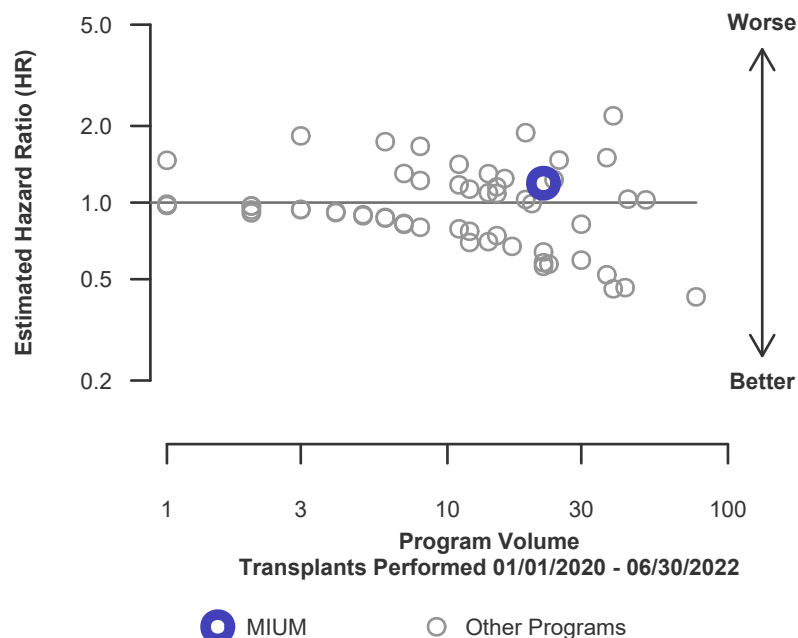


Figure C14D. Pediatric (<18) 90-Day deceased donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

This center did not perform any
transplants relevant to
this table during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022



C. Transplant Information

Table C12. Pediatric (<18) 1-year survival with a functioning graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	22	1,111
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	85.86%	92.65%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	90.61%	--
Number of observed graft failures (including deaths) during the first year after transplant	3	75
Number of expected graft failures (including deaths) during the first year after transplant	1.70	--
Estimated hazard ratio*	1.35	--
95% credible interval for the hazard ratio**	[0.44, 2.77]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.44, 2.77], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 35% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 56% reduced risk up to 177% increased risk.

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

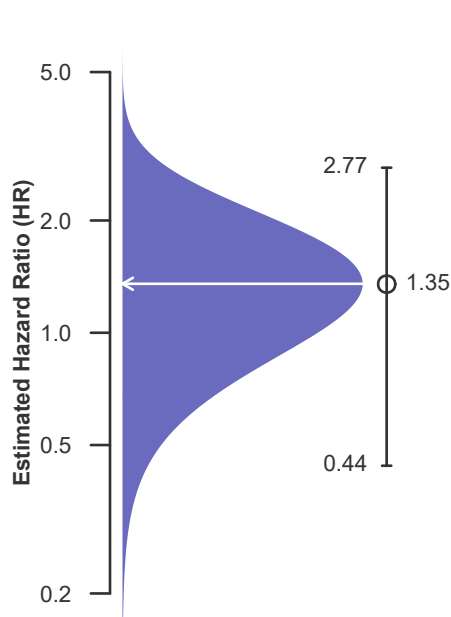
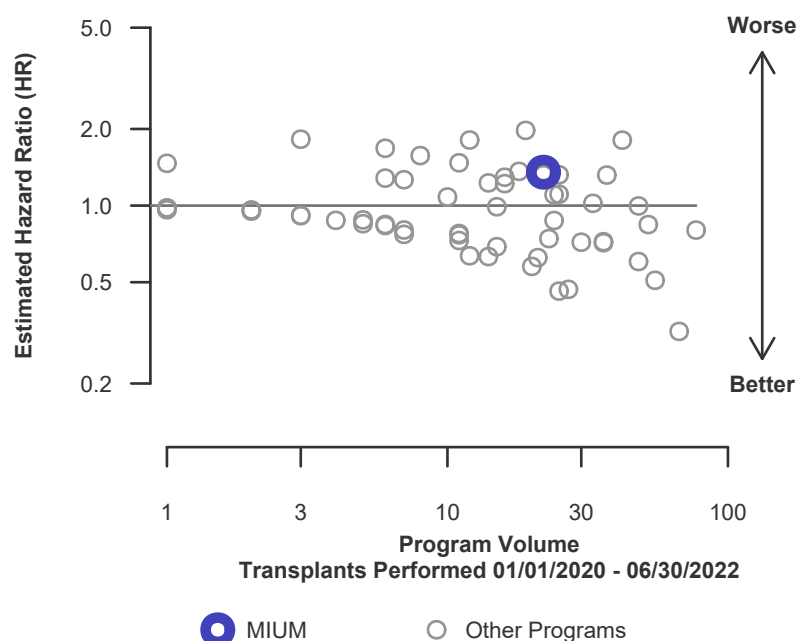


Figure C16. Pediatric (<18) 1-year graft failure HR program comparison





C. Transplant Information

Table C12D. Pediatric (<18) 1-year survival with a functioning deceased donor graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	22	937
Estimated probability of surviving with a functioning graft at 1 year (unadjusted for patient and donor characteristics)	85.86%	92.26%
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	90.61%	--
Number of observed graft failures (including deaths) during the first year after transplant	3	67
Number of expected graft failures (including deaths) during the first year after transplant	1.70	--
Estimated hazard ratio*	1.35	--
95% credible interval for the hazard ratio**	[0.44, 2.77]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.44, 2.77], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 35% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 56% reduced risk up to 177% increased risk.

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

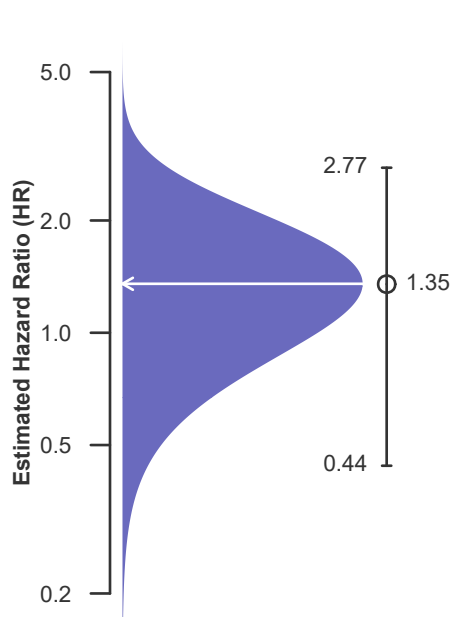
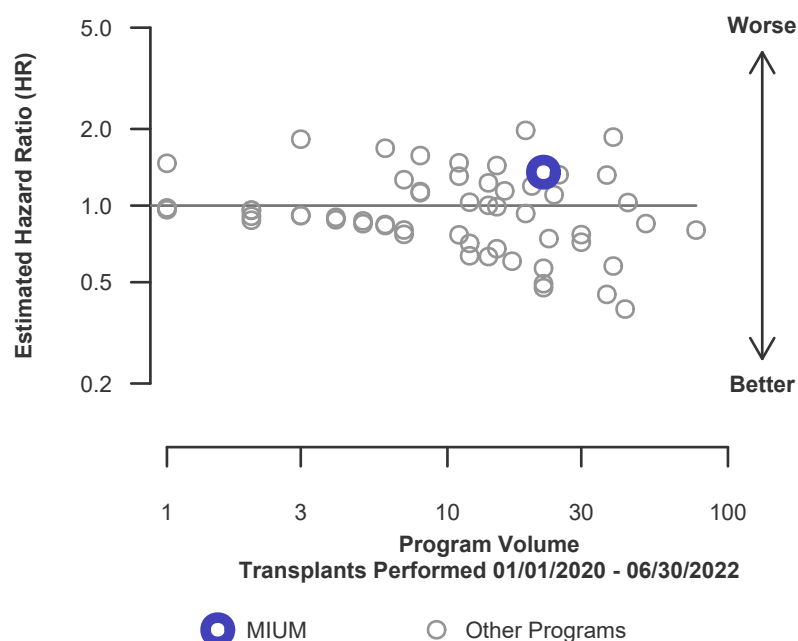


Figure C16D. Pediatric (<18) 1-year deceased donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

This center did not perform any
transplants relevant to
this table during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022



C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	18	958
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (unadjusted for patient and donor characteristics)	94.44%	98.00%
Expected probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (adjusted for patient and donor characteristics)	97.01%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	1	16
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	0.34	--
Estimated hazard ratio*	1.28	--
95% credible interval for the hazard ratio**	[0.26, 3.09]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.26, 3.09], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 28% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 74% reduced risk up to 209% increased risk.

