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## COVID-19 Guide

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### Adjustments to Transplant Program and OPO Evaluation Metrics

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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



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This report contains a wide range of useful information about the kidney 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 37.3 per 100 person-years. Transplant rates are also provided for adult and pediatric patients separately along with comparisons to adult and pediatric rates in the DSA, the OPTN region, and the nation. Transplant rates are also presented excluding transplants from a living donor (Table B4D and Figures B1D-B3D). Please refer to the PSR Technical Methods documentation available at <http://www.srtr.org> for more detail regarding how expected rates are calculated.

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

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

Table B7 presents information on what happens to candidates on the waiting list by three different time points after listing: 6 months, 12 months, and 18 months. The table displays percentages of candidates who have died, been removed from the waiting list, been transplanted, or been transferred or lost-to-follow-up. Tables B8 and B9 provide more detail regarding how many candidates have received a deceased donor transplant by certain time points during the first 3 years after being put on the transplant waiting list. Each row of Tables B8 and B9 presents the percent of candidates who received a deceased donor transplant by each time point. Table B10 presents data on the time it took for different percentages of patients to be transplanted for candidates added to the list between 01/01/2018 and 06/30/2023. The time it took for 5% (the 5th percentile) of patients to receive a transplant at this program was 1 months. If "Not Observed" is displayed in the table, then too few candidates received transplants before 12/31/2023 to calculate a particular percentile of transplant times.

Table B11 contains a summary of the offer acceptance practices of the program. The offer acceptance ratio indicates whether the program is more or less likely to accept offers than the average program. If the offer acceptance ratio is greater than 1.0, then the program tends to accept more offers than average; if the offer acceptance ratio is less than 1.0, then the program tends to accept fewer offers than average. Figure B10 shows the distribution of program offer acceptance rates as well as the offer acceptance rate for this program. Figures B11 - B14 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](mailto:srtr@srtr.org).



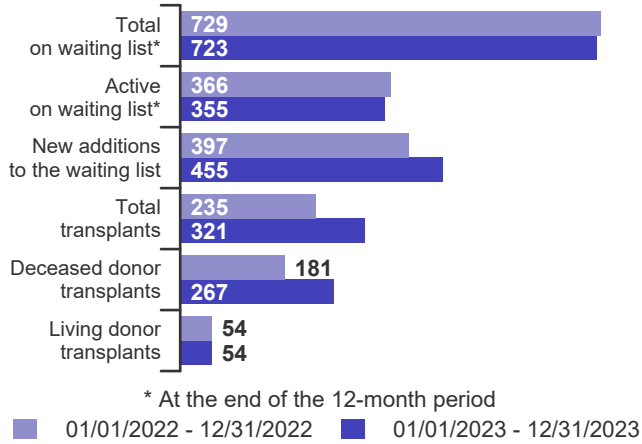
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## A. Program Summary

**Figure A1. Waiting list and transplant activity**

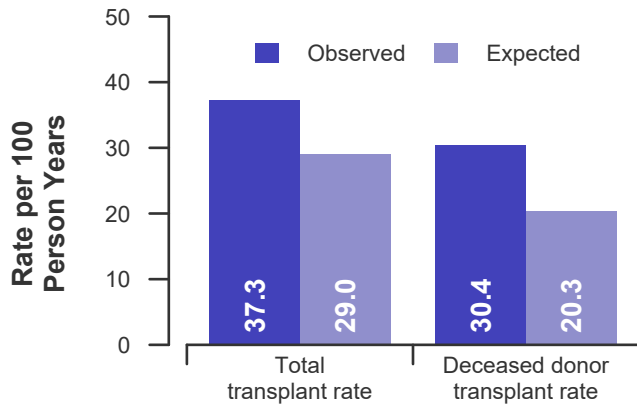


**Table A1. Census of transplant recipients**

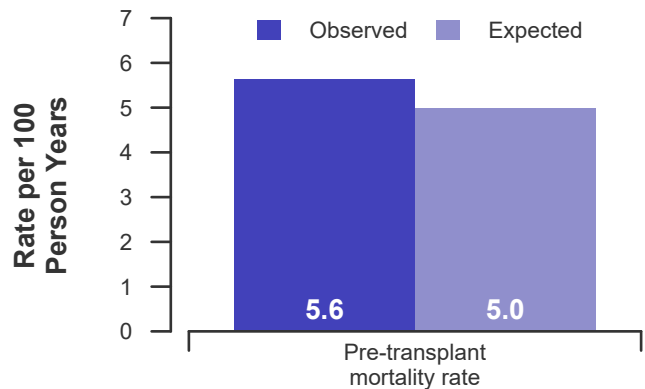
Recipients	01/01/2022-12/31/2022	01/01/2023-12/31/2023
Transplanted at this center	235	321
Followed by this center*	2,472	2,535
...transplanted at this program	2,275	2,320
...transplanted elsewhere	197	215

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

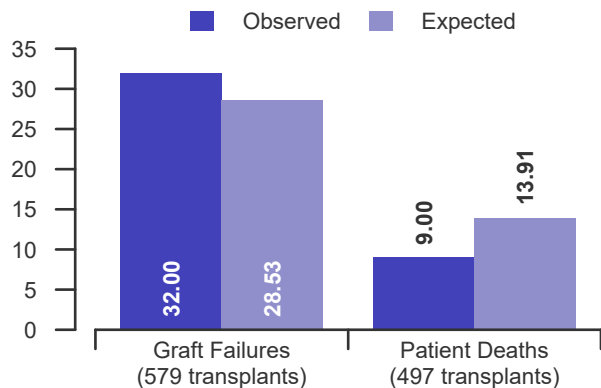
**Figure A2. Transplant rates 01/01/2022 - 12/31/2023**



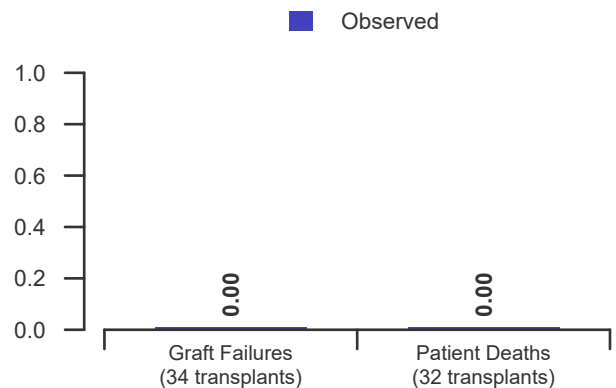
**Figure A3. Pre-transplant mortality rates 01/01/2022 - 12/31/2023**



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



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





## B. Waiting List Information

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

Waiting List Registrations	Counts for this center		Activity for 01/01/2023 to 12/31/2023 as percent of registrants on waiting list on 01/01/2023		
	01/01/2022-12/31/2022	01/01/2023-12/31/2023	This Center (%)	OPTN Region (%)	U.S. (%)
<b>On waiting list at start</b>	775	729	100.0	100.0	100.0
<b>Additions</b>					
New listings at this center	397	455	62.4	65.1	49.0
<b>Removals</b>					
Transferred to another center	13	9	1.2	0.9	1.3
Received living donor transplant*	52	50	6.9	8.2	6.5
Received deceased donor transplant*	181	267	36.6	37.3	22.1
Died	36	30	4.1	3.4	4.1
Transplanted at another center	45	30	4.1	4.8	4.8
Deteriorated	54	48	6.6	6.3	5.0
Recovered	3	3	0.4	0.5	0.3
Other reasons	59	24	3.3	4.1	5.3
<b>On waiting list at end of period</b>	729	723	99.2	99.6	99.6

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





## B. Waiting List Information

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

Demographic Characteristic	New Waiting List Registrations 01/01/2023 to 12/31/2023 (%)			All Waiting List Registrations on 12/31/2023 (%)		
	This Center	OPTN Region	U.S.	This Center	OPTN Region	U.S.
	(N=455)	(N=3,269)	(N=46,578)	(N=723)	(N=5,007)	(N=94,709)
<b>All (%)</b>	100.0	100.0	100.0	100.0	100.0	100.0
<b>Ethnicity/Race (%)*</b>						
White	56.3	60.9	39.5	59.8	57.5	35.6
African-American	32.3	30.5	30.6	26.6	33.1	30.7
Hispanic/Latino	4.6	3.9	19.9	6.4	4.4	21.8
Asian	2.2	3.4	7.8	3.5	3.8	9.9
Other	3.3	1.0	1.9	3.0	1.2	1.9
Unknown	1.3	0.2	0.3	0.8	0.2	0.1
<b>Age (%)</b>						
<2 years	0.7	0.2	0.2	0.1	0.1	0.1
2-11 years	0.4	1.1	0.9	0.6	0.7	0.7
12-17 years	0.7	1.4	1.4	0.4	0.7	1.2
18-34 years	9.2	8.9	10.0	10.9	9.9	9.5
35-49 years	25.7	23.1	23.6	26.1	25.2	25.7
50-64 years	38.5	40.5	41.2	38.7	41.8	43.8
65-69 years	14.1	13.6	13.5	12.9	12.8	12.4
70+ years	10.8	11.1	9.2	10.2	8.8	6.6
<b>Gender (%)</b>						
Male	60.9	60.7	61.9	62.1	60.6	62.4
Female	39.1	39.3	38.1	37.9	39.4	37.6

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



## B. Waiting List Information

**Table B3. Medical characteristics of waiting list candidates**

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

Medical Characteristic	New Waiting List Registrations 01/01/2023 to 12/31/2023 (%)			All Waiting List Registrations on 12/31/2023 (%)		
	This Center	OPTN Region	U.S.	This Center	OPTN Region	U.S.
	(N=455)	(N=3,269)	(N=46,578)	(N=723)	(N=5,007)	(N=94,709)
<b>All (%)</b>	100.0	100.0	100.0	100.0	100.0	100.0
<b>Blood Type (%)</b>						
O	45.3	47.0	49.6	51.0	52.6	54.7
A	33.8	35.6	31.6	31.4	29.1	26.8
B	16.3	14.0	15.1	14.5	15.8	16.1
AB	4.6	3.3	3.7	3.0	2.5	2.4
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
<b>Previous Transplant (%)</b>						
Yes	16.5	13.6	12.4	20.1	15.8	13.3
No	83.5	86.4	87.6	79.9	84.2	86.7
Unknown	0.0	0.0	0.0	0.0	0.0	0.0
<b>Initial CPRA (%)</b>						
0-9%	10.3	11.1	10.2	49.4	49.7	54.1
10-79%	14.5	17.1	15.7	11.9	15.5	14.5
80+%	8.8	8.2	7.6	7.9	8.6	7.0
Unknown	66.4	63.6	66.6	30.8	26.2	24.3
<b>Primary Disease (%)*</b>						
Glomerular Diseases	18.7	18.9	18.0	18.8	19.3	17.8
Tubular and Interstitial Diseases	4.4	4.5	3.6	6.6	5.0	3.7
Polycystic Kidneys	6.8	7.9	6.5	8.2	7.8	6.7
Congenital, Familial, Metabolic	2.4	2.7	2.0	3.0	2.1	2.0
Diabetes	34.3	32.9	35.4	34.3	33.8	37.3
Renovascular & Vascular Diseases	0.0	0.0	0.1	0.1	0.0	0.1
Neoplasms	1.1	0.6	0.4	0.7	0.3	0.4
Hypertensive Nephrosclerosis	14.3	19.8	20.0	15.8	21.9	20.4
Other	17.1	12.4	13.6	12.2	9.5	11.4
Missing*	0.9	0.3	0.3	0.3	0.3	0.3

\* When "retransplant" is indicated, the primary disease is passed forward from the prior transplant in order to indicate the initial primary disease causing organ failure. "Missing" may include some patients for whom retransplant is indicated but no prior diagnosis can be found.



## B. Waiting List Information

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

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
<b>All Candidates</b>				
Count on waiting list at start*	774	2,099	5,228	95,588
Person Years**	1,475.0	4,001.7	10,011.7	189,465.4
Removals for Transplant	550	1,255	4,369	52,604
<b>Adult (18+) Candidates</b>				
Count on waiting list at start*	765	2,076	5,156	93,893
Person Years**	1,452.4	3,955.6	9,877.3	185,947.8
Removals for transplant	520	1,194	4,205	50,868
<b>Pediatric (&lt;18) Candidates</b>				
Count on waiting list at start*	9	23	72	1,695
Person Years**	22.6	46.1	134.3	3,517.6
Removals for transplant	30	61	164	1,736

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

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

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

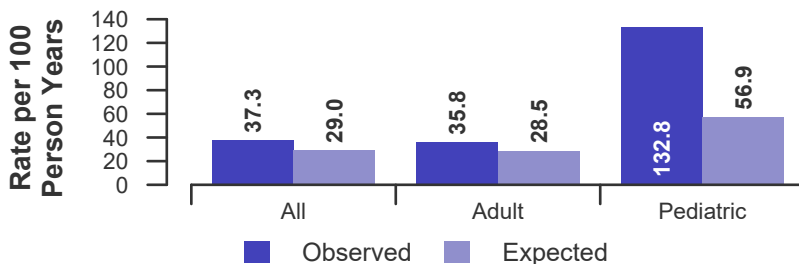


Figure B2. Transplant rate ratio estimate

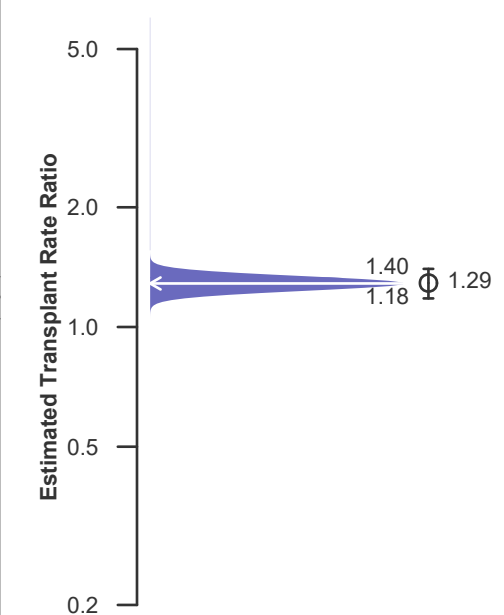
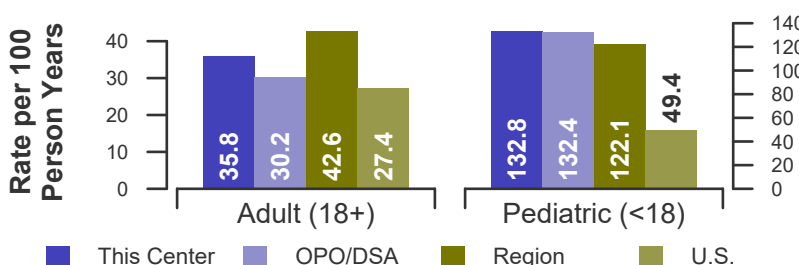


Figure B3. Observed adult (18+) and pediatric (<18) transplant rates: 01/01/2022 - 12/31/2023





## B. Waiting List Information

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

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
<b>All Candidates</b>				
Count on waiting list at start*	774	2,099	5,228	95,588
Person Years**	1,475.0	4,001.7	10,011.7	189,465.4
Removals for Transplant	448	978	3,546	40,590
<b>Adult (18+) Candidates</b>				
Count on waiting list at start*	765	2,076	5,156	93,893
Person Years**	1,452.4	3,955.6	9,877.3	185,947.8
Removals for transplant	431	939	3,434	39,351
<b>Pediatric (&lt;18) Candidates</b>				
Count on waiting list at start*	9	23	72	1,695
Person Years**	22.6	46.1	134.3	3,517.6
Removals for transplant	17	39	112	1,239

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

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

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

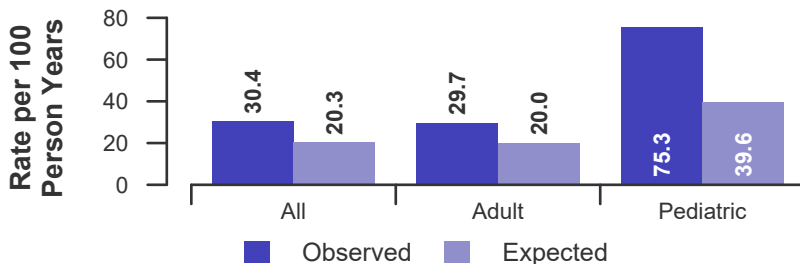


Figure B2D. Deceased donor transplant rate ratio estimate

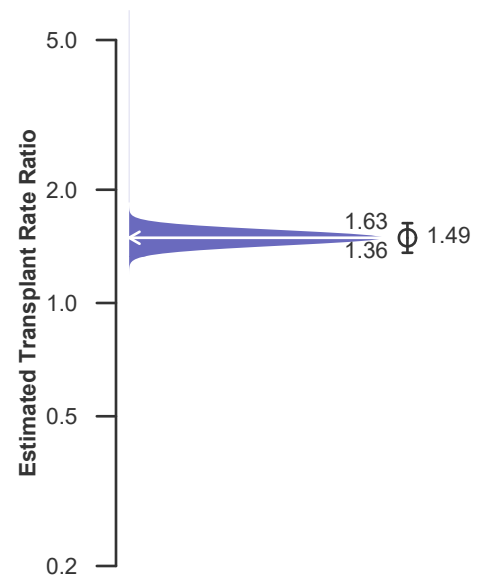
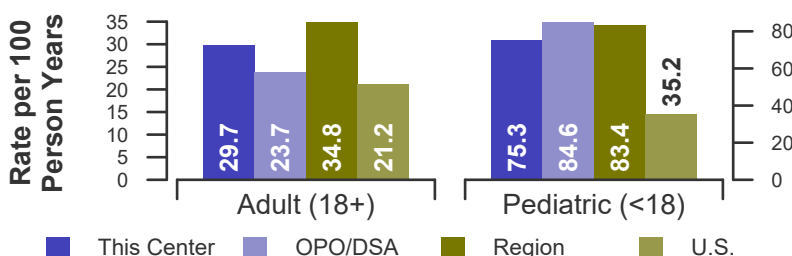


Figure B3D. Observed adult (18+) and pediatric (<18) deceased donor transplant rates: 01/01/2022 - 12/31/2023





## B. Waiting List Information

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

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
<b>All Candidates</b>				
Count on waiting list at start*	774	2,099	5,228	95,588
Person Years**	1,651.8	4,641.5	11,195.4	205,809.9
Number of deaths	93	222	606	11,491
<b>Adult (18+) Candidates</b>				
Count on waiting list at start*	765	2,076	5,156	93,893
Person Years**	1,629.2	4,591.7	11,055.2	202,144.8
Number of deaths	93	220	603	11,445
<b>Pediatric (&lt;18) Candidates</b>				
Count on waiting list at start*	9	23	72	1,695
Person Years**	22.6	49.7	140.2	3,665.1
Number of deaths	0	2	3	46

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

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

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

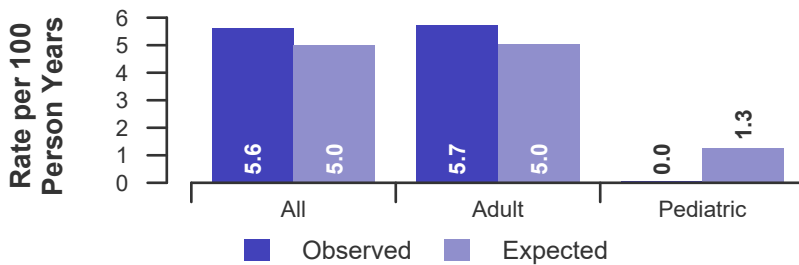


Figure B5. Pre-transplant mortality rate ratio estimate

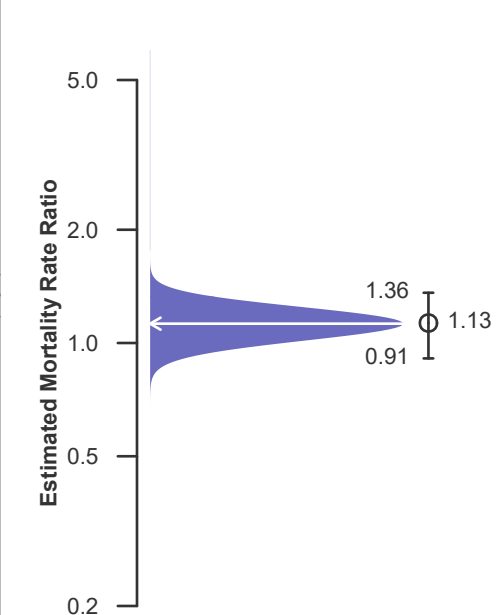
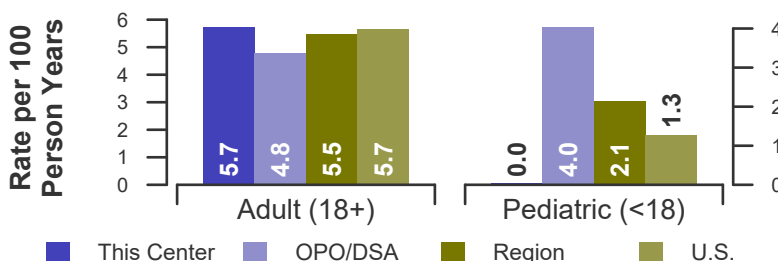


Figure B6. Observed adult (18+) and pediatric (<18) pre-transplant mortality rates: 01/01/2022 - 12/31/2023





## B. Waiting List Information

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

Waiting List Registrations	This Center	OPO/DSA	Region	U.S.
<b>All Patients</b>				
Count at risk during the evaluation period	2,942	7,751	22,562	317,910
Person-years*	4,187.9	11,152.0	33,339.7	471,972.1
Number of Deaths	191	539	1,576	22,057
<b>Adult (18+) Patients</b>				
Count at risk during the evaluation period	2,820	7,502	21,818	308,694
Person-years*	3,997.1	10,770.3	32,206.1	457,834.1
Number of Deaths	191	538	1,570	21,960
<b>Pediatric (&lt;18) Patients</b>				
Count at risk during the evaluation period	122	249	744	9,216
Person-years*	190.8	381.7	1,133.6	14,138.1
Number of Deaths	0	1	6	97

\* Person-years are calculated as days (converted to fractional years). The number of days from 01/01/2022, or from the date of first wait listing until death, reaching 7 years after listing or December 31, 2023.

