

OPTN Data Advisory Committee

Descriptive Data Request

Update to Refusal Codes 24-Month Post-Implementation Monitoring Report

DHHS Contract No. 250-2019-00001C
Date Completed: January 22, 2024

Prepared for:
Data Advisory Committee
Committee Meeting
Date of Meeting: May 13, 2024

By:
Anne M. Zehner, MPH
UNOS Research Department

Contents

Background/Purpose	2
Strategic Plan Goal or Committee Project Addressed	2
Committee Request	2
Data and Methods	5
Results	5
Pre-implementation Review	5
Patient-specific Refusals by Reason	7
Overall	7
By Organ	8
By Program Size	22
By Sequence Number	28
Range Refusals	33
By Organ	34
By Program Size	40
By Sequence Number	44
“Other, Specify” Free Text Fields	48
701: Organ size, specify	48
750: Donor medical history, specify	60
717: Unacceptable organ specific test results, specify	72
798: Other, specify	84
Summary	94
Appendix	96

Background/Purpose

In response to feedback received from the transplant community and at the recommendation of the OPTN Ad Hoc Systems Performance Committee, the OPTN Data Advisory Committee (DAC) updated the list of options under the primary refusal and secondary refusal reason code drop downs in the offer details form section of DonorNet. Last revised in 2004, the new proposed list of refusal codes has incorporated multiple rounds of feedback received from various stakeholder groups, OPTN committees, and the larger transplant community between 2019-2021. The updated list furthers the strategic priority of increasing donor and recipient matching by improving the refusal reason data used for quality improvement, retrospective reviews, and real-time decision making. By providing more relevant and granular options, the insights gathered will be more actionable and improve upon the current list by reducing the over-utilization of the more vague refusal code “donor age or quality”, which accounted for 66% of the primary refusal reasons entered between July 2019 and June 2020. These revisions did not change or add data collection, but provide a revised list of options that are more relevant, discrete, and mutually exclusive, to promote the collection of more actionable data. A crosswalk between previously used and new refusal codes is provided in Figure 1.

Strategic Plan Goal or Committee Project Addressed

Increase the number of transplants by efficient donor/recipient matching.

Committee Request

The OPTN will analyze data beginning at three months after implementation of the new refusal codes, allowing for two months of data with the first review. In order to facilitate monthly updates, the results will be provided to the committee via a standard report or dashboard for two years, with a presentation of updated results to the committee quarterly for the first year and a final report presentation at the end of year two.

The first two items below will be provided overall, by match organ type, size of program (small, medium, large) as defined by transplant volume in calendar year 2020, and relative location on match run. Stratification of location on match run will be done by match organ type, and before or after the 90th percentile for rank of acceptances in calendar year 2020 for that organ type. The analysis will include:

- The percentage of patient-specific refusals by reason, to identify any code not being used or making up an unexpectedly high proportion of the total (suggesting that it has become a new, nonspecific catch-all code).
- Limited to range refusals (center refusing for multiple patients at same time), the percentage by reason to identify any code making up an unexpectedly high proportion of the total (suggesting that it has become a new, nonspecific catch-all code).
- A review of the cases (stratified only by match organ) where the “other/specify” text field was used, to identify any manually-entered reasons not currently in the list and making up a significant proportion of the total “others”. This will identify any additional codes needing to be added to the updated list. Due to the manual effort required, this portion of the analysis will be updated quarterly during the first year, and once in year two of implementation.

Additionally, UNOS staff will provide feedback on questions received from members related to the new refusal codes.

Figure 1: Crosswalk overview of changes between previously used and new refusal codes available to transplant hospitals following December 2021 implementation

PREVIOUS REFUSAL CODE	NEW REFUSAL CODE
800 - Patient's condition improved, transplant not needed	722 - Candidate's condition improved, transplant not needed
801 - Patient ill, unavailable, refused, or temporarily unsuitable	720 - Candidate temporarily medically unsuitable 727 - Candidate unavailable 728 - Candidate refused
802 - Multiple organ transplant or different laterality is required	723 - Candidate requires different laterality 724 - Candidate requires multiple organ transplant
803 - Patient txed, tx in progress, or other offer being considered	721 - Candidate transplanted or pending transplant
810 - Positive crossmatch 813 - Unacceptable Antigens	732 - Positive physical crossmatch 733 - Positive virtual crossmatch/unacceptable antigens
811 - Number of HLA mismatches unacceptable	734 - Number of HLA mismatches unacceptable
812 - No serum for crossmatching	730 - No candidate serum for crossmatching 731 - No donor cells/specimen for crossmatching, or no time for crossmatch
814 - High PRA 815 - High CPRA	Removed
820 - Heavy workload 823 - Surgeon unavailable 825 - Operational – transplant center	760 - Resource time constraint (OPO, TXC, donor hospital, etc.) 762 - Recovery team availability 763 - Transplant team or transplant facility availability
822 - Exceeded one hour response time 826 - Exceeded 30 minute evaluation time	765 - Exceeded policy defined response time
824 - Distance to travel or ship	712 - Actual or projected cold ischemic time too long
830 - Donor age or quality	700 - Donor age 713 - Warm ischemic time too long 750 - Donor medical history, specify* 751 - Donor instability/high vasopressor usage 752 - Prolonged downtime/CPR 754 - VCA graft appearance or quality, specify**

831 - Donor size/weight	701 - Organ size, specify**
832 - Donor ABO	Removed
833 - Donor social history	740 - PHS risk criteria or social history
834 - Positive serological tests	742 - Donor infection or positive culture 741 - Positive infectious disease screening test: CMV, HBV, HCV, etc.
835 - Organ Preservation	710 - Organ preservation: Unacceptable method or findings
836 - Organ anatomical damage or defect	711 - Organ anatomical damage or defect 715 - Biopsy results unacceptable
837 - Organ-specific donor issue	714 - Biopsy not available 716 - Organ specific test results not available, specify** 717 - Unacceptable organ specific test results, specify* 743 - Malignancy or suspected malignancy
840 - COVID-19: candidate-related reason	725 - Epidemic/Pandemic - Candidate
841 - COVID-19: donor-related reason	744 - Epidemic/Pandemic - Donor
842 - COVID-19: OPO or transplant hospital operational issue	763 - Transplant team or transplant facility availability
860 - Medical urgency of another potential recipient	Removed
880 - Kidney placed with extra-renal	Removed
898 - Other Specify	798 - Other Specify* Note: 799 - Other Specify* is the replacement Other Specify for bypasses. 898 previously served as both the refusal and bypass code.
New Codes	726 - Candidate temporarily ineligible due to insurance or financial issue 753 - DCD donor neurological function/not expected to arrest 761 - Donor family time constraint 764 - Transportation availability 790 - Disaster Emergency Management

Data and Methods

These analyses use OPTN potential transplant recipient (PTR) match run data and include roughly 729 days before and after implementation on December 2, 2021, at 7:59:53 AM. Transplant candidate organ offers between December 04, 2019 and December 02, 2021 (pre) or between December 02, 2021 and December 01, 2023 (post) on matches with at least one final acceptance were used.

