

Expedited Liver Placement Pathway
6-Month Post Policy Implementation Monitoring Report

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Executive Summary

Based on 6 months of data post implementation of the optional expedited placement pathway for livers refused by the primary acceptor after the donor entered the operating room (OR):

The results of this report indicated that the expedited liver pathway has been relatively under utilized as only 251 expedited cases were initiated:

- The discard rate for expedited liver cases was 64.36% (**Table 1**).
- The majority of transplant centers (61.59%) refused none or one liver leading to an expedited placement attempt (**Table 4**).
- Most livers refused in the OR leading to the use of the expedited match run were refused due to 'Donor age or quality' issues (**Figure 4** and **Table 5**).
- The characteristics of the donors who went through the expedited liver match run were relatively similar to the characteristics of donors who went through the standard match run.
- Despite the implementation of the policy, the use of Bypass code 863 ('Potential recipient bypassed as a result of offer(s) made during an expedited placement attempt. . .'), a code unrelated to the policy's pathway, remained relatively consistent across the pre-policy and post-policy era (**Table 10**).
- The majority (56%) of liver candidates ever-waiting during the first six months of implementation opted-in to receiving expedited liver offers (**Table 13**). The percentage of candidates opted-in to receiving expedited offers varied by region (**Figure 8** and **Table 12**).
- The percent of expedited match runs with a final acceptance was relatively low (69/251, 27.5%), however the percentage of those acceptances that lead to liver transplants was very high (67/69, 97.1%) (**Table 14**).
- There was a significant decrease in the utilization rate of livers (pre-policy: 65.1% and post-policy: 62.7%), while the percentage of livers placed out of sequence remained consistent (pre-policy: 7.5% and post-policy: 7.7%).

Background/Purpose

On March 25, 2021 the Organ Procurement and Transplantation Network (OPTN) established requirements regarding an optional pathway for expedited placement of livers to create a transparent and equitable process to quickly place livers refused after the donor had entered the operating room (OR) since they are at high risk of not being utilized. The policy impacted both Organ Procurement Organizations (OPO) and transplant centers. Transplant centers were able to opt-in their candidates to receive expedited liver offers. Expedited placements could only be initiated when the primary liver acceptor had turned down the offer after the donor has entered the OR for organ recovery. When such expedited placements were initiated, offers were extended through the original match run to candidates who have opted-in to receiving expedited offers. Candidates who had opted-out or had not responded in regards to opting in or out were bypassed in the match run. A thirty minute window is then enforced for transplant centers to respond once receiving the expedited offer for a candidate.

The expedited placement pathway is not required to be utilized in situations where a liver is turned down after entering the OR. In these situations OPOs may utilize the expedited pathway or they can choose to continue to allocate the liver down the match run without initiating the expedited pathway.

Strategic Plan Goal or Committee Project Addressed

- Increase the number of transplants
- Improve equity in access to transplants
- Promote the efficient management of the OPTN

Committee Request

The impact of these policy changes will be accessed at 6 months and 12 months post-implementation. Analyses beyond 12 months will be performed at the request of the Committee.

Prior to policy implementation, there was no accurate way in the OPTN system to assess how often a liver is turned down in the OR. This policy created a new pathway of allocation for livers which were turned down late. Utilization of the new system can only be evaluated in the post-policy era.

The following metrics will be evaluated as sample size allows. Any metrics not presented in this report will be examined in a subsequent analysis.

- Overall
 - The number and percent of in-OR (expedited) refusals
 - The number and percent of in-OR (expedited) refusals that result in a transplanted liver
 - The number and percent of in-OR (expedited) refusals that result in a liver recovered but not transplanted
 - The reasons reported for the in-OR (expedited) refusal
 - The characteristics of liver donors that have an in-OR (expedited)
 - Liver utilization rates pre vs. post implementation
 - Liver discard rates pre vs. post implementation
 - Liver transplant volumes pre vs. post implementation
 - Out of sequence liver placements pre vs. post implementation
- By OPO
 - The number and percent of in-OR (expedited) refusals
 - The number and percent of in-OR (expedited) refusals that result in a transplanted liver
 - The number and percent of in-OR (expedited) refusals that result in a liver recovered but not transplanted
 - The reasons reported for the in-OR (expedited) refusal
- By Transplant Program
 - The number and percent of livers refused in-OR
 - Refusal reasons for livers refused in-OR
 - Distribution of candidates listed as willing to accept an expedited (in-OR) liver
 - Number and percent of expedited acceptances transplanted
 - Number and percent of expedited acceptances not transplanted
 - Acceptance rates for expedited (in-OR) liver offers

Data and Methods

Data Sources:

OPTN data as of November 26, 2021 were used for this analysis. The OPTN data system includes data on all donor, waitlisted candidates, and transplant recipients in the US, submitted by the members of the OPTN. This report also contains match run data submitted in DonorNet as well as candidate data pulled from Waitlist. Data is subject to change based on future data submission or correction.

Cohort and Methods:

All deceased donors, deceased donor transplants and deceased donor liver offers occurring between September 21, 2020 and September 25, 2021 as well as all liver candidates ever-waiting between March 25, 2021 and September 25, 2021 were included in this analysis. As this analysis evaluated a new procedure for offering expedited livers implemented on March 25, 2021, some metrics will be evaluated as 'point forward' analysis, only including data from the post-policy era from March 25, 2021 to September 25, 2021. Included in the analysis were 7 cases of potential donors who had no solid organs recovered with the intent to transplant after entering the OR. These cases are only included when utilization of the expedited pathway is evaluated on a match run level (Tables 1-5 and Figures 1-2). Foreign donors (donors with organs recovered outside of the US) were excluded from this analysis.

Additional metrics were requested by the committee, defined below, in addition to the proposed initial monitoring plan.

- Pre-Policy : September 21, 2020 to March 24, 2021
- Post-Policy : March 25, 2021 to September 25, 2021

Discard rate was defined as the number of deceased donor livers recovered for the purpose of transplant, but not transplanted, divided by the total number of deceased donor livers recovered for transplant.

Utilization rate was defined as the number of livers transplanted divided by the total number of available livers from donors who donated at least one organ for deceased donor transplantation.

Out of sequence placements were defined as match runs with final acceptances where OPOs bypassed potential recipient due to transportation logistics, including distance in relation to ischemic time or weather conditions (861), potential recipient was bypassed due to urgent donor organ placement (862), or potential recipient bypassed as a result of offer(s) made during an expedited placement attempt, including offers of expanded donor organs, OR time constraints or family time constraints not utilized under the pathway specified in by this policy (863) were utilize to bypass candidates on the match run.

A COVID-19 Notice

We note that the World Health Organization (WHO) declared COVID-19 a pandemic on March 11, 2020 and a national state of emergency was declared in the U.S. on March 13, 2020. All eras pre and post policy in this report have occurred since the declaration of this national emergency, and given the impact that has been seen on the U.S. transplant and donation community (see data trends at unos.org/covid) the true impact of this policy change is very challenging to determine.

Results

Use of New Expedited Pathway

The expedited pathway for liver has been initiated for 251 cases from implementation on March 25, 2021 to September 25, 2021. The use of the expedited placement pathway is optional when livers are turned down in the OR. **Table 1** below shows the number of expedited cases executed and the discard rates for these cases, as well as the number of livers recovered and transplanted.

Table 1. Expedited Liver Cases by Recovery Results (March 25, 2021 - September 25, 2021)

Match Type	Executed Match Runs*	Livers Recovered for Transplant	Livers Transplanted	Discard Rate**
Expedited Pathway	251	188	67	64.36

* The count includes 7 non-donor cases where a match run was executed and are only counted in the match run column.

† The discard rate is the number of livers recovered with the intent to transplant but not transplanted divided by the number of livers recovered with the intent to transplant.

For 74.9% of cases where the expedited pathway was initiated a liver was recovered for transplant. A total of 188 livers were recovered and of those livers only 67 or 35.64% resulted in a transplant. The discard rate was substantially higher when the expedited pathway was utilized in comparison to a standard pathway of placement for whole livers (Expedited: 64.36% vs. Standard: 7.86%). **Table 2** below shows the number of executed match runs and the recovery count for livers when the expedited pathway was utilized by OPO.

Table 2. Count of Expedited Liver Cases by OPO (March 25, 2021 - September 25, 2021)

OPO	OPO Code	Expedited Match Count*	Livers Recovered for Transplant	Livers Transplanted
Legacy of Hope	ALOB-OP1	0	0	0
Arkansas Regional Organ Recovery Agency	AROR-OP1	0	0	0
Donor Network of Arizona	AZOB-OP1	13	12	4
Donor Network West	CADN-OP1	4	4	1
Sierra Donor Services	CAGS-OP1	12	10	2
OneLegacy	CAOP-OP1	19	17	4
Lifesharing - A Donate Life Organization	CASD-IO1	14	9	4
Donor Alliance	CORS-OP1	7	3	0
Washington Regional Transplant Community	DCTC-OP1	0	0	0
OurLegacy	FLFH-IO1	0	0	0
Life Alliance Organ Recovery Agency	FLMP-OP1	0	0	0
LifeQuest Organ Recovery Services	FLUF-IO1	0	0	0
LifeLink of Florida	FLWC-OP1	0	0	0
LifeLink of Georgia	GALL-OP1	4	1	0
Legacy of Life Hawaii	HIOP-OP1	0	0	0
Iowa Donor Network	IAOP-OP1	7	6	0
Gift of Hope Organ & Tissue Donor Network	ILIP-OP1	0	0	0
Indiana Donor Network	INOP-OP1	4	3	2
Kentucky Organ Donor Affiliates	KYDA-OP1	0	0	0
Louisiana Organ Procurement Agency	LAOP-OP1	10	8	5
New England Organ Bank	MAOB-OP1	22	14	9
The Living Legacy Foundation of Maryland	MDPC-OP1	0	0	0
Gift of Life Michigan	MIOP-OP1	3	2	2
LifeSource Upper Midwest Organ Procurement Organization	MNOP-OP1	5	3	2
Mid-America Transplant Services	MOMA-OP1	1	0	0
Mississippi Organ Recovery Agency	MSOP-OP1	0	0	0
Midwest Transplant Network	MWOB-OP1	1	0	0
LifeShare Carolinas	NCCM-IO1	2	1	1
HonorBridge	NCNC-OP1	2	2	0
Live On Nebraska	NEOR-OP1	4	2	1
New Jersey Organ and Tissue Sharing Network OPO	NJTO-OP1	4	4	3
New Mexico Donor Services	NMOP-OP1	3	1	0
Nevada Donor Network	NVLV-OP1	6	5	0
Center for Donation and Transplant	NYAP-OP1	2	1	1
Finger Lakes Donor Recovery Network	NYFL-IO1	2	1	1
LiveOnNY	NYRT-OP1	4	2	1
Upstate New York Transplant Services Inc	NYWN-OP1	0	0	0
Lifebanc	OHLB-OP1	1	1	0
Life Connection of Ohio	OHLC-OP1	3	3	2
Lifeline of Ohio	OHLP-OP1	6	5	2
LifeCenter Organ Donor Network	OHOV-OP1	2	1	0
LifeShare Transplant Donor Services of Oklahoma	OKOP-OP1	0	0	0
Pacific Northwest Transplant Bank	ORUO-IO1	4	4	0
Gift of Life Donor Program	PADV-OP1	1	1	1
Center for Organ Recovery and Education	PATF-OP1	24	18	1
LifeLink of Puerto Rico	PRLL-OP1	0	0	0
We Are Sharing Hope SC	SCOP-OP1	0	0	0
Tennessee Donor Services	TNDS-OP1	5	4	2
Mid-South Transplant Foundation	TNMS-OP1	0	0	0
LifeGift Organ Donation Center	TXGC-OP1	17	15	7
Texas Organ Sharing Alliance	TXSA-OP1	1	1	0
Southwest Transplant Alliance	TXSB-OP1	10	8	4
DonorConnect	UTOP-OP1	5	4	1
LifeNet Health	VATB-OP1	0	0	0
LifeCenter Northwest	WALC-OP1	8	8	1
Versiti Wisconsin, Inc	WIDN-OP1	5	1	1
UW Health Organ and Tissue Donation	WIUW-IO1	4	3	2
Total	-	251	188	67

*The count includes 7 non-donor cases where a match run was executed and are only counted in the match run column.