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

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

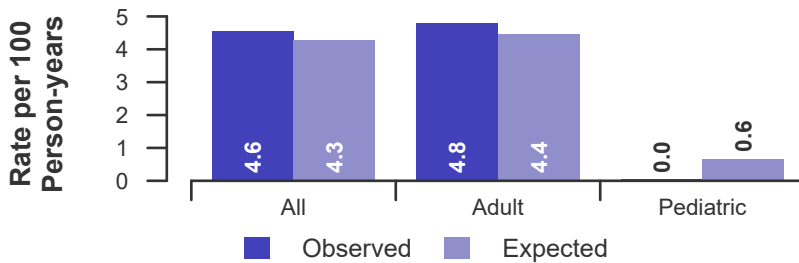


Figure B8. HR estimate of patient mortality after listing

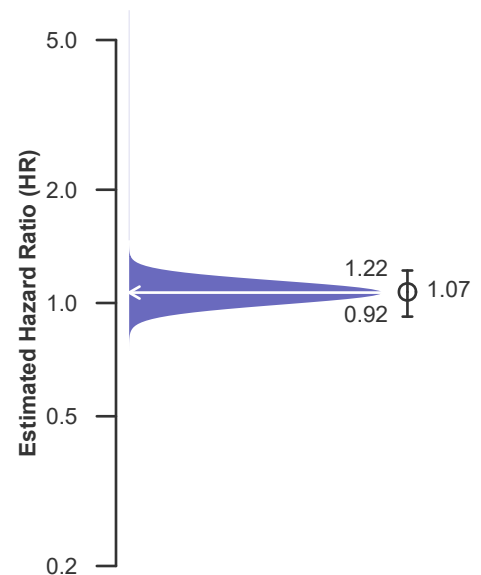
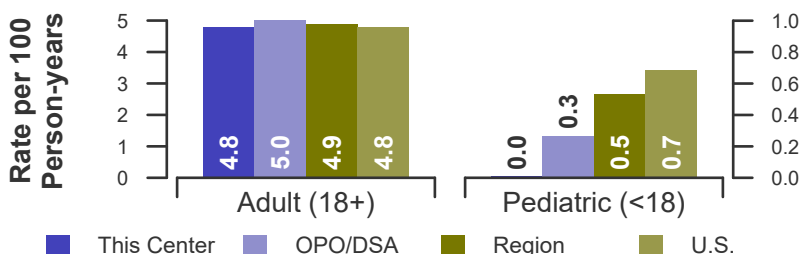


Figure B9. Observed adult (18+) and pediatric (<18) rates of patient mortality after listing: 01/01/2022 - 12/31/2023





## B. Waiting List Information

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

Waiting list status (survival status)	This Center (N=398)			U.S. (N=42,768)		
	Months Since Listing			Months Since Listing		
	6	12	18	6	12	18
<b>Alive on waiting list (%)</b>	74.6	58.0	44.5	73.5	59.7	49.0
<b>Died on the waiting list without transplant (%)</b>	1.0	2.3	2.8	1.4	2.4	3.3
<b>Removed without transplant (%):</b>						
Condition worsened (status unknown)	0.5	1.8	2.8	0.7	1.6	2.7
Condition improved (status unknown)	0.0	0.0	0.0	0.1	0.2	0.3
Refused transplant (status unknown)	0.0	0.0	0.0	0.0	0.1	0.1
Other	2.5	3.8	4.3	0.8	1.7	3.0
<b>Transplant (living donor from waiting list only) (%):</b>						
Functioning (alive)	5.5	7.5	6.3	5.2	8.3	7.0
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	0.3	0.0	0.1	0.1
Status Yet Unknown**	0.0	0.0	3.8	0.1	0.2	3.4
<b>Transplant (deceased donor) (%):</b>						
Functioning (alive)	12.6	20.1	18.6	15.6	19.9	15.7
Failed-Retransplanted (alive)	0.0	0.0	0.0	0.0	0.0	0.0
Failed-alive not retransplanted	0.0	0.0	0.5	0.1	0.1	0.1
Died	0.3	0.3	0.3	0.3	0.7	1.0
Status Yet Unknown*	2.3	4.8	14.1	2.0	4.4	13.5
<b>Lost or Transferred (status unknown) (%)</b>	0.8	1.5	2.0	0.2	0.4	0.8
<b>TOTAL (%)</b>	100.0	100.0	100.0	100.0	100.0	100.0
Total % known died on waiting list or after transplant	1.3	2.5	3.3	1.8	3.2	4.4
Total % known died or removed as unstable	1.8	4.3	6.0	2.4	4.8	7.1
Total % removed for transplant	20.6	32.7	43.7	23.2	33.7	40.8
Total % with known functioning transplant (alive)	18.1	27.6	24.9	20.7	28.3	22.7

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



## B. Waiting List Information

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

Characteristic	Percent transplanted at time periods since listing									
	This Center					United States				
	N	30 day	1 year	2 years	3 years	N	30 day	1 year	2 years	3 years
<b>All</b>	805	2.2	15.8	23.9	31.6	103,251	5.2	21.4	29.3	35.4
<b>Ethnicity/Race*</b>										
White	496	1.2	12.9	19.6	27.0	39,634	5.3	22.5	30.5	36.0
African-American	211	2.4	20.4	30.8	39.8	32,321	5.2	21.6	29.9	36.6
Hispanic/Latino	47	6.4	27.7	31.9	36.2	20,499	5.5	20.9	28.4	34.5
Asian	31	3.2	9.7	29.0	35.5	8,785	3.3	16.0	23.3	29.3
Other	20	15.0	20.0	30.0	40.0	2,012	6.6	25.1	32.7	38.5
Unknown	0	--	--	--	--	0	--	--	--	--
<b>Age</b>										
<2 years	3	0.0	33.3	33.3	33.3	109	7.3	40.4	63.3	70.6
2-11 years	10	0.0	40.0	60.0	60.0	833	7.9	50.4	65.9	73.2
12-17 years	8	0.0	100.0	100.0	100.0	1,463	7.1	46.7	59.9	64.9
18-34 years	91	2.2	16.5	24.2	34.1	9,943	5.5	24.1	34.3	42.4
35-49 years	208	3.8	18.3	26.4	33.2	25,127	4.9	21.0	29.4	35.9
50-64 years	318	2.2	14.2	23.0	30.8	43,692	5.1	19.6	26.9	32.7
65-69 years	112	0.0	10.7	15.2	25.9	14,164	5.0	20.1	27.2	32.6
70+ years	55	1.8	7.3	18.2	21.8	7,920	5.7	23.0	30.0	34.7
<b>Gender</b>										
Male	508	2.8	16.1	24.4	31.5	63,947	5.4	20.8	28.3	34.2
Female	297	1.3	15.2	22.9	31.6	39,304	4.8	22.3	31.0	37.3

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

Characteristic	N	Percent transplanted at time periods since listing								
		This Center				United States				
		30 day	1 year	2 years	3 years	N	30 day	1 year	2 years	3 years
<b>All</b>	805	2.2	15.8	23.9	31.6	103,251	5.2	21.4	29.3	35.4
<b>Blood Type</b>										
O	363	1.7	12.1	17.1	23.4	51,603	4.5	18.1	24.9	30.5
A	280	3.6	16.8	25.0	36.8	32,135	6.4	25.7	35.3	42.3
B	130	0.0	20.8	38.5	43.1	15,615	3.7	18.7	26.3	32.2
AB	32	6.2	28.1	31.2	31.2	3,898	9.5	39.6	50.4	55.8
<b>Previous Transplant</b>										
Yes	130	0.8	10.0	21.5	26.9	13,651	3.4	20.4	29.1	35.2
No	675	2.5	16.9	24.3	32.4	89,600	5.4	21.5	29.4	35.4
<b>Peak PRA/CPRA</b>										
0-9%	694	2.3	15.0	23.1	31.3	81,338	5.5	20.9	28.5	34.5
10-79%	56	3.6	21.4	28.6	28.6	13,399	4.4	20.5	28.9	35.1
80+%	55	0.0	20.0	29.1	38.2	8,400	3.3	27.3	38.1	44.4
Unknown	0	--	--	--	--	2	100.0	100.0	100.0	100.0
<b>Primary Disease*</b>										
Glomerular Diseases	132	2.3	13.6	21.2	28.0	18,408	4.4	22.6	32.1	39.5
Tubular & Interstitial Diseases	54	0.0	18.5	29.6	37.0	3,860	6.3	23.4	30.9	36.2
Polycystic Kidneys	65	1.5	9.2	18.5	30.8	6,773	4.0	20.0	29.2	37.0
Congenital, Familial, Metabolic	14	0.0	21.4	28.6	35.7	1,986	5.8	32.2	43.3	50.8
Diabetes	315	1.6	11.1	19.0	27.3	38,584	3.6	16.8	23.4	28.4
Renovascular & Vascular Diseases	2	0.0	50.0	50.0	50.0	160	4.4	23.1	31.2	37.5
Neoplasms	6	0.0	16.7	50.0	50.0	350	6.9	28.6	37.4	41.1
Hypertensive Nephrosclerosis	114	3.5	21.9	28.9	37.7	20,785	5.7	22.4	30.8	37.8
Other	98	5.1	28.6	34.7	38.8	12,005	10.7	30.9	38.7	43.7
Missing*	5	0.0	0.0	20.0	20.0	340	2.1	11.5	20.0	24.4

\* When "retransplant" is indicated, the primary disease is passed forward from the prior transplant in order to indicate the initial primary disease causing organ failure. "Missing" may include some patients for whom retransplant is indicated but no prior diagnosis can be found.



## B. Waiting List Information

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

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

Percentile	Center	Months to Transplant**		U.S.
		OPO/DSA	Region	
5th	1	0.9	0.5	0.6
10th	2.2	2.2	1.1	1.7
25th	7.6	8.2	4.6	7.3
50th (median time to transplant)	26.9	31.5	17.6	30.2
75th	Not Observed	Not Observed	Not Observed	Not Observed

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

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



## B. Waiting List Information

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

Offers Acceptance Characteristics	This Center	OPO/DSA	Region	U.S.
<b>Overall</b>				
Number of Offers	26,412	60,390	200,647	3,188,445
Number of Acceptances	252	491	1,713	19,396
Expected Acceptances	162.2	488.3	1,585.1	19,396.5
Offer Acceptance Ratio*	1.55	1.01	1.08	1.00
95% Credible Interval**	[1.36, 1.74]	--	--	--
<b>Low-KDRI Donors (KDRI &lt; 1.05)</b>				
Number of Offers	2,686	4,946	18,100	378,545
Number of Acceptances	68	137	455	5,630
Expected Acceptances	47.9	119.8	398.1	5,630.3
Offer Acceptance Ratio*	1.40	1.14	1.14	1.00
95% Credible Interval**	[1.09, 1.75]	--	--	--
<b>Medium-KDRI Donors (1.05 &lt; KDRI &lt; 1.75)</b>				
Number of Offers	18,954	40,148	131,501	2,021,807
Number of Acceptances	144	271	1,022	10,970
Expected Acceptances	87.8	265.2	924.8	10,968.7
Offer Acceptance Ratio*	1.63	1.02	1.10	1.00
95% Credible Interval**	[1.37, 1.90]	--	--	--
<b>High-KDRI Donors (KDRI &gt; 1.75)</b>				
Number of Offers	4,772	15,296	51,046	788,093
Number of Acceptances	40	83	236	2,796
Expected Acceptances	26.4	103.3	262.2	2,797.5
Offer Acceptance Ratio*	1.48	0.81	0.90	1.00
95% Credible Interval**	[1.07, 1.96]	--	--	--
<b>Hard-to-Place Kidneys (Over 100 Offers)</b>				
Number of Offers	23,432	50,916	167,204	2,764,405
Number of Acceptances	17	44	407	3,658
Expected Acceptances	29.4	107.1	324.7	3,651.6
Offer Acceptance Ratio*	0.60	0.42	1.25	1.00
95% Credible Interval**	[0.36, 0.90]	--	--	--

\* 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 accepts more offers compared to national offer acceptance practices (e.g., an offer acceptance ratio of 1.25 indicates a center accepts 25% more offers than is expected based on national offer acceptance practices), while a ratio below one indicates the program accepts fewer offers compared to national offer acceptance practices (e.g., an offer acceptance ratio of 0.75 indicates a center accepts 25% fewer offers than is expected based on national offer acceptance practices).

\*\* As an example, the 95% Credible Interval for the overall offer acceptance ratio, [1.36, 1.74], indicates the location of MIUM's true offer acceptance ratio with 95% probability. The best estimate is 55% more likely to accept an offer compared to national acceptance behavior, but MIUM's performance could plausibly range from 36% higher acceptance up to 74% higher acceptance.



## B. Waiting List Information

Figure B10. Offer acceptance: Overall

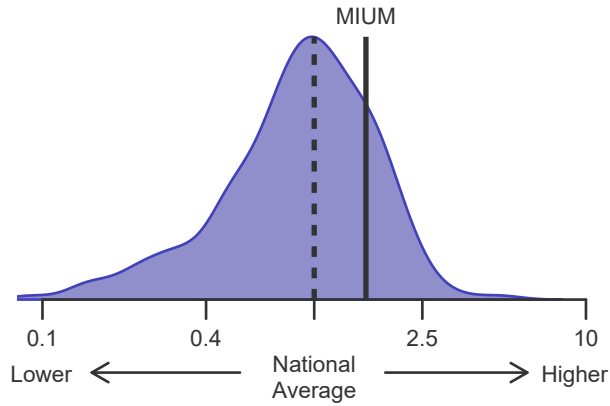


Figure B11. Offer acceptance: Low-KDRI

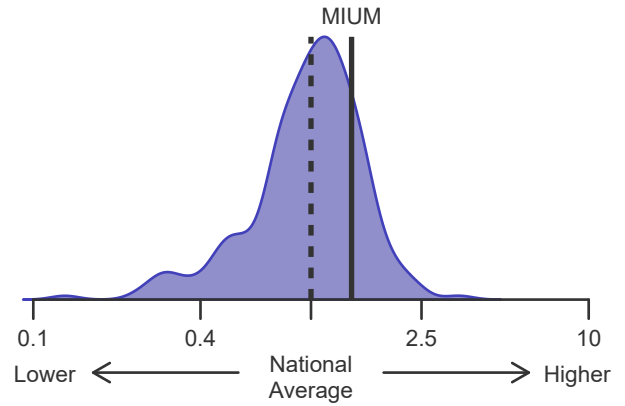


Figure B12. Offer acceptance: Medium-KDRI

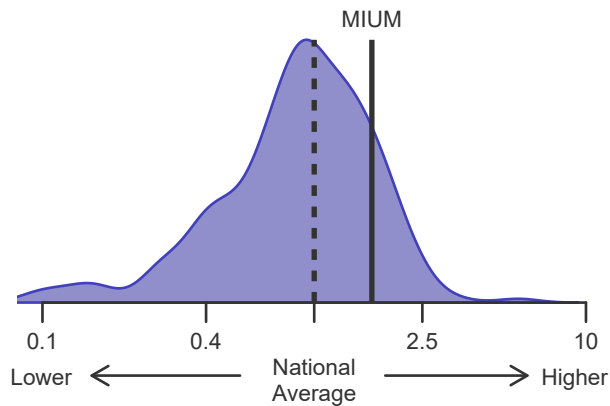


Figure B13. Offer acceptance: High-KDRI

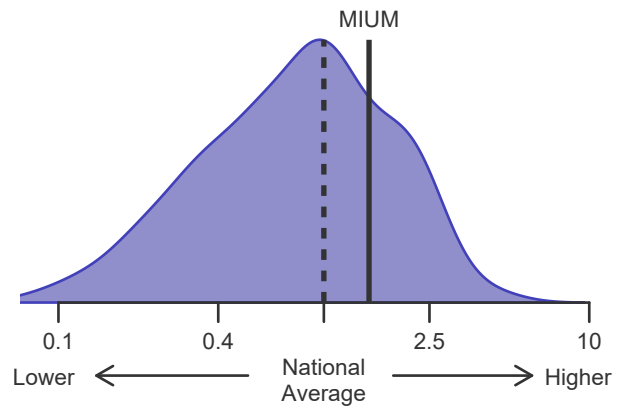
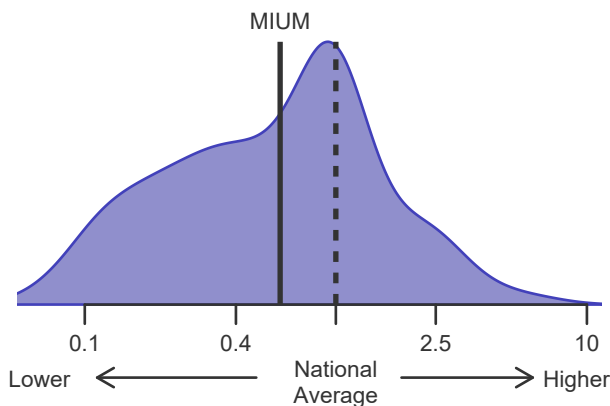


Figure B14. Offer acceptance: Offer number > 100





## C. Transplant Information

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

Characteristic	Percentage in each category		
	Center (N=267)	Region (N=1,874)	U.S. (N=21,041)
<b>Ethnicity/Race (%)*</b>			
White	54.7	55.3	33.6
African-American	36.0	36.0	36.3
Hispanic/Latino	3.7	4.5	19.8
Asian	3.7	3.5	8.2
Other	1.9	0.7	1.9
Unknown	0.0	0.0	0.0
<b>Age (%)</b>			
<2 years	1.1	0.2	0.1
2-11 years	1.5	1.4	1.2
12-17	1.1	1.1	1.4
18-34	8.2	6.7	9.0
35-49 years	25.5	22.5	22.2
50-64 years	35.6	39.5	40.1
65-69 years	13.9	15.5	14.3
70+ years	13.1	13.1	11.9
<b>Gender (%)</b>			
Male	62.5	61.1	59.9
Female	37.5	38.9	40.1

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



## C. Transplant Information

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

Characteristic	Percentage in each category		
	Center (N=54)	Region (N=419)	U.S. (N=6,289)
<b>Ethnicity/Race (%)*</b>			
White	81.5	83.3	61.2
African-American	9.3	7.4	11.7
Hispanic/Latino	5.6	4.1	17.9
Asian	0.0	3.8	7.5
Other	3.7	1.4	1.6
Unknown	0.0	0.0	0.0
<b>Age (%)</b>			
<2 years	1.9	0.2	0.1
2-11 years	1.9	2.4	2.0
12-17	5.6	3.3	1.7
18-34	16.7	18.9	14.9
35-49 years	27.8	20.5	25.2
50-64 years	27.8	34.1	35.4
65-69 years	11.1	10.3	10.3
70+ years	7.4	10.3	10.3
<b>Gender (%)</b>			
Male	68.5	64.0	62.8
Female	31.5	36.0	37.2

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



## C. Transplant Information

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

Characteristic	Percentage in each category		
	Center (N=267)	Region (N=1,874)	U.S. (N=21,041)
<b>Blood Type (%)</b>			
O	36.0	44.5	46.7
A	36.7	36.7	33.5
B	21.7	14.9	14.9
AB	5.6	3.9	4.9
<b>Previous Transplant (%)</b>			
Yes	21.7	14.9	12.9
No	78.3	85.1	87.1
<b>Peak PRA/CPRA Prior to Transplant (%)</b>			
0-9%	40.1	33.9	37.1
10-79%	22.1	23.5	24.9
80+ %	21.3	16.2	18.2
Unknown	16.5	26.5	19.8
<b>Body Mass Index (%)</b>			
0-20	9.0	7.8	9.1
21-25	27.7	22.8	27.3
26-30	29.2	29.9	31.3
31-35	23.6	24.7	21.2
36-40	9.7	11.9	8.7
41+	0.7	2.8	1.5
Unknown	0.0	0.1	0.9
<b>Primary Disease (%)*</b>			
Glomerular Diseases	25.8	20.0	20.1
Tubular and Interstitial Disease	4.9	4.9	3.8
Polycystic Kidneys	8.2	8.1	6.5
Congenital, Familial, Metabolic	4.1	3.0	2.4
Diabetes	26.2	29.8	31.5
Renovascular & Vascular Diseases	0.0	0.0	0.1
Neoplasms	0.7	0.6	0.4
Hypertensive Nephrosclerosis	19.1	21.9	22.8
Other Kidney	10.5	11.4	12.1
Missing*	0.4	0.2	0.3

\* When "retransplant" is indicated, the primary disease is passed forward from the prior transplant in order to indicate the initial primary disease causing organ failure. "Missing" may include some patients for whom retransplant is indicated but no prior diagnosis can be found.



## C. Transplant Information

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

Characteristic	Percentage in each category		
	Center (N=54)	Region (N=419)	U.S. (N=6,289)
<b>Blood Type (%)</b>			
O	61.1	39.6	43.0
A	33.3	45.1	38.4
B	5.6	11.0	13.9
AB	0.0	4.3	4.6
<b>Previous Transplant (%)</b>			
Yes	13.0	12.9	11.4
No	87.0	87.1	88.6
<b>Peak PRA/CPRA Prior to Transplant (%)</b>			
0-9%	50.0	52.5	47.2
10-79%	20.4	24.6	24.1
80+ %	7.4	3.3	5.2
Unknown	22.2	19.6	23.5
<b>Body Mass Index (%)</b>			
0-20	16.7	12.4	12.2
21-25	29.6	26.7	29.2
26-30	31.5	29.1	30.1
31-35	16.7	21.7	20.2
36-40	5.6	8.8	6.9
41+	0.0	1.2	1.2
Unknown	0.0	0.0	0.1
<b>Primary Disease (%)*</b>			
Glomerular Diseases	22.2	25.8	27.7
Tubular and Interstitial Disease	3.7	4.8	4.8
Polycystic Kidneys	7.4	14.1	11.8
Congenital, Familial, Metabolic	3.7	4.8	3.4
Diabetes	35.2	22.7	25.7
Renovascular & Vascular Diseases	0.0	0.0	0.1
Neoplasms	0.0	1.4	0.7
Hypertensive Nephrosclerosis	9.3	15.3	14.8
Other Kidney	14.8	10.3	10.7
Missing*	3.7	1.0	0.3

\* When "retransplant" is indicated, the primary disease is passed forward from the prior transplant in order to indicate the initial primary disease causing organ failure. "Missing" may include some patients for whom retransplant is indicated but no prior diagnosis can be found.





## C. Transplant Information

**Table C3D. Deceased donor characteristics**  
Transplants performed between 01/01/2023 and 12/31/2023

Donor Characteristic	Percentage in each category		
	Center (N=267)	Region (N=1,874)	U.S. (N=21,041)
<b>Cause of Death (%)</b>			
Deceased: Stroke	19.1	16.9	20.2
Deceased: MVA	13.9	13.0	12.7
Deceased: Other	67.0	70.1	67.1
<b>Ethnicity/Race (%)*</b>			
White	77.2	78.6	66.5
African-American	15.4	13.8	14.2
Hispanic/Latino	6.0	6.2	14.9
Asian	1.5	0.8	2.8
Other	0.0	0.5	1.5
Not Reported	0.0	0.0	0.1
<b>Age (%)</b>			
<2 years	0.7	0.4	0.6
2-11 years	1.5	1.3	2.0
12-17	4.5	3.3	3.2
18-34	26.6	27.6	28.9
35-49 years	29.2	38.6	35.3
50-64 years	34.5	25.9	26.8
65-69 years	3.0	2.7	2.6
70+ years	0.0	0.2	0.5
<b>Gender (%)</b>			
Male	65.9	62.6	63.8
Female	34.1	37.4	36.2
<b>Blood Type (%)</b>			
O	37.5	46.4	48.4
A	47.6	39.5	36.4
B	10.1	11.3	12.0
AB	4.9	2.8	3.3
Unknown	0.0	0.0	0.0

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



## C. Transplant Information

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

Donor Characteristic	Percentage in each category		
	Center (N=54)	Region (N=419)	U.S. (N=6,289)
<b>Ethnicity/Race (%)*</b>			
White	85.2	87.8	68.7
African-American	9.3	4.1	7.2
Hispanic/Latino	1.9	4.1	16.9
Asian	0.0	1.4	5.2
Other	3.7	2.6	1.8
Not Reported	0.0	0.0	0.2
<b>Age (%)</b>			
0-11 years	0.0	0.0	0.0
12-17	0.0	0.0	0.0
18-34	13.0	24.1	23.5
35-49 years	44.4	39.1	38.5
50-64 years	38.9	30.8	31.5
65-69 years	1.9	4.3	4.9
70+ years	1.9	1.7	1.7
<b>Gender (%)</b>			
Male	29.6	34.8	36.5
Female	70.4	65.2	63.5
<b>Blood Type (%)</b>			
O	66.7	58.0	60.1
A	27.8	32.7	29.3
B	5.6	7.9	8.6
AB	0.0	1.4	2.0
Unknown	0.0	0.0	0.0

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



## C. Transplant Information

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

Transplant Characteristic	Percentage in each category		
	Center (N=267)	Region (N=1,874)	U.S. (N=21,041)
<b>Cold Ischemic Time (Hours): Local (%)</b>			
Deceased: 0-11 hr	3.8	6.7	17.8
Deceased: 12-21 hr	55.6	57.7	55.2
Deceased: 22-31 hr	40.6	31.9	23.6
Deceased: 32-41 hr	0.0	3.2	2.5
Deceased: 42+ hr	0.0	0.4	0.4
Not Reported	0.0	0.2	0.6
<b>Cold Ischemic Time (Hours): Shared (%)</b>			
Deceased: 0-11 hr	4.5	4.9	7.7
Deceased: 12-21 hr	59.7	43.5	50.6
Deceased: 22-31 hr	35.8	38.0	33.6
Deceased: 32-41 hr	0.0	11.0	6.3
Deceased: 42+ hr	0.0	2.3	1.1
Not Reported	0.0	0.4	0.6
<b>Level of Mismatch (%)</b>			
<b>A Locus Mismatches (%)</b>			
0	15.0	12.5	12.0
1	40.8	40.5	38.8
2	44.2	47.0	49.1
Not Reported	0.0	0.1	0.2
<b>B Locus Mismatches (%)</b>			
0	11.2	8.0	6.9
1	26.2	26.8	24.4
2	62.5	65.2	68.5
Not Reported	0.0	0.1	0.2
<b>DR Locus Mismatches (%)</b>			
0	26.6	17.6	15.5
1	45.3	42.3	46.4
2	28.1	40.1	37.9
Not Reported	0.0	0.1	0.2
<b>Total Mismatches (%)</b>			
0	7.9	5.3	4.4
1	1.5	1.6	1.2
2	7.1	4.7	4.3
3	15.0	13.4	13.7
4	32.6	28.0	27.2
5	24.7	30.7	33.1
6	11.2	16.2	15.9
Not Reported	0.0	0.1	0.2
<b>Procedure Type (%)</b>			
Single organ	95.9	93.7	93.9
Multi organ	4.1	6.3	6.1
<b>Dialysis in First Week After Transplant (%)</b>			
Yes	22.5	26.9	32.8
No	77.5	73.1	67.2
Not Reported	0.0	0.0	0.0
<b>Donor Location (%)</b>			
Local Donation Service Area (DSA)	49.8	30.4	38.4
Another Donation Service Area (DSA)	50.2	69.6	61.6
<b>Median Time in Hospital After Transplant</b>	4.0 Days	5.0 Days	5.0 Days