Only offers prior to the final acceptor with a refusal were included, organ offers that were bypassed or provisional yes at the close of the match were excluded. Note that offers for candidates on heart-alone organ matches and heart-lung organ matches were combined to heart-lung match organ type, since heart-alone matches are only run if no viable lungs available from the donor.

Figures present top reasons for refusal of organ offers, and associated tables are given either in the Results section or at the end of the report in the Appendix. Figure colors represent the broader category that can describe each type of refusal reason.

Analyses are based on OPTN data as of December 08, 2023 and are subject to change based on future data submission or correction.

Results

Pre-implementation Review

Prior to the updates to the refusal reasons, the most frequently used reason for refusal of an organ offer across all organs, excluding intestine, was **'Donor age or quality'**. This refusal reason accounted for over 60% of refused offers for kidney and liver match runs, over 55% of refused offers for lung and kidney-pancreas, almost 50% of heart-lung, and 15% of intestine match runs, pre-implementation.

Table 1: Top five reasons for refusal of organ offers for transplant candidates prior to implementation by match organ type, December, 04, 2019 - December, 02, 2021

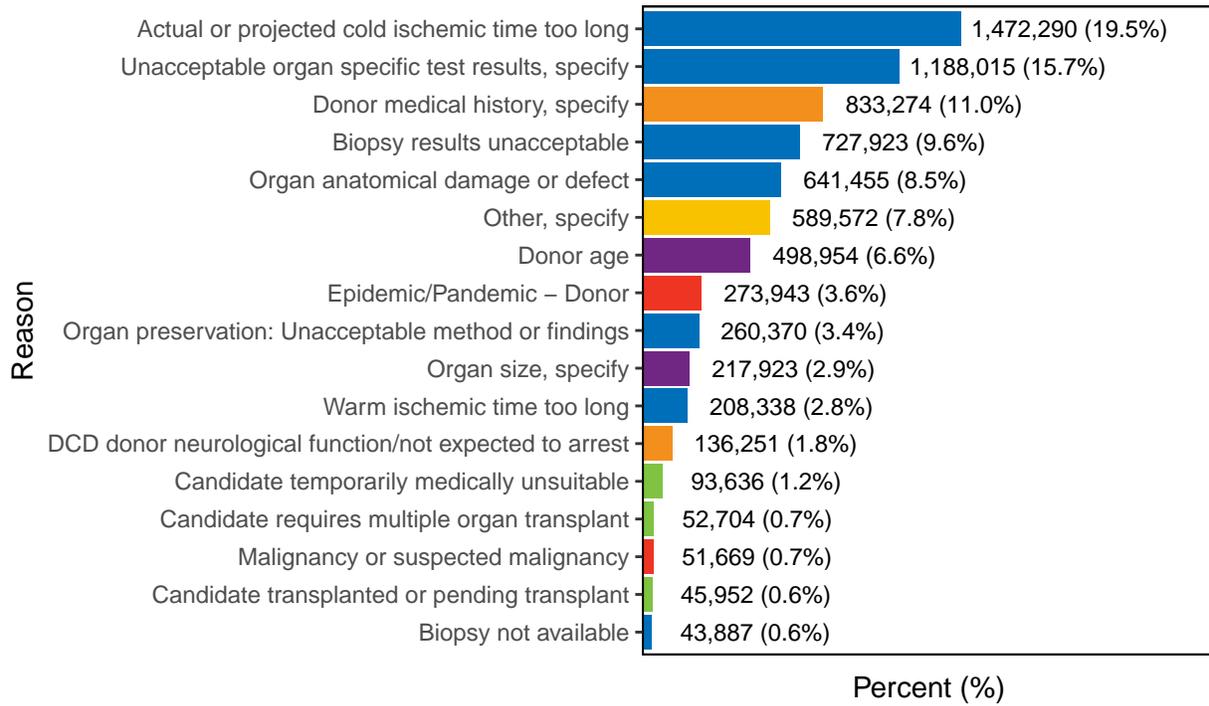
Refusal Reason	N Offers	% Offers per Organ
Kidney match organ		
Donor age or quality	3,019,939	67.2%
Organ Preservation	366,541	8.2%
Organ-specific donor issue	307,098	6.8%
Other Specify	191,523	4.3%
Organ anatomical damage or defect	189,033	4.2%
Liver match organ		
Donor age or quality	448,878	67.5%
Donor size/weight	51,234	7.7%
Other Specify	27,625	4.2%
Distance to travel or ship	26,063	3.9%
Patient ill, unavailable, refused, or temporarily unsuitable	24,794	3.7%
Heart-Lung match organ		
Donor age or quality	56,465	44.3%
Donor size/weight	36,929	29.0%
Distance to travel or ship	5,439	4.3%
Patient txed, tx in progress, or other offer being considered	5,189	4.1%
Patient ill, unavailable, refused, or temporarily unsuitable	5,024	3.9%
Lung match organ		
Donor age or quality	54,651	57.3%
Donor size/weight	17,844	18.7%
Multiple organ transplant or different laterality is required	7,545	7.9%
Organ-specific donor issue	4,960	5.2%
Other Specify	2,840	3.0%
Kidney-Pancreas match organ		
Donor age or quality	11,001	54.6%
Multiple organ transplant or different laterality is required	2,845	14.1%
Distance to travel or ship	1,782	8.8%
Patient ill, unavailable, refused, or temporarily unsuitable	1,200	6.0%
Donor size/weight	625	3.1%
Intestine match organ		
Multiple organ transplant or different laterality is required	940	56.1%
Donor age or quality	467	27.9%
Donor size/weight	86	5.1%
Number of HLA mismatches unacceptable	52	3.1%
Other Specify	35	2.1%

Patient-specific Refusals by Reason

Overall

Since the implementation of the new codes, the most frequently used reason for refusal of an organ offer for a transplant candidate has been 'Actual or projected cold ischemic time too long' (19.5%) followed by 'Unacceptable organ specific test results, specify' (15.7%).

Figure 2: Reasons for refusal of an organ offer for a transplant candidate post-implementation, all match organs, December 02, 2021 - December 01, 2023



By Organ

Figure 3: Top ten reasons for refusal of kidney match organ offers for transplant candidates post implementation, for kidney matches submitted December 02, 2021 - December 01, 2023.