Thirty-nine OPOs (69.23%) have utilized the expedited placement pathway since implementation at least once. Out of the 39 OPOs who have utilized the pathway, 27 (69.23%) have seen at least one successful liver transplant from utilizing the pathway. **Table 3** shows the count of late turn downs that led to the initiation of the expedited pathway by transplant programs. The utilization of the expedited liver pathway for liver centers is summarized below. The number of late turn downs resulting in the use of the expedited liver pathway is reported. To contextualize the volume of late turn downs, the number of livers with final acceptances within the time period is shown. The percent of accepted livers that were reallocated using the expedited pathway was also reported. Late turn downs recorded below can only account for events of refusals after entry to the OR where the OPO then chose to initiate the expedited liver pathway.

Table 3. Count of Final Acceptances and Late Turns Downs that Lead to the Initiation of the Expedited Liver Pathway by Transplant Center (March 25, 2021 - September 25, 2021)*

Transplant Center	Center Code	Late Turn Down Leading to Expedited Match Count	Final Acceptances for Liver Offers	Percent of Accepted Livers Refused in OR Leading to an Expedited Match Run
Children's of Alabama	ALCH-TX1	0	1	0%
University of Alabama Hospital	ALUA-TX1	0	40	0%
UAMS Medical Center	ARUA-TX1	0	34	0%
Phoenix Children's Hospital	AZCH-TX1	0	2	0%
Banner-University Medical Center Phoenix	AZGS-TX1	2	29	6.45%
Mayo Clinic Hospital	AZMC-TX1	10	117	7.87%
St. Joseph's Hospital and Medical Center	AZSJ-TX1	2	20	9.09%
Banner University Medical Center-Tucson	AZUA-TX1	1	3	25%
Childrens Hospital Los Angeles	CACL-TX1	0	11	0%
Cedars-Sinai Medical Center	CACS-TX1	4	63	5.97%
Scripps Green Hospital	CAGH-TX1	2	16	11.11%
Loma Linda University Medical Center	CALL-TX1	16	55	22.54%
UCSF Medical Center at Mission Bay	CAMB-TX1	1	4	20%
Lucile Salter Packard Children's Hospital at Stanford	CAPC-TX1	1	9	10%
California Pacific Medical Center-Van Ness Campus	CAPM-TX1	4	37	9.76%
University of California San Diego Medical Center	CASD-TX1	6	42	12.5%
University of California San Francisco Medical Center	CASF-TX1	8	87	8.42%
Stanford Health Care	CASU-TX1	3	53	5.36%
University of California at Los Angeles Medical Center	CAUC-TX1	9	84	9.68%
Keck Hospital of USC	CAUH-TX1	5	67	6.94%
Children's Hospital Colorado	COCH-TX1	1	4	20%
Centura Transplant	COPM-TX1	1	5	16.67%
Presbyterian/St Luke's Medical Center	COSL-TX1	0	11	0%
University of Colorado Hospital/Health Science Center	COUC-TX1	2	57	3.39%
Hartford Hospital	CTHH-TX1	0	15	0%
Yale New Haven Hospital	CTYN-TX1	2	13	13.33%
Medstar Georgetown Transplant Institute	DCGU-TX1	5	65	7.14%
Alfred I duPont Hospital for Children	DEAI-TX1	0	2	0%
Broward Health Medical Center	FLBC-TX1	0	8	0%
Cleveland Clinic Florida Weston	FLCC-TX1	0	17	0%
AdventHealth Orlando	FLFH-TX1	0	32	0%
Jackson Memorial Hospital University of Miami School of Medicine	FLJM-TX1	0	109	0%
Largo Medical Center	FLLM-TX1	0	2	0%
Mayo Clinic Florida	FLSL-TX1	1	99	1%
Tampa General Hospital	FLTG-TX1	0	78	0%
UF Health Shands Hospital	FLUF-TX1	0	76	0%
Children's Healthcare of Atlanta at Egleston	GAEH-TX1	0	9	0%
Emory University Hospital	GAEM-TX1	2	74	2.63%
Piedmont Hospital	GAPH-TX1	0	84	0%
The Queen's Medical Center	HIQM-TX1	0	7	0%
University of Iowa Hospitals and Clinics Transplant Programs	IAIV-TX1	1	11	8.33%
Ann & Robert H. Lurie Children's Hospital of Chicago	ILCM-TX1	0	5	0%
Loyola University Medical Center	ILLU-TX1	4	44	8.33%
Northwestern Memorial Hospital	ILNM-TX1	3	64	4.48%
Rush University Medical Center	ILPL-TX1	0	20	0%
University of Chicago Medical Center	ILUC-TX1	0	39	0%
University of Illinois Medical Center	ILUI-TX1	1	29	3.33%
Indiana University Health	INIM-TX1	3	89	3.26%
University of Kansas Hospital	KSUK-TX1	0	23	0%
Jewish Hospital	KYJH-TX1	0	12	0%
University of Kentucky Medical Center	KYUK-TX1	0	43	0%
Ochsner Foundation Hospital	LAOF-TX1	4	84	4.55%
Tulane Medical Center	LATU-TX1	0	13	0%
Willis-Knighton Medical Center	LAWK-TX1	0	8	0%

(continued)

Transplant Center	Center Code	Late Turn Down Leading to Expedited Match Count	Final Acceptances for Liver Offers	Percent of Accepted Livers Refused in OR Leading to an Expedited Match Run
Beth Israel Deaconess Medical Center	MABI-TX1	2	19	9.52%
Boston Children's Hospital	MACH-TX1	1	7	12.5%
Lahey Clinic Medical Center	MALC-TX1	1	37	2.63%
Massachusetts General Hospital	MAMG-TX1	12	47	20.34%
UMass Memorial Medical Center	MAUM-TX1	5	34	12.82%
Johns Hopkins Hospital	MDJH-TX1	0	69	0%
University of Maryland Medical System	MDUM-TX1	1	53	1.85%
William Beaumont Hospital	MIBH-TX1	0	16	0%
Children's Hospital of Michigan	MICH-TX1	0	1	0%
Henry Ford Hospital	MIHF-TX1	1	65	1.52%
University of Michigan Medical Center	MIUM-TX1	2	48	4%
Rochester Methodist Hospital (Mayo Clinic)	MNMC-TX1	5	63	7.35%
University of Minnesota Medical Center, Fairview	MNUM-TX1	8	60	11.76%
Barnes-Jewish Hospital	MOBH-TX1	1	79	1.25%
St. Louis Children's Hospital at Washington University Medical Center	MOCH-TX1	0	9	0%
St Luke's Hospital of Kansas City	MOLH-TX1	0	15	0%
SSM Health Saint Louis University Hospital	MOSL-TX1	0	16	0%
University of Mississippi Medical Center	MSUM-TX1	0	24	0%
Carolinas Medical Center	NCCM-TX1	2	40	4.76%
Duke University Hospital	NCDU-TX1	4	54	6.9%
University of North Carolina Hospitals	NCMH-TX1	1	20	4.76%
The Nebraska Medical Center	NEUN-TX1	0	53	0%
Virtua Our Lady of Lourdes Hospital	NJLL-TX1	0	10	0%
University Hospital	NJUH-TX1	0	17	0%
NY Presbyterian Hospital/ Columbia Univ. Medical Center	NYCP-TX1	1	59	1.67%
Strong Memorial Hospital, University of Rochester Medical Center	NYFL-TX1	4	40	9.09%
Montefiore Medical Center	NYMA-TX1	1	27	3.57%
Mount Sinai Medical Center	NYMS-TX1	3	79	3.66%
North Shore University Hospital/Northwell Health	NYNS-TX1	0	2	0%
New York-Presbyterian Hospital/Weill Cornell Medical Center	NYNY-TX1	2	28	6.67%
NYU Langone Health	NYUC-TX1	0	21	0%
Westchester Medical Center	NYWC-TX1	2	44	4.35%
The Cleveland Clinic Foundation	OHCC-TX1	3	105	2.78%
Nationwide Children's Hospital	OHCH-TX1	0	2	0%
Children's Hospital Medical Center	OHCM-TX1	1	11	8.33%
Ohio State University Medical Center	OHOU-TX1	2	86	2.27%
University of Cincinnati Medical Center	OHUC-TX1	4	75	5.06%
University Hospitals of Cleveland	OHUH-TX1	0	11	0%
Integris Baptist Medical Center	OKBC-TX1	0	41	0%
OU Medical Center	OKMD-TX1	3	23	11.54%
Oregon Health and Science University	ORUO-TX1	4	41	8.89%
VA Portland Health Care System	ORVA-TX1	0	12	0%
Albert Einstein Medical Center	PAAE-TX1	2	34	5.56%
Allegheny General Hospital	PAAG-TX1	1	21	4.55%
UPMC Children's Hospital of Pittsburgh	PACH-TX1	0	8	0%
Children's Hospital of Philadelphia	PACP-TX1	0	10	0%
Geisinger Medical Center	PAGM-TX1	0	4	0%
Penn State Milton S Hershey Medical Center	PAHE-TX1	0	7	0%
University of Pittsburgh Medical Center	PAPT-TX1	7	30	18.92%
Reading Hospital	PARH-TX1	0	2	0%
Thomas Jefferson University Hospital	PATJ-TX1	3	48	5.88%
Temple University Hospital	PATU-TX1	0	4	0%
Hospital of the University of Pennsylvania	PAUP-TX1	4	78	4.88%
VA Pittsburgh Healthcare System	PAVA-TX1	2	8	20%
Auxilio Mutuo Hospital	PRSJ-TX1	0	22	0%
Medical University of South Carolina	SCMU-TX1	0	49	0%
Avera McKennan Hospital	SDMK-TX1	1	4	20%
Methodist University Hospital	TNMH-TX1	0	58	0%
Vanderbilt University Medical Center	TNVU-TX1	2	62	3.12%