## C. Transplant Information

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

Transplant Characteristic	Percentage in each category		
	Center (N=54)	Region (N=419)	U.S. (N=6,289)
<b>Relation with Donor (%)</b>			
Related	27.8	41.1	36.6
Unrelated	72.2	58.7	62.3
Not Reported	0.0	0.2	1.0
<b>Level of Mismatch (%)</b>			
<b>A Locus Mismatches (%)</b>			
0	24.1	19.8	16.2
1	46.3	48.9	48.2
2	29.6	31.0	32.2
Not Reported	0.0	0.2	3.5
<b>B Locus Mismatches (%)</b>			
0	11.1	12.9	9.7
1	38.9	40.8	40.9
2	50.0	46.1	46.0
Not Reported	0.0	0.2	3.5
<b>DR Locus Mismatches (%)</b>			
0	11.1	15.5	15.3
1	55.6	50.8	47.6
2	33.3	33.4	33.7
Not Reported	0.0	0.2	3.5
<b>Total Mismatches (%)</b>			
0	1.9	5.3	4.9
1	3.7	4.3	3.4
2	20.4	16.2	12.0
3	24.1	20.8	22.1
4	13.0	16.2	17.5
5	24.1	24.3	23.6
6	13.0	12.6	13.1
Not Reported	0.0	0.2	3.5
<b>Procedure Type (%)</b>			
Single organ	100.0	100.0	100.0
Multi organ	0.0	0.0	0.0
<b>Dialysis in First Week After Transplant (%)</b>			
Yes	0.0	1.0	2.7
No	100.0	99.0	97.3
Not Reported	0.0	0.0	0.0
<b>Median Time in Hospital After Transplant</b>	3.0 Days	4.0 Days	4.0 Days



## C. Transplant Information

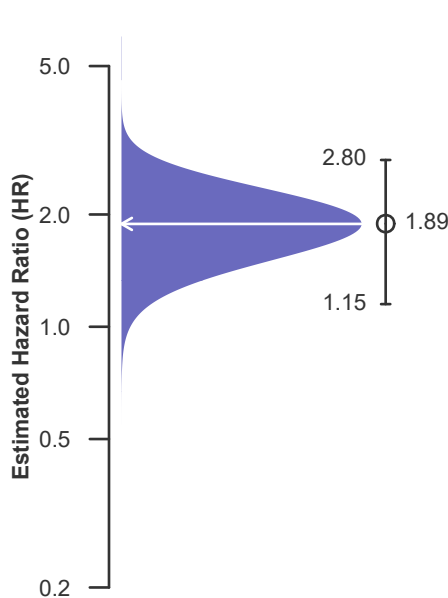
**Table C5. Adult (18+) 1-month survival with a functioning graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	579	58,562
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	96.89% [95.49%-98.32%]	98.49% [98.39%-98.59%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	98.50%	--
Number of observed graft failures (including deaths) during the first month after transplant	18	884
Number of expected graft failures (including deaths) during the first month after transplant	8.60	--
Estimated hazard ratio*	1.89	--
95% credible interval for the hazard ratio**	[1.15, 2.80]	--

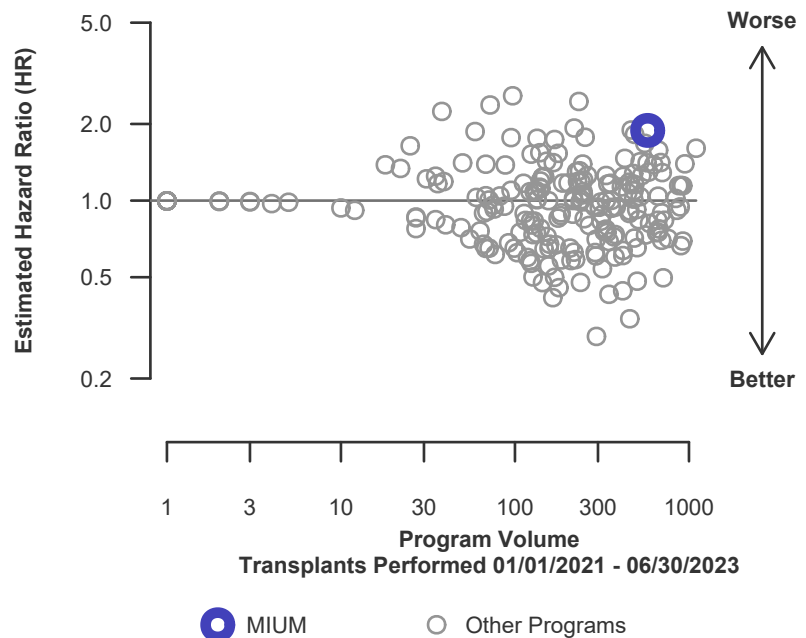
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [1.15, 2.80], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 89% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 15% increased risk up to 180% increased risk.

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



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





## C. Transplant Information

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

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

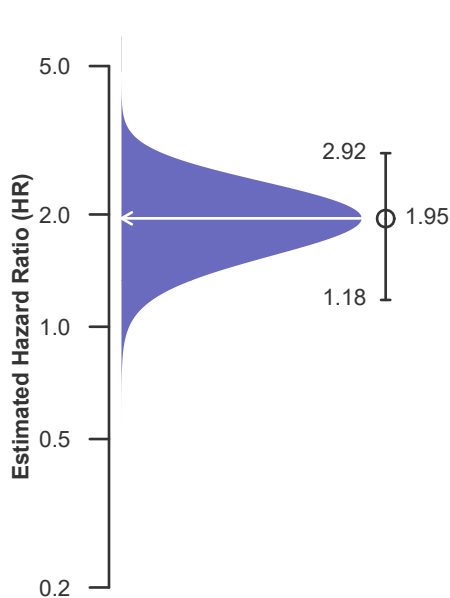
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	461	44,269
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	96.31% [94.61%-98.05%]	98.26% [98.14%-98.38%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	98.30%	--
Number of observed graft failures (including deaths) during the first month after transplant	17	770
Number of expected graft failures (including deaths) during the first month after transplant	7.73	--
Estimated hazard ratio*	1.95	--
95% credible interval for the hazard ratio**	[1.18, 2.92]	--

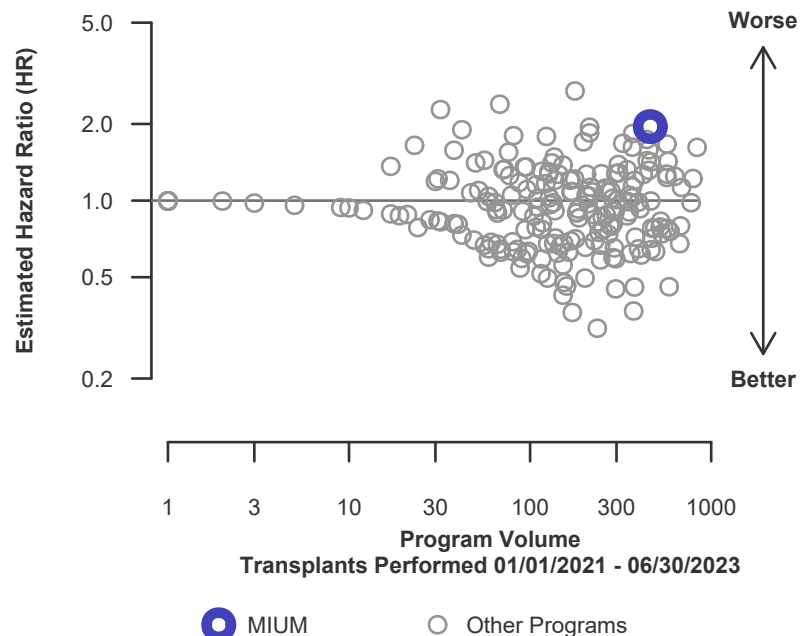
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [1.18, 2.92], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 95% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 18% increased risk up to 192% increased risk.

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



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





## C. Transplant Information

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

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

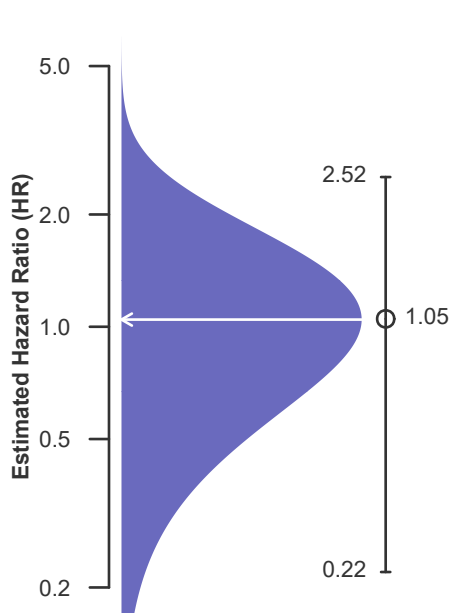
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	118	14,293
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	99.15% [97.51%-100.00%]	99.20% [99.06%-99.35%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	99.26%	--
Number of observed graft failures (including deaths) during the first month after transplant	1	114
Number of expected graft failures (including deaths) during the first month after transplant	0.87	--
Estimated hazard ratio*	1.05	--
95% credible interval for the hazard ratio**	[0.22, 2.52]	--

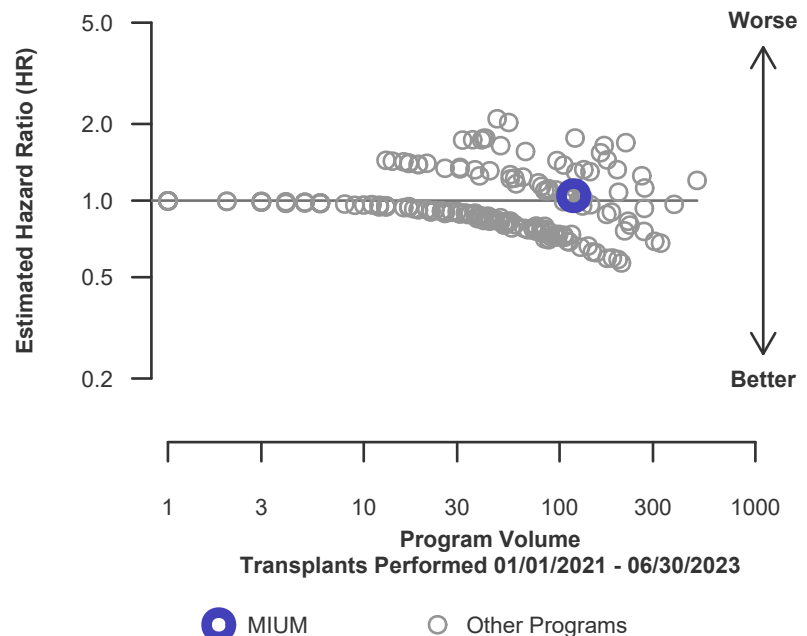
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.22, 2.52], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 5% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 78% reduced risk up to 152% increased risk.

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



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





## C. Transplant Information

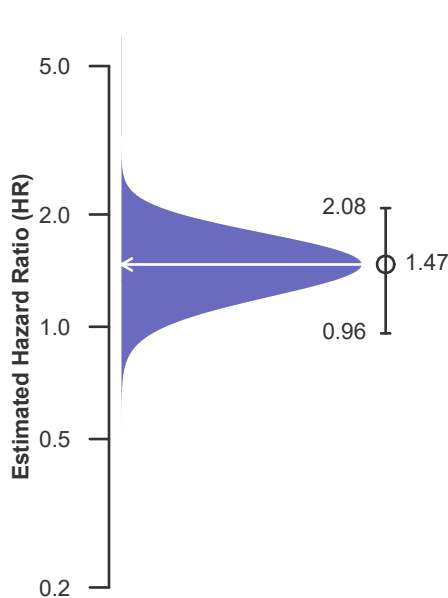
**Table C6. Adult (18+) 90-Day survival with a functioning graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	579	58,562
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	95.85% [94.24%-97.49%]	97.26% [97.13%-97.39%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	97.25%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	24	1,606
Number of expected graft failures (including deaths) during the first 90 days after transplant	15.70	--
Estimated hazard ratio*	1.47	--
95% credible interval for the hazard ratio**	[0.96, 2.08]	--

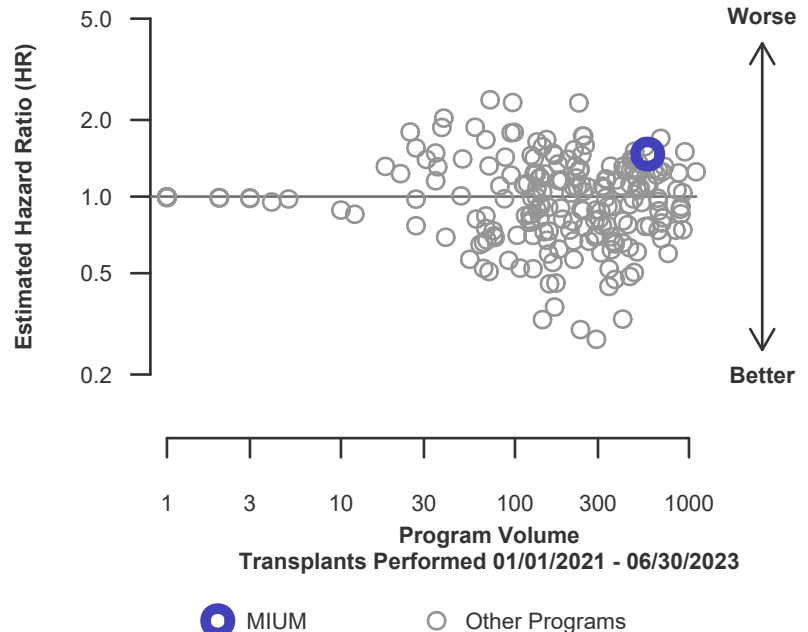
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.96, 2.08], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 47% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 4% reduced risk up to 108% increased risk.

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



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







## C. Transplant Information

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

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

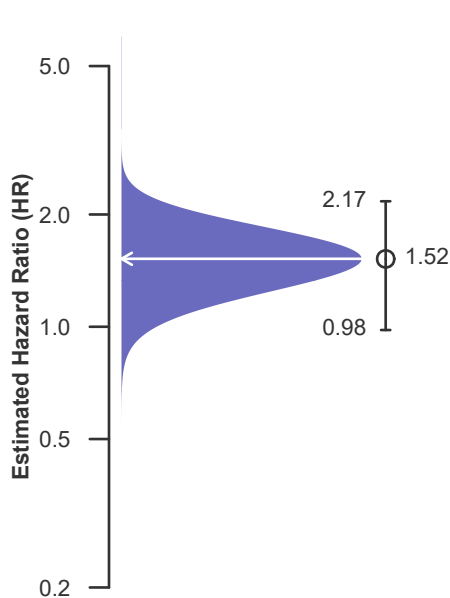
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	461	44,269
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	95.01% [93.04%-97.02%]	96.75% [96.58%-96.91%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	96.82%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	23	1,440
Number of expected graft failures (including deaths) during the first 90 days after transplant	14.43	--
Estimated hazard ratio*	1.52	--
95% credible interval for the hazard ratio**	[0.98, 2.17]	--

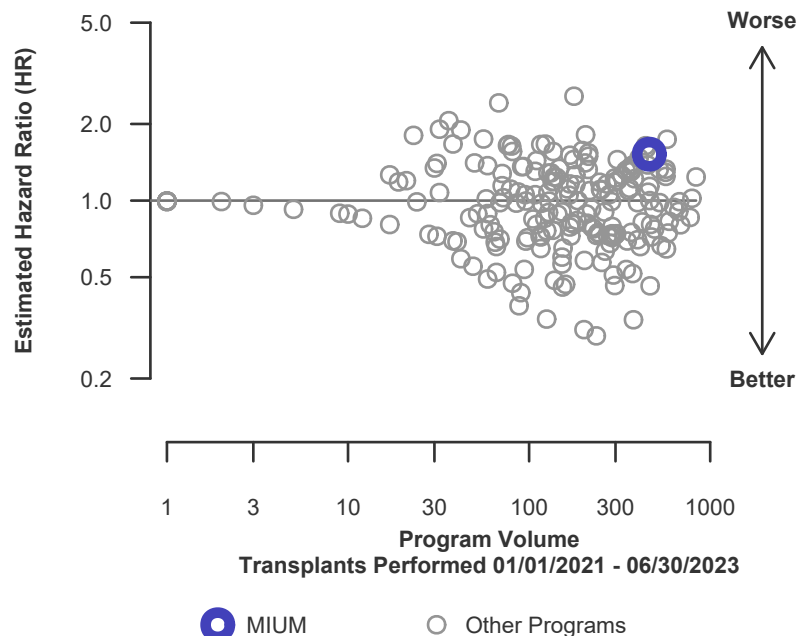
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.98, 2.17], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 52% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 2% reduced risk up to 117% increased risk.

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



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





## C. Transplant Information

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

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

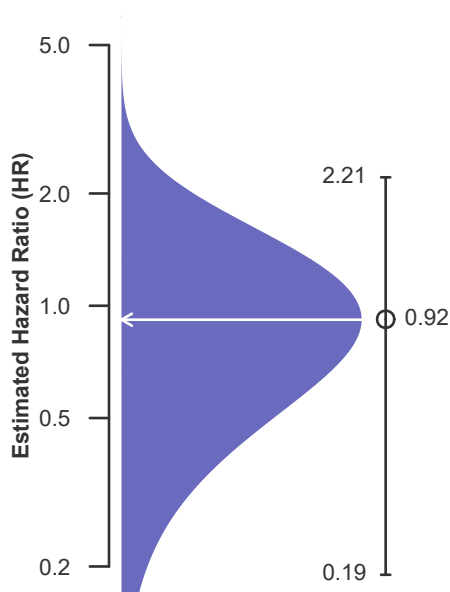
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	118	14,293
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	99.15% [97.51%-100.00%]	98.84% [98.66%-99.01%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	98.92%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	1	166
Number of expected graft failures (including deaths) during the first 90 days after transplant	1.27	--
Estimated hazard ratio*	0.92	--
95% credible interval for the hazard ratio**	[0.19, 2.21]	--

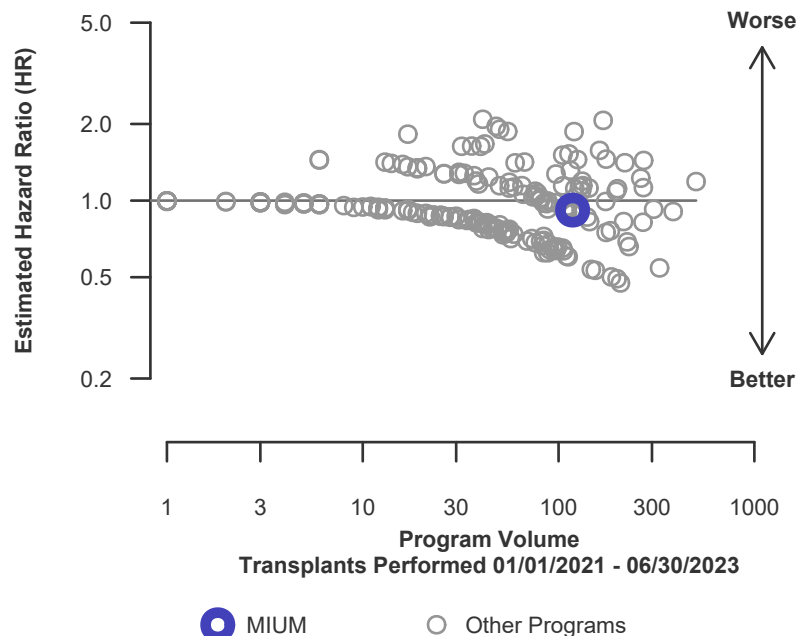
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.19, 2.21], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 8% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 81% reduced risk up to 121% increased risk.

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



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





## C. Transplant Information

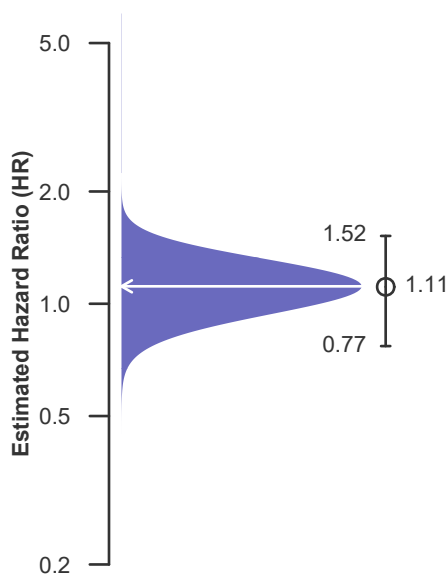
**Table C7. Adult (18+) 1-year survival with a functioning graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	579	58,562
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	94.33% [92.44%-96.27%]	94.54% [94.35%-94.73%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	94.49%	--
Number of observed graft failures (including deaths) during the first year after transplant	32	2,984
Number of expected graft failures (including deaths) during the first year after transplant	28.53	--
Estimated hazard ratio*	1.11	--
95% credible interval for the hazard ratio**	[0.77, 1.52]	--

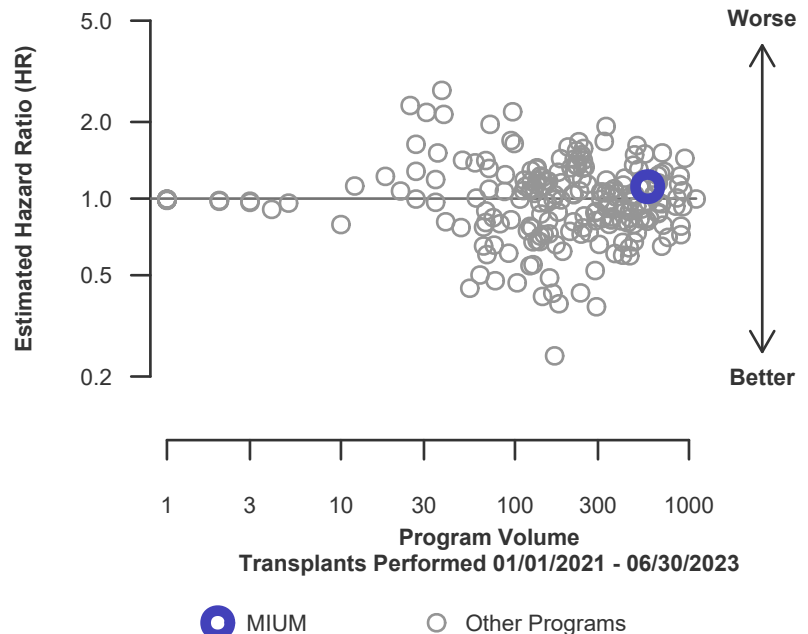
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.77, 1.52], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 11% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 23% reduced risk up to 52% increased risk.

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



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





## C. Transplant Information

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

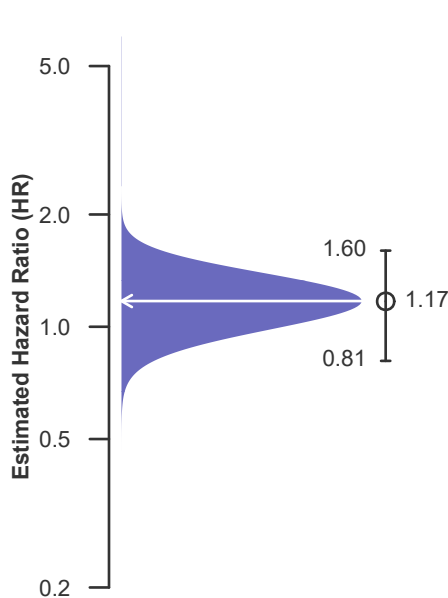
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	461	44,269
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	93.08% [90.75%-95.48%]	93.51% [93.27%-93.75%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	93.63%	--
Number of observed graft failures (including deaths) during the first year after transplant	31	2,677
Number of expected graft failures (including deaths) during the first year after transplant	26.16	--
Estimated hazard ratio*	1.17	--
95% credible interval for the hazard ratio**	[0.81, 1.60]	--

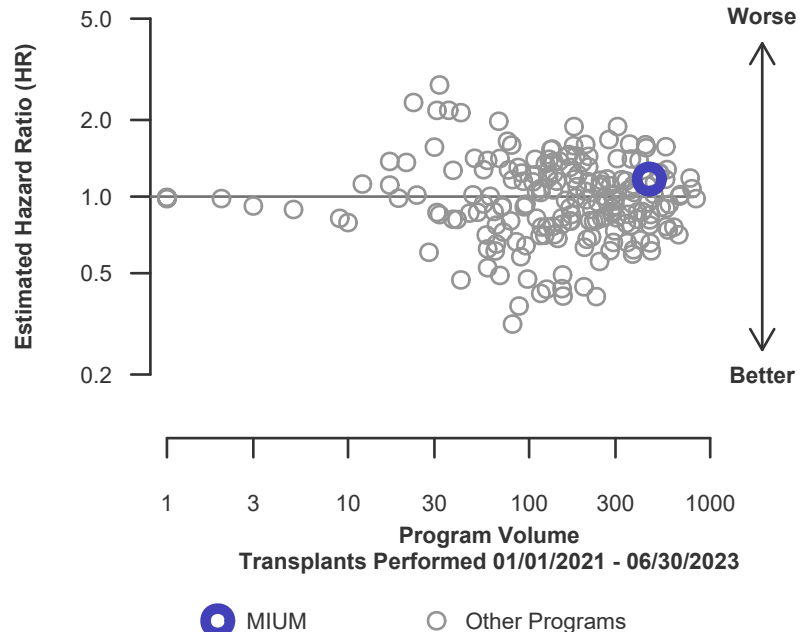
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 1.60], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 17% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 19% reduced risk up to 60% increased risk.