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

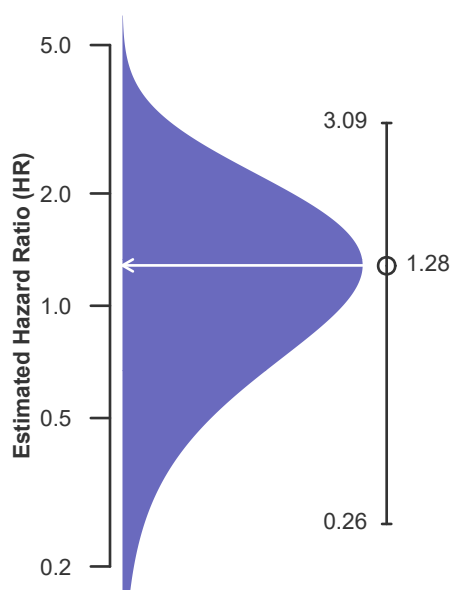
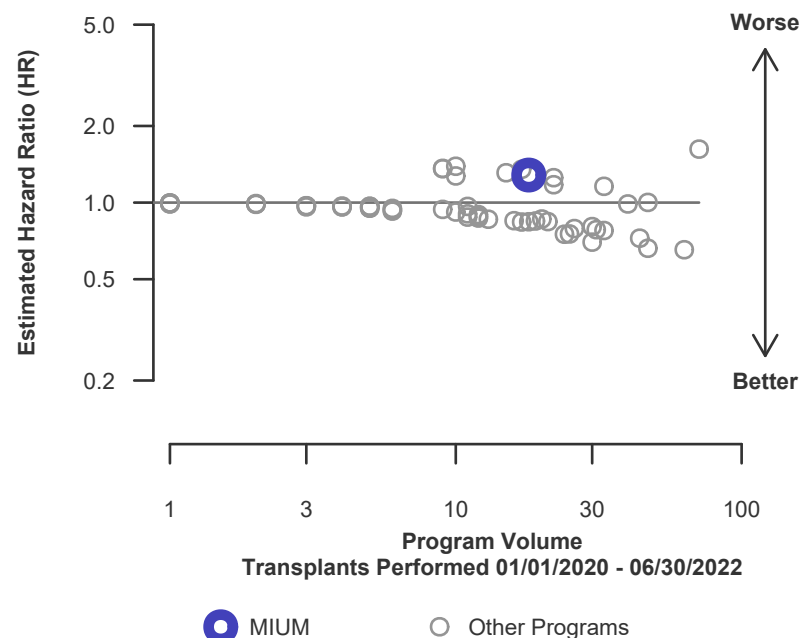


Figure C18. Pediatric (<18) 1-year Conditional graft failure HR program comparison





C. Transplant Information

Table C13D. Pediatric (<18) 1-year Conditional survival with a functioning deceased donor graft
Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022
Deaths and retransplants are considered graft failures
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	18	811
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (unadjusted for patient and donor characteristics)	94.44%	97.93%
Expected probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 (adjusted for patient and donor characteristics)	97.01%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	1	14
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	0.34	--
Estimated hazard ratio*	1.28	--
95% credible interval for the hazard ratio**	[0.26, 3.09]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.26, 3.09], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 28% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 74% reduced risk up to 209% increased risk.

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

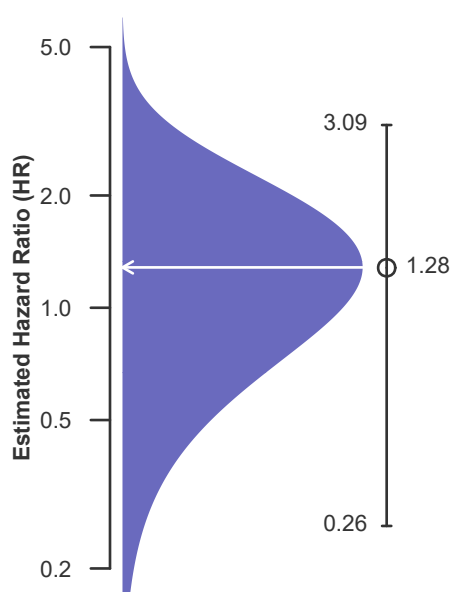
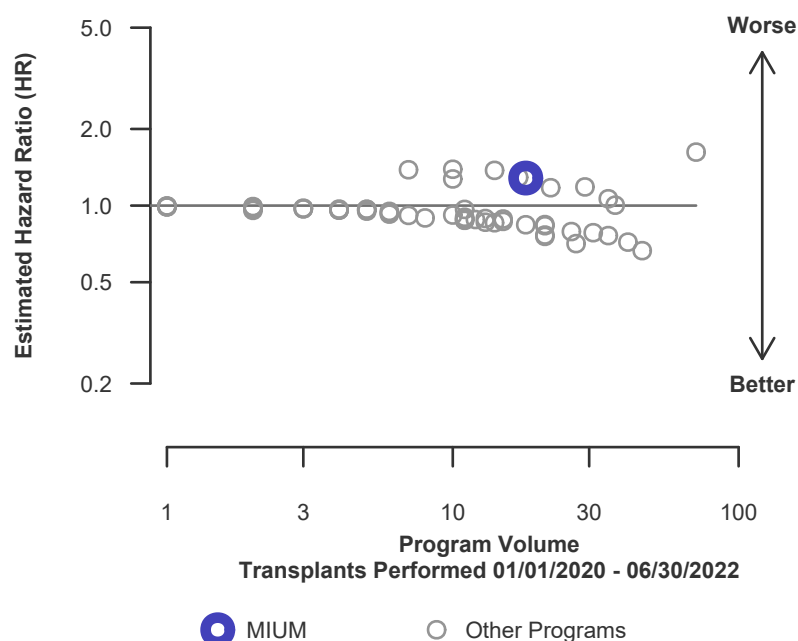


Figure C18D. Pediatric (<18) 1-year Conditional deceased donor graft failure HR program comparison





C. Transplant Information

Table C13L. Pediatric (<18) 1-year Conditional survival with a functioning living donor graft

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Deaths and retransplants are considered graft failures

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

This center did not perform any
transplants relevant to
this table during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022



C. Transplant Information

Table C14. Pediatric (<18) 3-year survival with a functioning graft
Single organ transplants performed between 07/01/2017 and 12/31/2019
Deaths and retransplants are considered graft failures
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	28	1,329
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	92.86%	88.22%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	88.02%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	2	115
Number of expected graft failures (including deaths) during the first 3 years after transplant	2.31	--
Estimated hazard ratio*	0.93	--
95% credible interval for the hazard ratio**	[0.25, 2.03]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.25, 2.03], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 7% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 75% reduced risk up to 103% increased risk.

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

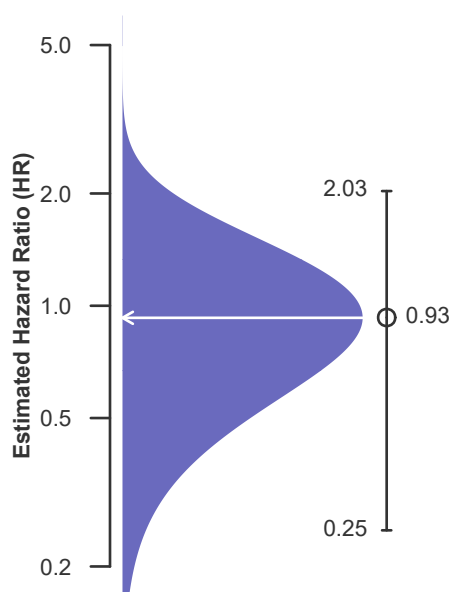
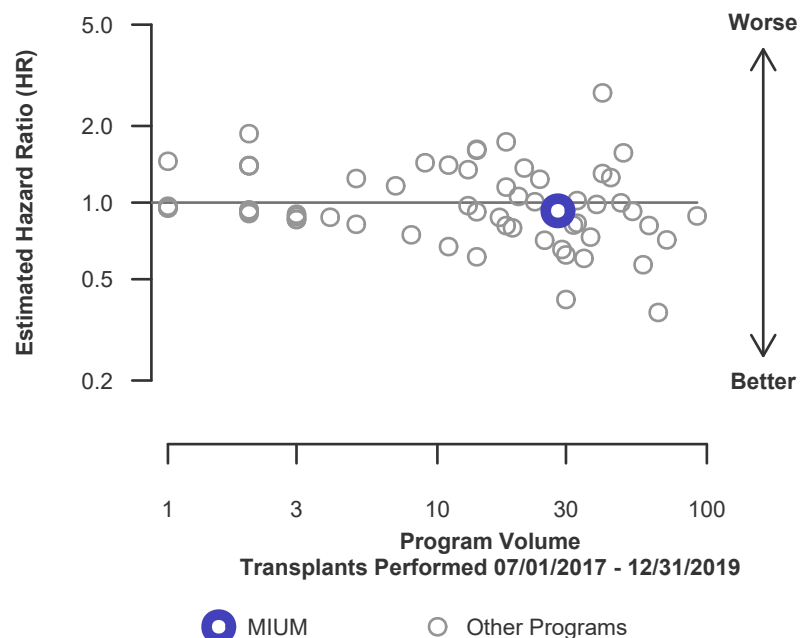


Figure C20. Pediatric (<18) 3-year graft failure HR program comparison





C. Transplant Information

Table C14D. Pediatric (<18) 3-year survival with a functioning deceased donor graft

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

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	27	1,153
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	92.59%	87.90%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	87.91%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	2	102
Number of expected graft failures (including deaths) during the first 3 years after transplant	2.24	--
Estimated hazard ratio*	0.94	--
95% credible interval for the hazard ratio**	[0.26, 2.07]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.26, 2.07], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 6% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 74% reduced risk up to 107% increased risk.