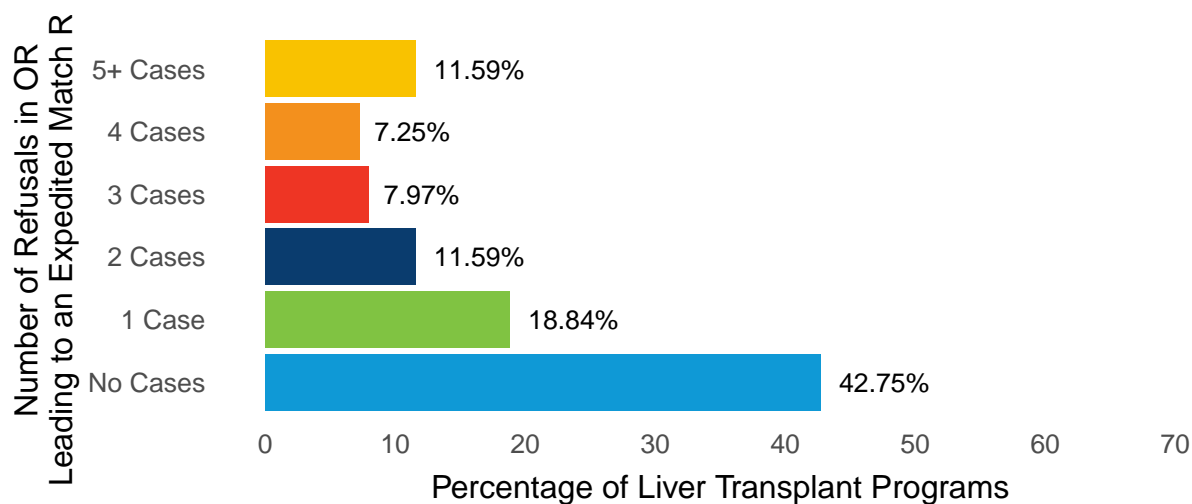
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Transplant Center	Center Code	Late Turn Down Leading to Expedited Match Count	Final Acceptances for Liver Offers	Percent of Accepted Livers Refused in OR Leading to an Expedited Match Run
Baylor Scott and White All Saints Medical Center-Fort Worth	TXAS-TX1	3	36	7.69%
University Hospital, University of Texas Health Science Center	TXBC-TX1	1	44	2.22%
Children's Medical Center of Dallas	TXCM-TX1	0	11	0%
Memorial Hermann Hospital, University of Texas at Houston	TXHH-TX1	2	19	9.52%
CHI St. Luke's Health Baylor College of Medicine Medical Center	TXHI-TX1	5	31	13.89%
Methodist Specialty and Transplant Hospital	TXHS-TX1	1	37	2.63%
University of Texas Medical Branch at Galveston	TXJS-TX1	0	6	0%
Methodist Dallas Medical Center	TXMC-TX1	1	39	2.5%
Houston Methodist Hospital	TXMH-TX1	8	92	8%
UT Southwestern Medical Center/William P. Clements Jr. University Hospital	TXSP-TX1	1	75	1.32%
Texas Children's Hospital	TXTC-TX1	3	21	12.5%
Baylor University Medical Center	TXTX-TX1	5	42	10.64%
Michael E. DeBakey VA Medical Center	TXVA-TX1	0	1	0%
Intermountain Medical Center	UTLD-TX1	6	54	10%
University of Utah Medical Center	UTMC-TX1	1	12	7.69%
Primary Children's Hospital	UTPC-TX1	0	1	0%
VCU Health System Authority, VCUMC	VAMC-TX1	3	75	3.85%
University of Virginia Health Sciences Center	VAUV-TX1	1	38	2.56%
Seattle Children's Hospital	WACH-TX1	1	4	20%
Swedish Medical Center	WASM-TX1	0	13	0%
University of Washington Medical Center	WAUW-TX1	4	58	6.45%
Children's Hospital of Wisconsin	WICH-TX1	0	1	0%
Froedtert Memorial Lutheran Hospital	WISE-TX1	0	9	0%
Aurora St. Luke's Medical Center	WISL-TX1	0	16	0%
University of Wisconsin Hospital and Clinics	WIUW-TX1	3	57	5%

*The count includes 7 non-donor cases where a match run was executed but the liver was not recovered with the intent to transplant.

Figure 1 and **Table 4** shows the frequency of late turn downs that led to the initiation of the expedited liver pathway by transplant centers. The transplant centers accounted for below are based on all transplant centers that were final acceptors for at least one liver offer from March 25, 2021 to September 25, 2021.

Figure 1. Frequency of Expedited Liver Cases by Transplant Centers That Refused in OR Leading to Expedited Match (March 25, 2021 - September 25, 2021)



*The count includes 7 non-donor cases where a match run was executed but a liver was not recovered with the intent to transplant.

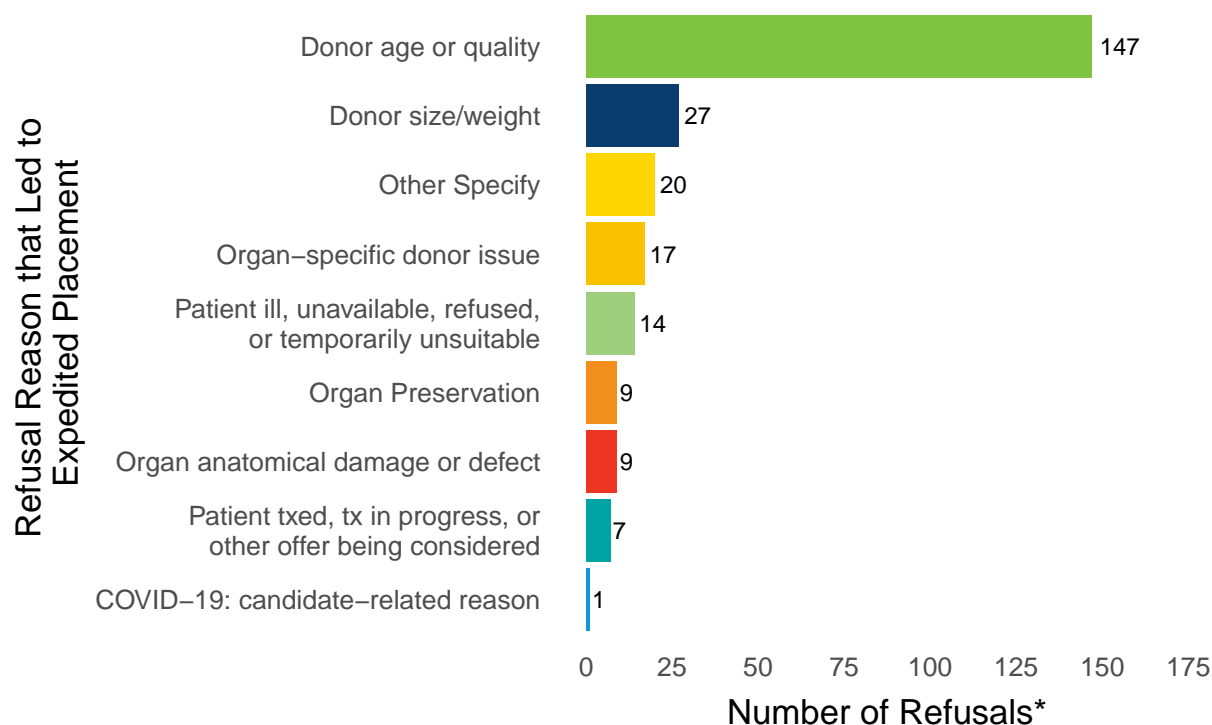
Table 4. Frequency of Expedited Liver Cases by Transplant Centers That Refused in OR Leading to Expedited Match (March 25, 2021 - September 25, 2021)

Number of Late Turn Downs Leading to Expedited Cases*	Count of Transplant Centers
No Cases	59 (42.75%)
1 Case	26 (18.84%)
2 Cases	16 (11.59%)
3 Cases	11 (7.97%)
4 Cases	10 (7.25%)
5+ Cases	16 (11.59%)
Total	138 (100.00%)

*The count includes 7 non-donor cases where a match run was executed but the liver was not recovered with the intent to transplant.

Late turn downs recorded above can only account for events of refusal after entry to the OR where the OPO then chose to initiate the expedited liver pathway. The plurality of centers did not have any recorded cases of late refusals in the OR. While the majority of centers turned a liver down late less than two times, only 16 (11.59%) of the 138 centers turned down 5 or more liver offers after the donor entered the OR.

Figure 2 and **Table 5** below shows the refusal reasons that led to the initiation of the expedited pathway.

Figure 2. Expedited Liver Cases by Refusal Reason that Led to Expedited Placement (March 25, 2021 - September 25, 2021)

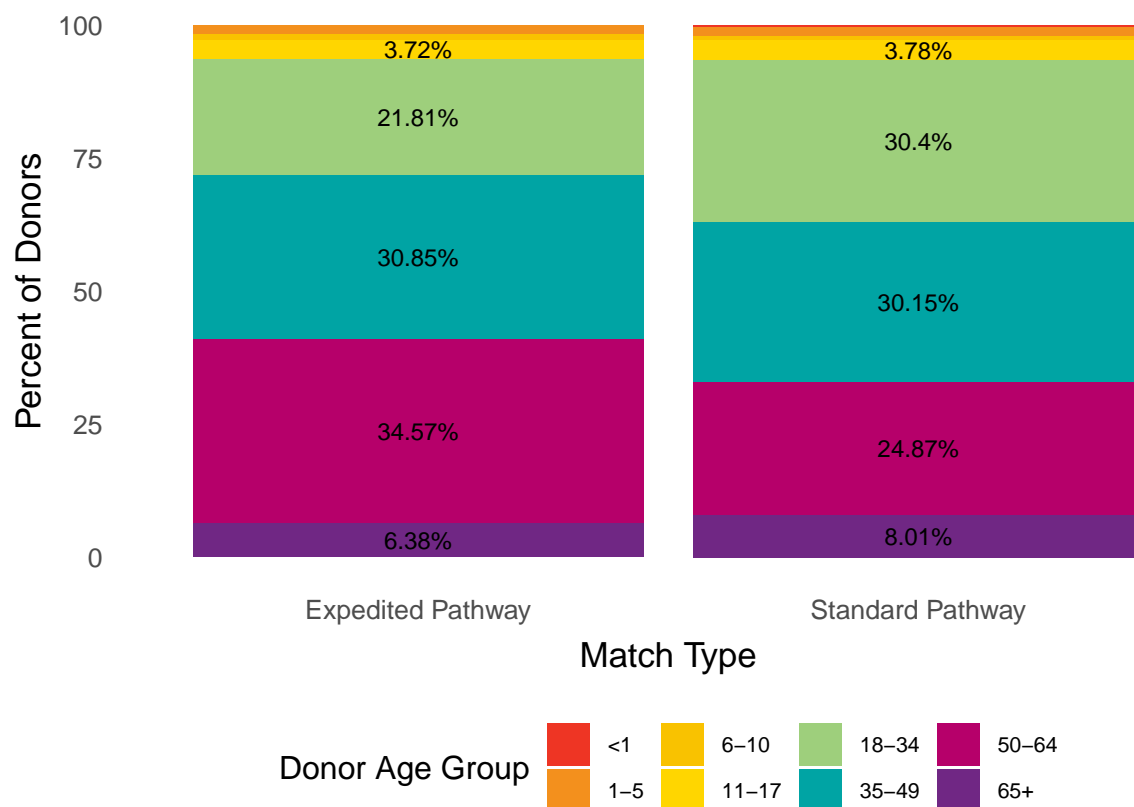
*The count includes 7 non-donor cases where a match run was executed but the liver was not recovered with the intent to transplant.

Table 5. Expedited Liver Cases by Refusal Reason that Led to Expedited Placement (March 25, 2021 - September 25, 2021)

Refusal Reason	Count*
Donor age or quality	147 (58.57%)
Donor size/weight	27 (10.76%)
Other Specify	20 (7.97%)
Organ-specific donor issue	17 (6.77%)
Patient ill, unavailable, refused, or temporarily unsuitable	14 (5.58%)
Organ anatomical damage or defect	9 (3.59%)
Organ Preservation	9 (3.59%)
Patient txed, tx in progress, or other offer being considered	7 (2.79%)
COVID-19: candidate-related reason	1 (0.40%)
Total	251 (100.00%)

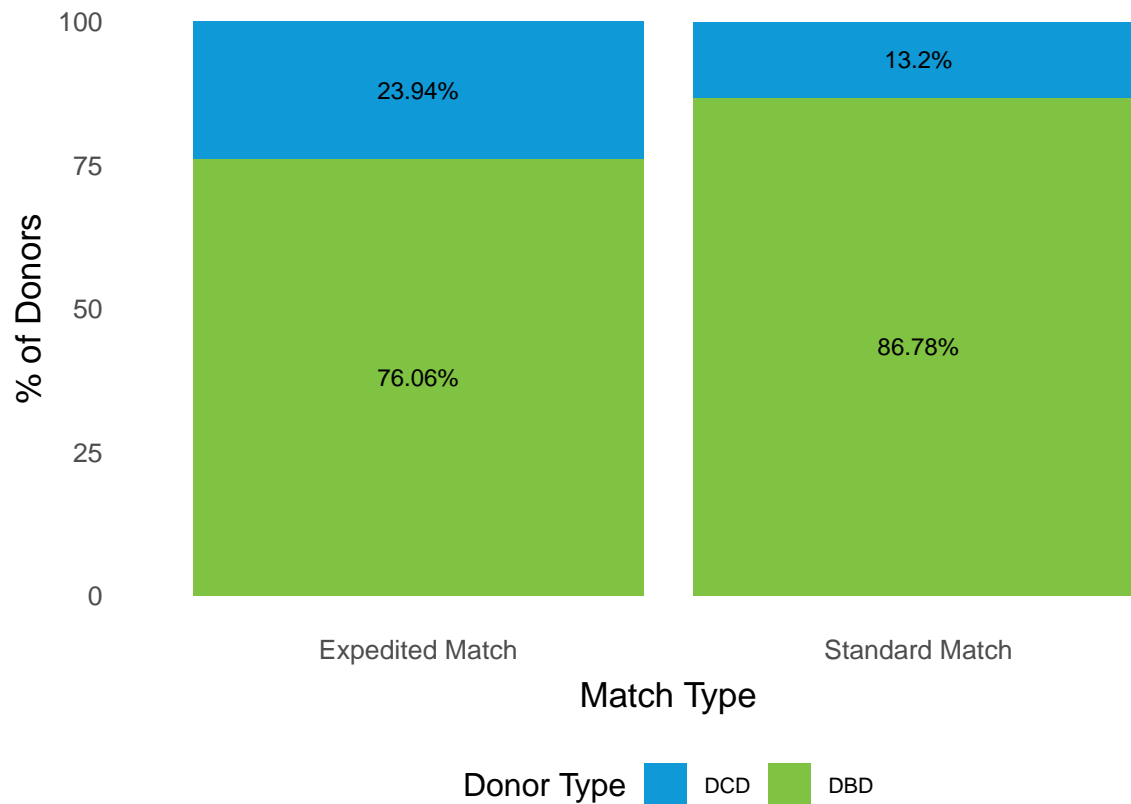
^a The count includes 7 non-donor cases where a match run was executed.