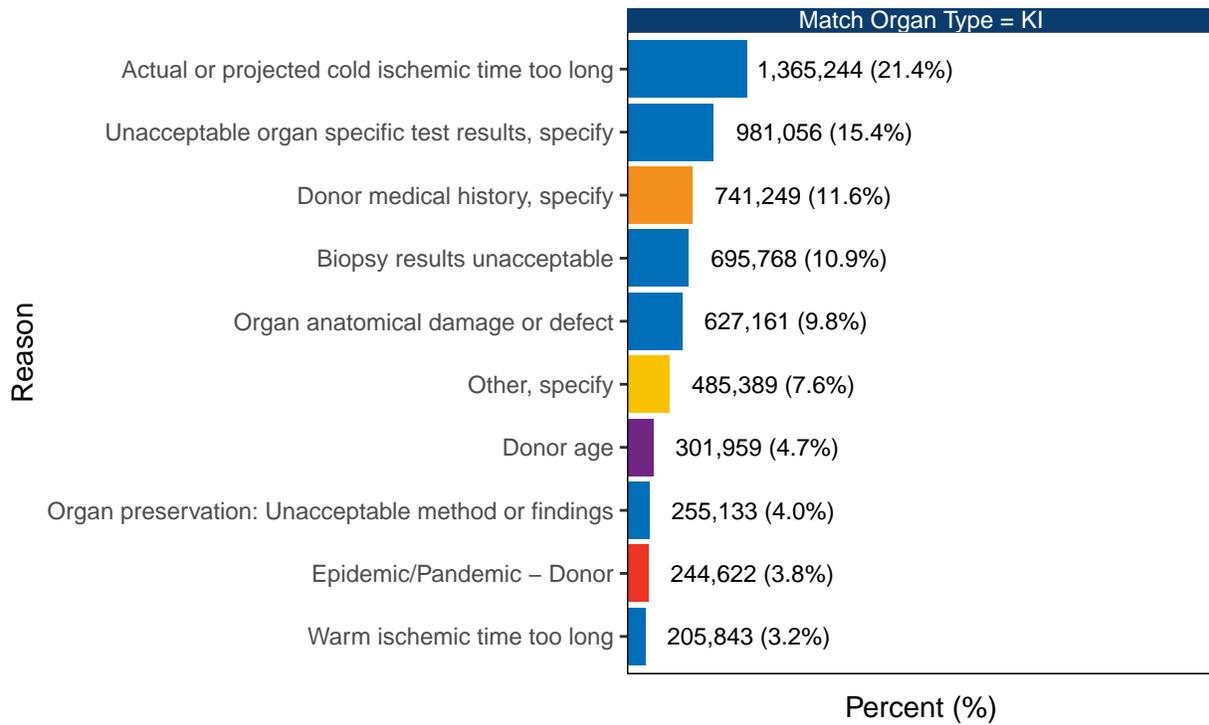


Table 2: Count and percent of reasons for refusal of kidney match organ offers post implementation, for kidney matches submitted December 02, 2021 - December 01, 2023

Category	Description	N	%
Kidney match organ			
Organ Specific	Actual or projected cold ischemic time too long	1,365,244	21.44%
Organ Specific	Unacceptable organ specific test results, specify	981,056	15.41%
Donor Specific	Donor medical history, specify	741,249	11.64%
Organ Specific	Biopsy results unacceptable	695,768	10.93%
Organ Specific	Organ anatomical damage or defect	627,161	9.85%
Other	Other, specify	485,389	7.62%
Donor and Candidate Matching	Donor age	301,959	4.74%
Organ Specific	Organ preservation: Unacceptable method or findings	255,133	4.01%
Disease Transmission Risk	Epidemic/Pandemic - Donor	244,622	3.84%
Organ Specific	Warm ischemic time too long	205,843	3.23%
Donor and Candidate Matching	Organ size, specify	81,541	1.28%
Candidate Specific	Candidate temporarily medically unsuitable	63,854	1.00%
Disease Transmission Risk	Malignancy or suspected malignancy	44,868	0.70%
Organ Specific	Biopsy not available	41,752	0.66%
Donor Specific	DCD donor neurological function/not expected to arrest	32,481	0.51%
Disease Transmission Risk	Donor infection or positive culture	32,443	0.51%
Candidate Specific	Candidate requires multiple organ transplant	31,854	0.50%
Organ Specific	Organ specific test results not available, specify	29,464	0.46%
Disease Transmission Risk	Positive infectious disease screening test: CMV, HBV, HCV, etc.	14,515	0.23%
Disease Transmission Risk	PHS risk criteria or social history	14,123	0.22%
Histocompatibility Related	Positive virtual crossmatch/unacceptable antigens	11,106	0.17%
Candidate Specific	Candidate transplanted or pending transplant	10,810	0.17%
Histocompatibility Related	No candidate serum for crossmatching	10,239	0.16%
Candidate Specific	Candidate refused	7,162	0.11%
Donor Specific	Prolonged downtime/CPR	5,285	0.08%
Candidate Specific	Candidate unavailable	4,564	0.07%
Donor Specific	Donor instability/high vasopressor usage	4,487	0.07%
Logistics	Transplant team or transplant facility availability	4,445	0.07%
Histocompatibility Related	Positive physical crossmatch	3,629	0.06%
Candidate Specific	Epidemic/Pandemic - Candidate	3,141	0.05%
Logistics	Resource time constraint (OPO, TXC, donor hospital, etc.)	2,719	0.04%
Candidate Specific	Candidate temporarily ineligible due to insurance or financial issue	2,314	0.04%
Histocompatibility Related	Number of HLA mismatches unacceptable	1,882	0.03%
Logistics	Exceeded policy defined response time	1,788	0.03%
Histocompatibility Related	No donor cells/specimen for crossmatching, or no time for crossmatch	1,605	0.03%
Other	Disaster Emergency Management Consideration	989	0.02%
Logistics	Transportation availability	335	0.01%
Candidate Specific	Candidate requires different laterality	331	0.01%
Candidate Specific	Candidate's condition improved, transplant not needed	113	0.00%
Logistics	Recovery team availability	83	0.00%
Logistics	Donor family time constraint	21	0.00%

Figure 4: Top ten reasons for refusal of liver match organ offers for transplant candidates post implementation, for liver matches submitted December 02, 2021 - December 01, 2023.