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

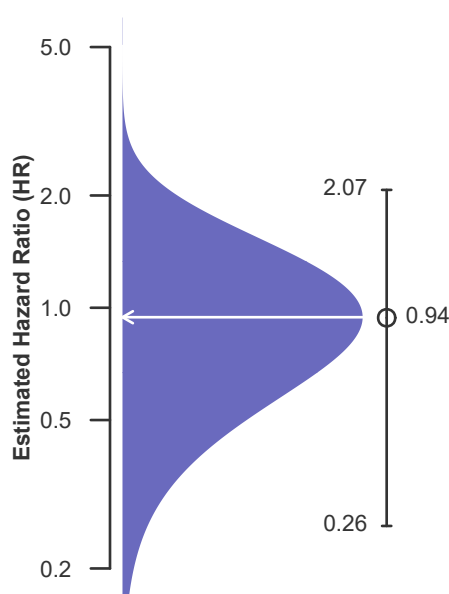
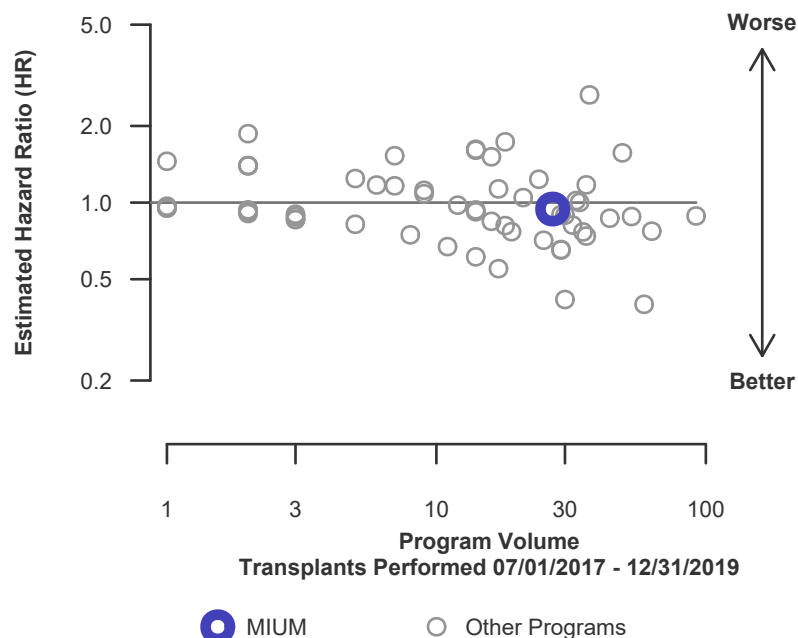


Figure C20D. Pediatric (<18) 3-year deceased donor graft failure HR program comparison





C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

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

	MIUM	U.S.
Number of transplants evaluated	1	176
Estimated probability of surviving with a functioning graft at 3 years (unadjusted for patient and donor characteristics)	100.00%	90.93%
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	90.97%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	0	13
Number of expected graft failures (including deaths) during the first 3 years after transplant	0.07	--
Estimated hazard ratio*	0.97	--
95% credible interval for the hazard ratio**	[0.12, 2.69]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's graft failure 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 MIUM's true hazard ratio with 95% probability. The best estimate is 3% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 88% reduced risk up to 169% increased risk.

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

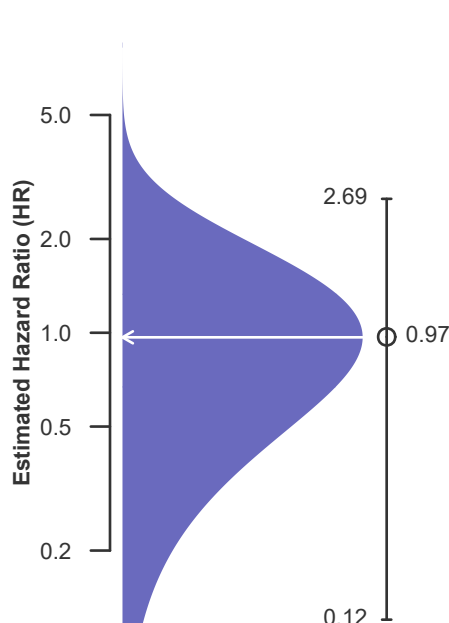
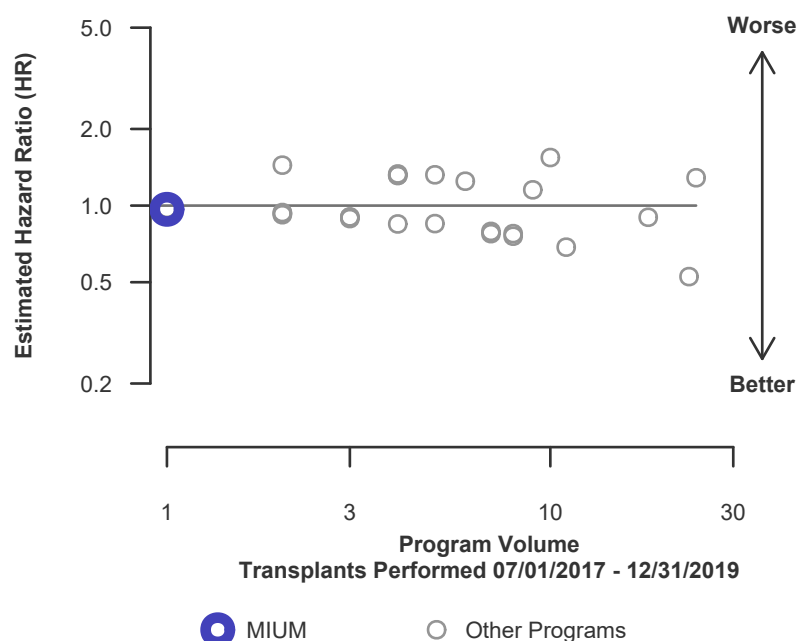


Figure C20L. Pediatric (<18) 3-year living donor graft failure HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	153	16,942
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	98.67%	98.08%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	98.34%	--
Number of observed deaths during the first month after transplant	2	322
Number of expected deaths during the first month after transplant	2.50	--
Estimated hazard ratio*	0.89	--
95% credible interval for the hazard ratio**	[0.24, 1.95]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.24, 1.95], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 11% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 76% reduced risk up to 95% increased risk.

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

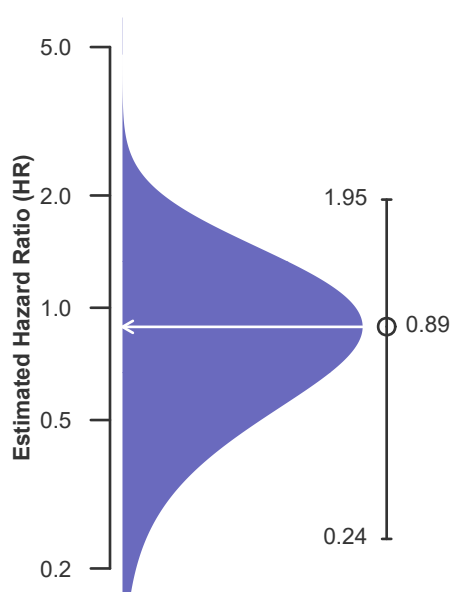
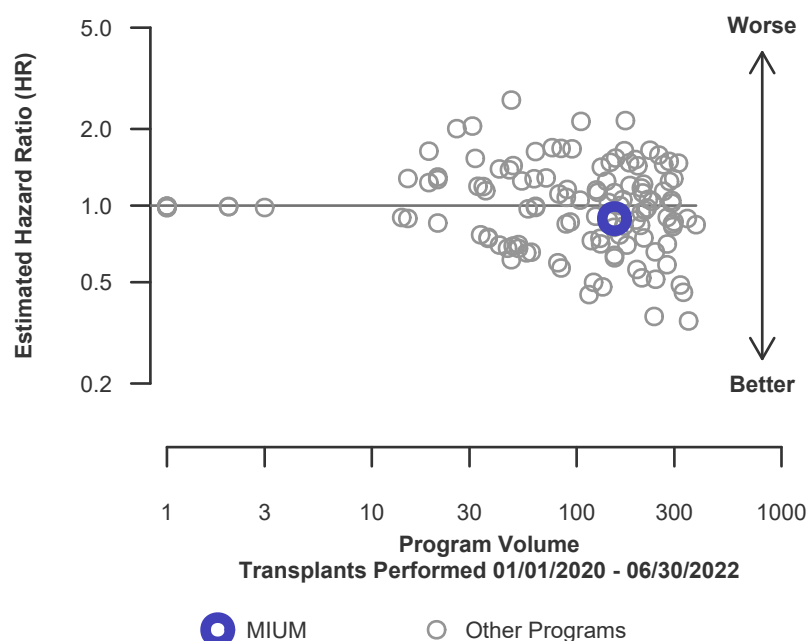


Figure C22. Adult (18+) 1-month patient death HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	146	15,852
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	98.60%	98.01%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	98.30%	--
Number of observed deaths during the first month after transplant	2	312
Number of expected deaths during the first month after transplant	2.44	--
Estimated hazard ratio*	0.90	--
95% credible interval for the hazard ratio**	[0.25, 1.98]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.25, 1.98], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 10% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 75% reduced risk up to 98% increased risk.