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



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





## C. Transplant Information

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

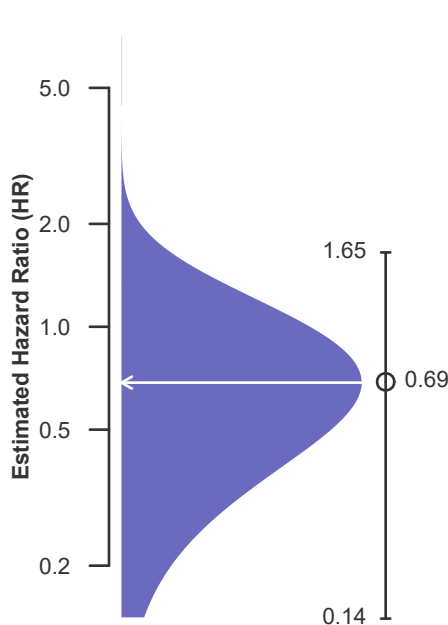
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	118	14,293
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	99.15% [97.51%-100.00%]	97.70% [97.44%-97.95%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	97.85%	--
Number of observed graft failures (including deaths) during the first year after transplant	1	307
Number of expected graft failures (including deaths) during the first year after transplant	2.37	--
Estimated hazard ratio*	0.69	--
95% credible interval for the hazard ratio**	[0.14, 1.65]	--

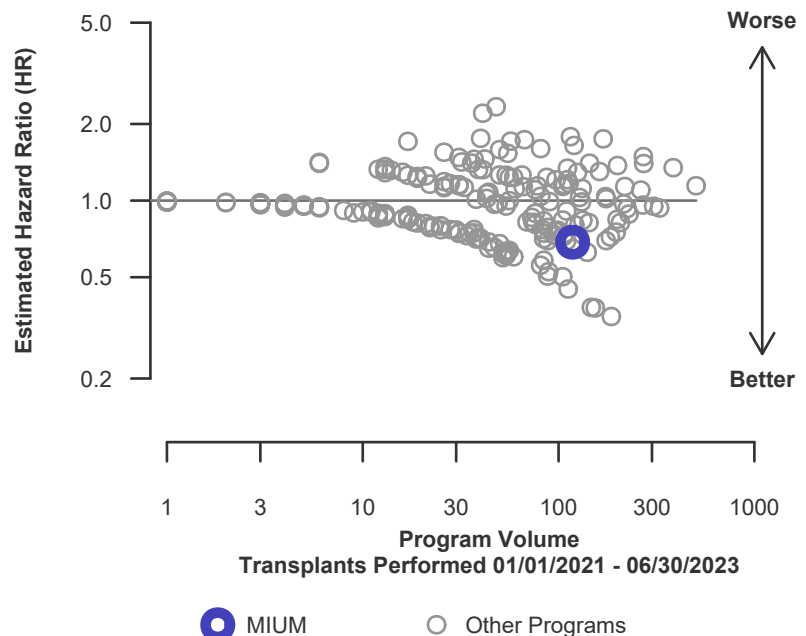
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.14, 1.65], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 31% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 86% reduced risk up to 65% increased risk.

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



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





## C. Transplant Information

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

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

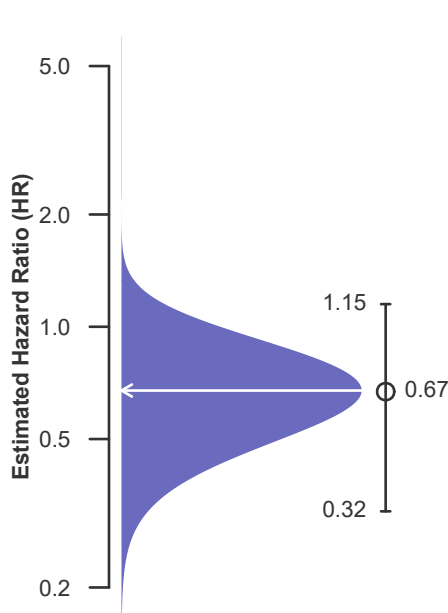
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	555	56,956
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	98.41% [98.08%-98.75%]	97.20% [97.14%-97.27%]
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)	97.16%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	8	1,378
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	12.83	--
Estimated hazard ratio*	0.67	--
95% credible interval for the hazard ratio**	[0.32, 1.15]	--

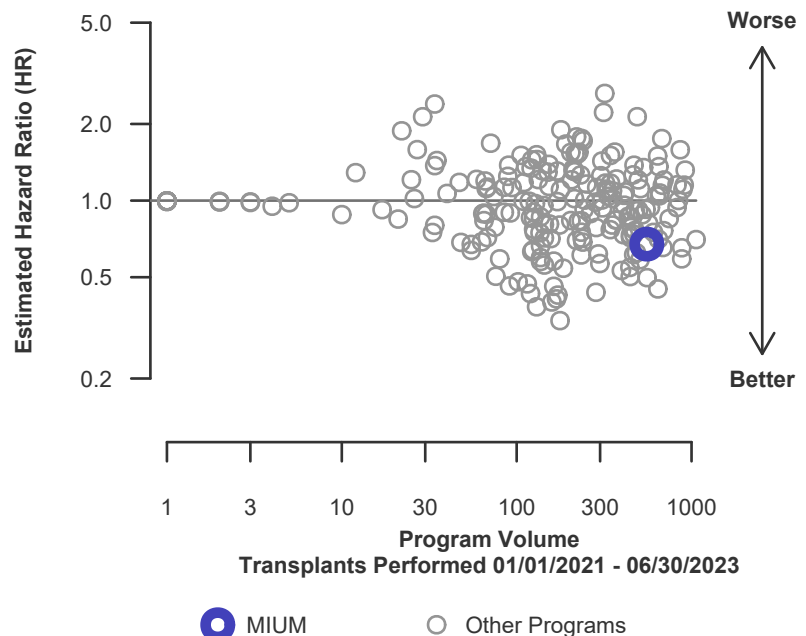
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 1.15], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 33% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 68% reduced risk up to 15% increased risk.

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



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





## C. Transplant Information

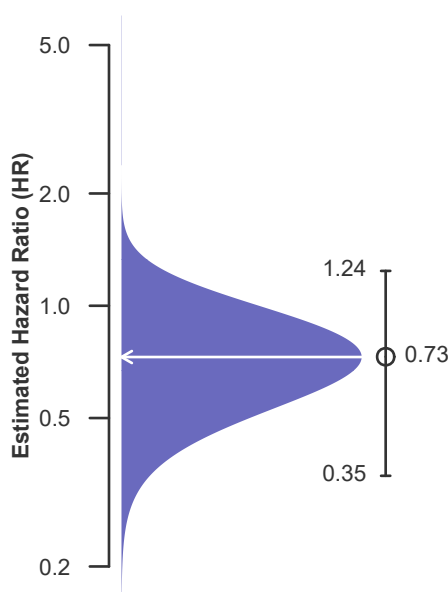
**Table C8D. Adult (18+) 1-year Conditional survival with a functioning deceased donor graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	438	42,829
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	97.97% [97.53%-98.41%]	96.66% [96.58%-96.74%]
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)	96.70%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	8	1,237
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	11.72	--
Estimated hazard ratio*	0.73	--
95% credible interval for the hazard ratio**	[0.35, 1.24]	--

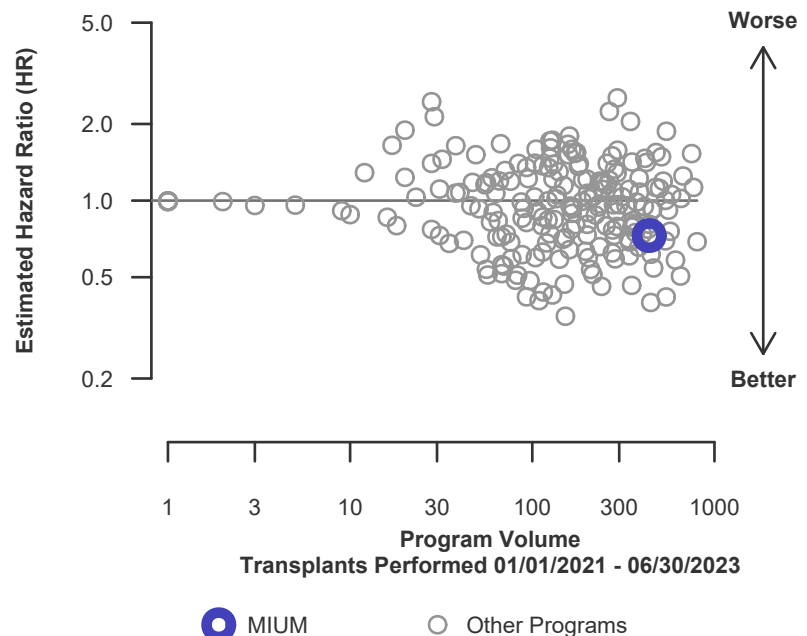
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.35, 1.24], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 27% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 65% reduced risk up to 24% increased risk.

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



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





## C. Transplant Information

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

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

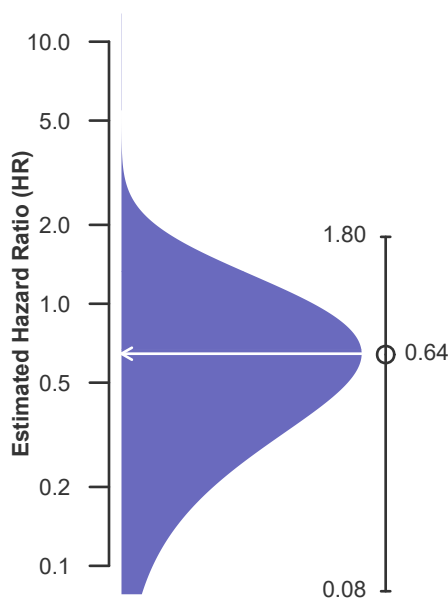
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	117	14,127
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.84% [98.76%-98.93%]
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)	98.92%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	0	141
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	1.10	--
Estimated hazard ratio*	0.64	--
95% credible interval for the hazard ratio**	[0.08, 1.80]	--

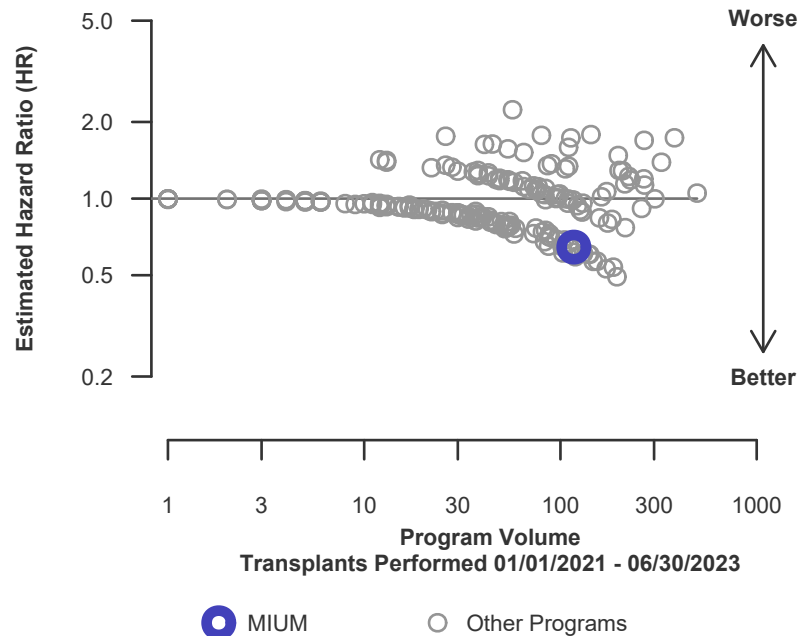
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.08, 1.80], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 36% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 92% reduced risk up to 80% increased risk.

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



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







## C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

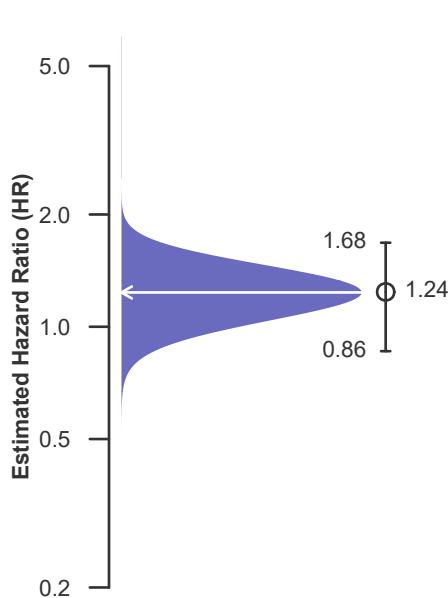
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	446	48,337
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	86.21% [81.02%-91.73%]	87.54% [87.07%-88.02%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	89.23%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	32	3,192
Number of expected graft failures (including deaths) during the first 3 years after transplant	25.51	--
Estimated hazard ratio*	1.24	--
95% credible interval for the hazard ratio**	[0.86, 1.68]	--

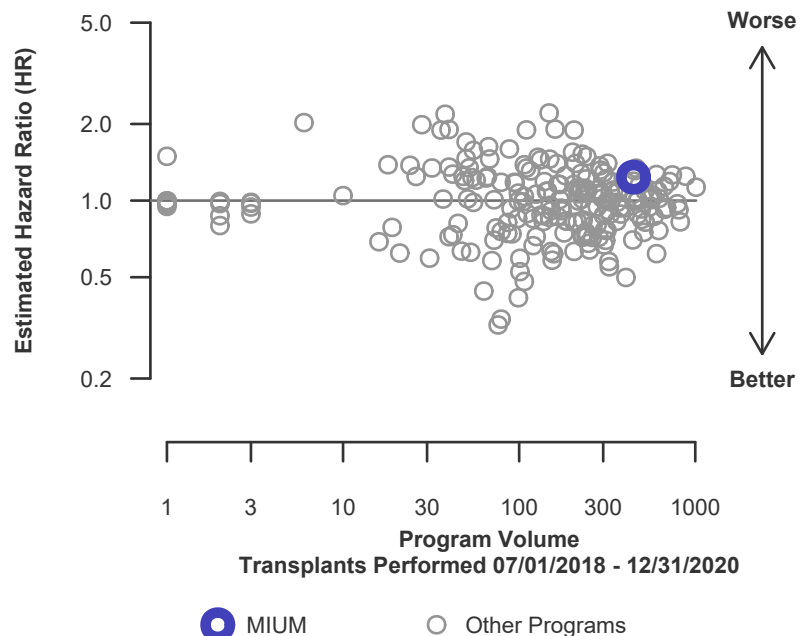
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.86, 1.68], 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 14% reduced risk up to 68% increased risk.

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



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





## C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

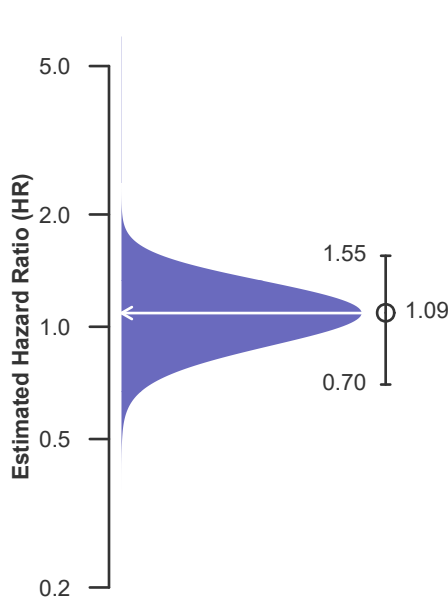
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	284	34,231
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	86.07% [80.13%-92.45%]	85.15% [84.56%-85.74%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	86.39%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	23	2,774
Number of expected graft failures (including deaths) during the first 3 years after transplant	20.97	--
Estimated hazard ratio*	1.09	--
95% credible interval for the hazard ratio**	[0.70, 1.55]	--

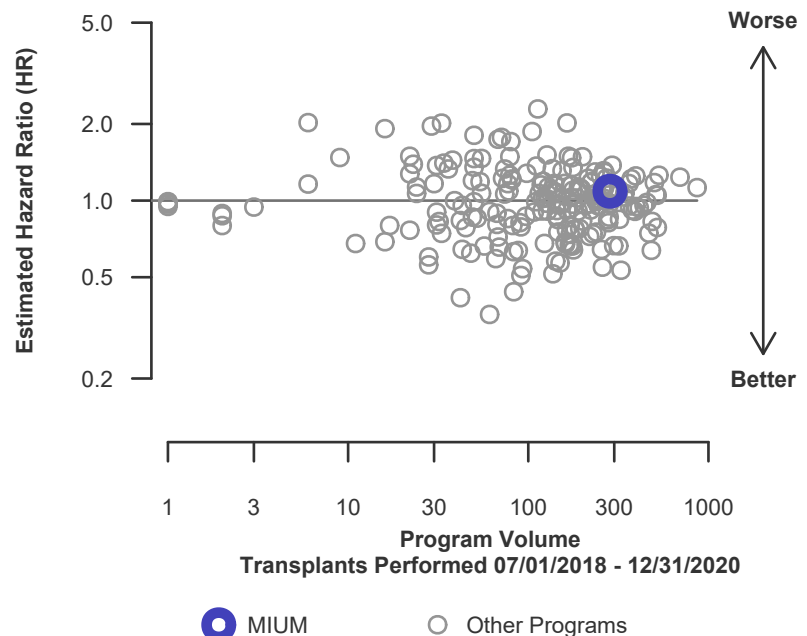
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.70, 1.55], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 9% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 30% reduced risk up to 55% increased risk.

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



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





## C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

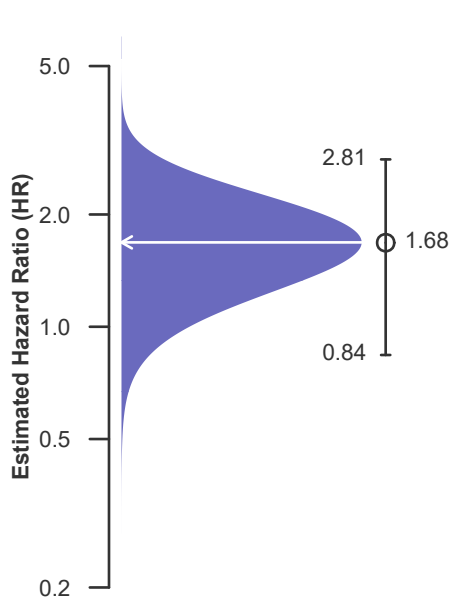
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	162	14,106
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	85.89% [76.00%-97.08%]	93.82% [93.13%-94.51%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	94.20%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	9	418
Number of expected graft failures (including deaths) during the first 3 years after transplant	4.53	--
Estimated hazard ratio*	1.68	--
95% credible interval for the hazard ratio**	[0.84, 2.81]	--

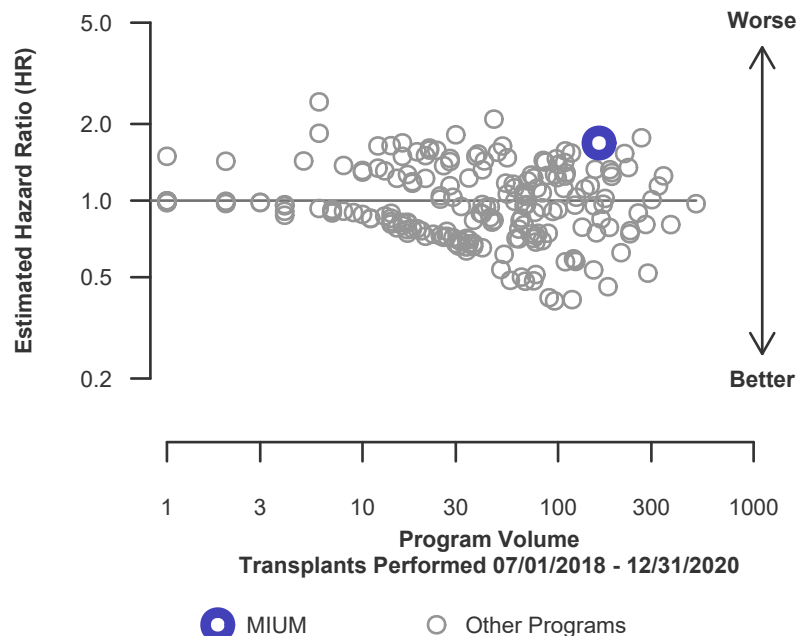
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.81], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 68% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 16% reduced risk up to 181% increased risk.