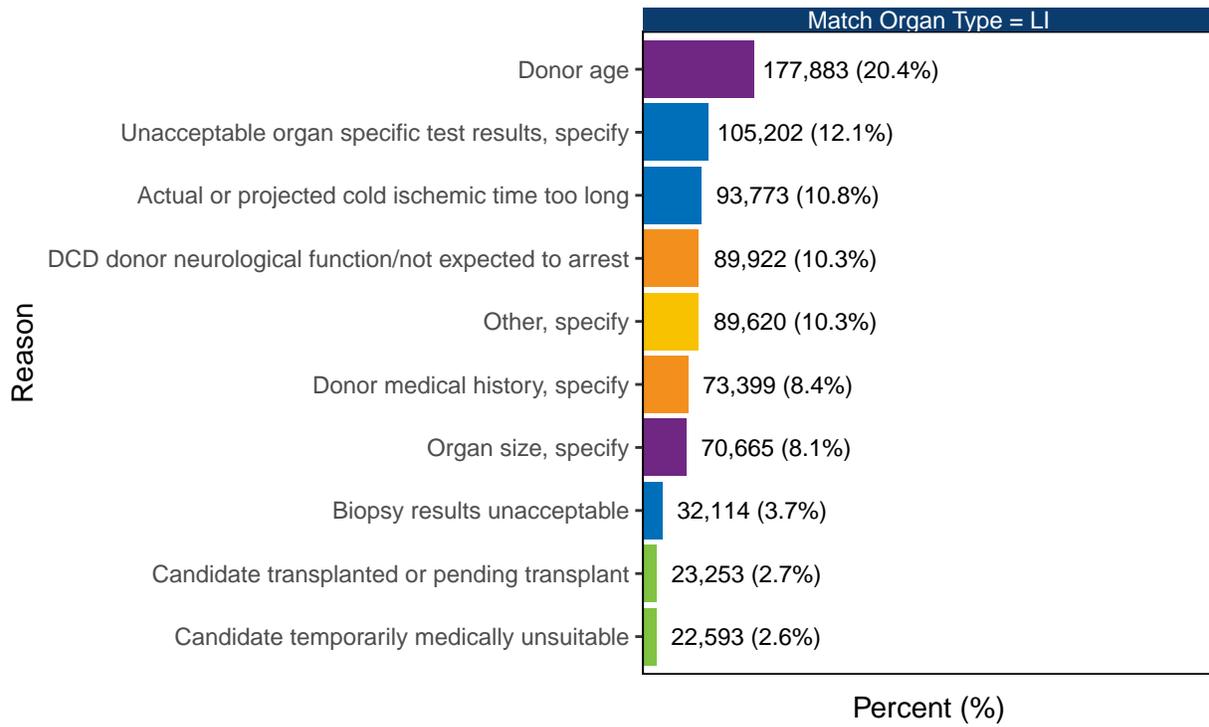


Table 3: Count and percent of reasons for refusal of liver match organ offers post implementation, for liver matches submitted December 02, 2021 - December 01, 2023

Category	Description	N	%
Liver			
Donor and Candidate Matching	Donor age	177,883	20.40%
Organ Specific	Unacceptable organ specific test results, specify	105,202	12.07%
Organ Specific	Actual or projected cold ischemic time too long	93,773	10.76%
Donor Specific	DCD donor neurological function/not expected to arrest	89,922	10.31%
Other	Other, specify	89,620	10.28%
Donor Specific	Donor medical history, specify	73,399	8.42%
Donor and Candidate Matching	Organ size, specify	70,665	8.11%
Organ Specific	Biopsy results unacceptable	32,114	3.68%
Candidate Specific	Candidate transplanted or pending transplant	23,253	2.67%
Candidate Specific	Candidate temporarily medically unsuitable	22,593	2.59%
Disease Transmission Risk	Epidemic/Pandemic - Donor	22,251	2.55%
Organ Specific	Organ anatomical damage or defect	10,081	1.16%
Candidate Specific	Candidate requires multiple organ transplant	9,760	1.12%
Logistics	Resource time constraint (OPO, TXC, donor hospital, etc.)	7,029	0.81%
Disease Transmission Risk	Malignancy or suspected malignancy	6,238	0.72%
Disease Transmission Risk	Positive infectious disease screening test: CMV, HBV, HCV, etc.	4,897	0.56%
Organ Specific	Organ preservation: Unacceptable method or findings	4,437	0.51%
Disease Transmission Risk	Donor infection or positive culture	3,292	0.38%
Organ Specific	Organ specific test results not available, specify	3,131	0.36%
Donor Specific	Donor instability/high vasopressor usage	2,784	0.32%
Disease Transmission Risk	PHS risk criteria or social history	2,477	0.28%
Donor Specific	Prolonged downtime/CPR	2,312	0.27%
Organ Specific	Warm ischemic time too long	2,173	0.25%
Candidate Specific	Candidate unavailable	2,168	0.25%
Organ Specific	Biopsy not available	2,120	0.24%
Logistics	Donor family time constraint	2,110	0.24%
Candidate Specific	Candidate's condition improved, transplant not needed	1,157	0.13%
Candidate Specific	Candidate refused	874	0.10%
Candidate Specific	Epidemic/Pandemic - Candidate	748	0.09%
Logistics	Transplant team or transplant facility availability	740	0.08%
Logistics	Exceeded policy defined response time	664	0.08%
Logistics	Recovery team availability	593	0.07%
Histocompatibility Related	Number of HLA mismatches unacceptable	363	0.04%
Candidate Specific	Candidate temporarily ineligible due to insurance or financial issue	356	0.04%
Histocompatibility Related	Positive virtual crossmatch/unacceptable antigens	332	0.04%
Logistics	Transportation availability	192	0.02%
Other	Disaster Emergency Management Consideration	105	0.01%
Histocompatibility Related	No candidate serum for crossmatching	21	0.00%
Histocompatibility Related	Positive physical crossmatch	17	0.00%
Histocompatibility Related	No donor cells/specimen for crossmatching, or no time for crossmatch	14	0.00%

Figure 5: Top ten reasons for refusal of heart and heart-lung match organ offers for transplant candidates post implementation, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023.

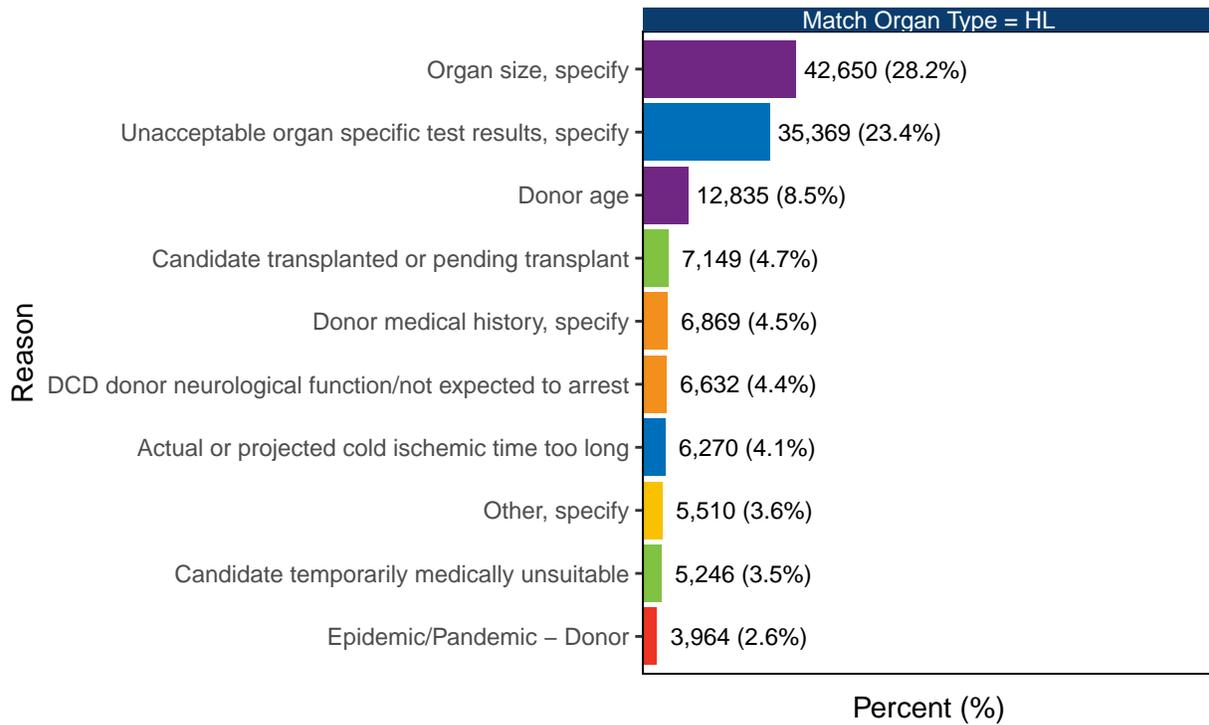


Table 4: Count and percent of reasons for refusal of heart and heart-lung match organ offers post implementation, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023