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

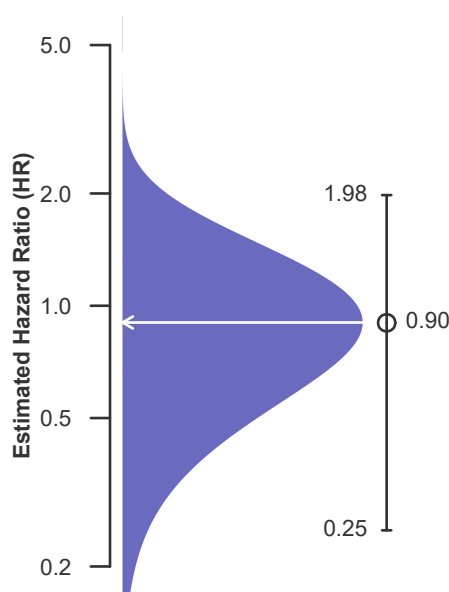
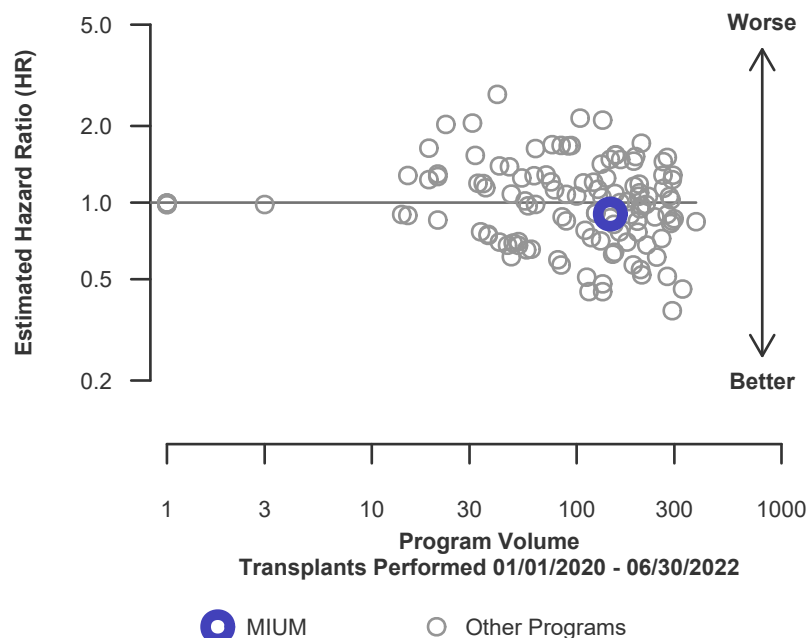


Figure C22D. Adult (18+) 1-month patient death HR program comparison (deceased donor grafts)





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	7	1,090
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	100.00%	99.07%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	99.08%	--
Number of observed deaths during the first month after transplant	0	10
Number of expected deaths during the first month after transplant	0.07	--
Estimated hazard ratio*	0.97	--
95% credible interval for the hazard ratio**	[0.12, 2.70]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM'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 MIUM's true hazard ratio with 95% probability. The best estimate is 3% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 88% reduced risk up to 170% increased risk.

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

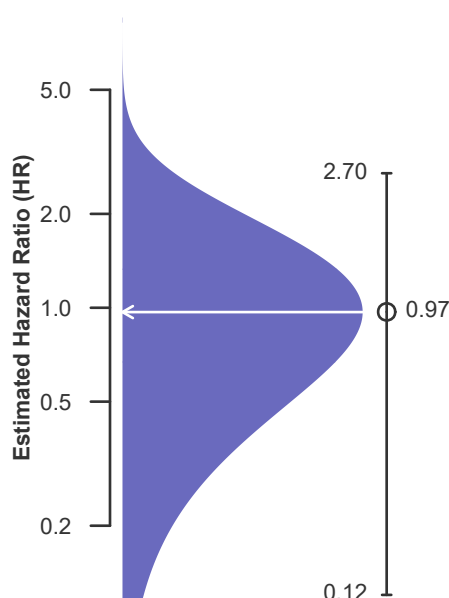
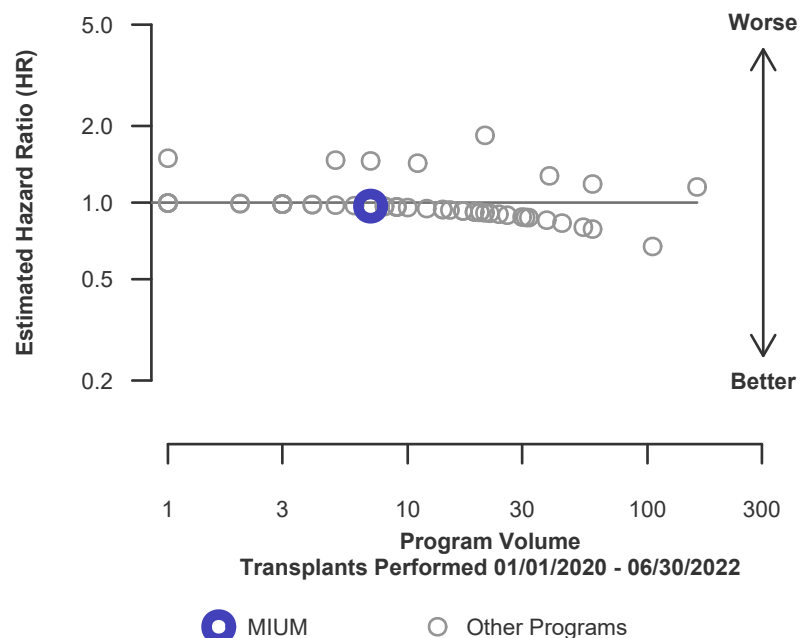


Figure C22L. Adult (18+) 1-month patient death HR program comparison (living donor grafts)





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	153	16,942
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	94.76%	93.71%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	94.25%	--
Number of observed deaths during the first year after transplant	6	937
Number of expected deaths during the first year after transplant	7.55	--
Estimated hazard ratio*	0.84	--
95% credible interval for the hazard ratio**	[0.36, 1.51]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.36, 1.51], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 16% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 64% reduced risk up to 51% increased risk.

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

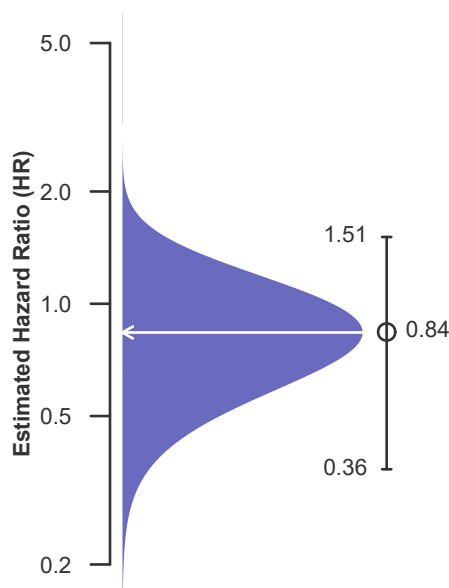
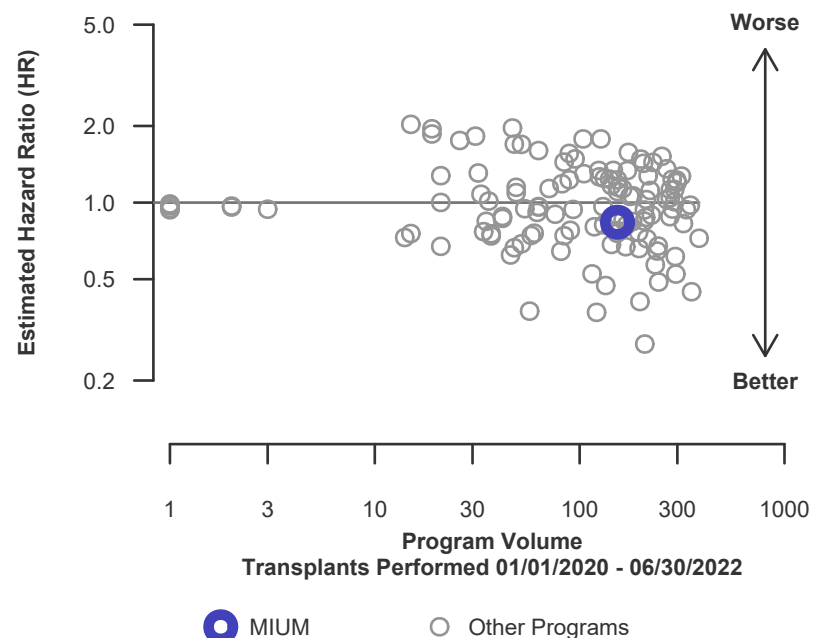


Figure C24. Adult (18+) 1-year patient death HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	146	15,852
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	94.49%	93.61%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	94.21%	--
Number of observed deaths during the first year after transplant	6	892
Number of expected deaths during the first year after transplant	7.26	--
Estimated hazard ratio*	0.86	--
95% credible interval for the hazard ratio**	[0.37, 1.56]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.37, 1.56], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 14% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 63% reduced risk up to 56% increased risk.