Table 5 shows that 'Donor age or quality' was the most frequently used refusal reason that led to the initiation of an expedited placement as it was reported for 147 (58.57%) cases. In the following figures and tables the general characteristics of deceased liver donors from March 25, 2021 to September 25, 2021 are shown based on the pathway of placement. **Figure 3** and **Table 6** shows the distribution of these donors ages. As the expedited liver policy can only be utilized for whole liver donations, the comparison cohort of donors allocated through the normal match run or standard pathway was filter to consider only deceased donors where a whole liver was donated.

Figure 3. Distribution of Recovered Liver Cases by Donor Age (March 25, 2021 - September 25, 2021)**Table 6. Distribution of Recovered Liver Cases by Donor Age (March 25, 2021 - September 25, 2021)**

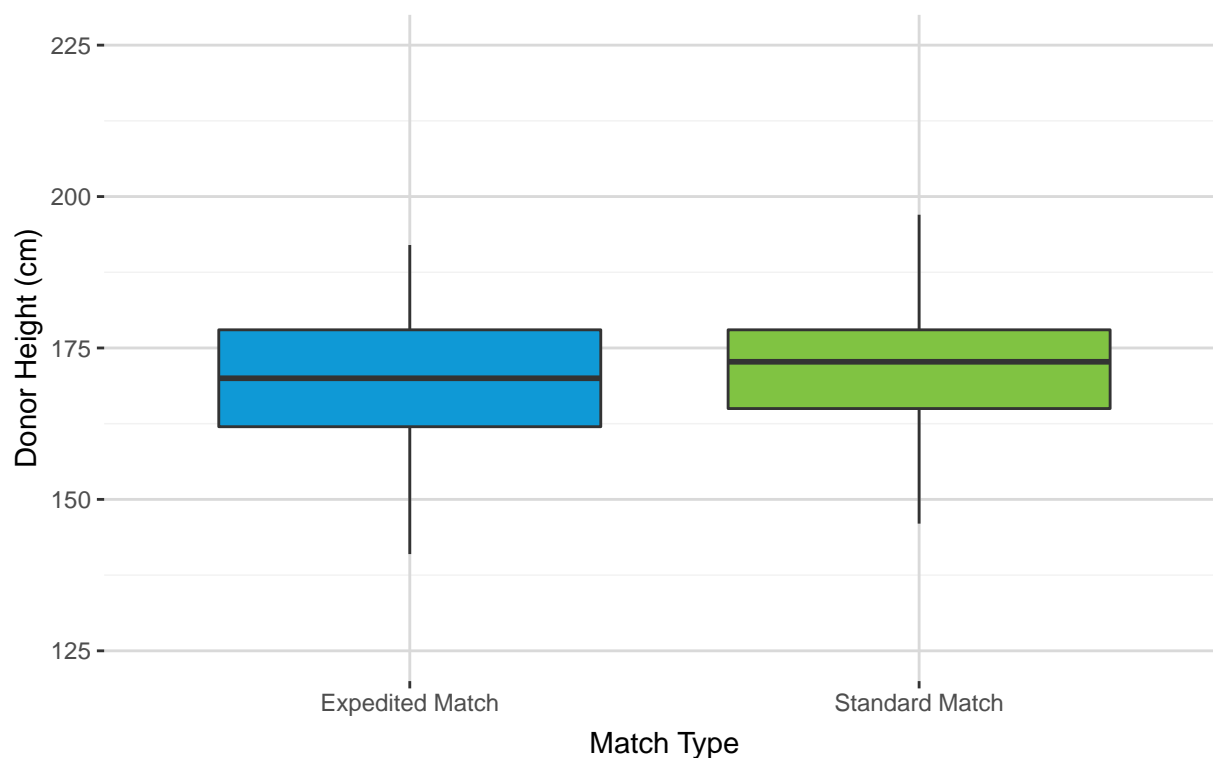
Donor Age Group	Expedited Pathway	Standard Pathway
<1	0 (0.00%)	19 (0.40%)
1-5	3 (1.60%)	79 (1.66%)
6-10	2 (1.06%)	35 (0.74%)
11-17	7 (3.72%)	180 (3.78%)
18-34	41 (21.81%)	1446 (30.40%)
35-49	58 (30.85%)	1434 (30.15%)
50-64	65 (34.57%)	1183 (24.87%)
65+	12 (6.38%)	381 (8.01%)
Total	188 (100.00%)	4757 (100.00%)

The distribution of donor age from expedited liver donors was relatively similar to donors where the expedited pathway was not utilized. Majority of donors in the expedited and standard pathways fell between the ages of 18-64, with expedited donors seeing higher percentages in the latter half of that age range (50-64). **Figure 4** and **Table 7** seen below show the distribution by donor type (Donation after circulatory death donors (DCD) or donation after brain death donors (DBD)).

Figure 4. Distribution of Recovered Liver Cases by Donor Type (DCD or DBD) (March 25, 2021 - September 25, 2021)**Table 7. Distribution of Recovered Liver Cases by Donor Type (March 25, 2021 - September 25, 2021)**

Donor Type	Expedited Match	Standard Match
DCD	45 (23.94%)	628 (13.20%)
DBD	143 (76.06%)	4128 (86.80%)
Total	188 (100.00%)	4756 (100.00%)

The distribution of donors based on donor type shows there was a higher proportion of DCD donors in cases where the expedited liver placement was initiated (Expedited: 45 (23.94%) vs. Standard: 628 (13.20%)). **Figure 5** and **Table 8** show the distribution of donors based on their height (cm).

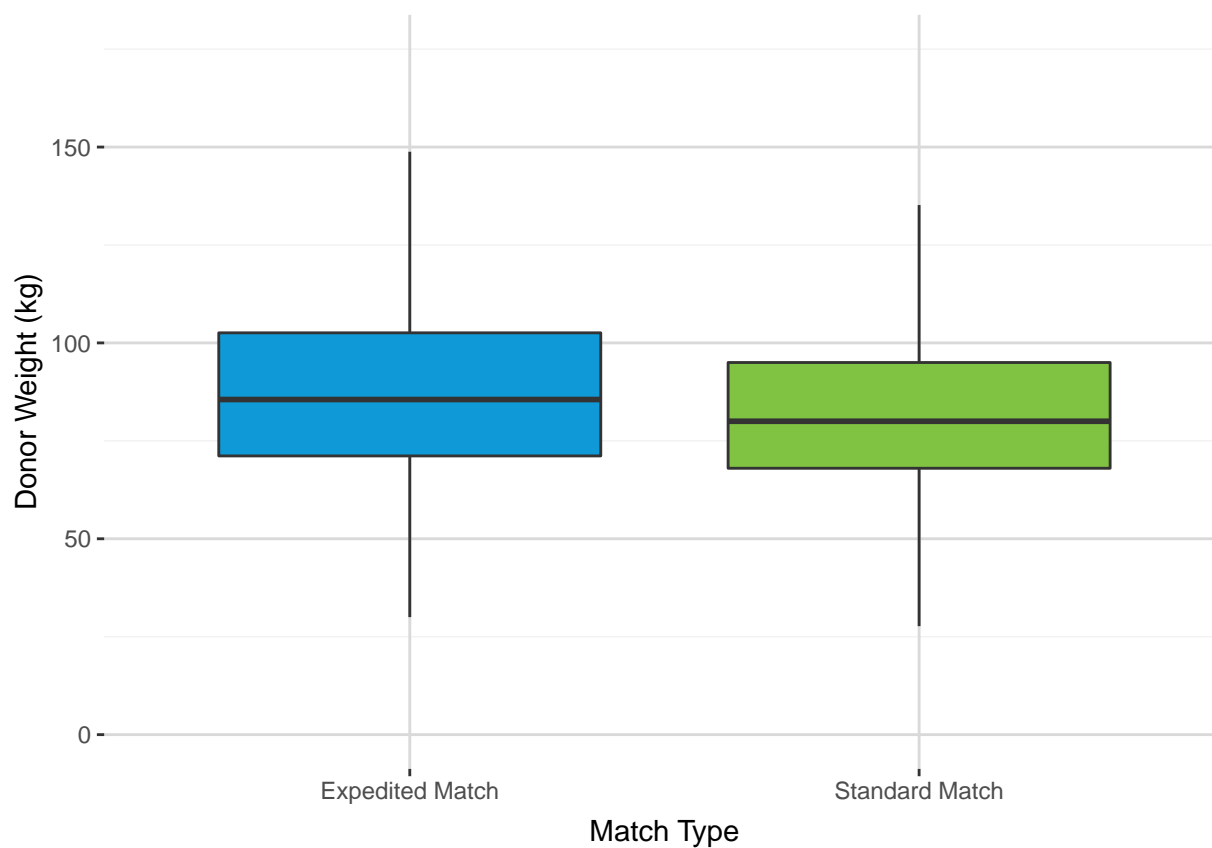
Figure 5. Distribution of Recovered Liver Cases by Donor Height (cm)

*There were 3 donors through the expedited match run and 109 donors through the standard match run that had heights less than 125cm.

Table 8. Distribution of Recovered Liver Cases by Donor Height (cm)

Match Type	Count	Minimum	25th %-tile	Median	75th %-tile	Maximum
Standard Match	4757	51	163	172	178	201
Expedited Match	188	87	161	170	178	192

The distribution of donors based on height was relatively similar between donors where the expedited placement pathway was taken and donors where it was not. The median height for expedited placement donors was 170cm compared to a median height of 172cm for donors where the pathway was not used. **Figure 6** and **Table 9** show the distribution of donors based on their weight (kg).

Figure 6. Distribution of Recovered Liver Cases by Donor Weight (kg)**Table 9. Distribution of Recovered Liver Cases by Donor Weight (kg)**

Match Type	Count	Minimum	25th %-tile	Median	75th %-tile	Maximum
Standard Match	4757	4.5	68.0	80.00	95.00	185.4
Expedited Match	188	14.0	71.1	85.55	102.65	166.0

The distribution of donor weight based on expedited pathway was relatively similar but slightly higher in comparison to donors where the expedited pathway was not utilized. The median weight for expedited pathway donors was 85.55kg while donors where the pathway was not used had a median weight of 80kg.

Pre- and Post-Policy Comparisons of Placement Pathways

The expedited pathway is an optional pathway for late turn down livers, therefore it is difficult to ascertain the true number of late turn down liver cases that occur by just looking to the expedited pathway. While not explicitly expressed in policy as pathway to expedite the process of placing livers, the Bypass code 863 existed in both the pre and post era and is defined as follows:

“Potential recipient bypassed as a result of offer(s) made during an expedited placement attempt. This includes offers of expanded donor organs, OR time constraints or family time constraints. (Requires written verification by OPO to UNOS Policy Compliance Department; this bypass and narrative justification will be shared with bypassed centers.)”