Category	Description	N	%
Heart-Lung			
Donor and Candidate Matching	Organ size, specify	42,650	28.16%
Organ Specific	Unacceptable organ specific test results, specify	35,369	23.35%
Donor and Candidate Matching	Donor age	12,835	8.47%
Candidate Specific	Candidate transplanted or pending transplant	7,149	4.72%
Donor Specific	Donor medical history, specify	6,869	4.54%
Donor Specific	DCD donor neurological function/not expected to arrest	6,632	4.38%
Organ Specific	Actual or projected cold ischemic time too long	6,270	4.14%
Other	Other, specify	5,510	3.64%
Candidate Specific	Candidate temporarily medically unsuitable	5,246	3.46%
Disease Transmission Risk	Epidemic/Pandemic - Donor	3,964	2.62%
Candidate Specific	Candidate requires multiple organ transplant	3,127	2.06%
Donor Specific	Prolonged downtime/CPR	2,375	1.57%
Histocompatibility Related	Positive virtual crossmatch/unacceptable antigens	2,073	1.37%
Organ Specific	Organ specific test results not available, specify	1,914	1.26%
Organ Specific	Organ anatomical damage or defect	1,868	1.23%
Disease Transmission Risk	PHS risk criteria or social history	1,146	0.76%
Logistics	Resource time constraint (OPO, TXC, donor hospital, etc.)	872	0.58%
Disease Transmission Risk	Donor infection or positive culture	845	0.56%
Disease Transmission Risk	Positive infectious disease screening test: CMV, HBV, HCV, etc.	592	0.39%
Donor Specific	Donor instability/high vasopressor usage	578	0.38%
Organ Specific	Organ preservation: Unacceptable method or findings	433	0.29%
Logistics	Donor family time constraint	426	0.28%
Disease Transmission Risk	Malignancy or suspected malignancy	379	0.25%
Histocompatibility Related	Number of HLA mismatches unacceptable	355	0.23%
Histocompatibility Related	No donor cells/specimen for crossmatching, or no time for crossmatch	340	0.22%
Histocompatibility Related	No candidate serum for crossmatching	247	0.16%
Candidate Specific	Candidate temporarily ineligible due to insurance or financial issue	217	0.14%
Organ Specific	Warm ischemic time too long	217	0.14%
Logistics	Transplant team or transplant facility availability	185	0.12%
Histocompatibility Related	Positive physical crossmatch	183	0.12%
Candidate Specific	Epidemic/Pandemic - Candidate	151	0.10%
Candidate Specific	Candidate's condition improved, transplant not needed	133	0.09%
Candidate Specific	Candidate unavailable	84	0.06%
Candidate Specific	Candidate refused	66	0.04%
Logistics	Exceeded policy defined response time	51	0.03%
Logistics	Recovery team availability	41	0.03%
Logistics	Transportation availability	34	0.02%
Other	Disaster Emergency Management Consideration	17	0.01%
Organ Specific	Biopsy results unacceptable	11	0.01%
Organ Specific	Biopsy not available	5	0.00%
Candidate Specific	Candidate requires different laterality	3	0.00%

Figure 6: Top ten reasons for refusal of lung match organ offers for transplant candidates post implementation, for lung matches submitted December 02, 2021 - December 01, 2023.

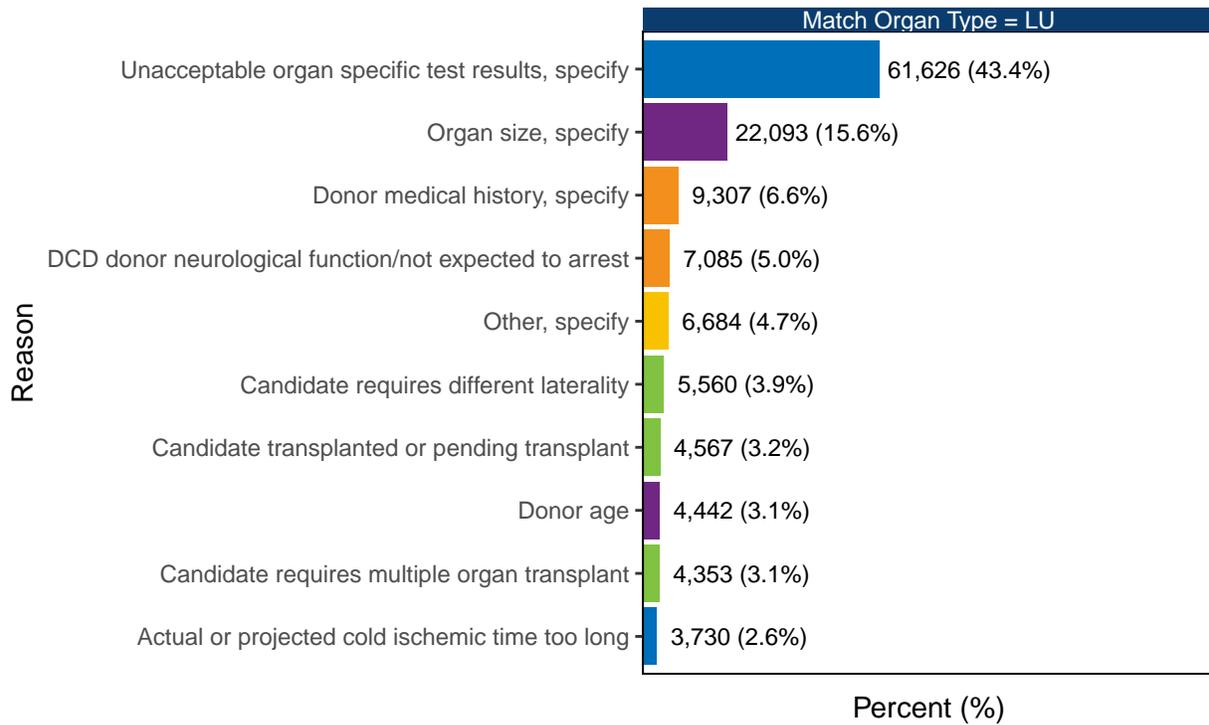


Table 5: Count and percent of reasons for refusal of lung match organ offers post implementation, for lung matches submitted December 02, 2021 - December 01, 2023