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

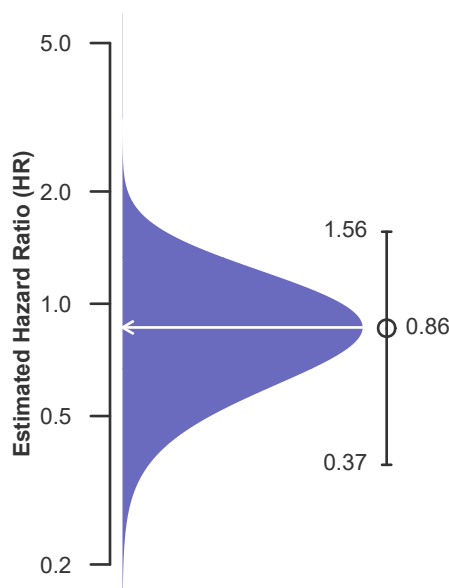
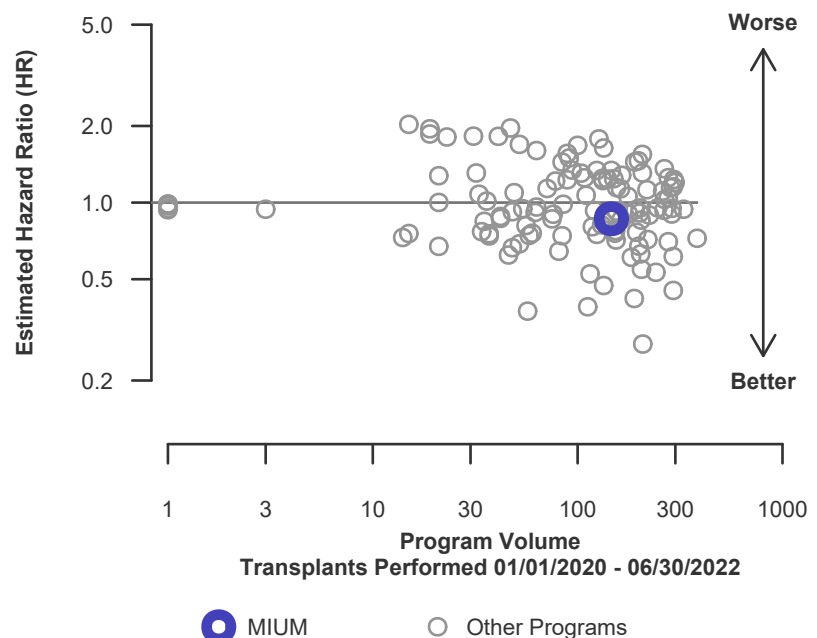


Figure C24D. Adult (18+) 1-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	7	1,090
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	100.00%	95.20%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	95.21%	--
Number of observed deaths during the first year after transplant	0	45
Number of expected deaths during the first year after transplant	0.29	--
Estimated hazard ratio*	0.87	--
95% credible interval for the hazard ratio**	[0.11, 2.43]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.11, 2.43], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 13% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 89% reduced risk up to 143% increased risk.

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

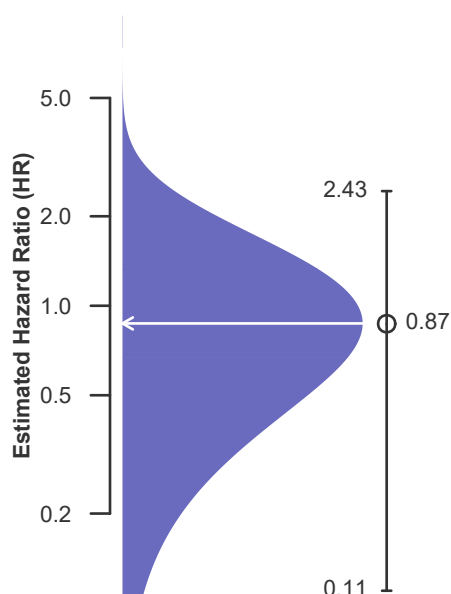
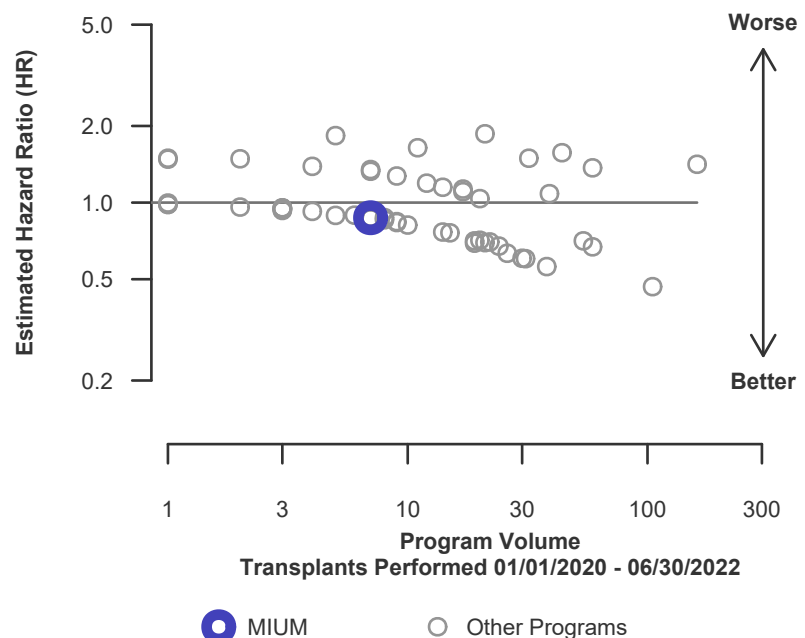


Figure C24L. Adult (18+) 1-year patient death HR program comparison (living donor grafts)





C. Transplant Information

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

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

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	165	17,167
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	91.77%	89.26%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	89.68%	--
Number of observed deaths during the first 3 years after transplant	13	1,233
Number of expected deaths during the first 3 years after transplant	10.87	--
Estimated hazard ratio*	1.17	--
95% credible interval for the hazard ratio**	[0.65, 1.82]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.65, 1.82], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 17% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 35% reduced risk up to 82% increased risk.

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

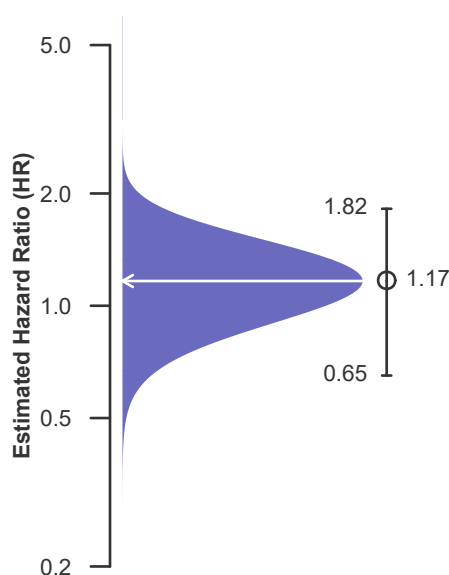
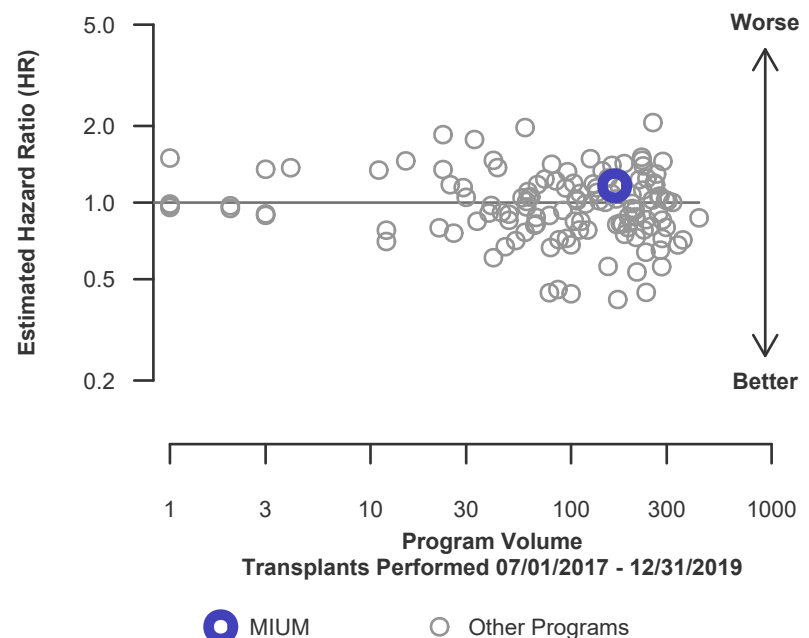


Figure C26. Adult (18+) 3-year patient death HR program comparison





C. Transplant Information

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

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

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	150	16,248
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	91.65%	89.10%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	89.42%	--
Number of observed deaths during the first 3 years after transplant	12	1,187
Number of expected deaths during the first 3 years after transplant	10.11	--
Estimated hazard ratio*	1.16	--
95% credible interval for the hazard ratio**	[0.63, 1.84]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.63, 1.84], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 16% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 37% reduced risk up to 84% increased risk.