The definition implies it’s a potential pathway OPOs have used to expedite a liver placement, however unlike the pathway expressed by policy, which can not be executed unless the turn down occurs after the donor has entered the OR, the use of the bypass code could occur at any time during the placement of the liver and does not require a refusal after entry to the OR to be utilized. Below the use of the Bypass code 863 is evaluated with the use of the policy implemented expedited liver pathway. The use of expedited procedures is evaluated across the pre- (September 21, 2020 - March 24, 2021) and post-policy (March 25, 2021 - September 25, 2021) eras.

Figure 7. Liver Events based on Match Run Process Used Across Eras

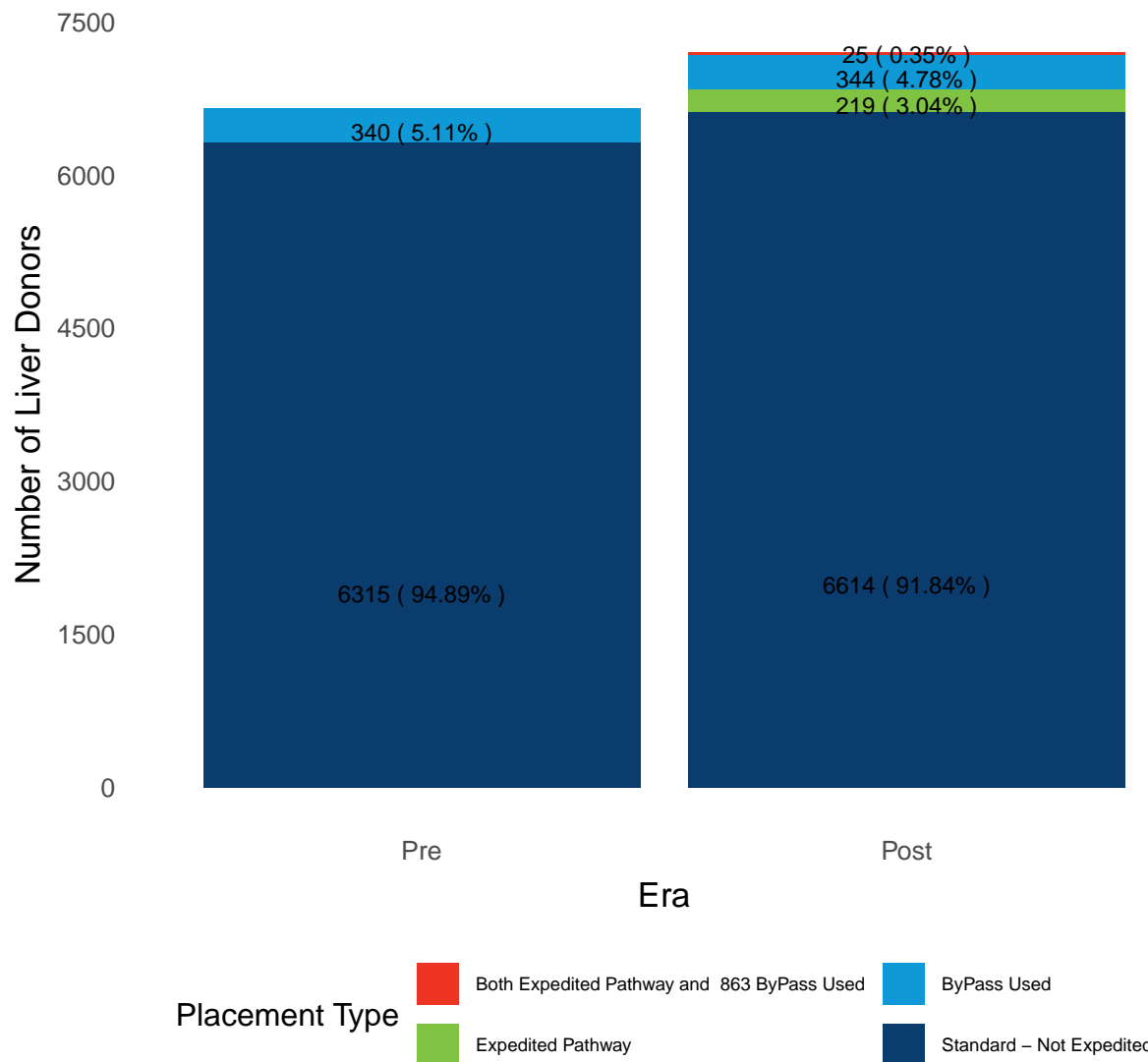


Table 10. Use of the Expedited Liver Pathway, based on Match Run Expedited Process Used

Placement Process	Expedited Type	Pre	Post
Expedited Process	ByPass Used	340 (5.11%)	344 (4.78%)
Expedited Process	Expedited Pathway	-	219 (3.04%)
Expedited Process	Both Expedited Pathway and 863 Bypass Used	-	25 (0.35%)
Expedited Process	Total	340 (5.11%)	588 (8.16%)
Standard	Standard - Not Expedited	6315 (94.89%)	6614 (91.84%)

The most common expedited process employed in the post-policy era was the expedited Bypass code 863. The use of the bypass code remained consistent across eras (Pre =340 (5.11%) vs. Post =369 (5.12%)). However there was in an overall increase in the use of expedited processes to place livers from the pre-policy era (340 (5.11%)) to the post-policy (588 (8.16%)). **Table 11** shows the discard rates of the different expedited processes in the post-policy era (March 25, 2021 - September 25, 2021).

Table 11. Liver Discard Rates based on Match Run Expedited Process Used in the Post-Policy Era (March 25, 2021 - September 25, 2021)

Match Type	Recovered for Transplant	Transplanted	Discard Rate
Expedited Pathway	164	45	72.56%
ByPass Used	325	321	1.23%
Both	24	22	8.33%
Standard - Not Expedited	4414	4047	8.31%

The use of different expedited processes showed extreme variation in discard rates. While livers placed using the 863 Bypass code exclusively had the lowest discard rate at 1.23%, those placed exclusively through the expedited pathway had the highest discard rate at 72.56%.

Candidate and Recipient Summary

Figure 8 and Table 12 show all ever-waiting liver candidates in the post-policy era (March 25, 2021 - September 25, 2021) based on their opted in status to receiving expedited liver offers in the most recent record or last record before transplantation or removal from waitlist by region as of November 26, 2021.

Figure 8. Distribution of Ever-Waiting Registrations indicated as Willing to Accept Expedited Liver Offers by OPTN Region (March 25, 2021 - September 25, 2021)

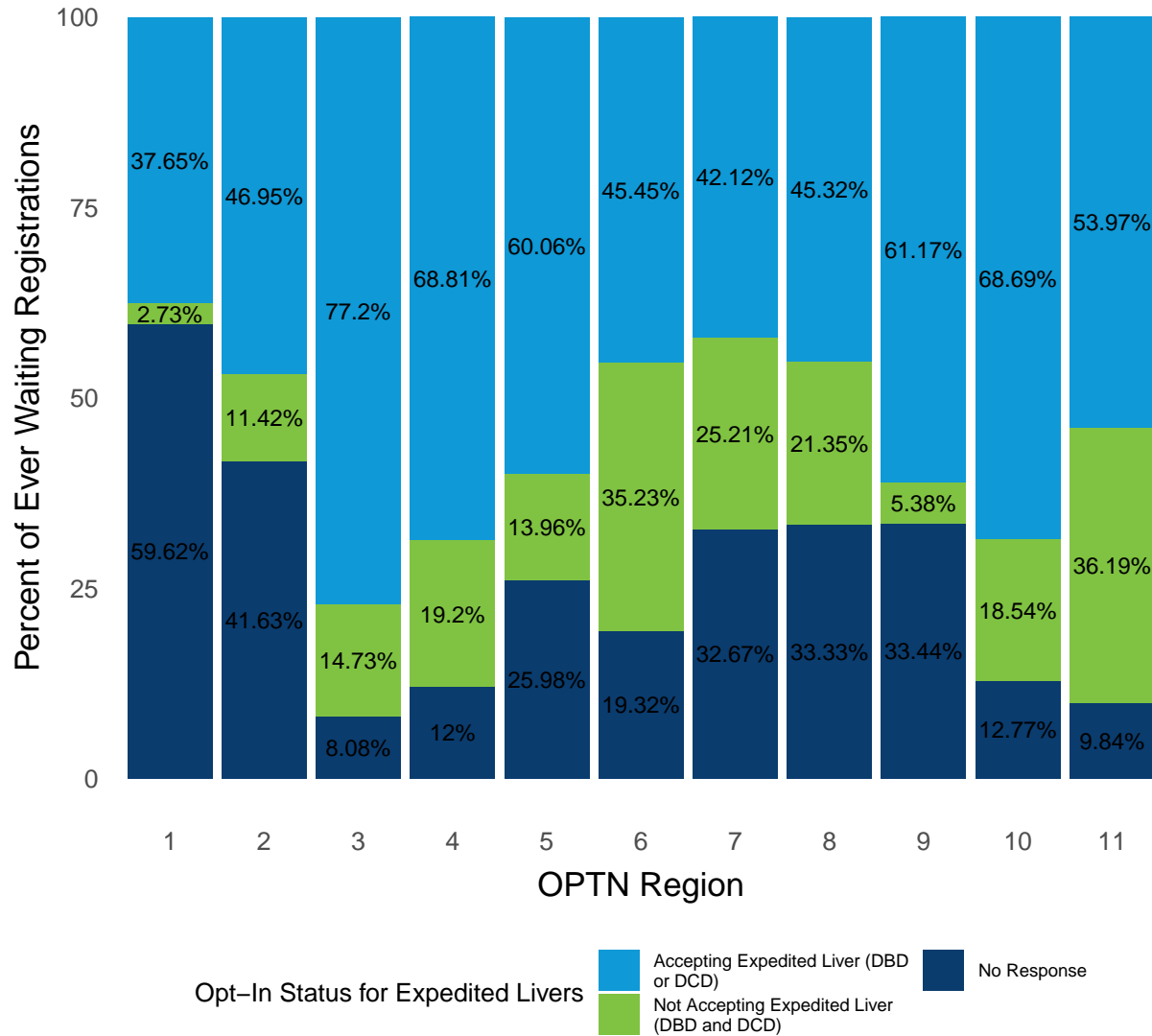


Table 12. Distribution of Ever Waiting Registrations indicated as Accepting Expedited Liver Offers by OPTN Region (March 25, 2021 - September 25, 2021)

Region	Expedited Opt-In Status		
	Accepting Expedited Liver (DBD or DCD)	Not Accepting Expedited Liver (DBD and DCD)	No Response
1	413 (37.65%)	30 (2.73%)	654 (59.62%)
2	670 (46.95%)	163 (11.42%)	594 (41.63%)
3	650 (77.2%)	124 (14.73%)	68 (8.08%)
4	889 (68.81%)	248 (19.2%)	155 (12%)
5	1403 (60.06%)	326 (13.96%)	607 (25.98%)
6	120 (45.45%)	93 (35.23%)	51 (19.32%)
7	254 (42.12%)	152 (25.21%)	197 (32.67%)
8	208 (45.32%)	98 (21.35%)	153 (33.33%)
9	375 (61.17%)	33 (5.38%)	205 (33.44%)
10	441 (68.69%)	119 (18.54%)	82 (12.77%)
11	340 (53.97%)	228 (36.19%)	62 (9.84%)
Total	5763 (56.47%)	1614 (15.82%)	2828 (27.71%)

The proportion of registrations opted-in to receiving expedited liver offers varies by OPTN region. Out of 11 OPTN regions, 6 have the majority of their liver registrations opted-in to receiving offers for expedited livers. Region 11 had the greatest percentage of registrations opted out of receiving expedited liver offers at 36.19%. The national count of registrations that have not yet indicated whether they are opting in to receive expedited liver offers is 2828 (27.71%), while most regions, with the exception of region 1, fall around 10-40% of registrations with no response yet.

Table 13 shows the number of candidates by transplant center that have been opted-in to receiving expedited liver offers through the expedited pathway. The transplant centers are listed by region in alphabetical order.