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



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





## C. Transplant Information

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

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

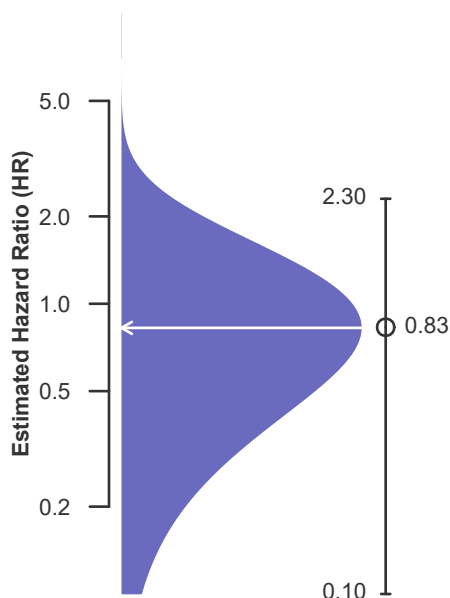
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	34	2,169
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.94% [98.51%-99.37%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	98.77%	--
Number of observed graft failures (including deaths) during the first month after transplant	0	23
Number of expected graft failures (including deaths) during the first month after transplant	0.42	--
Estimated hazard ratio*	0.83	--
95% credible interval for the hazard ratio**	[0.10, 2.30]	--

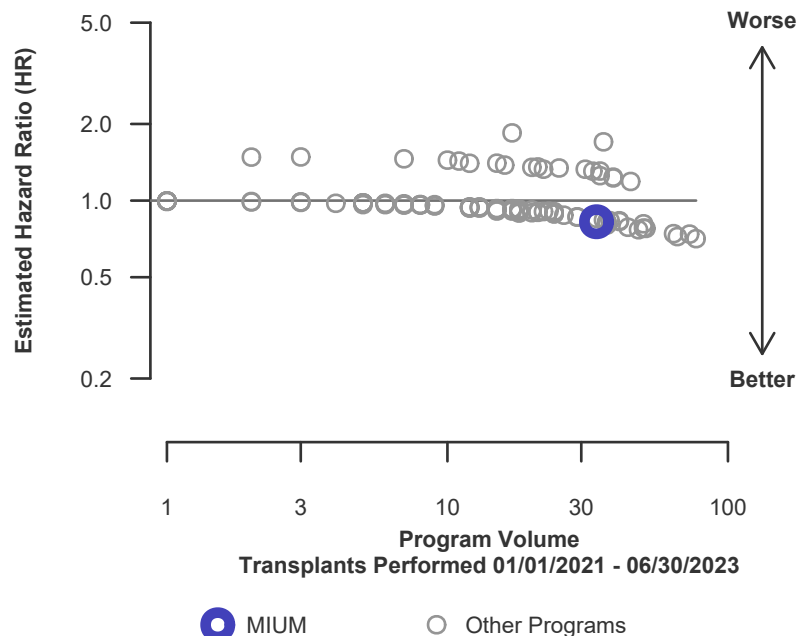
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.30], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 17% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 90% reduced risk up to 130% 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

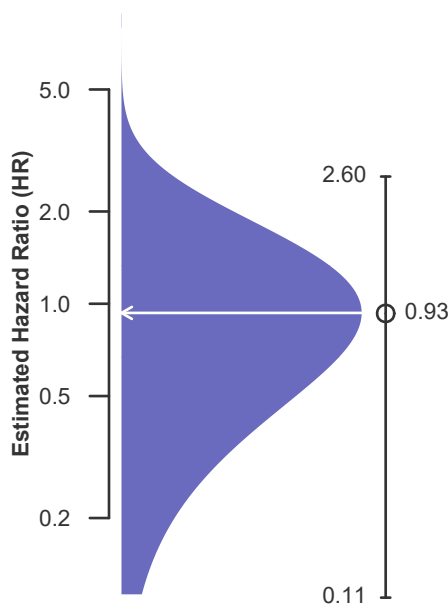
**Table C10D. Pediatric (<18) 1-month survival with a functioning deceased donor graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	17	1,556
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	99.16% [98.71%-99.62%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	99.17%	--
Number of observed graft failures (including deaths) during the first month after transplant	0	13
Number of expected graft failures (including deaths) during the first month after transplant	0.14	--
Estimated hazard ratio*	0.93	--
95% credible interval for the hazard ratio**	[0.11, 2.60]	--

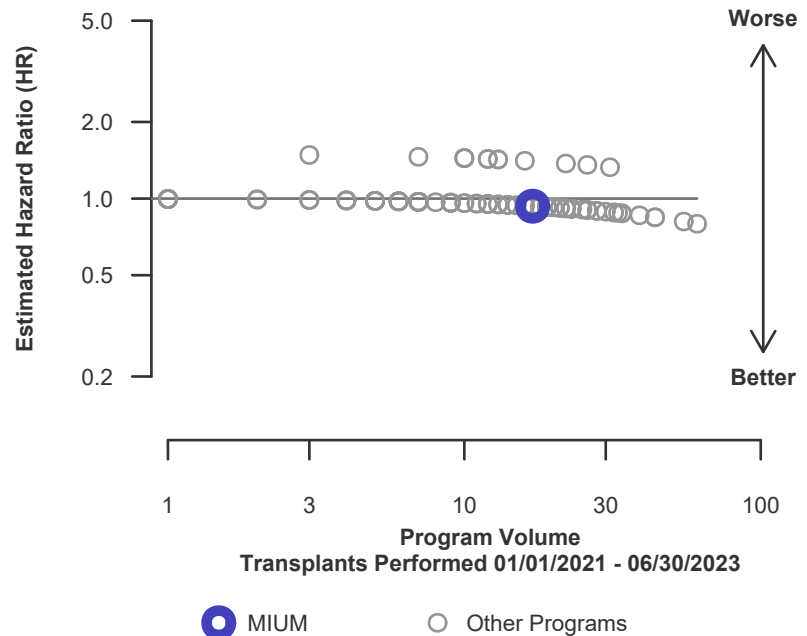
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.60], 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 160% 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**

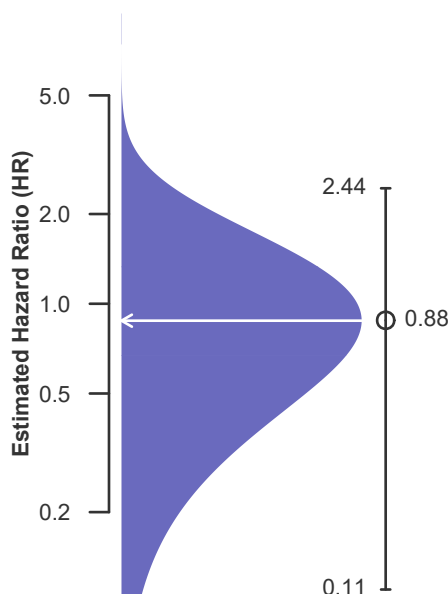
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	17	613
Estimated probability of surviving with a functioning graft at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.37% [97.37%-99.38%]
Expected probability of surviving with a functioning graft at 1 month (adjusted for patient and donor characteristics)	98.37%	--
Number of observed graft failures (including deaths) during the first month after transplant	0	10
Number of expected graft failures (including deaths) during the first month after transplant	0.28	--
Estimated hazard ratio*	0.88	--
95% credible interval for the hazard ratio**	[0.11, 2.44]	--

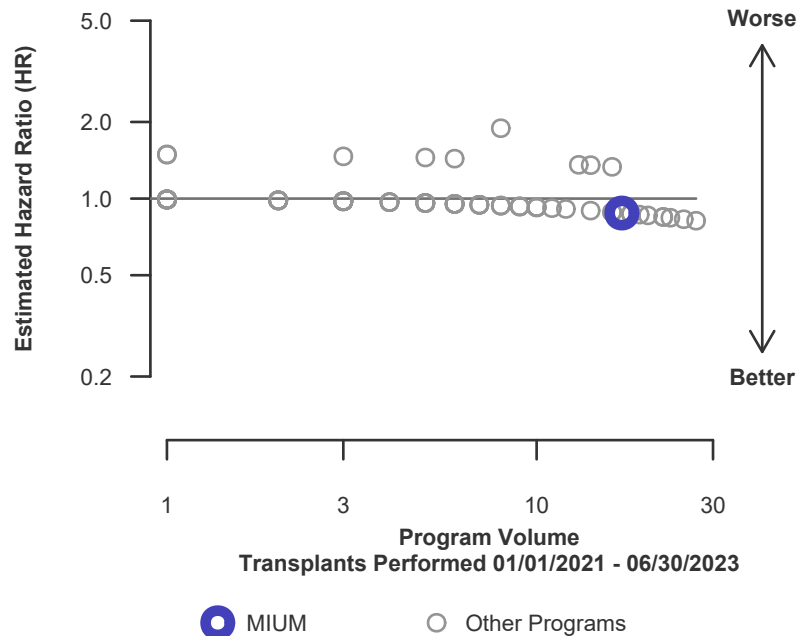
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.44], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 12% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 89% reduced risk up to 144% increased risk.

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



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





## C. Transplant Information

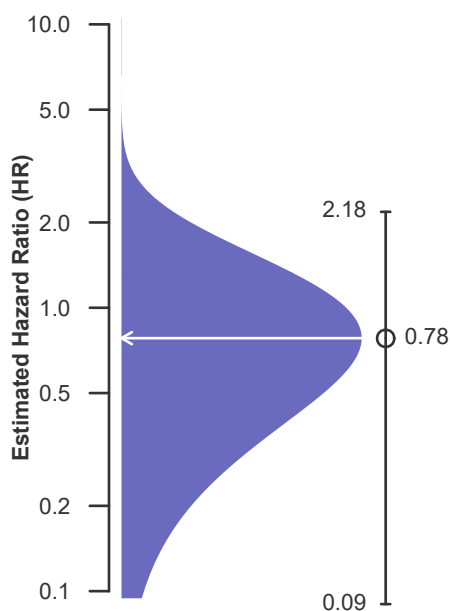
**Table C11. Pediatric (<18) 90-Day survival with a functioning graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	34	2,169
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.43% [97.91%-98.96%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	98.37%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	0	34
Number of expected graft failures (including deaths) during the first 90 days after transplant	0.56	--
Estimated hazard ratio*	0.78	--
95% credible interval for the hazard ratio**	[0.09, 2.18]	--

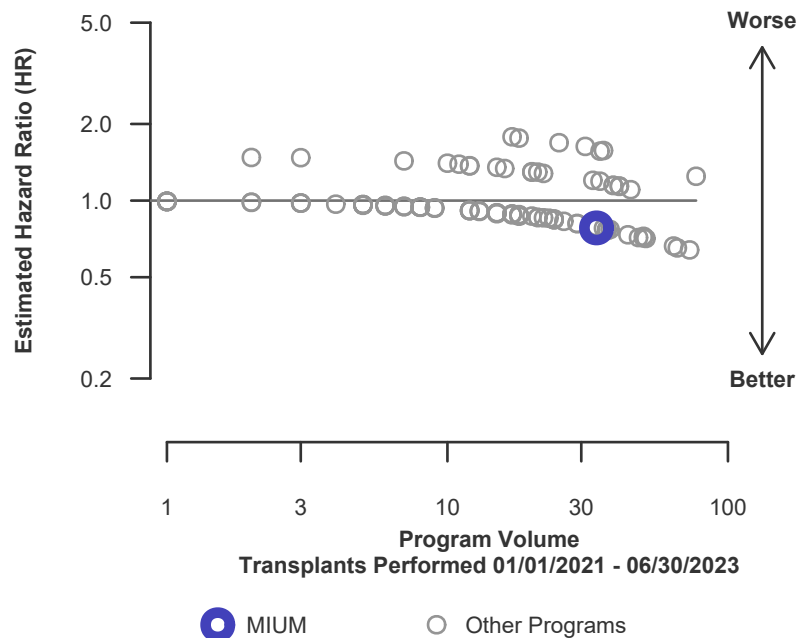
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.09, 2.18], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 22% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 91% reduced risk up to 118% 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 01/01/2021 and 06/30/2023

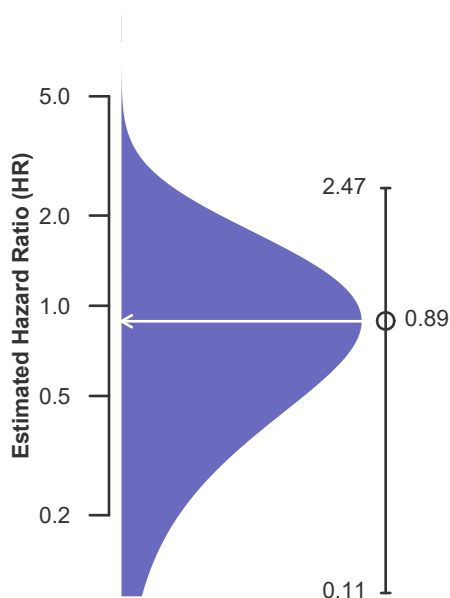
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	17	1,556
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.52% [97.92%-99.12%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	98.52%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	0	23
Number of expected graft failures (including deaths) during the first 90 days after transplant	0.25	--
Estimated hazard ratio*	0.89	--
95% credible interval for the hazard ratio**	[0.11, 2.47]	--

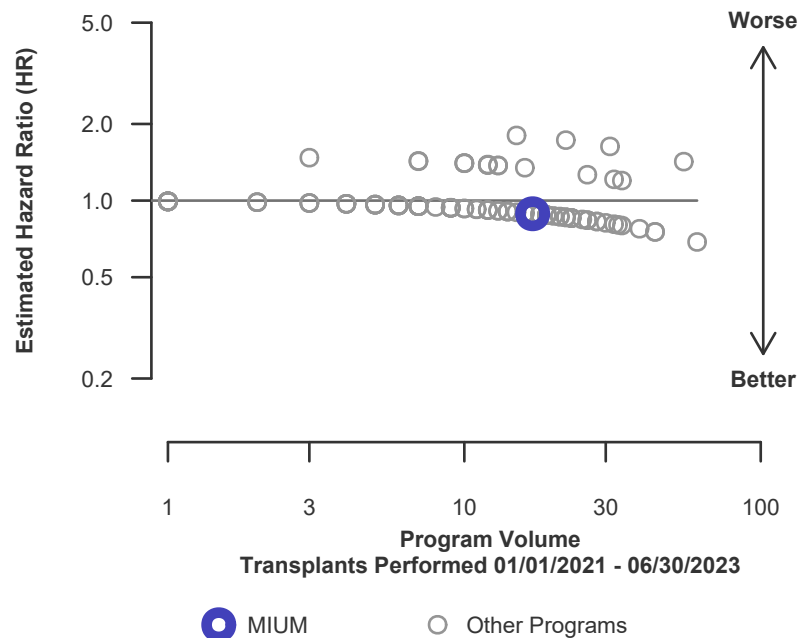
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.47], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 11% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 89% reduced risk up to 147% 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 01/01/2021 and 06/30/2023

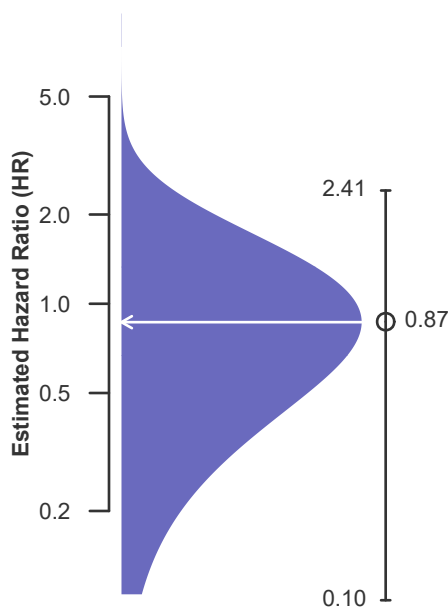
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	17	613
Estimated probability of surviving with a functioning graft at 90 days & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.21% [97.16%-99.26%]
Expected probability of surviving with a functioning graft at 90 days (adjusted for patient and donor characteristics)	98.21%	--
Number of observed graft failures (including deaths) during the first 90 days after transplant	0	11
Number of expected graft failures (including deaths) during the first 90 days after transplant	0.31	--
Estimated hazard ratio*	0.87	--
95% credible interval for the hazard ratio**	[0.10, 2.41]	--

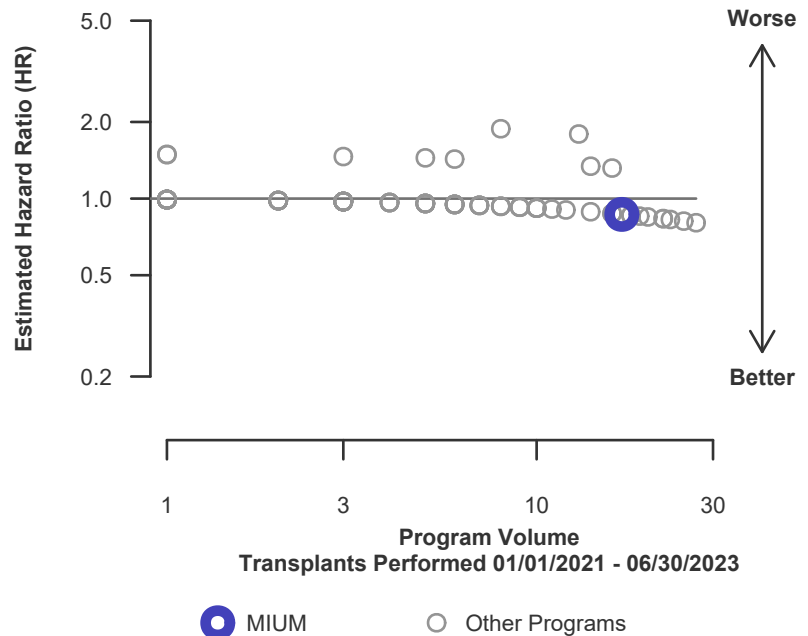
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.41], 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 90% reduced risk up to 141% increased risk.

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



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





## C. Transplant Information

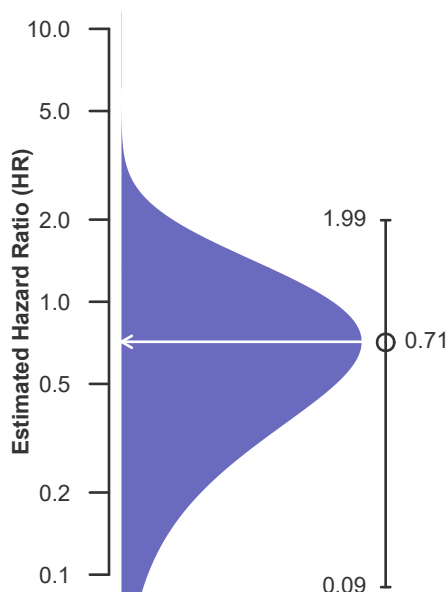
**Table C12. Pediatric (<18) 1-year survival with a functioning graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	34	2,169
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	97.42% [96.73%-98.11%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	97.53%	--
Number of observed graft failures (including deaths) during the first year after transplant	0	53
Number of expected graft failures (including deaths) during the first year after transplant	0.80	--
Estimated hazard ratio*	0.71	--
95% credible interval for the hazard ratio**	[0.09, 1.99]	--

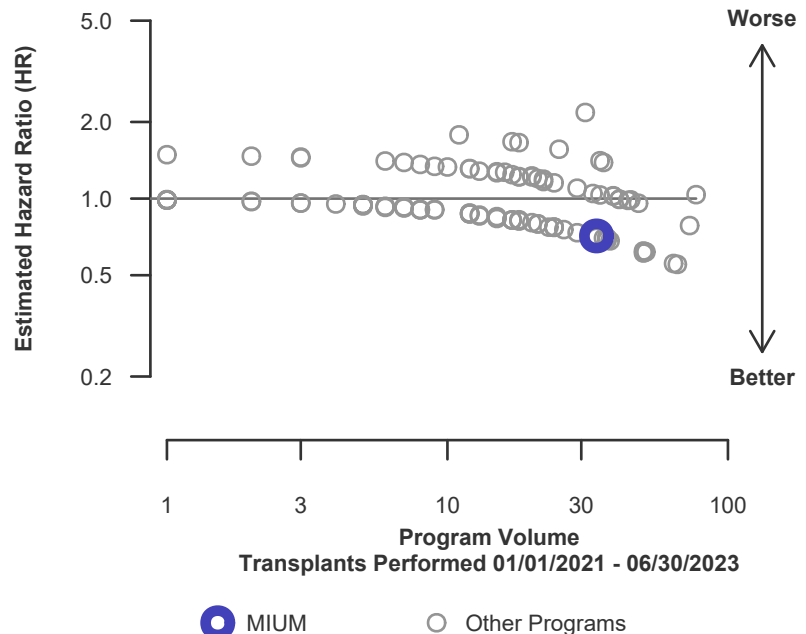
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.09, 1.99], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 29% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 91% reduced risk up to 99% 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 01/01/2021 and 06/30/2023

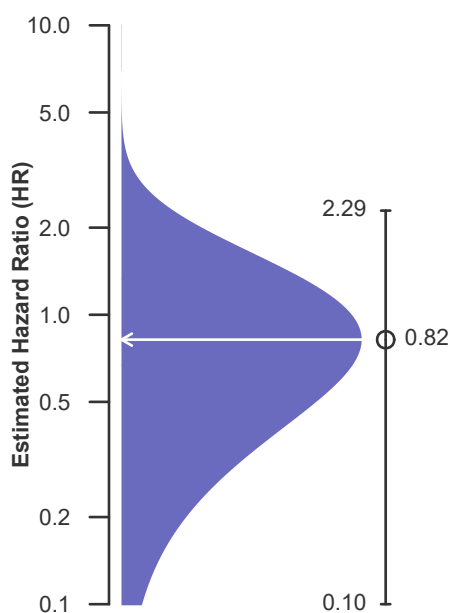
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	17	1,556
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	97.27% [96.43%-98.11%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	97.27%	--
Number of observed graft failures (including deaths) during the first year after transplant	0	40
Number of expected graft failures (including deaths) during the first year after transplant	0.44	--
Estimated hazard ratio*	0.82	--
95% credible interval for the hazard ratio**	[0.10, 2.29]	--

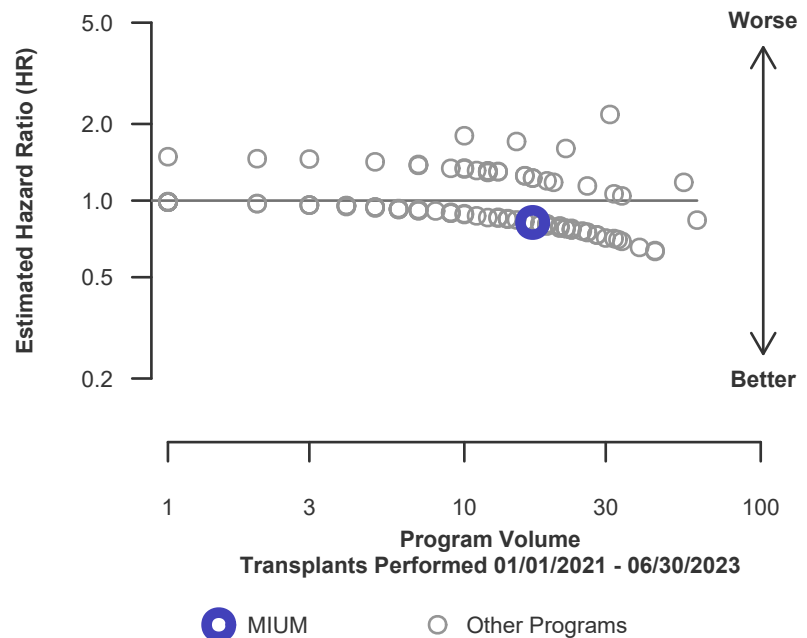
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.29], 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 129% 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 01/01/2021 and 06/30/2023

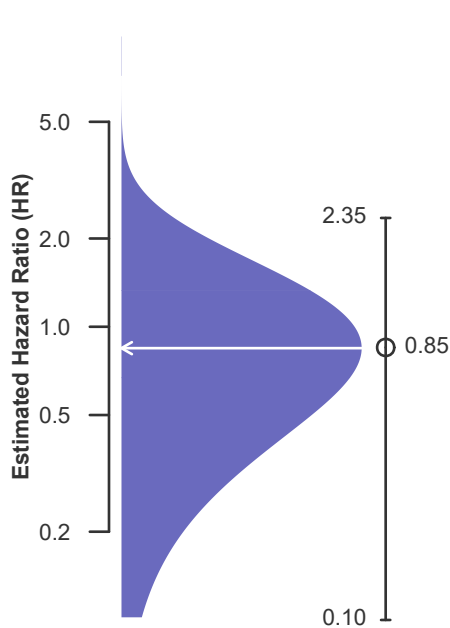
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	17	613
Estimated probability of surviving with a functioning graft at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	97.79% [96.61%-98.99%]
Expected probability of surviving with a functioning graft at 1 year (adjusted for patient and donor characteristics)	97.80%	--
Number of observed graft failures (including deaths) during the first year after transplant	0	13
Number of expected graft failures (including deaths) during the first year after transplant	0.37	--
Estimated hazard ratio*	0.85	--
95% credible interval for the hazard ratio**	[0.10, 2.35]	--

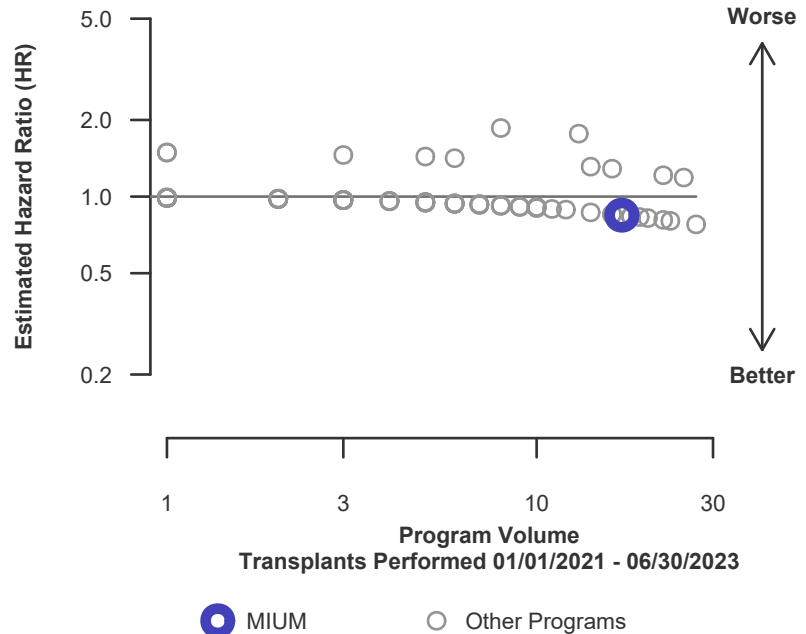
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.35], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 15% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 90% reduced risk up to 135% increased risk.