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

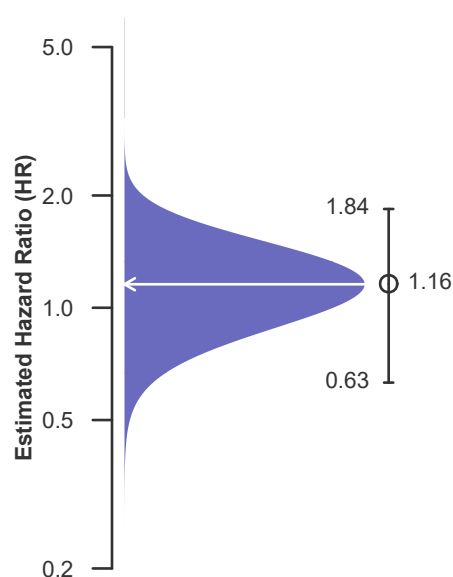
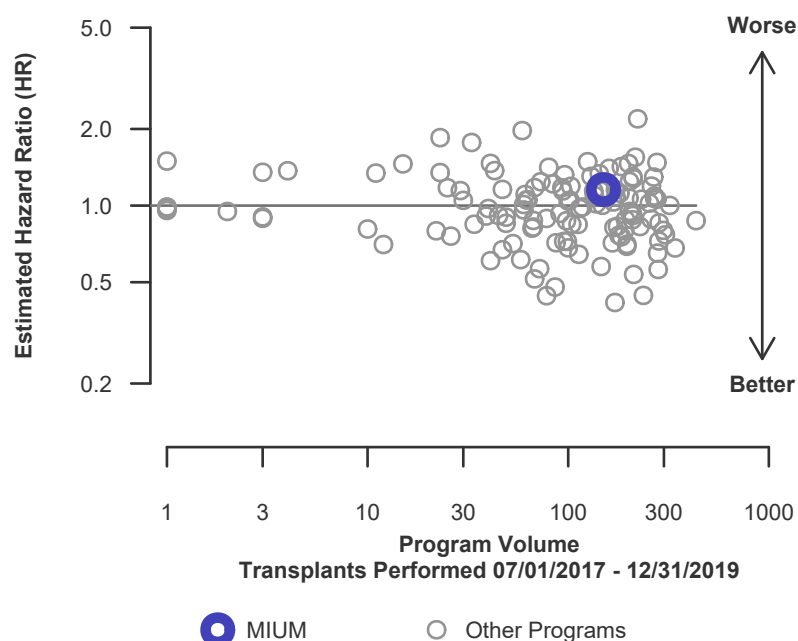


Figure C26D. Adult (18+) 3-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

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

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

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	15	919
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	93.33%	92.26%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	92.27%	--
Number of observed deaths during the first 3 years after transplant	1	46
Number of expected deaths during the first 3 years after transplant	0.77	--
Estimated hazard ratio*	1.08	--
95% credible interval for the hazard ratio**	[0.22, 2.61]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.22, 2.61], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 8% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 78% reduced risk up to 161% increased risk.

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

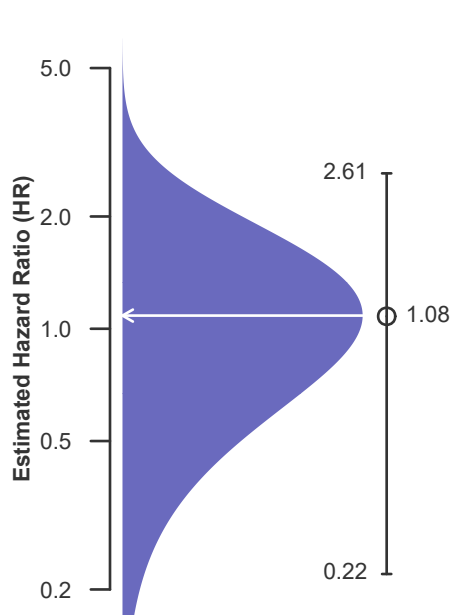
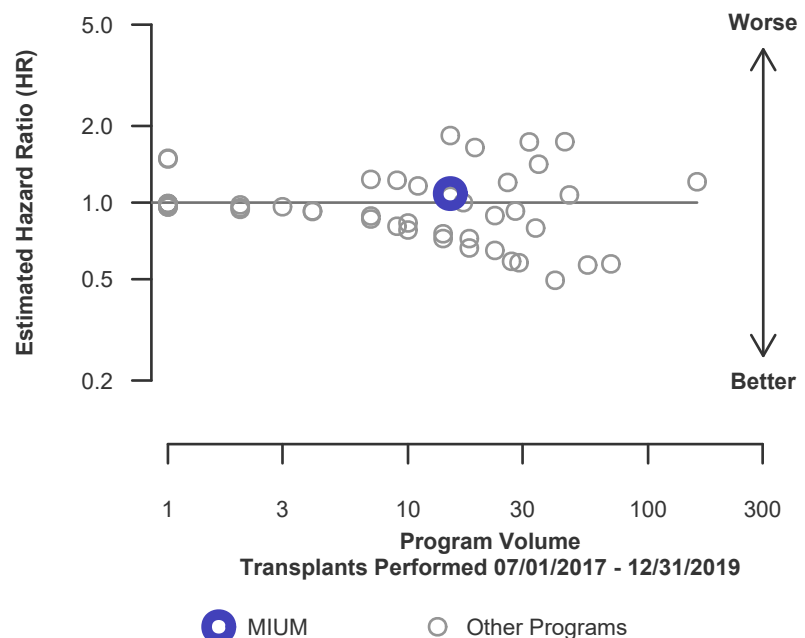


Figure C26L. Adult (18+) 3-year patient death HR program comparison (living donor grafts)





C. Transplant Information

Table C18. Pediatric (<18) 1-month patient survival

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	21	1,051
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	90.48%	97.79%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	96.62%	--
Number of observed deaths during the first month after transplant	2	23
Number of expected deaths during the first month after transplant	0.66	--
Estimated hazard ratio*	1.50	--
95% credible interval for the hazard ratio**	[0.41, 3.29]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.41, 3.29], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 50% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 59% reduced risk up to 229% increased risk.

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

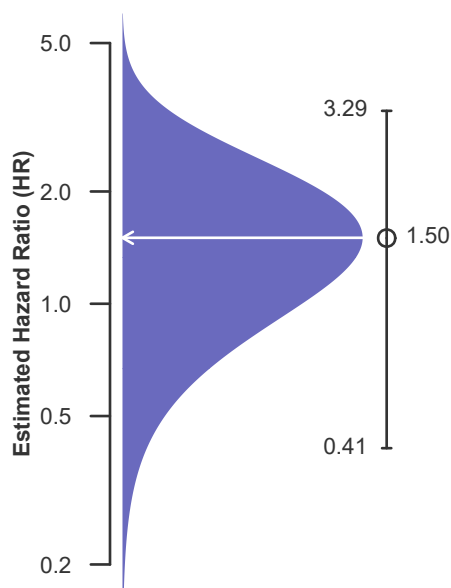
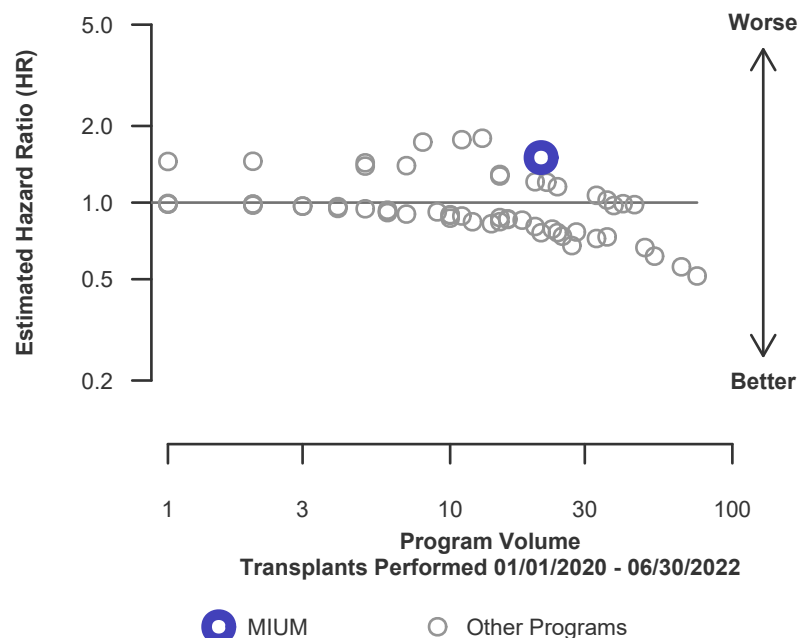


Figure C28. Pediatric (<18) 1-month patient death HR program comparison





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	21	879
Estimated probability of surviving at 1 month (unadjusted for patient and donor characteristics)	90.48%	97.82%
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	96.62%	--
Number of observed deaths during the first month after transplant	2	19
Number of expected deaths during the first month after transplant	0.66	--
Estimated hazard ratio*	1.50	--
95% credible interval for the hazard ratio**	[0.41, 3.29]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.41, 3.29], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 50% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 59% reduced risk up to 229% increased risk.

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

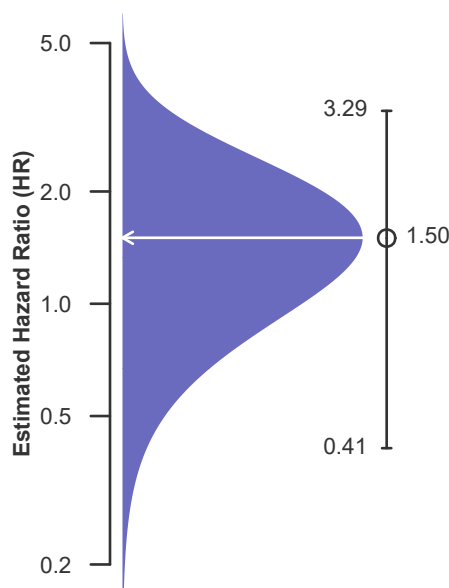
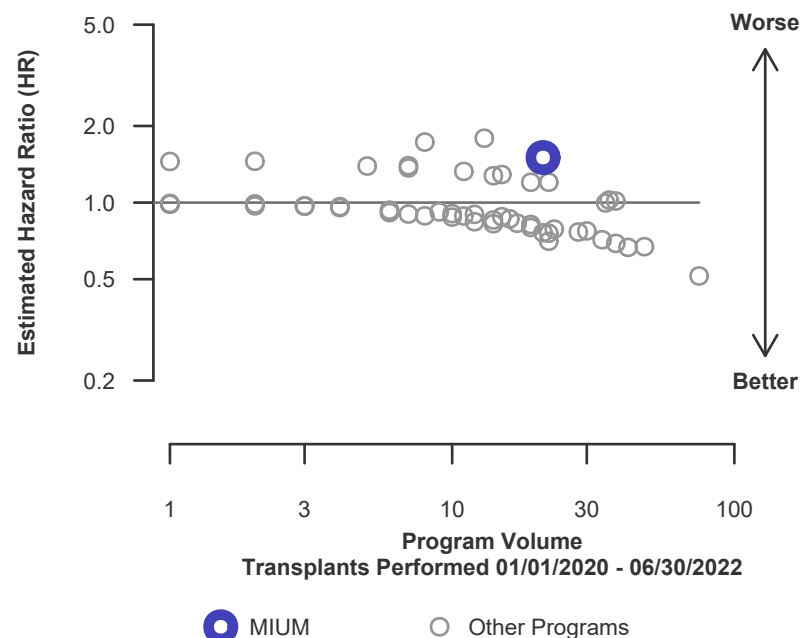