Category	Description	N	%
Lung			
Organ Specific	Unacceptable organ specific test results, specify	61,626	43.43%
Donor and Candidate Matching	Organ size, specify	22,093	15.57%
Donor Specific	Donor medical history, specify	9,307	6.56%
Donor Specific	DCD donor neurological function/not expected to arrest	7,085	4.99%
Other	Other, specify	6,684	4.71%
Candidate Specific	Candidate requires different laterality	5,560	3.92%
Candidate Specific	Candidate transplanted or pending transplant	4,567	3.22%
Donor and Candidate Matching	Donor age	4,442	3.13%
Candidate Specific	Candidate requires multiple organ transplant	4,353	3.07%
Organ Specific	Actual or projected cold ischemic time too long	3,730	2.63%
Disease Transmission Risk	Epidemic/Pandemic - Donor	2,577	1.82%
Organ Specific	Organ anatomical damage or defect	1,880	1.32%
Candidate Specific	Candidate temporarily medically unsuitable	1,038	0.73%
Logistics	Resource time constraint (OPO, TXC, donor hospital, etc.)	1,021	0.72%
Histocompatibility Related	Positive virtual crossmatch/unacceptable antigens	1,012	0.71%
Disease Transmission Risk	PHS risk criteria or social history	961	0.68%
Disease Transmission Risk	Donor infection or positive culture	757	0.53%
Organ Specific	Organ specific test results not available, specify	747	0.53%
Disease Transmission Risk	Positive infectious disease screening test: CMV, HBV, HCV, etc.	673	0.47%
Logistics	Donor family time constraint	278	0.20%
Logistics	Transplant team or transplant facility availability	175	0.12%
Disease Transmission Risk	Malignancy or suspected malignancy	172	0.12%
Organ Specific	Organ preservation: Unacceptable method or findings	146	0.10%
Histocompatibility Related	Number of HLA mismatches unacceptable	106	0.07%
Candidate Specific	Candidate's condition improved, transplant not needed	102	0.07%
Histocompatibility Related	Positive physical crossmatch	97	0.07%
Candidate Specific	Epidemic/Pandemic - Candidate	85	0.06%
Candidate Specific	Candidate unavailable	71	0.05%
Organ Specific	Warm ischemic time too long	69	0.05%
Logistics	Exceeded policy defined response time	66	0.05%
Candidate Specific	Candidate refused	65	0.05%
Other	Disaster Emergency Management Consideration	60	0.04%
Logistics	Transportation availability	57	0.04%
Histocompatibility Related	No candidate serum for crossmatching	54	0.04%
Logistics	Recovery team availability	54	0.04%
Histocompatibility Related	No donor cells/specimen for crossmatching, or no time for crossmatch	43	0.03%
Donor Specific	Prolonged downtime/CPR	37	0.03%
Organ Specific	Biopsy results unacceptable	29	0.02%
Donor Specific	Donor instability/high vasopressor usage	14	0.01%
Organ Specific	Biopsy not available	10	0.01%
Candidate Specific	Candidate temporarily ineligible due to insurance or financial issue	9	0.01%

Figure 7: Top ten reasons for refusal of kidney-pancreas match organ offers for transplant candidates post implementation, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023.

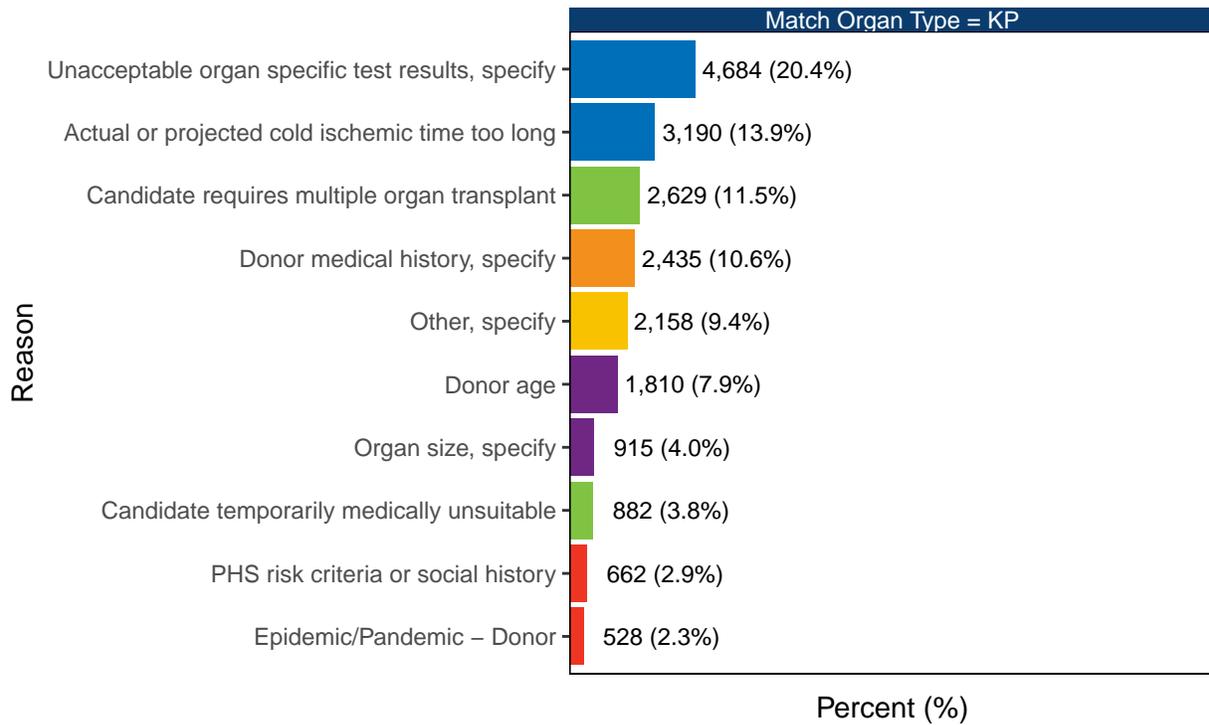


Table 6: Count and percent of reasons for refusal of kidney-pancreas match organ offers post implementation, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023