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



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





## C. Transplant Information

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

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

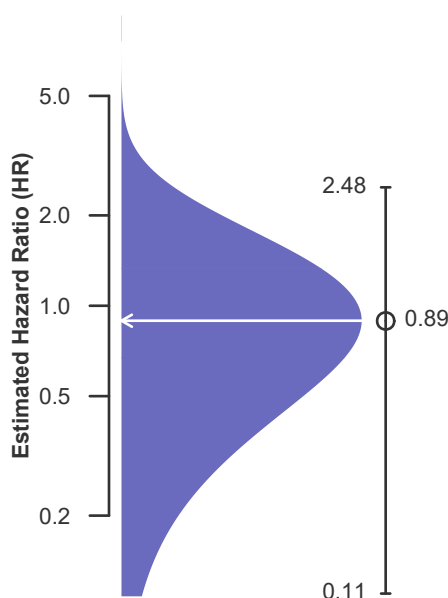
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	34	2,135
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.97% [98.79%-99.14%]
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)	99.15%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	0	19
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	0.24	--
Estimated hazard ratio*	0.89	--
95% credible interval for the hazard ratio**	[0.11, 2.48]	--

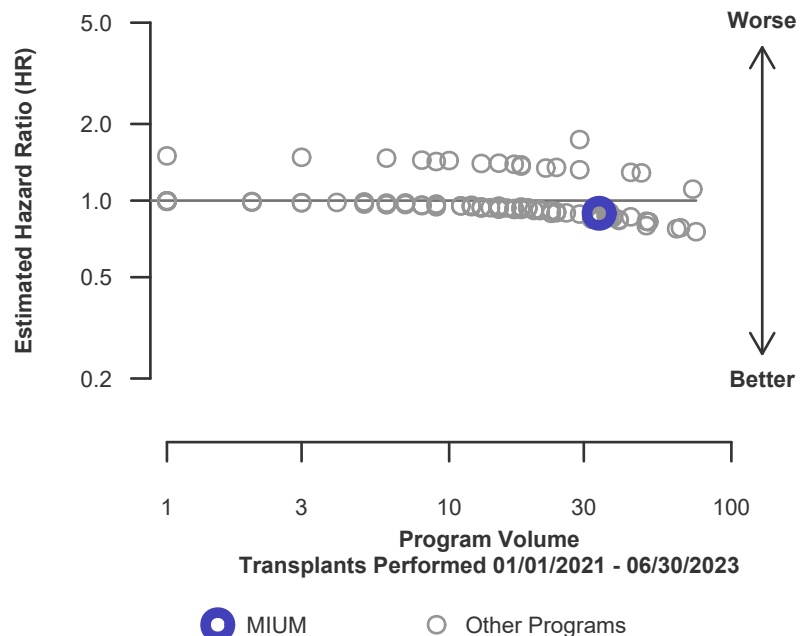
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.48], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 11% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 89% reduced risk up to 148% 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

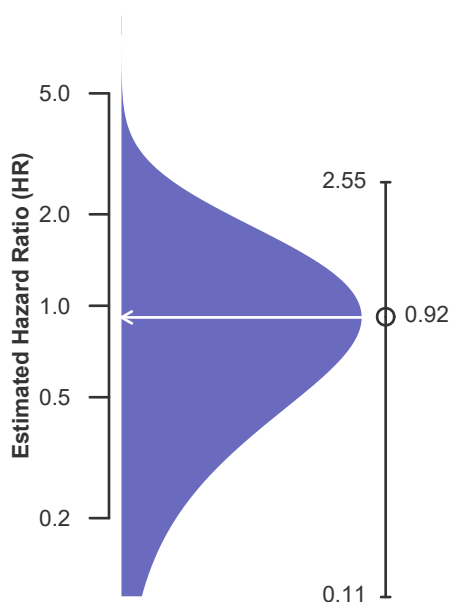
**Table C13D. Pediatric (<18) 1-year Conditional survival with a functioning deceased donor graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	17	1,533
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.73% [98.48%-98.98%]
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)	98.73%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	0	17
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	0.18	--
Estimated hazard ratio*	0.92	--
95% credible interval for the hazard ratio**	[0.11, 2.55]	--

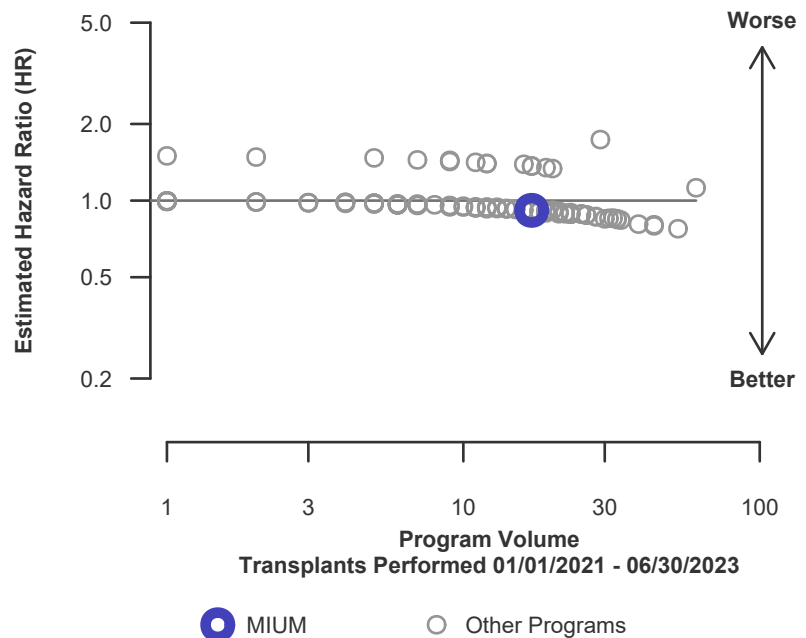
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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 8% 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 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

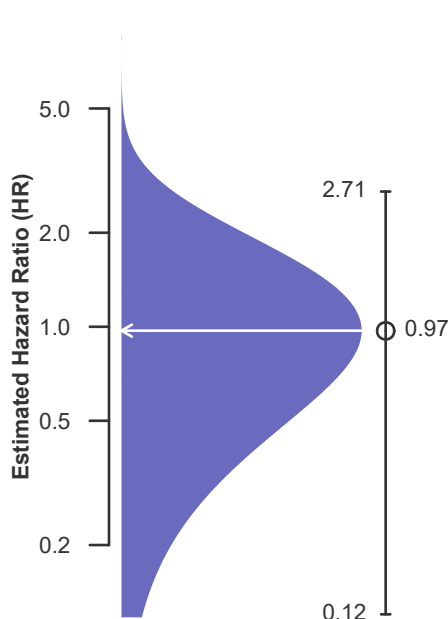
**Table C13L. Pediatric (<18) 1-year Conditional survival with a functioning living donor graft**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Deaths and retransplants are considered graft failures

	MIUM	U.S.
Number of transplants evaluated	17	602
Estimated probability of surviving with a functioning graft at 1 year, among patients with a functioning graft at day 90 & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	99.58% [99.43%-99.73%]
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)	99.58%	--
Number of observed graft failures (including deaths) from day 91 through day 365 after transplant	0	2
Number of expected graft failures (including deaths) from day 91 through day 365 after transplant	0.06	--
Estimated hazard ratio*	0.97	--
95% credible interval for the hazard ratio**	[0.12, 2.71]	--

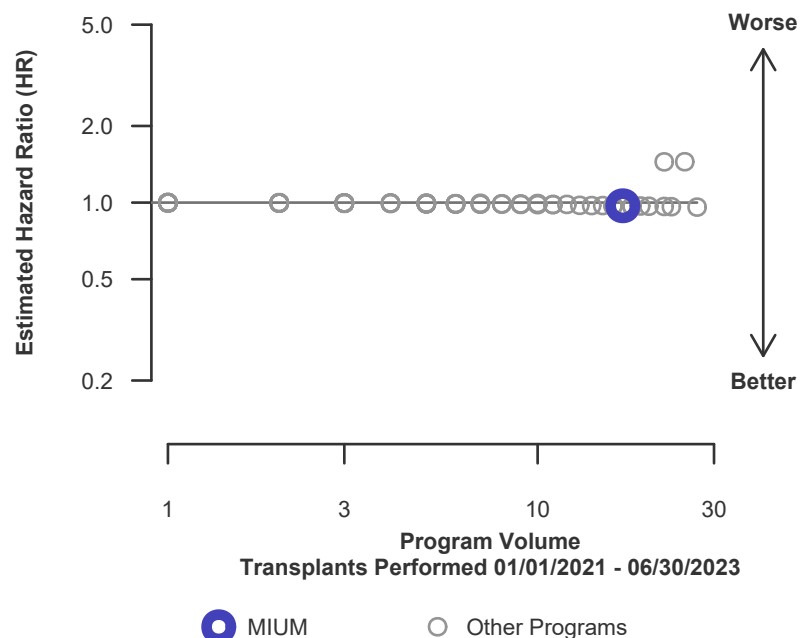
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.71], 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 171% increased risk.

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



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





## C. Transplant Information

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

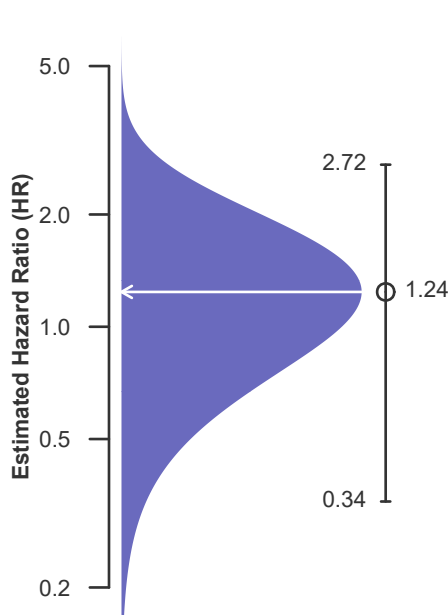
Single organ transplants performed between 07/01/2018 and 03/12/2020, and 06/13/2020 and 12/31/2020  
Deaths and retransplants are considered graft failures  
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	36	1,922
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	88.71% [73.93%-100.00%]	94.05% [92.41%-95.72%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	94.54%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	2	61
Number of expected graft failures (including deaths) during the first 3 years after transplant	1.23	--
Estimated hazard ratio*	1.24	--
95% credible interval for the hazard ratio**	[0.34, 2.72]	--

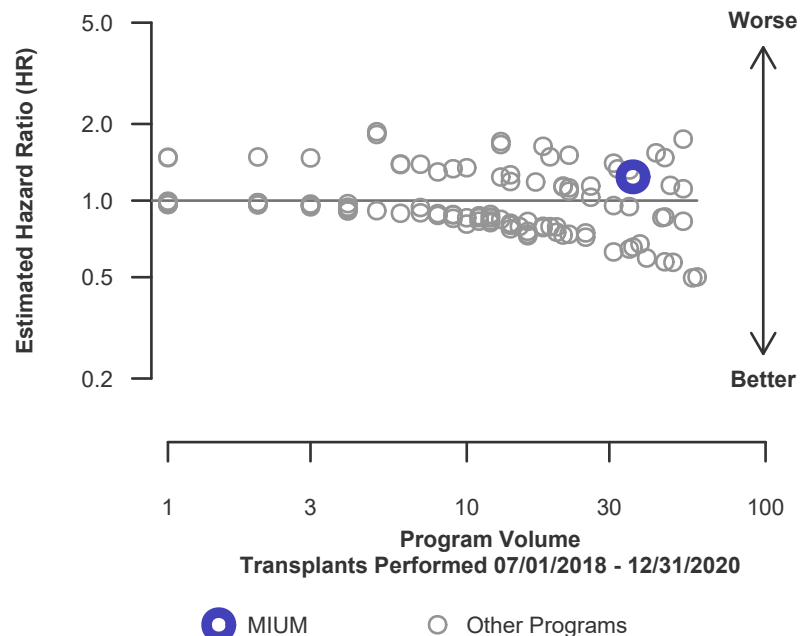
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.72], 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 172% increased risk.

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



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







## C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

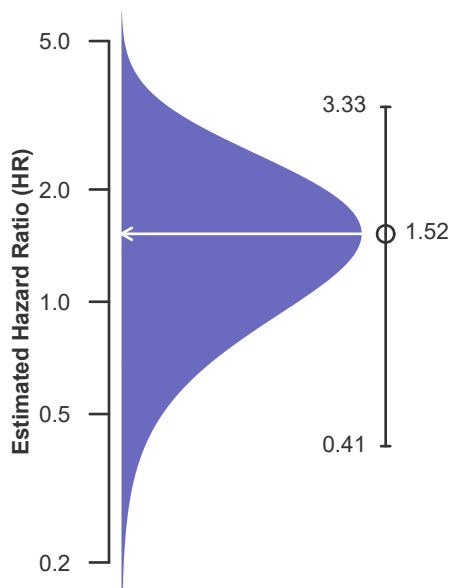
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	17	1,293
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	73.85% [46.36%-100.00%]	93.24% [91.05%-95.48%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	93.24%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	2	44
Number of expected graft failures (including deaths) during the first 3 years after transplant	0.63	--
Estimated hazard ratio*	1.52	--
95% credible interval for the hazard ratio**	[0.41, 3.33]	--

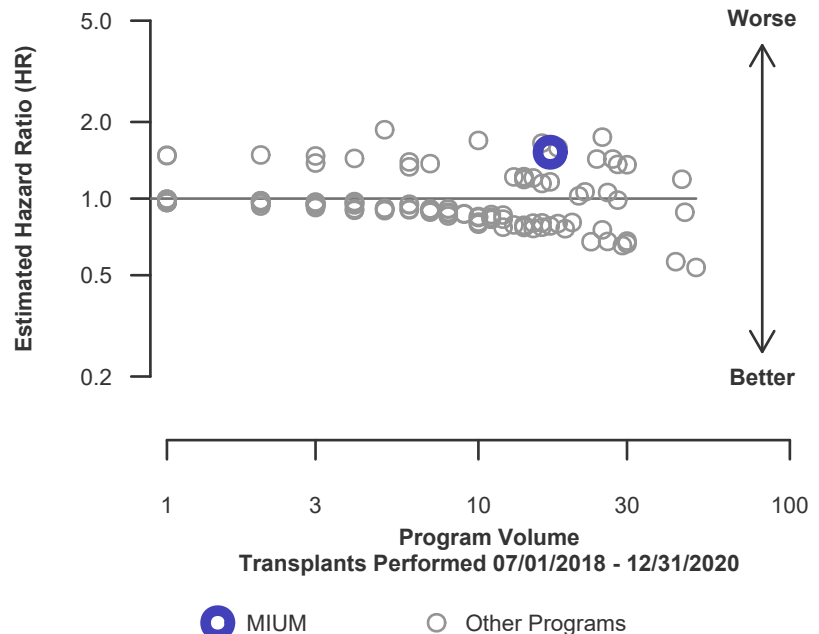
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.41, 3.33], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 52% higher risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 59% reduced risk up to 233% increased risk.

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



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





## C. Transplant Information

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

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

Deaths and retransplants are considered graft failures

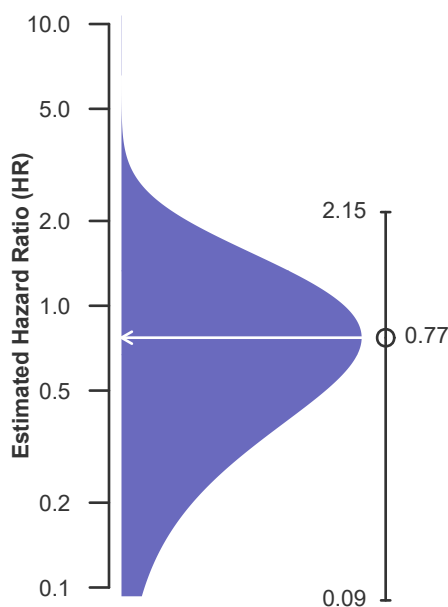
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	19	629
Estimated probability of surviving with a functioning graft at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	95.69% [93.47%-97.97%]
Expected probability of surviving with a functioning graft at 3 years (adjusted for patient and donor characteristics)	95.70%	--
Number of observed graft failures (including deaths) during the first 3 years after transplant	0	17
Number of expected graft failures (including deaths) during the first 3 years after transplant	0.60	--
Estimated hazard ratio*	0.77	--
95% credible interval for the hazard ratio**	[0.09, 2.15]	--

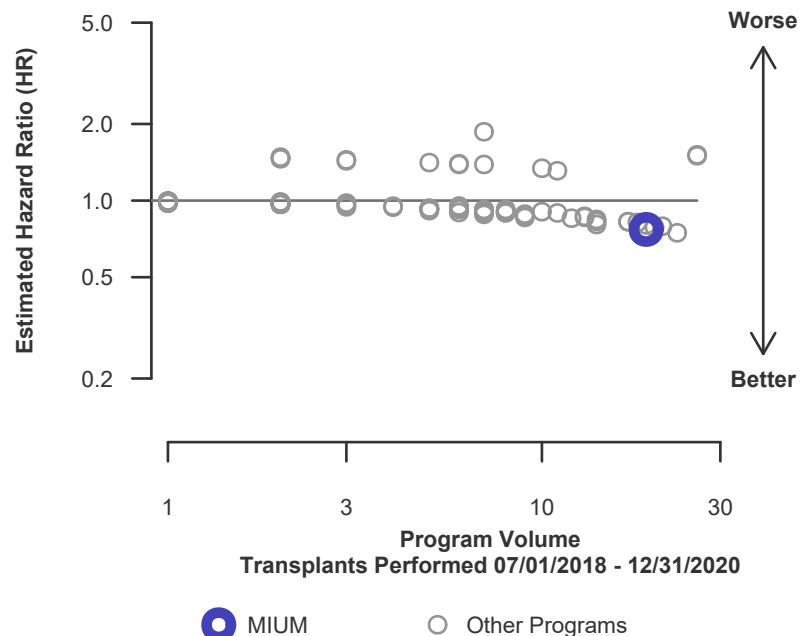
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected graft failure rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.09, 2.15], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 23% lower risk of graft failure compared to an average program, but MIUM's performance could plausibly range from 91% reduced risk up to 115% 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**

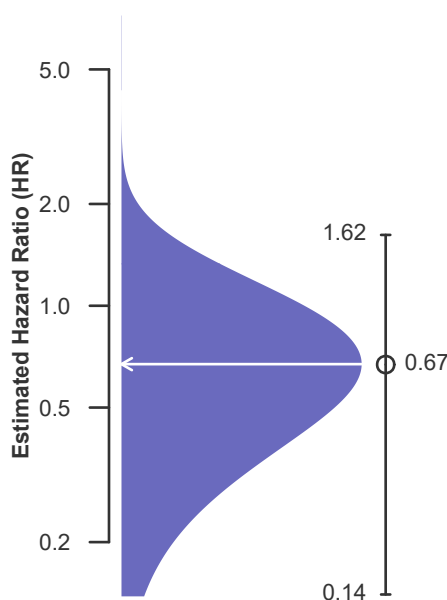
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	497	52,433
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	99.80% [99.41%-100.00%]	99.49% [99.42%-99.55%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	99.51%	--
Number of observed deaths during the first month after transplant	1	270
Number of expected deaths during the first month after transplant	2.46	--
Estimated hazard ratio*	0.67	--
95% credible interval for the hazard ratio**	[0.14, 1.62]	--

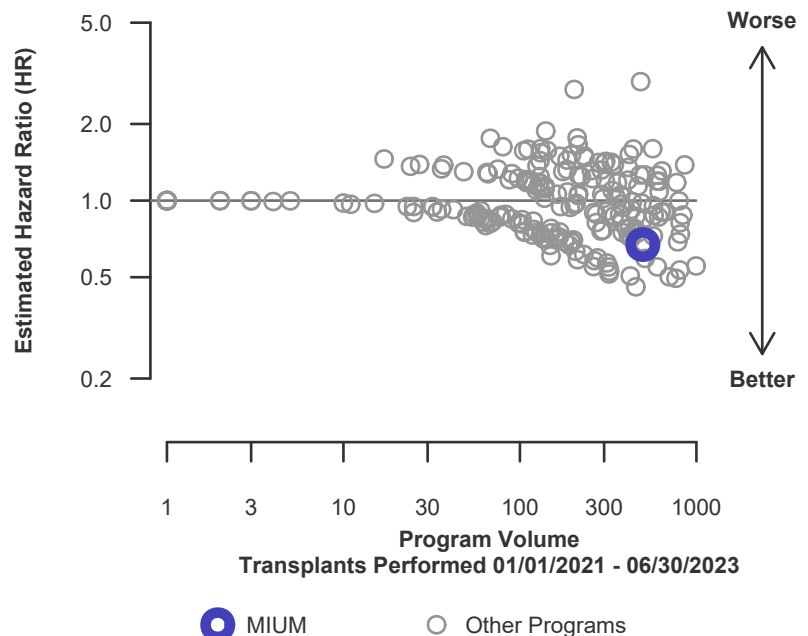
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.14, 1.62], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 33% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 86% reduced risk up to 62% increased risk.

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



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





## C. Transplant Information

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

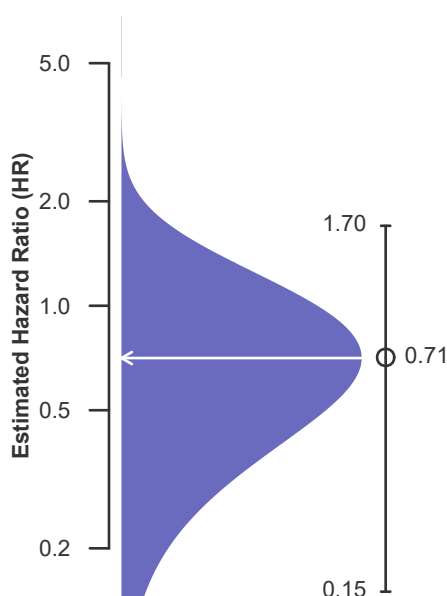
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	387	39,390
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	99.74% [99.24%-100.00%]	99.39% [99.31%-99.47%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	99.42%	--
Number of observed deaths during the first month after transplant	1	241
Number of expected deaths during the first month after transplant	2.24	--
Estimated hazard ratio*	0.71	--
95% credible interval for the hazard ratio**	[0.15, 1.70]	--

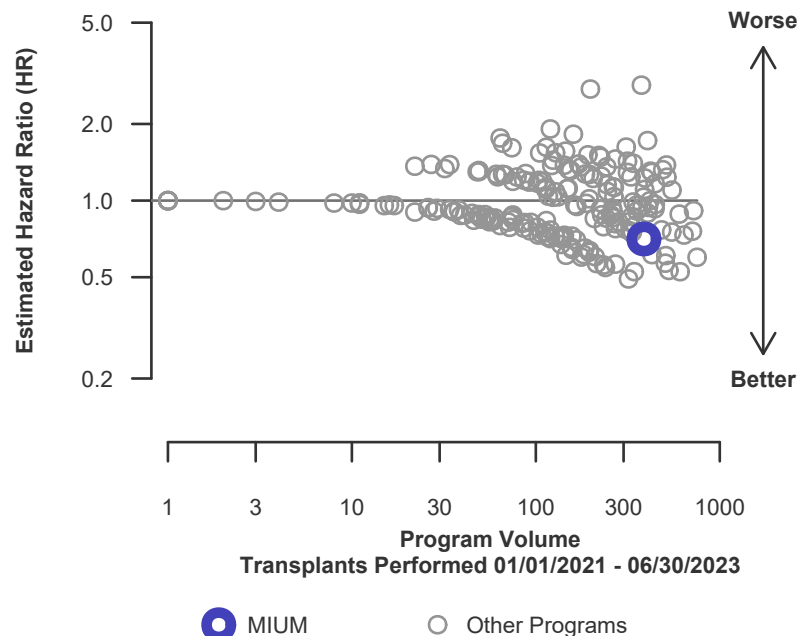
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.15, 1.70], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 29% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 85% reduced risk up to 70% increased risk.

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



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





## C. Transplant Information

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

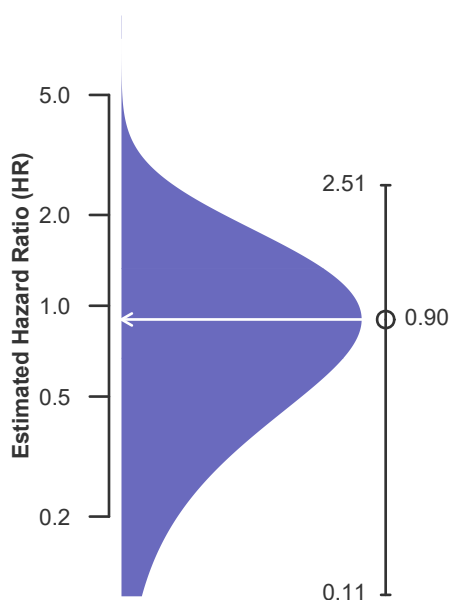
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	110	13,043
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	99.78% [99.70%-99.86%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	99.80%	--
Number of observed deaths during the first month after transplant	0	29
Number of expected deaths during the first month after transplant	0.22	--
Estimated hazard ratio*	0.90	--
95% credible interval for the hazard ratio**	[0.11, 2.51]	--

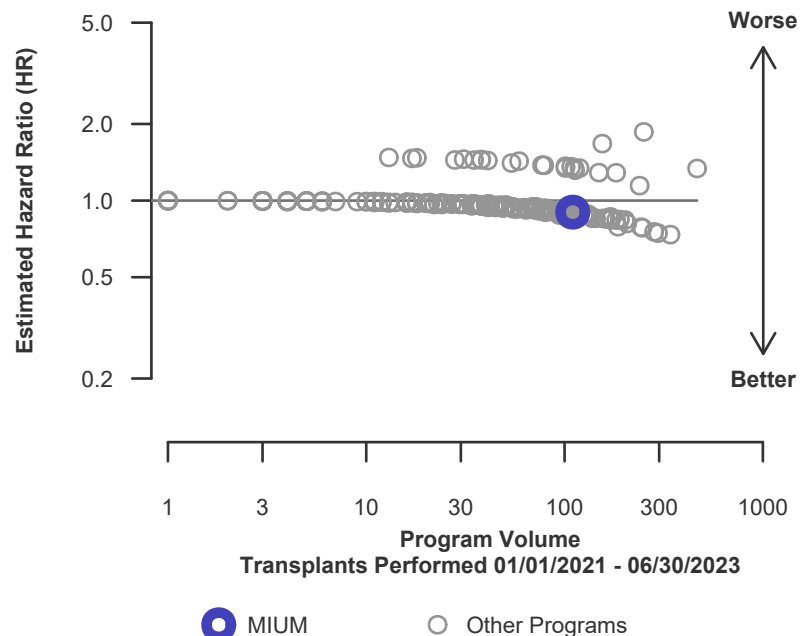
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.11, 2.51], 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 89% reduced risk up to 151% increased risk.