Figure C28D. Pediatric (<18) 1-month patient death HR program comparison (deceased donor grafts)





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

This center did not perform any
transplants relevant to
this table during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022



C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	21	1,051
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	85.15%	94.69%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	91.76%	--
Number of observed deaths during the first year after transplant	3	50
Number of expected deaths during the first year after transplant	1.31	--
Estimated hazard ratio*	1.51	--
95% credible interval for the hazard ratio**	[0.49, 3.09]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.49, 3.09], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 51% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 51% reduced risk up to 209% increased risk.

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

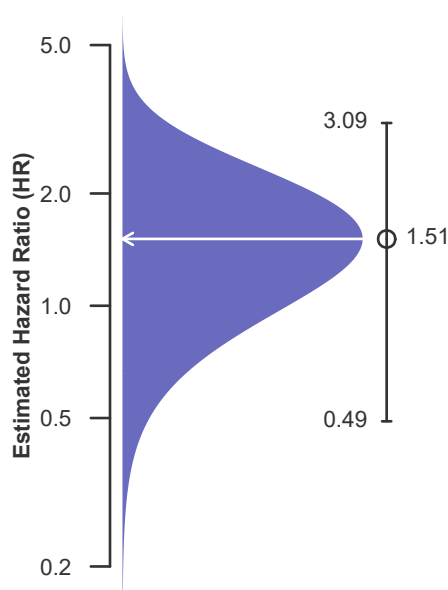
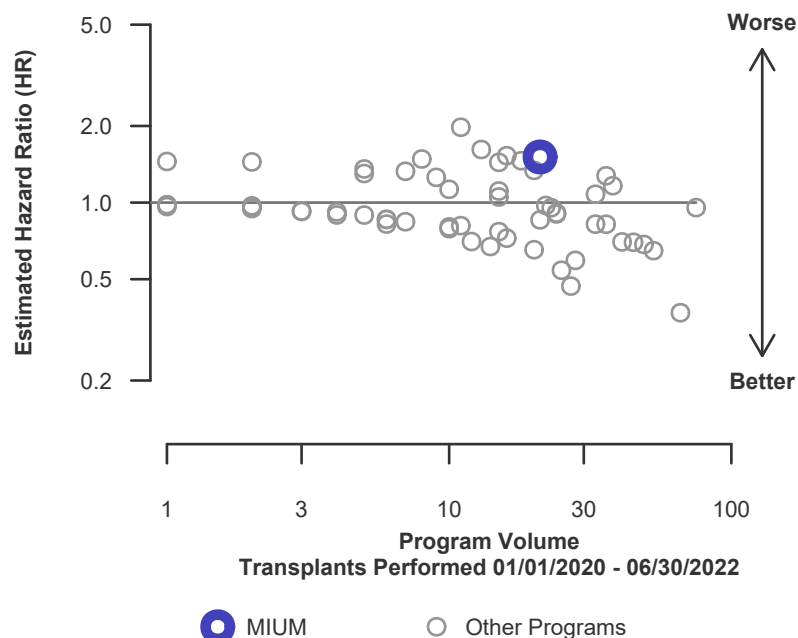


Figure C30. Pediatric (<18) 1-year patient death HR program comparison





C. Transplant Information

Table C19D. Pediatric (<18) 1-year patient survival (deceased donor graft recipients)

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	21	879
Estimated probability of surviving at 1 year (unadjusted for patient and donor characteristics)	85.15%	94.69%
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	91.76%	--
Number of observed deaths during the first year after transplant	3	42
Number of expected deaths during the first year after transplant	1.31	--
Estimated hazard ratio*	1.51	--
95% credible interval for the hazard ratio**	[0.49, 3.09]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.49, 3.09], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 51% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 51% reduced risk up to 209% increased risk.

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

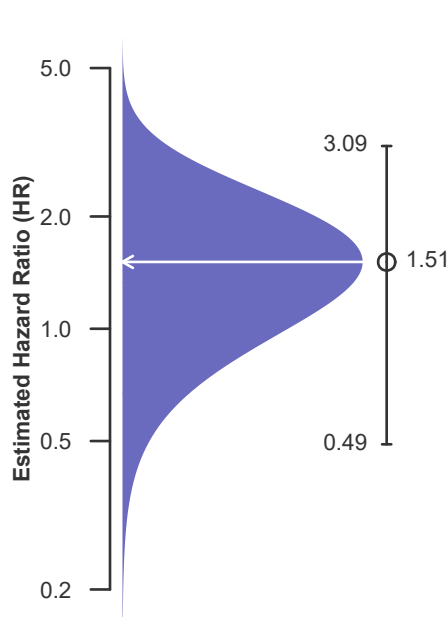
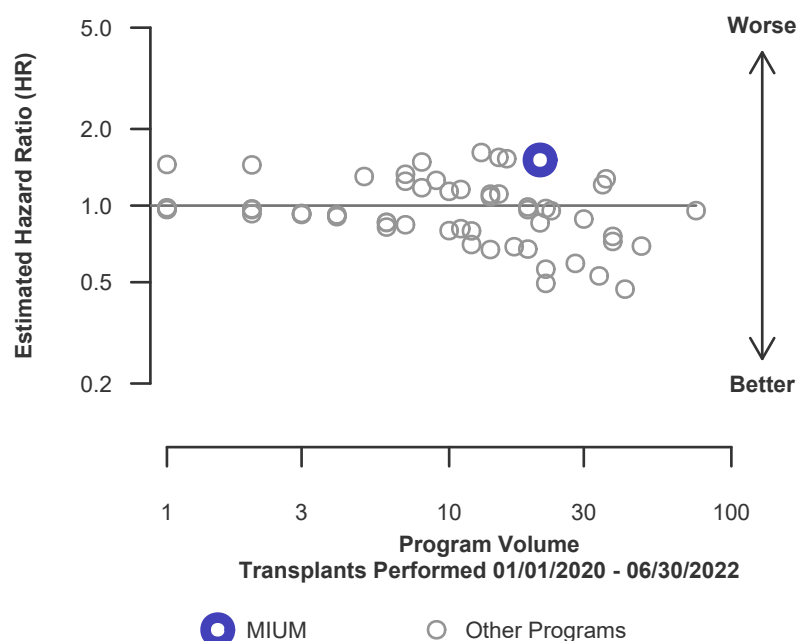


Figure C30D. Pediatric (<18) 1-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

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

Single organ transplants performed between 01/01/2020 and 03/12/2020, and 06/13/2020 and 06/30/2022

Retransplants excluded

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

This center did not perform any
transplants relevant to
this table during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022

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

This center did not perform any
transplants relevant to
this figure during
01/01/2020-06/30/2022



C. Transplant Information

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

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

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	27	1,242
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	96.30%	92.16%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	92.01%	--
Number of observed deaths during the first 3 years after transplant	1	64
Number of expected deaths during the first 3 years after transplant	1.31	--
Estimated hazard ratio*	0.91	--
95% credible interval for the hazard ratio**	[0.19, 2.18]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.19, 2.18], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 9% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 81% reduced risk up to 118% increased risk.

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

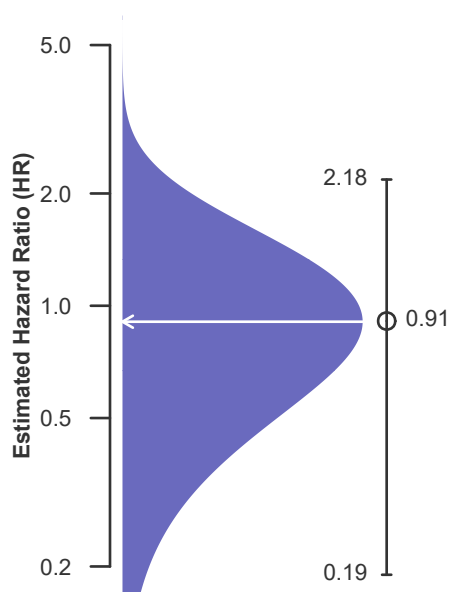
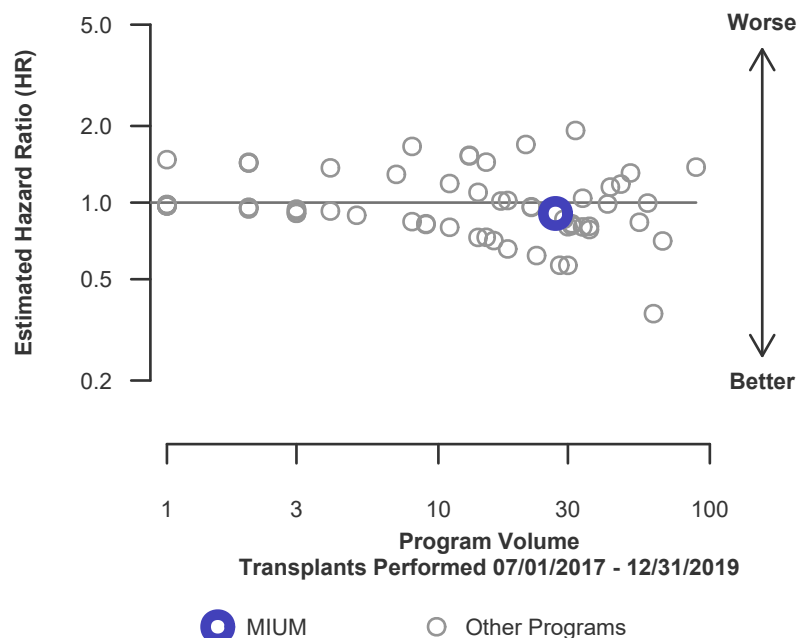