Table 13. Distribution of Ever Waiting Registrations based on Accepting Status of Expedited Liver Offers by Transplant Centers (March 25, 2021 - September 25, 2021)

Transplant Center	Region	Liver Registrations	Accepting Expedited Liver (DBD or DCD)	Not Accepting Expedited Liver (DBD and DCD)	No Response
Beth Israel Deaconess Medical Center	1	111	111 (100%)	0 (0.0%)	0 (0.0%)
Boston Children's Hospital	1	10	2 (20%)	1 (10%)	7 (70%)
Hartford Hospital	1	52	0 (0.0%)	8 (15.38%)	44 (84.62%)
Lahey Clinic Medical Center	1	77	57 (74.03%)	0 (0.0%)	20 (25.97%)
Massachusetts General Hospital	1	353	24 (6.8%)	10 (2.83%)	319 (90.37%)
UMass Memorial Medical Center	1	380	162 (42.63%)	1 (0.26%)	217 (57.11%)
Yale New Haven Hospital	1	114	57 (50%)	10 (8.77%)	47 (41.23%)
Albert Einstein Medical Center	2	41	30 (73.17%)	1 (2.44%)	10 (24.39%)
Alfred I duPont Hospital for Children	2	7	0 (0.0%)	5 (71.43%)	2 (28.57%)
Allegheny General Hospital	2	16	16 (100%)	0 (0.0%)	0 (0.0%)
Children's Hospital of Philadelphia	2	4	0 (0.0%)	2 (50%)	2 (50%)
Geisinger Medical Center	2	14	10 (71.43%)	0 (0.0%)	4 (28.57%)
Hospital of the University of Pennsylvania	2	91	88 (96.7%)	3 (3.3%)	0 (0.0%)
Johns Hopkins Hospital	2	329	79 (24.01%)	1 (0.3%)	249 (75.68%)
Medstar Georgetown Transplant Institute	2	209	191 (91.39%)	0 (0.0%)	18 (8.61%)
Penn State Milton S Hershey Medical Center	2	58	16 (27.59%)	14 (24.14%)	28 (48.28%)
Reading Hospital	2	3	0 (0.0%)	1 (33.33%)	2 (66.67%)
Temple University Hospital	2	16	11 (68.75%)	0 (0.0%)	5 (31.25%)
Thomas Jefferson University Hospital	2	97	97 (100%)	0 (0.0%)	0 (0.0%)
University Hospital	2	77	77 (100%)	0 (0.0%)	0 (0.0%)
University of Maryland Medical System	2	255	17 (6.67%)	3 (1.18%)	235 (92.16%)
University of Pittsburgh Medical Center	2	86	32 (37.21%)	46 (53.49%)	8 (9.3%)
UPMC Children's Hospital of Pittsburgh	2	16	0 (0.0%)	11 (68.75%)	5 (31.25%)
VA Pittsburgh Healthcare System	2	45	6 (13.33%)	37 (82.22%)	2 (4.44%)
Virtua Our Lady of Lourdes Hospital	2	57	0 (0.0%)	39 (68.42%)	18 (31.58%)
NA	2	6	0 (0.0%)	0 (0.0%)	6 (100%)
AdventHealth Orlando	3	49	27 (55.1%)	7 (14.29%)	15 (30.61%)
Auxilio Mutuo Hospital	3	10	8 (80%)	0 (0.0%)	2 (20%)
Broward Health Medical Center	3	9	9 (100%)	0 (0.0%)	0 (0.0%)
Children's Healthcare of Atlanta at Egleston	3	10	0 (0.0%)	0 (0.0%)	10 (100%)
Children's of Alabama	3	1	0 (0.0%)	1 (100%)	0 (0.0%)
Cleveland Clinic Florida Weston	3	62	25 (40.32%)	37 (59.68%)	0 (0.0%)
Emory University Hospital	3	122	121 (99.18%)	0 (0.0%)	1 (0.82%)
Jackson Memorial Hospital	3	57	47 (82.46%)	1 (1.75%)	9 (15.79%)
University of Miami School of Medicine	3	8	8 (100%)	0 (0.0%)	0 (0.0%)
Largo Medical Center	3	50	50 (100%)	0 (0.0%)	0 (0.0%)
Mayo Clinic Florida	3	66	66 (100%)	0 (0.0%)	0 (0.0%)
Ochsner Foundation Hospital	3	98	98 (100%)	0 (0.0%)	0 (0.0%)
Piedmont Hospital	3	81	39 (48.15%)	42 (51.85%)	0 (0.0%)
Tampa General Hospital	3	8	3 (37.5%)	5 (62.5%)	0 (0.0%)
Tulane Medical Center	3	19	19 (100%)	0 (0.0%)	0 (0.0%)
UAMS Medical Center	3	19	19 (100%)	0 (0.0%)	0 (0.0%)

(continued)

Transplant Center	Region	Liver Registrations	Accepting Expedited Liver (DBD or DCD)	Not Accepting Expedited Liver (DBD and DCD)	No Response
UF Health Shands Hospital	3	12	10 (83.33%)	2 (16.67%)	0 (0.0%)
University of Alabama Hospital	3	128	104 (81.25%)	0 (0.0%)	24 (18.75%)
University of Mississippi Medical Center	3	17	10 (58.82%)	7 (41.18%)	0 (0.0%)
Willis-Knighton Medical Center	3	35	6 (17.14%)	22 (62.86%)	7 (20%)
Baylor Scott and White All Saints Medical Center-Fort Worth	4	25	14 (56%)	11 (44%)	0 (0.0%)
Baylor University Medical Center	4	31	17 (54.84%)	14 (45.16%)	0 (0.0%)
CHI St. Luke's Health Baylor College of Medicine Medical Center	4	199	199 (100%)	0 (0.0%)	0 (0.0%)
Children's Medical Center of Dallas	4	15	0 (0.0%)	0 (0.0%)	15 (100%)
Houston Methodist Hospital	4	369	263 (71.27%)	30 (8.13%)	76 (20.6%)
Integris Baptist Medical Center	4	86	86 (100%)	0 (0.0%)	0 (0.0%)
Memorial Hermann Hospital, University of Texas at Houston	4	39	37 (94.87%)	1 (2.56%)	1 (2.56%)
Methodist Dallas Medical Center	4	51	26 (50.98%)	21 (41.18%)	4 (7.84%)
Methodist Specialty and Transplant Hospital	4	128	8 (6.25%)	120 (93.75%)	0 (0.0%)
Michael E. DeBakey VA Medical Center	4	46	8 (17.39%)	12 (26.09%)	26 (56.52%)
OU Medical Center	4	7	5 (71.43%)	0 (0.0%)	2 (28.57%)
Texas Children's Hospital	4	9	4 (44.44%)	0 (0.0%)	5 (55.56%)
University Hospital, University of Texas Health Science Center	4	108	94 (87.04%)	0 (0.0%)	14 (12.96%)
University of Texas Medical Branch at Galveston	4	52	41 (78.85%)	0 (0.0%)	11 (21.15%)
UT Southwestern Medical Center/William P. Clements Jr. University Hospital	4	127	87 (68.5%)	39 (30.71%)	1 (0.79%)
Banner University Medical Center-Tucson	5	13	12 (92.31%)	0 (0.0%)	1 (7.69%)
Banner-University Medical Center Phoenix	5	31	26 (83.87%)	0 (0.0%)	5 (16.13%)
California Pacific Medical Center-Van Ness Campus	5	211	13 (6.16%)	39 (18.48%)	159 (75.36%)
Cedars-Sinai Medical Center	5	114	89 (78.07%)	23 (20.18%)	2 (1.75%)
Childrens Hospital Los Angeles	5	22	0 (0.0%)	20 (90.91%)	2 (9.09%)
Intermountain Medical Center	5	73	49 (67.12%)	19 (26.03%)	5 (6.85%)
Keck Hospital of USC	5	218	215 (98.62%)	0 (0.0%)	3 (1.38%)
Loma Linda University Medical Center	5	92	78 (84.78%)	1 (1.09%)	13 (14.13%)
Lucile Salter Packard Children's Hospital at Stanford	5	13	12 (92.31%)	0 (0.0%)	1 (7.69%)
Mayo Clinic Hospital	5	110	110 (100%)	0 (0.0%)	0 (0.0%)
Phoenix Children's Hospital	5	7	1 (14.29%)	3 (42.86%)	3 (42.86%)
Primary Children's Hospital	5	11	0 (0.0%)	0 (0.0%)	11 (100%)
Scripps Green Hospital	5	43	6 (13.95%)	37 (86.05%)	0 (0.0%)
St. Joseph's Hospital and Medical Center	5	12	12 (100%)	0 (0.0%)	0 (0.0%)
Stanford Health Care	5	205	154 (75.12%)	0 (0.0%)	51 (24.88%)
UCSF Medical Center at Mission Bay	5	4	4 (100%)	0 (0.0%)	0 (0.0%)
University of California at Los Angeles Medical Center	5	493	19 (3.85%)	129 (26.17%)	345 (69.98%)

(continued)

Transplant Center	Region	Liver Registrations	Accepting Expedited Liver (DBD or DCD)	Not Accepting Expedited Liver (DBD and DCD)	No Response
University of California San Diego Medical Center	5	103	61 (59.22%)	41 (39.81%)	1 (0.97%)
University of California San Francisco Medical Center	5	501	500 (99.8%)	0 (0.0%)	1 (0.2%)
University of Utah Medical Center	5	60	42 (70%)	14 (23.33%)	4 (6.67%)
Oregon Health and Science University	6	63	0 (0.0%)	63 (100%)	0 (0.0%)
Seattle Children's Hospital	6	14	4 (28.57%)	10 (71.43%)	0 (0.0%)
Swedish Medical Center	6	46	17 (36.96%)	2 (4.35%)	27 (58.7%)
The Queen's Medical Center	6	18	0 (0.0%)	18 (100%)	0 (0.0%)
University of Washington Medical Center	6	100	99 (99%)	0 (0.0%)	1 (1%)
VA Portland Health Care System	6	23	0 (0.0%)	0 (0.0%)	23 (100%)
Ann & Robert H. Lurie Children's Hospital of Chicago	7	7	2 (28.57%)	5 (71.43%)	0 (0.0%)
Aurora St. Luke's Medical Center	7	40	3 (7.5%)	1 (2.5%)	36 (90%)
Avera McKennan Hospital	7	37	36 (97.3%)	0 (0.0%)	1 (2.7%)
Children's Hospital of Wisconsin	7	9	0 (0.0%)	3 (33.33%)	6 (66.67%)
Froedtert Memorial Lutheran Hospital	7	99	0 (0.0%)	98 (98.99%)	1 (1.01%)
Loyola University Medical Center	7	29	22 (75.86%)	0 (0.0%)	7 (24.14%)
Northwestern Memorial Hospital	7	57	34 (59.65%)	17 (29.82%)	6 (10.53%)
Rochester Methodist Hospital (Mayo Clinic)	7	67	20 (29.85%)	8 (11.94%)	39 (58.21%)
Rush University Medical Center	7	23	23 (100%)	0 (0.0%)	0 (0.0%)
University of Chicago Medical Center	7	33	0 (0.0%)	0 (0.0%)	33 (100%)
University of Illinois Medical Center	7	51	0 (0.0%)	0 (0.0%)	51 (100%)
University of Minnesota Medical Center, Fairview	7	85	84 (98.82%)	0 (0.0%)	1 (1.18%)
University of Wisconsin Hospital and Clinics	7	66	30 (45.45%)	20 (30.3%)	16 (24.24%)
Barnes-Jewish Hospital	8	31	0 (0.0%)	0 (0.0%)	31 (100%)
Cardinal Glennon Children's Hospital	8	3	0 (0.0%)	1 (33.33%)	2 (66.67%)
Centura Transplant	8	11	1 (9.09%)	8 (72.73%)	2 (18.18%)
Children's Hospital Colorado	8	1	0 (0.0%)	1 (100%)	0 (0.0%)
Presbyterian/St. Luke's Medical Center	8	62	61 (98.39%)	0 (0.0%)	1 (1.61%)
SSM Health Saint Louis University Hospital	8	32	0 (0.0%)	0 (0.0%)	32 (100%)
St. Luke's Hospital of Kansas City	8	34	0 (0.0%)	34 (100%)	0 (0.0%)
St. Louis Children's Hospital at Washington University Medical Center	8	5	0 (0.0%)	5 (100%)	0 (0.0%)
The Nebraska Medical Center	8	75	52 (69.33%)	4 (5.33%)	19 (25.33%)
University of Colorado Hospital/Health Science Center	8	84	12 (14.29%)	15 (17.86%)	57 (67.86%)
University of Iowa Hospitals and Clinics Transplant Programs	8	29	23 (79.31%)	0 (0.0%)	6 (20.69%)
University of Kansas Hospital	8	92	59 (64.13%)	30 (32.61%)	3 (3.26%)
Montefiore Medical Center	9	36	8 (22.22%)	28 (77.78%)	0 (0.0%)
Mount Sinai Medical Center	9	137	119 (86.86%)	1 (0.73%)	17 (12.41%)