Category	Description	N	%
Kidney-Pancreas			
Organ Specific	Unacceptable organ specific test results, specify	4,684	20.41%
Organ Specific	Actual or projected cold ischemic time too long	3,190	13.90%
Candidate Specific	Candidate requires multiple organ transplant	2,629	11.46%
Donor Specific	Donor medical history, specify	2,435	10.61%
Other	Other, specify	2,158	9.40%
Donor and Candidate Matching	Donor age	1,810	7.89%
Donor and Candidate Matching	Organ size, specify	915	3.99%
Candidate Specific	Candidate temporarily medically unsuitable	882	3.84%
Disease Transmission Risk	PHS risk criteria or social history	662	2.88%
Disease Transmission Risk	Epidemic/Pandemic - Donor	528	2.30%
Organ Specific	Organ anatomical damage or defect	459	2.00%
Donor Specific	Prolonged downtime/CPR	307	1.34%
Organ Specific	Organ preservation: Unacceptable method or findings	220	0.96%
Logistics	Transplant team or transplant facility availability	216	0.94%
Donor Specific	Donor instability/high vasopressor usage	191	0.83%
Logistics	Resource time constraint (OPO, TXC, donor hospital, etc.)	185	0.81%
Histocompatibility Related	Positive virtual crossmatch/unacceptable antigens	184	0.80%
Candidate Specific	Candidate transplanted or pending transplant	167	0.73%
Histocompatibility Related	Number of HLA mismatches unacceptable	153	0.67%
Donor Specific	DCD donor neurological function/not expected to arrest	131	0.57%
Disease Transmission Risk	Positive infectious disease screening test: CMV, HBV, HCV, etc.	108	0.47%
Organ Specific	Organ specific test results not available, specify	104	0.45%
Candidate Specific	Candidate refused	86	0.37%
Logistics	Recovery team availability	81	0.35%
Candidate Specific	Candidate unavailable	79	0.34%
Candidate Specific	Epidemic/Pandemic - Candidate	70	0.31%
Disease Transmission Risk	Donor infection or positive culture	68	0.30%
Candidate Specific	Candidate temporarily ineligible due to insurance or financial issue	51	0.22%
Histocompatibility Related	Positive physical crossmatch	45	0.20%
Logistics	Donor family time constraint	29	0.13%
Organ Specific	Warm ischemic time too long	28	0.12%
Histocompatibility Related	No candidate serum for crossmatching	26	0.11%
Histocompatibility Related	No donor cells/specimen for crossmatching, or no time for crossmatch	24	0.10%
Logistics	Transportation availability	13	0.06%
Disease Transmission Risk	Malignancy or suspected malignancy	12	0.05%
Logistics	Exceeded policy defined response time	9	0.04%
Candidate Specific	Candidate's condition improved, transplant not needed	6	0.03%
Candidate Specific	Candidate requires different laterality	1	0.00%
Organ Specific	Biopsy results unacceptable	1	0.00%

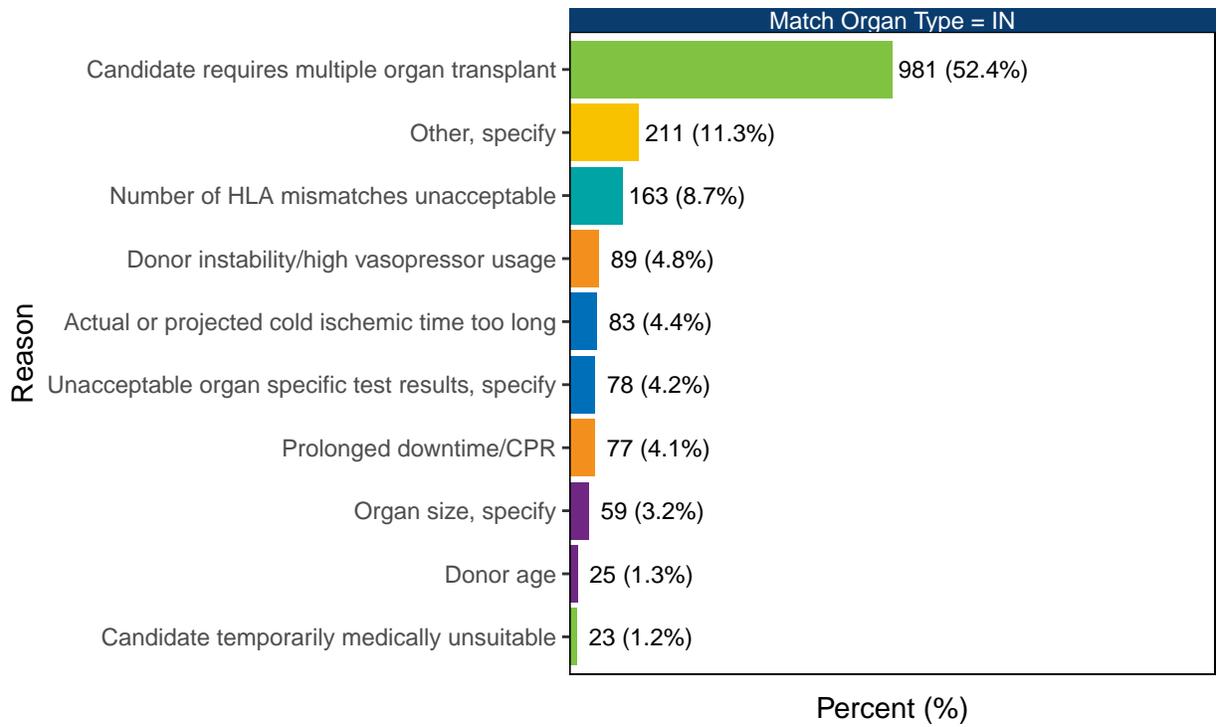


Table 7: Count and percent of reasons for refusal of intestine match organ offers post implementation, for intestine matches submitted December 02, 2021 - December 01, 2023

Category	Description	N	%
Intestine			
Candidate Specific	Candidate requires multiple organ transplant	981	52.40%
Other	Other, specify	211	11.27%
Histocompatibility Related	Number of HLA mismatches unacceptable	163	8.71%
Donor Specific	Donor instability/high vasopressor usage	89	4.75%
Organ Specific	Actual or projected cold ischemic time too long	83	4.43%
Organ Specific	Unacceptable organ specific test results, specify	78	4.17%
Donor Specific	Prolonged downtime/CPR	77	4.11%
Donor and Candidate Matching	Organ size, specify	59	3.15%
Donor and Candidate Matching	Donor age	25	1.34%
Candidate Specific	Candidate temporarily medically unsuitable	23	1.23%
Disease Transmission Risk	Positive infectious disease screening test: CMV, HBV, HCV, etc.	20	1.07%
Donor Specific	Donor medical history, specify	15	0.80%
Histocompatibility Related	Positive virtual crossmatch/unacceptable antigens	9	0.48%
Disease Transmission Risk	PHS risk criteria or social history	8	0.43%
Organ Specific	Warm ischemic time too long	8	0.43%
Candidate Specific	Candidate transplanted or pending transplant	6	0.32%
Organ Specific	Organ anatomical damage or defect	6	0.32%
Disease Transmission Risk	Donor infection or positive culture	4	0.21%
Logistics	Resource time constraint (OPO, TXC, donor hospital, etc.)	3	0.16%
Candidate Specific	Candidate unavailable	1	0.05%
Disease Transmission Risk	Epidemic/Pandemic - Donor	1	0.05%
Histocompatibility Related	Positive physical crossmatch	1	0.05%
Organ Specific	Organ preservation: Unacceptable method or findings	1	0.05%

We also reviewed reasons that have been used infrequently since the change. Table 8 lists refusal reasons by category and organ type that have been used for <10 organ offers or not at all.