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



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





## C. Transplant Information

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

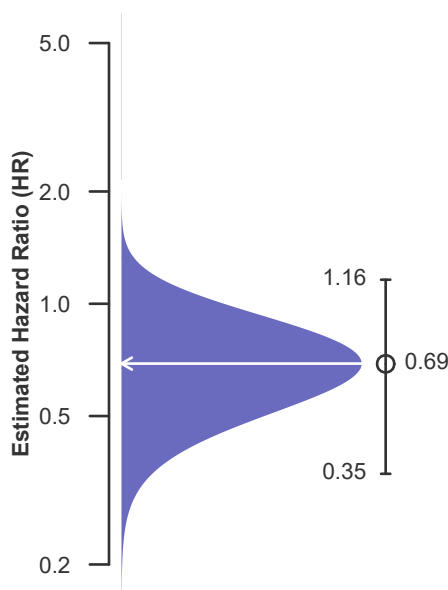
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	497	52,433
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	98.12% [96.90%-99.35%]	96.75% [96.59%-96.91%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	96.86%	--
Number of observed deaths during the first year after transplant	9	1,545
Number of expected deaths during the first year after transplant	13.91	--
Estimated hazard ratio*	0.69	--
95% credible interval for the hazard ratio**	[0.35, 1.16]	--

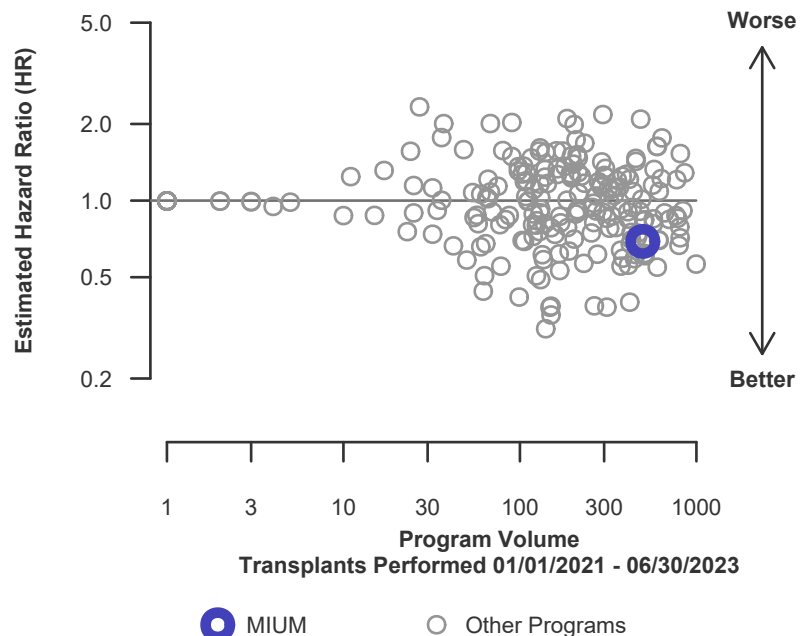
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.35, 1.16], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 31% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 65% reduced risk up to 16% increased risk.

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



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





## C. Transplant Information

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

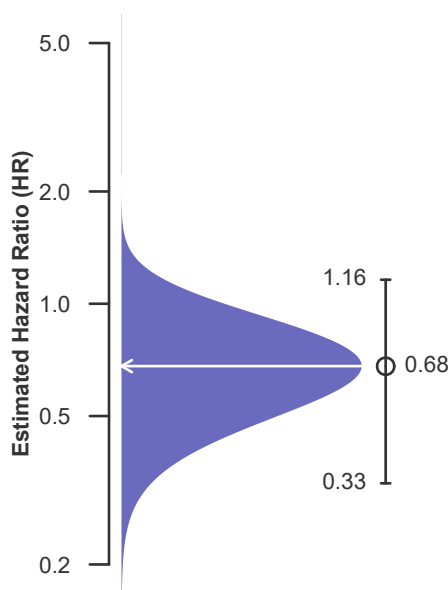
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	387	39,390
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	97.83% [96.34%-99.34%]	96.11% [95.91%-96.31%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	96.31%	--
Number of observed deaths during the first year after transplant	8	1,387
Number of expected deaths during the first year after transplant	12.69	--
Estimated hazard ratio*	0.68	--
95% credible interval for the hazard ratio**	[0.33, 1.16]	--

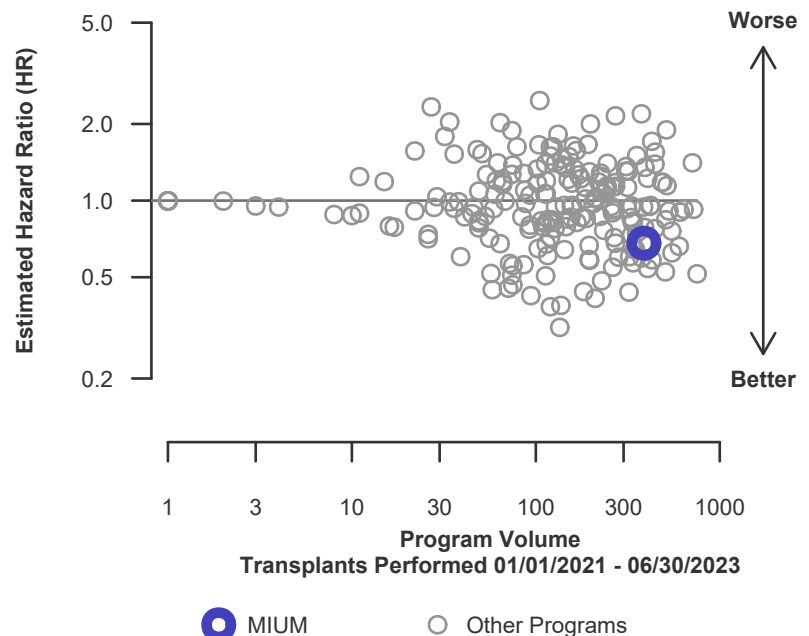
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.33, 1.16], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 32% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 67% reduced risk up to 16% increased risk.

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



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





## C. Transplant Information

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

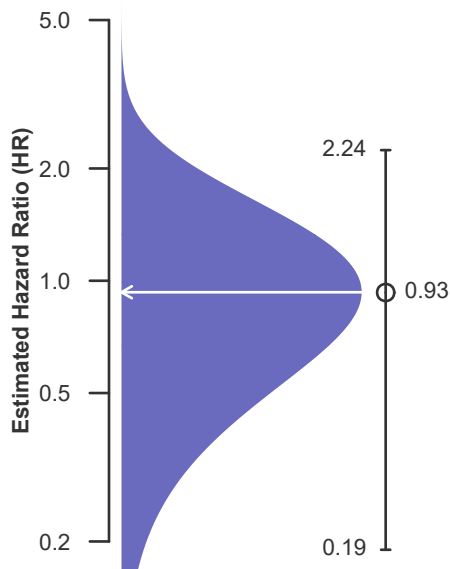
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	110	13,043
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	99.09% [97.33%-100.00%]	98.66% [98.46%-98.87%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	98.79%	--
Number of observed deaths during the first year after transplant	1	158
Number of expected deaths during the first year after transplant	1.22	--
Estimated hazard ratio*	0.93	--
95% credible interval for the hazard ratio**	[0.19, 2.24]	--

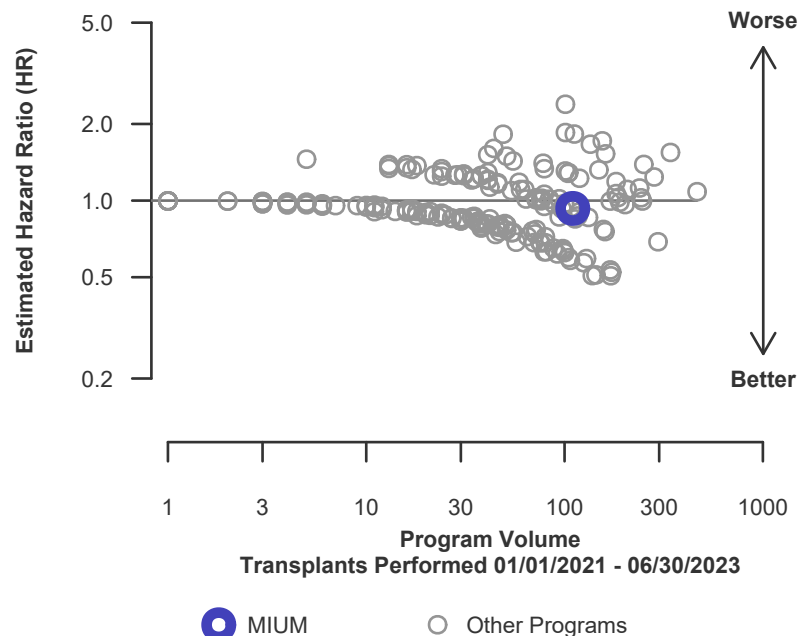
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.24], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 7% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 81% reduced risk up to 124% increased risk.

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



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







## C. Transplant Information

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

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

Retransplants excluded

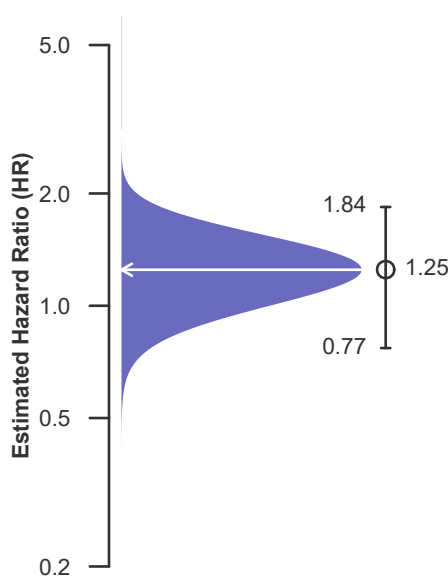
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	402	43,162
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	89.70% [84.66%-95.05%]	91.21% [90.77%-91.65%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	92.29%	--
Number of observed deaths during the first 3 years after transplant	19	1,865
Number of expected deaths during the first 3 years after transplant	14.81	--
Estimated hazard ratio*	1.25	--
95% credible interval for the hazard ratio**	[0.77, 1.84]	--

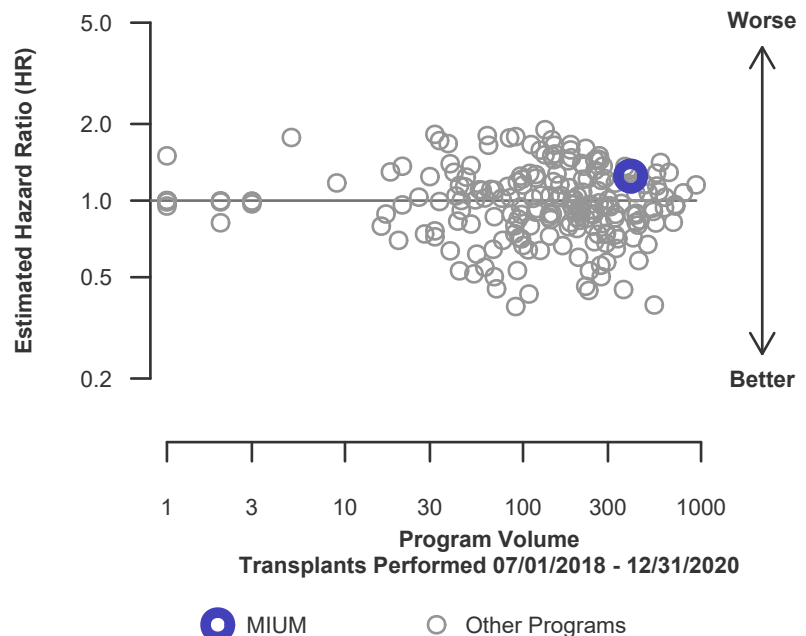
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.77, 1.84], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 25% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 23% reduced risk up to 84% increased risk.

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



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





## C. Transplant Information

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

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

Retransplants excluded

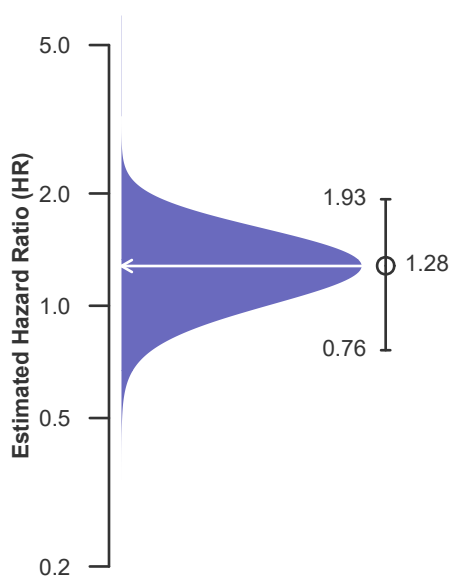
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	253	30,366
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	87.70% [81.34%-94.56%]	89.41% [88.86%-89.96%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	90.13%	--
Number of observed deaths during the first 3 years after transplant	16	1,632
Number of expected deaths during the first 3 years after transplant	12.08	--
Estimated hazard ratio*	1.28	--
95% credible interval for the hazard ratio**	[0.76, 1.93]	--

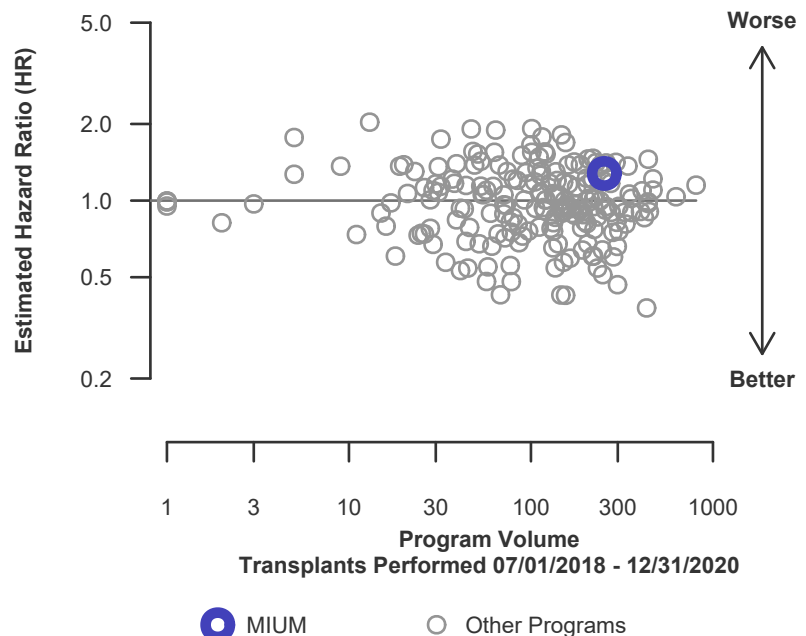
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.76, 1.93], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 28% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 24% reduced risk up to 93% increased risk.

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



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





## C. Transplant Information

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

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

Retransplants excluded

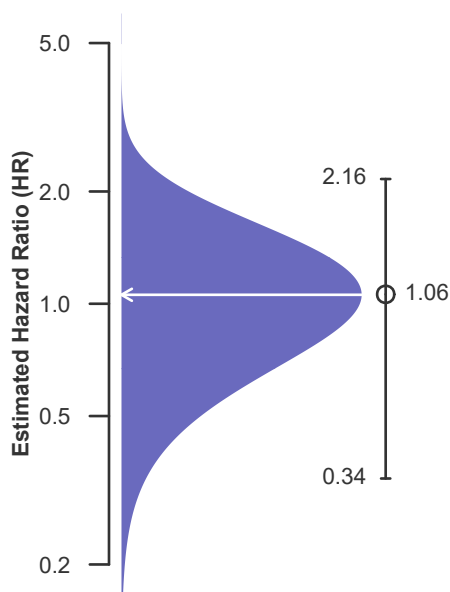
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	149	12,796
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	93.14% [85.16%-100.00%]	95.88% [95.27%-96.48%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	95.97%	--
Number of observed deaths during the first 3 years after transplant	3	233
Number of expected deaths during the first 3 years after transplant	2.73	--
Estimated hazard ratio*	1.06	--
95% credible interval for the hazard ratio**	[0.34, 2.16]	--

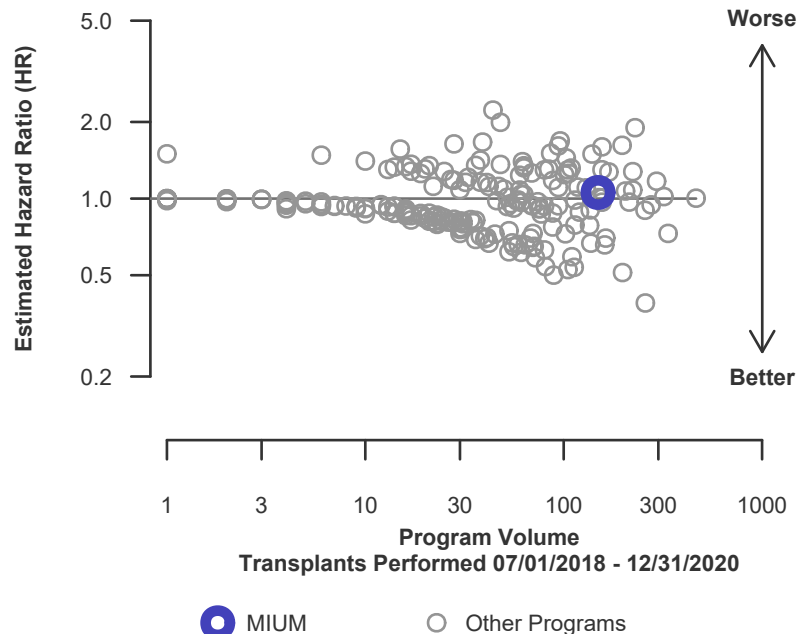
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.34, 2.16], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 6% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 66% reduced risk up to 116% increased risk.

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



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





## C. Transplant Information

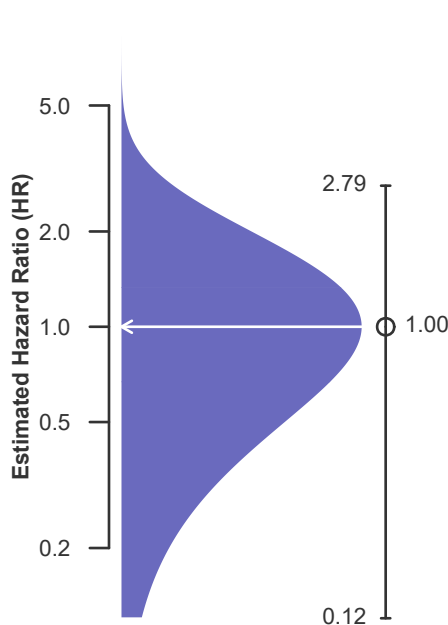
**Table C18. Pediatric (<18) 1-month patient survival**  
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	32	1,993
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	100.00% [100.00%-100.00%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	100.00%	--
Number of observed deaths during the first month after transplant	0	0
Number of expected deaths during the first month after transplant	0.00	--
Estimated hazard ratio*	1.00	--
95% credible interval for the hazard ratio**	[0.12, 2.79]	--

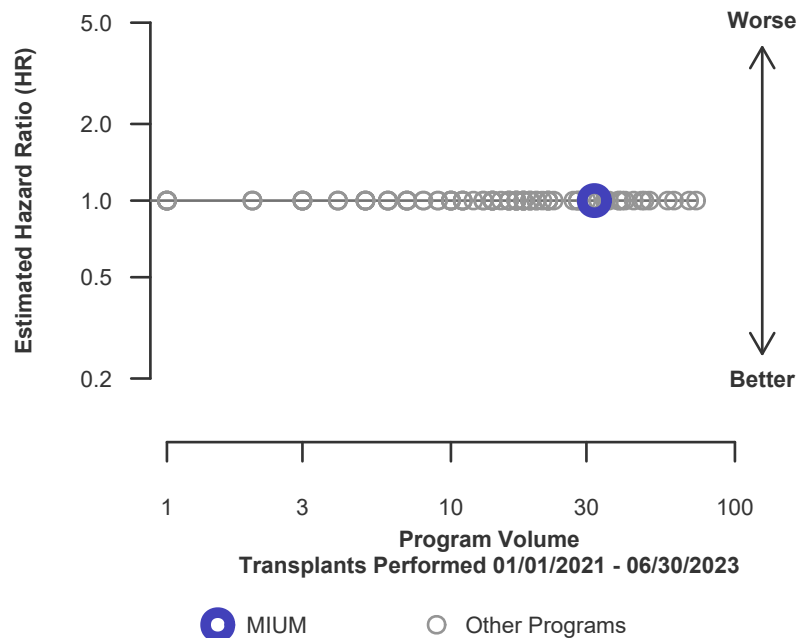
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.79], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 0% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 88% reduced risk up to 179% 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)**

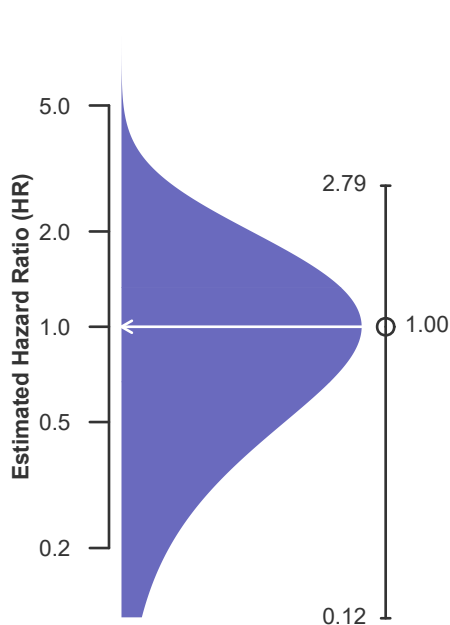
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	15	1,410
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	100.00% [100.00%-100.00%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	100.00%	--
Number of observed deaths during the first month after transplant	0	0
Number of expected deaths during the first month after transplant	0.00	--
Estimated hazard ratio*	1.00	--
95% credible interval for the hazard ratio**	[0.12, 2.79]	--

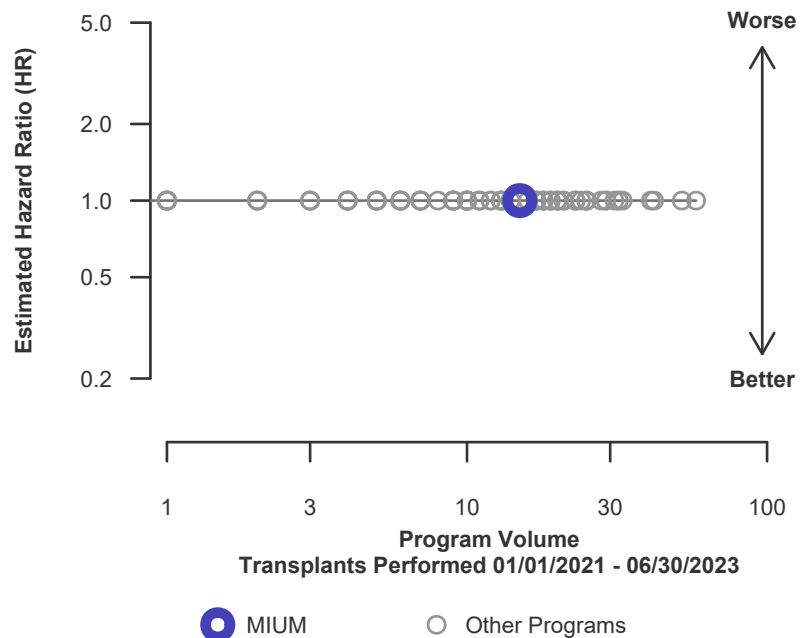
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.79], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 0% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 88% reduced risk up to 179% 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)**

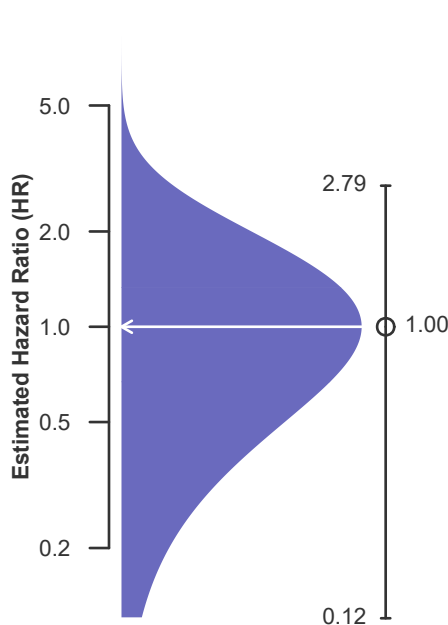
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	17	583
Estimated probability of surviving at 1 month & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	100.00% [100.00%-100.00%]
Expected probability of surviving at 1 month (adjusted for patient and donor characteristics)	100.00%	--
Number of observed deaths during the first month after transplant	0	0
Number of expected deaths during the first month after transplant	0.00	--
Estimated hazard ratio*	1.00	--
95% credible interval for the hazard ratio**	[0.12, 2.79]	--

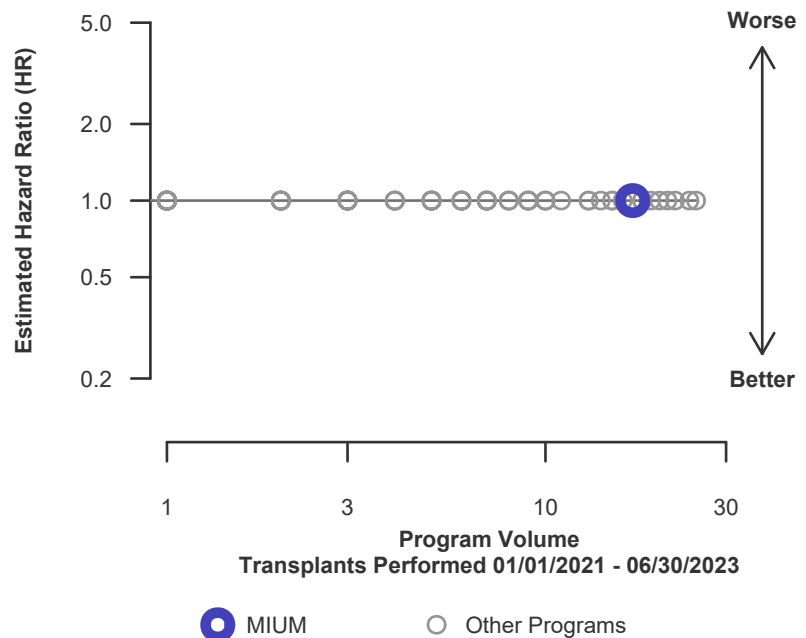
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.79], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 0% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 88% reduced risk up to 179% increased risk.