(continued)

Transplant Center	Region	Liver Registrations	Accepting Expedited Liver (DBD or DCD)	Not Accepting Expedited Liver (DBD and DCD)	No Response
New York-Presbyterian Hospital/Weill Cornell Medical Center	9	62	29 (46.77%)	1 (1.61%)	32 (51.61%)
North Shore University Hospital/Northwell Health	9	27	0 (0.0%)	1 (3.7%)	26 (96.3%)
NY Presbyterian Hospital/Columbia Univ. Medical Center	9	119	30 (25.21%)	1 (0.84%)	88 (73.95%)
NYU Langone Health	9	96	96 (100%)	0 (0.0%)	0 (0.0%)
Strong Memorial Hospital, University of Rochester Medical Center	9	62	19 (30.65%)	1 (1.61%)	42 (67.74%)
Westchester Medical Center	9	74	74 (100%)	0 (0.0%)	0 (0.0%)
Children's Hospital Medical Center	10	17	0 (0.0%)	0 (0.0%)	17 (100%)
Children's Hospital of Michigan	10	1	0 (0.0%)	0 (0.0%)	1 (100%)
Henry Ford Hospital	10	74	73 (98.65%)	0 (0.0%)	1 (1.35%)
Indiana University Health	10	61	43 (70.49%)	4 (6.56%)	14 (22.95%)
Nationwide Children's Hospital	10	1	0 (0.0%)	1 (100%)	0 (0.0%)
Ohio State University Medical Center	10	115	51 (44.35%)	62 (53.91%)	2 (1.74%)
The Cleveland Clinic Foundation	10	148	101 (68.24%)	22 (14.86%)	25 (16.89%)
University Hospitals of Cleveland	10	96	94 (97.92%)	0 (0.0%)	2 (2.08%)
University of Cincinnati Medical Center	10	37	8 (21.62%)	9 (24.32%)	20 (54.05%)
University of Michigan Medical Center	10	49	29 (59.18%)	20 (40.82%)	0 (0.0%)
William Beaumont Hospital	10	43	42 (97.67%)	1 (2.33%)	0 (0.0%)
Carolinas Medical Center	11	41	4 (9.76%)	5 (12.2%)	32 (78.05%)
Duke University Hospital	11	30	10 (33.33%)	17 (56.67%)	3 (10%)
Jewish Hospital	11	29	8 (27.59%)	20 (68.97%)	1 (3.45%)
Le Bonheur Children's Medical Center	11	4	0 (0.0%)	0 (0.0%)	4 (100%)
Medical University of South Carolina	11	57	15 (26.32%)	33 (57.89%)	9 (15.79%)
Methodist University Hospital	11	75	75 (100%)	0 (0.0%)	0 (0.0%)
University of Kentucky Medical Center	11	87	56 (64.37%)	25 (28.74%)	6 (6.9%)
University of North Carolina Hospitals	11	20	17 (85%)	2 (10%)	1 (5%)
University of Virginia Health Sciences Center	11	40	36 (90%)	1 (2.5%)	3 (7.5%)
Vanderbilt University Medical Center	11	173	45 (26.01%)	125 (72.25%)	3 (1.73%)
VCU Health System Authority, VCUMC	11	74	74 (100%)	0 (0.0%)	0 (0.0%)
Total	NA	10205	5763 (56.47%)	1614 (15.82%)	2828 (27.71%)

141 centers had at least one liver candidates ever waiting between March 25, 2021 and September 25, 2021. Overall, the majority of candidates were opted-in to receiving expedited liver offers during this time (5763 (56.47%)), while 2828 (27.71%) candidates have yet to opt in or out of receiving expedited offers.

72 centers have the majority of their liver candidates opted in to receiving expedited liver offers. However of the 141 centers, 30 have not opted in any of their candidates to receive expedited liver offers. While 35 centers have not opted in or out of receiving offers or are still waiting for a response for the majority of their patients.

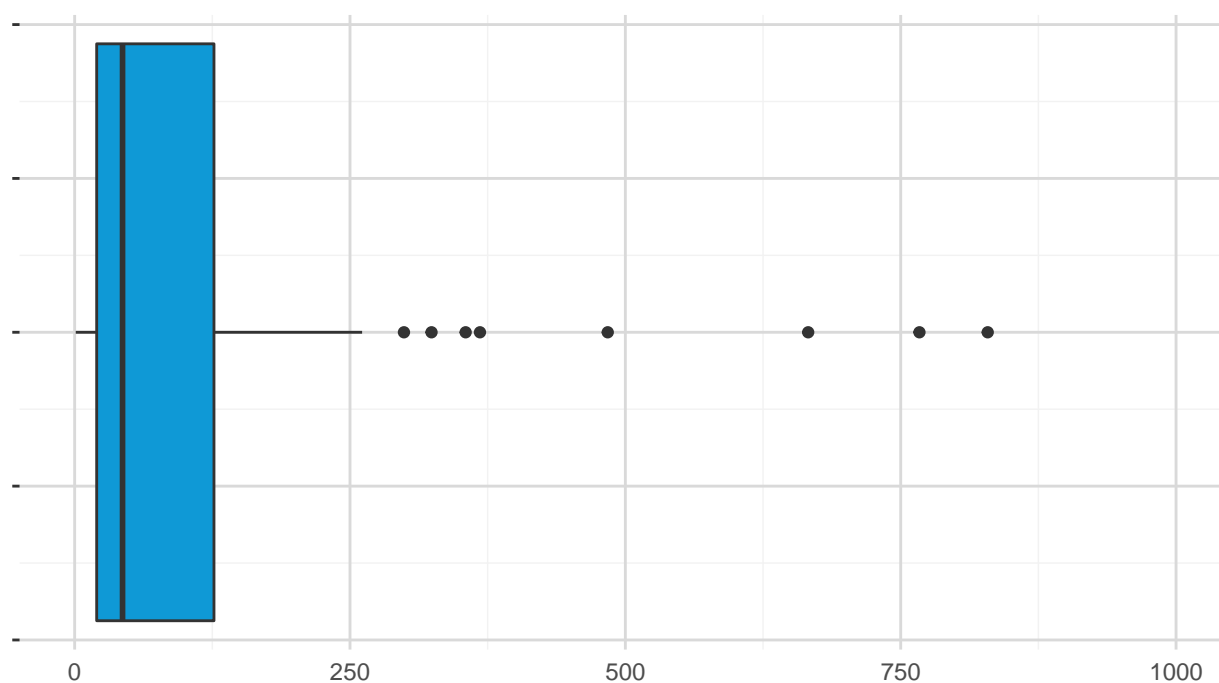
Table 14 below shows the match acceptance and transplant results for expedited matches.

Table 14. Recovery Results of Expedited Matches with Final Acceptors

Expedited Match Runs	Final Acceptances	Transplanted	Percent of Acceptances Resulting in a Transplanted Liver
251	69	67	97.1%

Despite only 69 (27.49%) expedited matches having a final acceptances, for those accepted the percentage of livers transplanted was high at 97.1%.

Figure 9 and **Table 14** below show the distribution of the difference between the sequence number of the final acceptor and the sequence number where the expedited pathway was initiated for all accepted offers.

Figure 9. Distribution of the Difference Between the Sequence Number of the Recipient and Expedited Pathway Initiation

Distribution of the Difference Between the Sequence Number of the Recipient and Expedited Pathway Initiation

9 additional acceptances are not shown in the plot as they occurred over 1000 sequence numbers after the expedited pathway was initiated.

Table 15. Distribution of the Difference Between the Sequence Number of the Recipient and Expedited Pathway Initiation

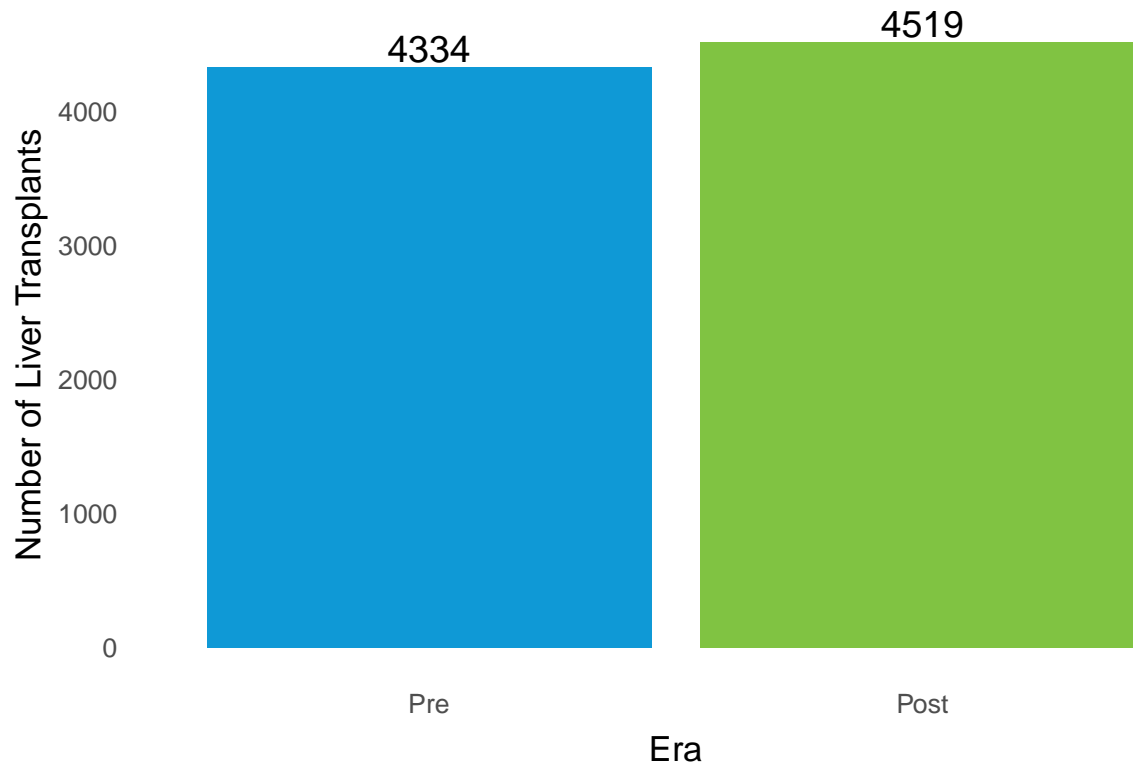
Final Acceptances	Minimum	25th %-tile	Median	75th %-tile	Maximum
69	1	24	52	261	3916

The median difference in sequence numbers between the final acceptor and the sequence which the expedited pathway was initiated is 52. 75% of offers accepted were accepted within 261 sequence numbers of the initiation of the expedited pathway.

Utilization

The following tables and figures contain overarching metrics of the pre-policy (September 21, 2020 - March 24, 2021) and post-policy (March 25, 2021 - September 25, 2021) eras surrounding the implementation of the expedited pathway. **Figure 10** and **Table 16** show the number of deceased donor liver transplants that occurred in the subsequent eras.