Figure C32. Pediatric (<18) 3-year patient death HR program comparison





C. Transplant Information

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

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

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	26	1,068
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	96.15%	91.92%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	91.94%	--
Number of observed deaths during the first 3 years after transplant	1	56
Number of expected deaths during the first 3 years after transplant	1.27	--
Estimated hazard ratio*	0.92	--
95% credible interval for the hazard ratio**	[0.19, 2.21]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.19, 2.21], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 8% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 81% reduced risk up to 121% increased risk.

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

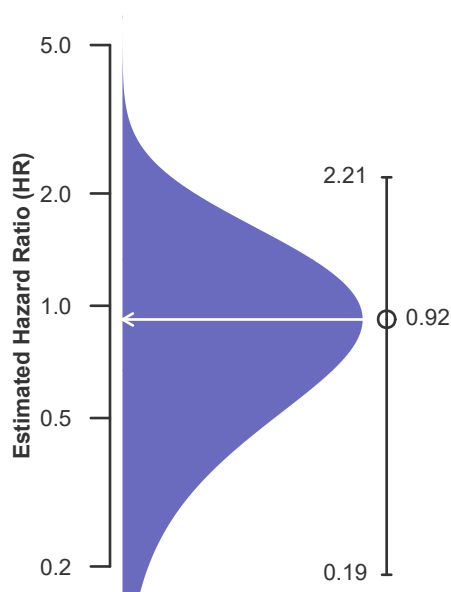
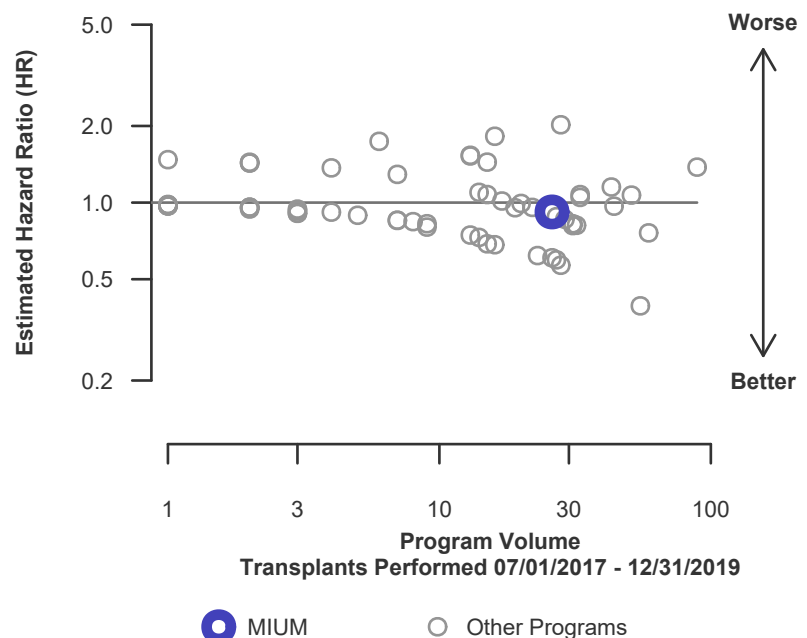


Figure C32D. Pediatric (<18) 3-year patient death HR program comparison (deceased donor grafts)





C. Transplant Information

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

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

Retransplants excluded

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

	MIUM	U.S.
Number of transplants evaluated	1	174
Estimated probability of surviving at 3 years (unadjusted for patient and donor characteristics)	100.00%	93.89%
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	93.92%	--
Number of observed deaths during the first 3 years after transplant	0	8
Number of expected deaths during the first 3 years after transplant	0.05	--
Estimated hazard ratio*	0.98	--
95% credible interval for the hazard ratio**	[0.12, 2.72]	--

* The hazard ratio provides an estimate of how University of Michigan Medical Center'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 MIUM's patient death rate were precisely the expected rate, the estimated hazard ratio would be 1.0.

** The 95% credible interval, [0.12, 2.72], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 2% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 88% reduced risk up to 172% increased risk.

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

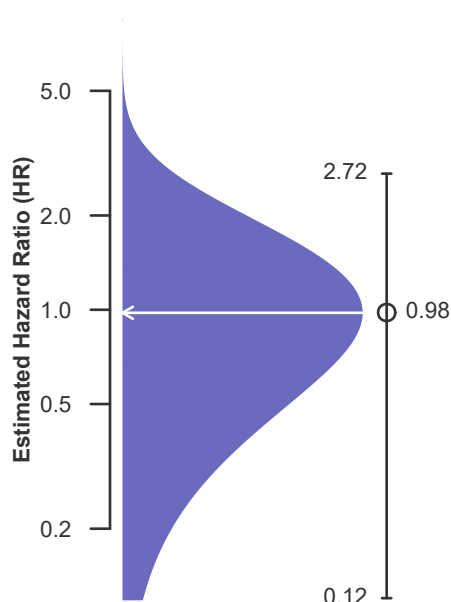
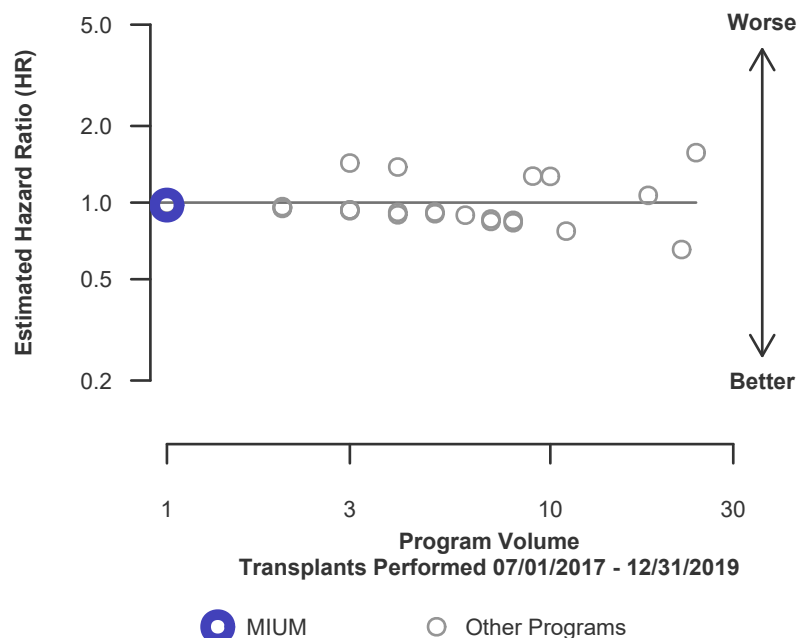


Figure C32L. Pediatric (<18) 3-year patient death HR program comparison (living donor grafts)





C. Transplant Information

Table C21. Multi-organ transplant graft survival: 01/01/2020 - 06/30/2022

Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Liver Graft Failures		Estimated Liver Graft Survival	
	MIUM-TX1	USA	MIUM-TX1	USA	MIUM-TX1	USA
Kidney-Liver	8	1,905	1	200	87.5%	89.5%

Pediatric (<18) Transplants

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

Table C22. Multi-organ transplant patient survival: 01/01/2020 - 06/30/2022

Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Patient Deaths		Estimated Patient Survival	
	MIUM-TX1	USA	MIUM-TX1	USA	MIUM-TX1	USA
Kidney-Liver	8	1,905	1	189	87.5%	90.1%

Pediatric (<18) Transplants

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



D. Living Donor Information

Table D1. Living donor summary: 01/01/2020 - 12/31/2022

Living Donor Follow-Up	This Center			United States		
	01/2020- 12/2020	01/2021- 12/2021	01/2022- 06/2022	01/2020- 12/2020	01/2021- 12/2021	01/2022- 06/2022
Number of Living Donors	4	3	1	485	566	294
6-Month Follow-Up						
Donors due for follow-up	1	3	0	127	566	241
Timely clinical data	1 100.0%	3 100.0%	0 --%	105 82.7%	501 88.5%	198 82.2%
Timely lab data	1 100.0%	3 100.0%	0 --%	109 85.8%	497 87.8%	196 81.3%
12-Month Follow-Up						
Donors due for follow-up	3	3		359	515	
Timely clinical data	3 100.0%	3 100.0%		299 83.3%	419 81.4%	
Timely lab data	3 100.0%	3 100.0%		300 83.6%	407 79.0%	
24-Month Follow-Up						
Donors due for follow-up	3			442		
Timely clinical data	3 100.0%			324 73.3%		
Timely lab data	3 100.0%			309 69.9%		

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