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



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





## C. Transplant Information

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

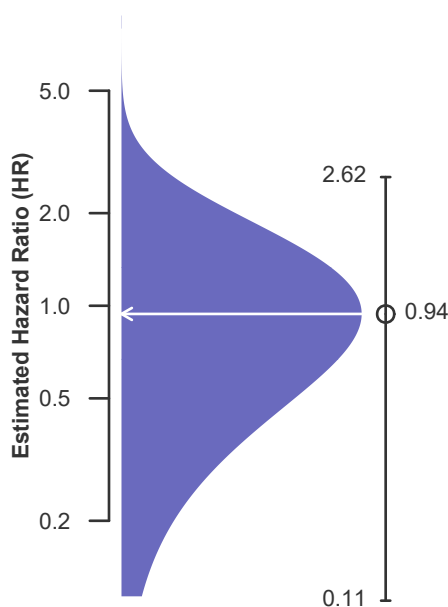
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	32	1,993
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	99.46% [99.13%-99.80%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	99.57%	--
Number of observed deaths during the first year after transplant	0	10
Number of expected deaths during the first year after transplant	0.13	--
Estimated hazard ratio*	0.94	--
95% credible interval for the hazard ratio**	[0.11, 2.62]	--

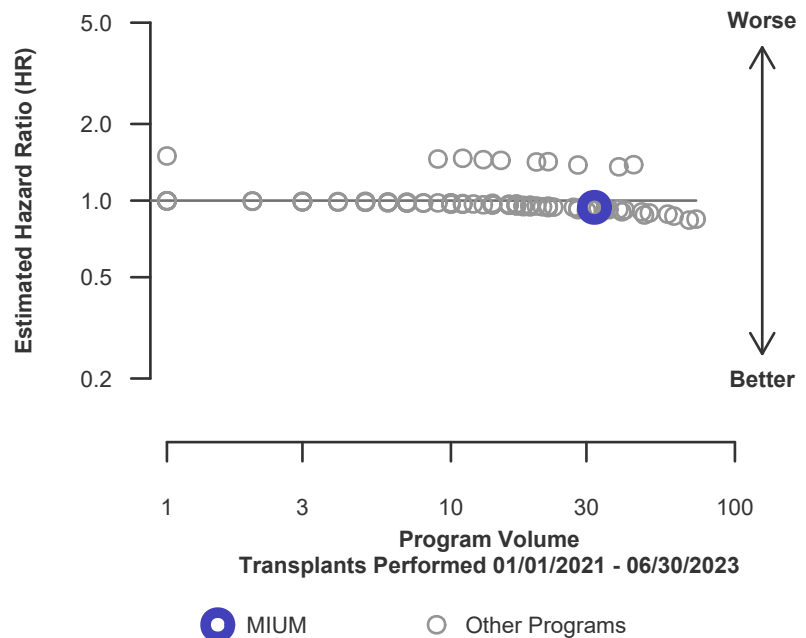
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.62], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 6% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 89% reduced risk up to 162% 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)**

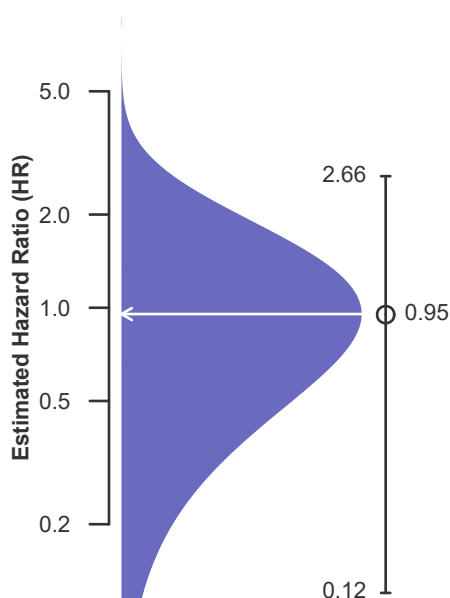
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	15	1,410
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	99.33% [98.89%-99.77%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	99.33%	--
Number of observed deaths during the first year after transplant	0	9
Number of expected deaths during the first year after transplant	0.10	--
Estimated hazard ratio*	0.95	--
95% credible interval for the hazard ratio**	[0.12, 2.66]	--

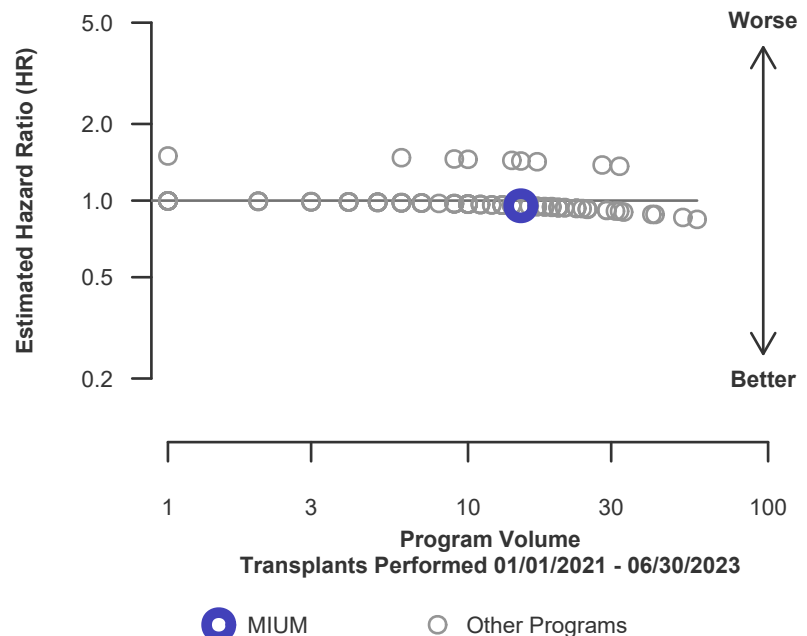
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.66], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 5% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 88% reduced risk up to 166% 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)**

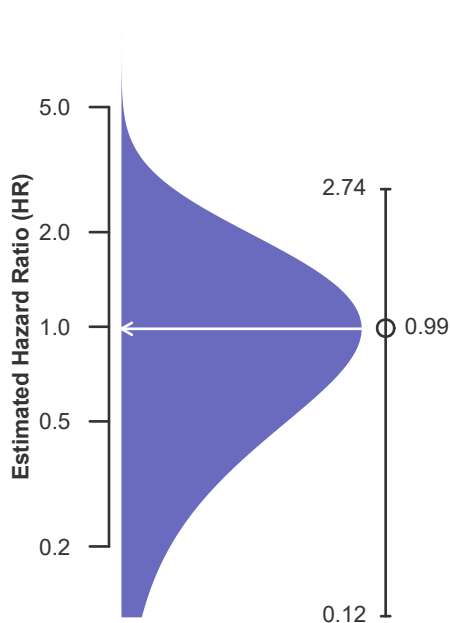
Single organ transplants performed between 01/01/2021 and 06/30/2023  
Retransplants excluded

	MIUM	U.S.
Number of transplants evaluated	17	583
Estimated probability of surviving at 1 year & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	99.78% [99.36%-100.00%]
Expected probability of surviving at 1 year (adjusted for patient and donor characteristics)	99.78%	--
Number of observed deaths during the first year after transplant	0	1
Number of expected deaths during the first year after transplant	0.03	--
Estimated hazard ratio*	0.99	--
95% credible interval for the hazard ratio**	[0.12, 2.74]	--

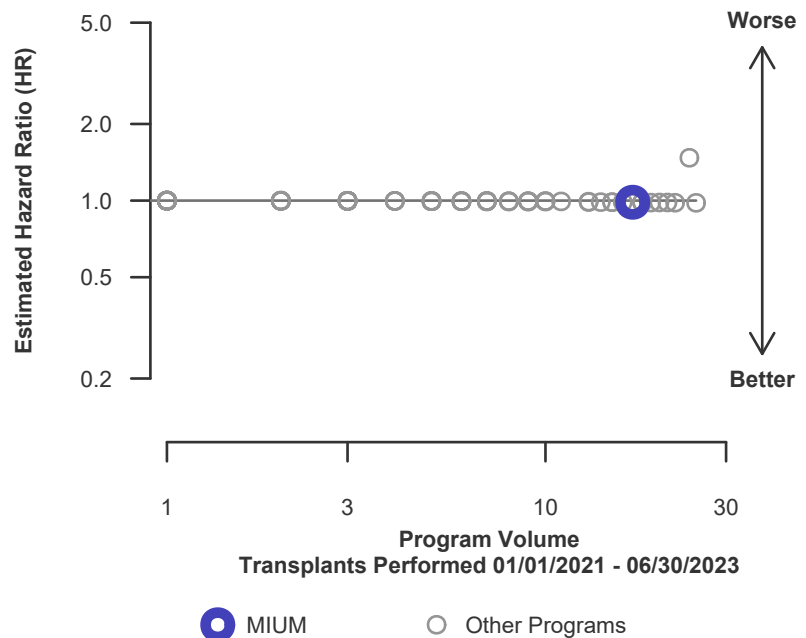
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.74], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 1% lower risk of patient death compared to an average program, but MIUM's performance could plausibly range from 88% reduced risk up to 174% increased risk.

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



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





## C. Transplant Information

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

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

Retransplants excluded

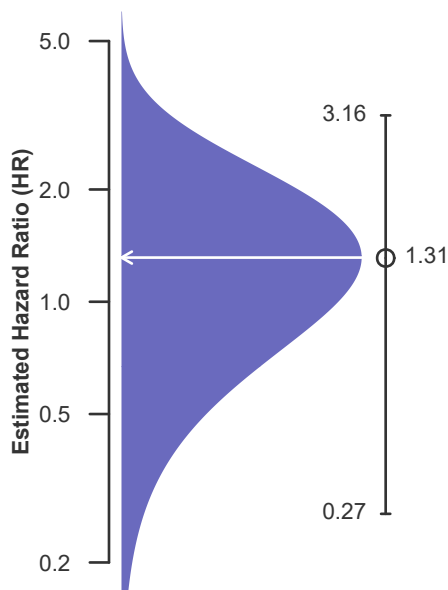
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	35	1,767
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	96.67% [90.45%-100.00%]	99.00% [98.37%-99.63%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	98.93%	--
Number of observed deaths during the first 3 years after transplant	1	12
Number of expected deaths during the first 3 years after transplant	0.28	--
Estimated hazard ratio*	1.31	--
95% credible interval for the hazard ratio**	[0.27, 3.16]	--

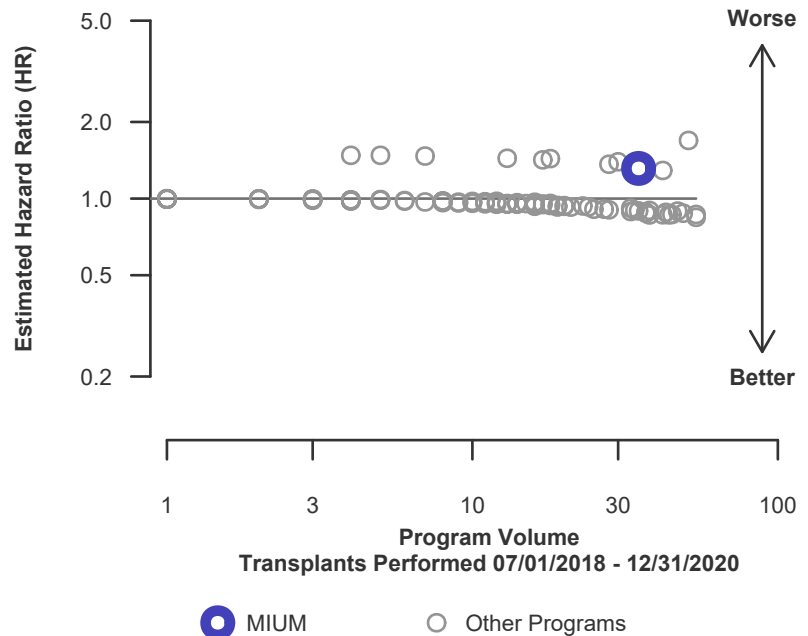
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.27, 3.16], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 31% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 73% reduced risk up to 216% increased risk.

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



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





## C. Transplant Information

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

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

Retransplants excluded

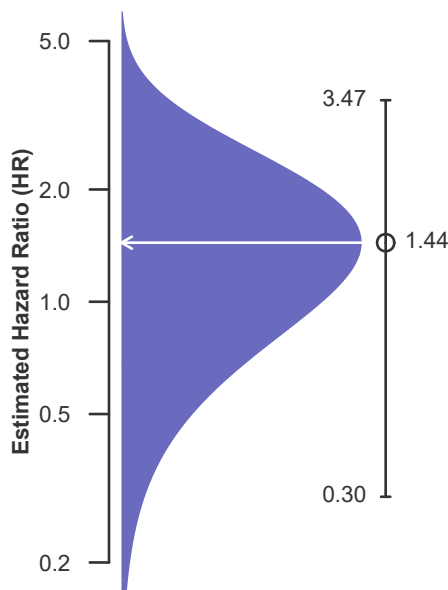
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	16	1,180
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	91.67% [77.29%-100.00%]	99.11% [98.31%-99.92%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	99.11%	--
Number of observed deaths during the first 3 years after transplant	1	6
Number of expected deaths during the first 3 years after transplant	0.08	--
Estimated hazard ratio*	1.44	--
95% credible interval for the hazard ratio**	[0.30, 3.47]	--

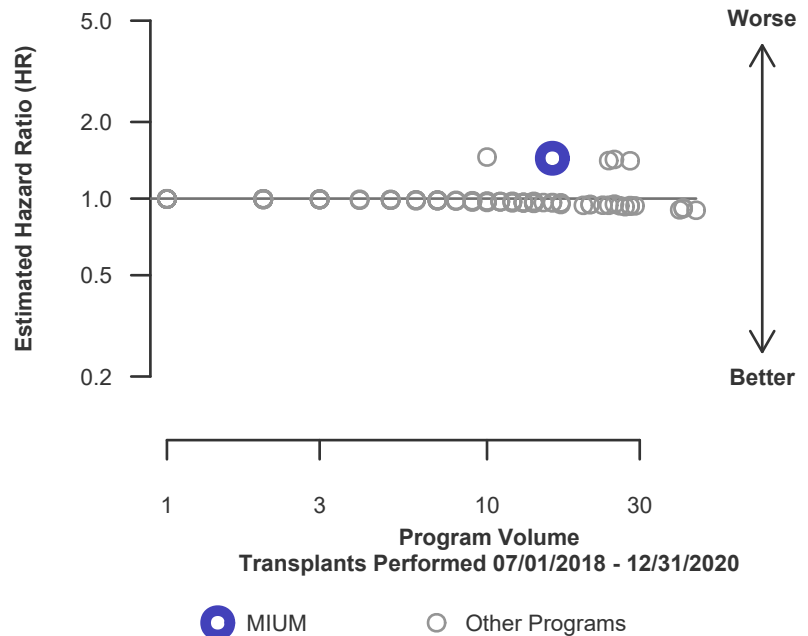
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, [0.30, 3.47], indicates the location of MIUM's true hazard ratio with 95% probability. The best estimate is 44% higher risk of patient death compared to an average program, but MIUM's performance could plausibly range from 70% reduced risk up to 247% increased risk.

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



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





## C. Transplant Information

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

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

Retransplants excluded

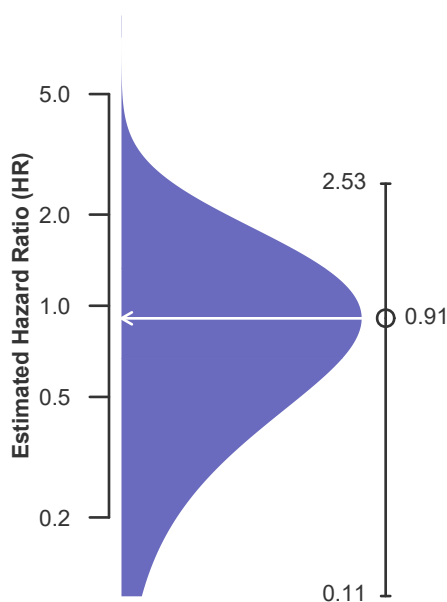
Follow-up ends on 3/12/2020 for recipients transplanted prior to 3/13/2020

	MIUM	U.S.
Number of transplants evaluated	19	587
Estimated probability of surviving at 3 years & [95% CI] (unadjusted for patient and donor characteristics)	100.00% [100.00%-100.00%]	98.79% [97.80%-99.78%]
Expected probability of surviving at 3 years (adjusted for patient and donor characteristics)	98.79%	--
Number of observed deaths during the first 3 years after transplant	0	6
Number of expected deaths during the first 3 years after transplant	0.20	--
Estimated hazard ratio*	0.91	--
95% credible interval for the hazard ratio**	[0.11, 2.53]	--

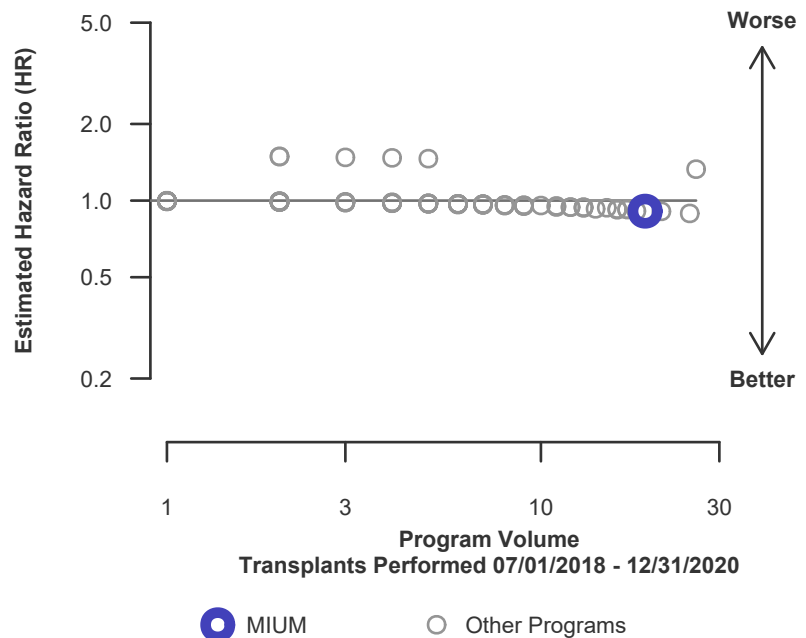
\* The hazard ratio provides an estimate of how University of Michigan Medical Center's results compare with what was expected based on modeling the transplant outcomes from all U.S. programs. A ratio above 1 indicates higher than expected patient death rates (e.g., a hazard ratio of 1.5 would indicate 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, 2.53], 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 89% reduced risk up to 153% 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: 01/01/2021 - 06/30/2023

### Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Kidney Graft Failures		Estimated Kidney Graft Survival	
	MIUM-TX1	USA	MIUM-TX1	USA	MIUM-TX1	USA
Kidney-Heart	9	934	1	133	88.9%	85.8%
Kidney-Liver	12	1,932	2	223	83.3%	88.5%
Kidney-Pancreas	6	2,040	0	91	100.0%	95.5%

### Pediatric (<18) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Kidney Graft Failures		Estimated Kidney Graft Survival	
	MIUM-TX1	USA	MIUM-TX1	USA	MIUM-TX1	USA
Kidney-Heart	1	10	0	3	100.0%	70.0%
Kidney-Liver	1	38	0	2	100.0%	94.7%

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

### Adult (18+) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Patient Deaths		Estimated Patient Survival	
	MIUM-TX1	USA	MIUM-TX1	USA	MIUM-TX1	USA
Kidney-Heart	9	934	1	96	88.9%	89.7%
Kidney-Liver	12	1,932	2	169	83.3%	91.3%
Kidney-Pancreas	6	2,040	0	62	100.0%	97.0%

### Pediatric (<18) Transplants

Transplant Type	First-Year Outcomes					
	Transplants Performed		Patient Deaths		Estimated Patient Survival	
	MIUM-TX1	USA	MIUM-TX1	USA	MIUM-TX1	USA
Kidney-Heart	1	10	0	1	100.0%	90.0%
Kidney-Liver	1	38	0	2	100.0%	94.7%



## D. Living Donor Information

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

Living Donor Follow-Up	This Center			United States		
	01/2021-12/2021	01/2022-12/2022	01/2023-06/2023	01/2021-12/2021	01/2022-12/2022	01/2023-06/2023
<b>Number of Living Donors</b>	56	56	28	5,970	5,863	3,079
<b>6-Month Follow-Up</b>						
Donors due for follow-up	56	56	25	5,968	5,862	2,490
Timely clinical data	52 92.9%	52 92.9%	25 100.0%	5,221 87.5%	4,855 82.8%	2,041 82.0%
Timely lab data	51 91.1%	52 92.9%	25 100.0%	4,923 82.5%	4,693 80.1%	1,997 80.2%
<b>12-Month Follow-Up</b>						
Donors due for follow-up	56	49		5,968	5,400	
Timely clinical data	54 96.4%	45 91.8%		4,887 81.9%	4,125 76.4%	
Timely lab data	54 96.4%	46 93.9%		4,524 75.8%	3,933 72.8%	
<b>24-Month Follow-Up</b>						
Donors due for follow-up	53			5,493		
Timely clinical data	45 84.9%			3,862 70.3%		
Timely lab data	45 84.9%			3,600 65.5%		

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