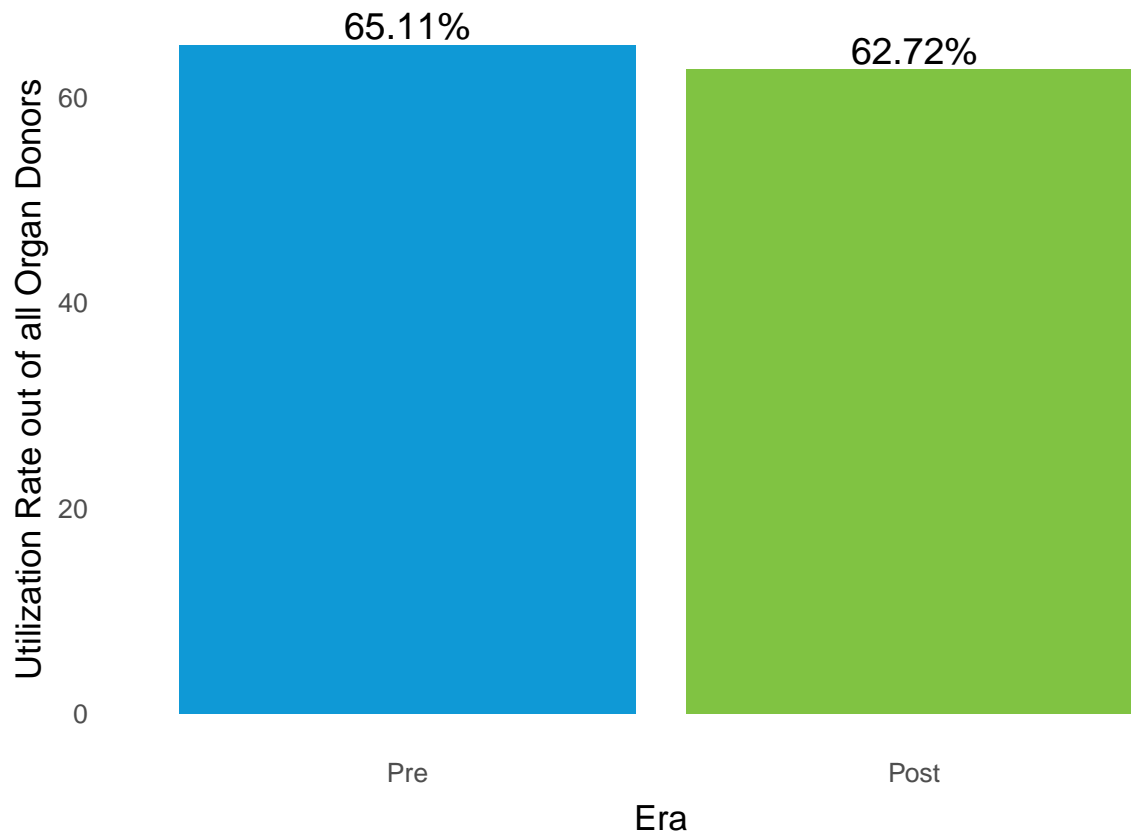
Figure 10. Deceased Donor Liver Transplant Volume Pre and Post Policy Implementation*



*The transplant counts will differ from the number of livers recovered and transplanted due to split liver procedures.

The number of deceased donor liver transplants increased from 4334 transplants to 4519 transplants.

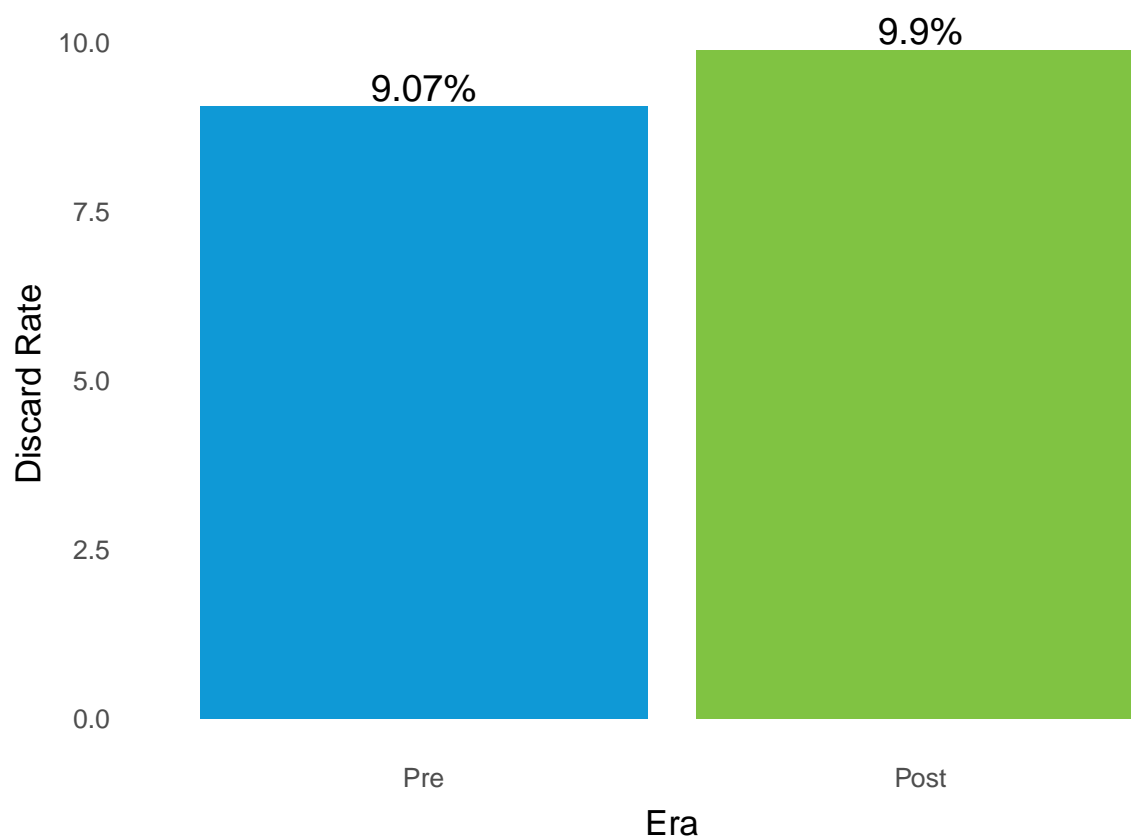
Figure 11 and **Table 16** include the liver utilization rate for the pre- and post-policy era based on all donors who donated at least one organ during the timeframe.

Figure 11. Deceased Donor Liver Utilization Rate Pre and Post Policy Implementation**Table 16. Deceased Donor Liver Utilization Rate Pre and Post Policy Implementation**

Era	Number of Donors	Number of Donors Where Liver was Recovered and Transplanted*	Utilization Rate
Pre	6655	4333	65.11%
Post	7202	4517	62.72%

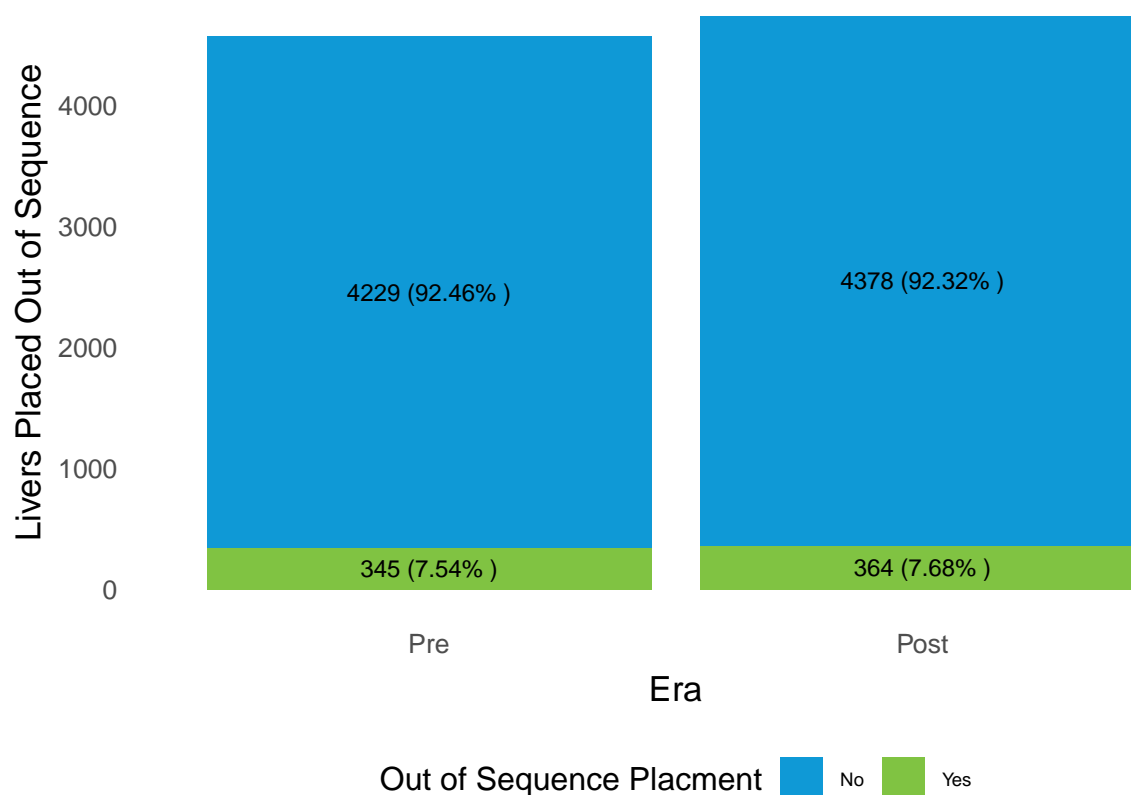
* The number of livers recovered and transplanted will differ from transplant counts due to split liver procedures

The utilization rate was calculated based on the number of liver transplants over the number of donors where at least one organ was recovered with the intent to transplant during the era. There has been a significant drop in the rate from pre era to the post-policy era from 65.11% to 62.72% (p-value =0.003), despite the number of donors increasing across eras.

Figure 12. Deceased Donor Liver Discard Rate Pre and Post Policy Implementation**Table 17. Deceased Donor Liver Discard Rate Pre and Post Policy Implementation**

Era	Number of Livers that were Recovered with the Intent to Transplant	Number of Liver Transplants	Discard Rate
Pre	4732	4333	9.07%
Post	4971	4517	9.9%

Figure 12 and **Table 17** show the discard rates for livers in the pre and post policy eras. The discard rate is the number of livers recovered with the intent to transplant but not transplanted divided by the number of livers recovered for the purpose of transplant. There was no significant increase to the discard rate from pre- to post-policy era (p-value =0.169).

Figure 13. Out of Sequence Liver Placements Pre and Post Policy Implementation**Table 18. Out of Sequence Liver Placements Pre and Post Policy Implementation**

Liver Placed Out of Sequence	Pre	Post
No	4229 (92.46%)	4378 (92.32%)
Yes	345 (7.54%)	364 (7.68%)

Figure 13 and **Table 18** show the number of out of sequence placements defined as match runs with final acceptances where Bypass codes 861, 862, or 863 were utilized to bypass candidates on the match run. Overall the proportion of out of sequence placements has remained consistent across the pre- and post-policy era (Pre = 345 (7.54%) vs Post = 364 (7.68%)). The utilization of the expedited pathway is not considered an out of sequence placement.

Conclusion

The results of this report indicated that the expedited liver pathway has been relatively underutilized as only 251 expedited cases were initiated in the first 6 months of the policy's implementation. An additional indicator of the under use of the policy can be seen in the consistency in the use of ByPass code 863 and the percentage of out of sequence placements across the pre- and post-policy eras, otherwise expected to drop. A little over half of liver candidates have opted-in to receiving expedited liver offers. These proportions varied by region. The percent of expedited matches with final acceptances was relatively low and the discard rate was considerably higher than livers that were placed through the standard match run. It is difficult to discern the true impact the policy has had on the discard rate of livers that were turned down late in the offer process as prior comparison data is not available. Most donors turned down late in the process were refused due to 'Donor Age or Quality'. There was no difference in the donor demographics of expedited cases compared to standard cases.