Table 8: Refusal reasons given for <10 organ offers post implementation by match organ type, matches submitted December 02, 2021 - December 01, 2023

Category	Description	Match Organ Type						
		KI	LI	HL	LU	HR	KP	IN
Candidate Specific	Candidate refused							X
	Candidate requires different laterality		X	X		X	X	X
	Candidate temporarily ineligible due to insurance or financial issue				X			X
	Candidate transplanted or pending transplant							X
	Candidate unavailable							X
	Candidate's condition improved, transplant not needed						X	X
	Epidemic/Pandemic - Candidate							X
Disease Transmission Risk	Donor infection or positive culture							X
	Epidemic/Pandemic - Donor							X
	Malignancy or suspected malignancy							X
	PHS risk criteria or social history							X
Donor Specific	DCD donor neurological function/not expected to arrest							X
	VCA graft appearance or quality, specify	X	X	X	X	X	X	X
Histocompatibility Related	No candidate serum for crossmatching							X
	No donor cells/specimen for crossmatching, or no time for crossmatch							X
	Positive physical crossmatch							X
	Positive virtual crossmatch/unacceptable antigens							X
Logistics	Donor family time constraint							X
	Exceeded policy defined response time					X	X	X
	Recovery team availability							X
	Resource time constraint (OPO, TXC, donor hospital, etc.)							X
	Transplant team or transplant facility availability							X
	Transportation availability							X

Table 8: Refusal reasons given for <10 organ offers post implementation by match organ type, matches submitted December 02, 2021 - December 01, 2023 (*continued*)

Category	Description	Match Organ Type						
		KI	LI	HL	LU	HR	KP	IN
Organ Specific	Biopsy not available			X		X	X	X
	Biopsy results unacceptable			X		X	X	X
	Organ anatomical damage or defect							X
	Organ preservation: Unacceptable method or findings							X
	Organ specific test results not available, specify							X
Other	Warm ischemic time too long							X
	Disaster Emergency Management Consideration					X	X	X

By Program Size

Program size groups were defined based on the following volumes of deceased donor transplants during 2020:

Match Organ Type	Volume Range Definitions			Number of Programs		
	Small	Medium	Large	Small	Medium	Large
KI	[2, 26]	(26, 89]	(89, 455]	79	76	78
LI	[1, 26]	(26, 76]	(76, 181]	48	47	46
HL	[1, 11]	(11, 29]	(29, 148]	49	46	48
LU	[1, 20]	(20, 41]	(41, 142]	23	22	22
KP	[1, 3]	(3, 8]	(8, 30]	38	35	34
IN	[1, 2]	(2, 6]	(6, 18]	6	5	5

Figure 8: Top five reasons for refusal of kidney match organ offers for transplant candidates post implementation stratified by program size, for kidney matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor kidney transplants during 2020.

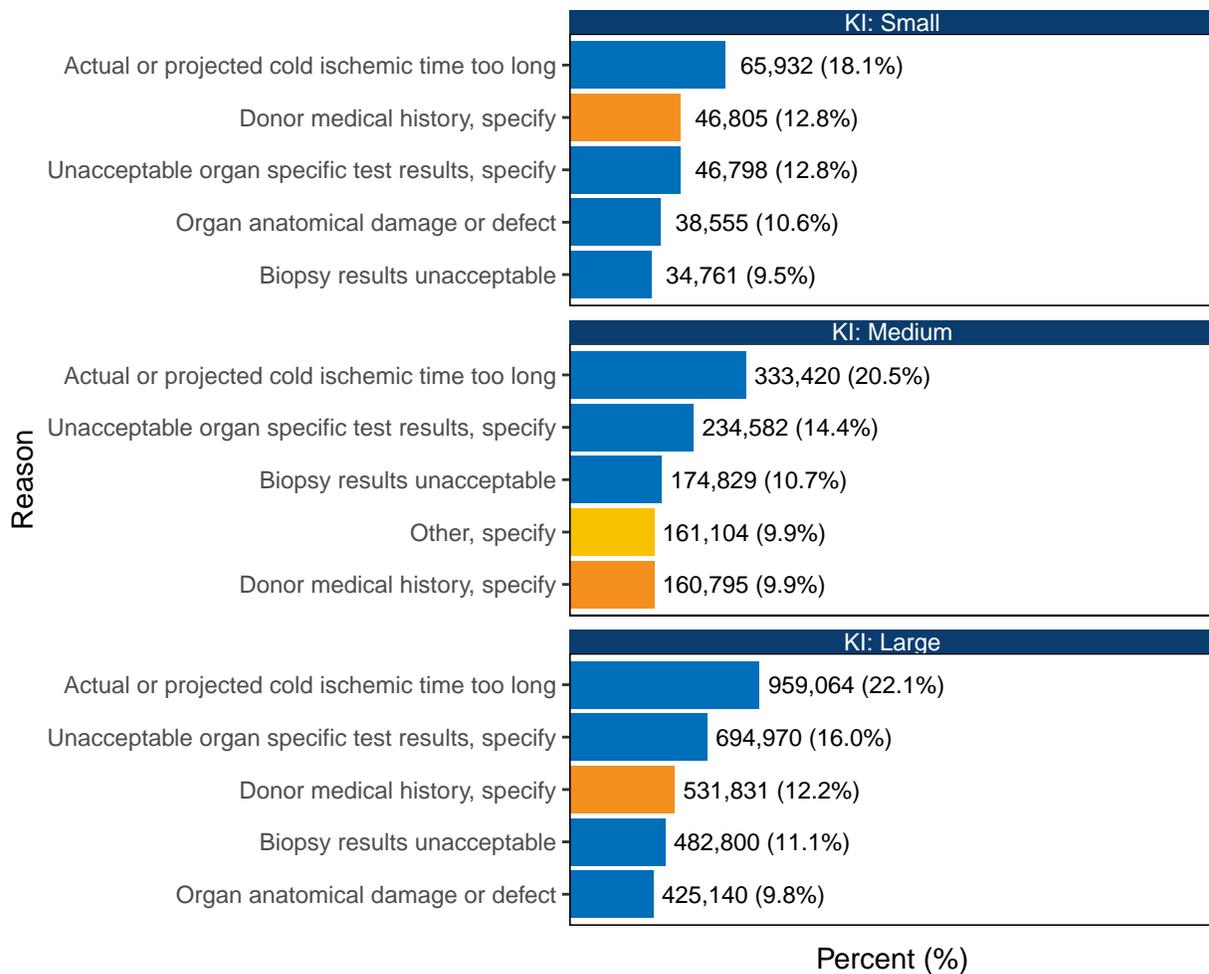


Figure 9: Top five reasons for refusal of liver match organ offers for transplant candidates post implementation stratified by program size, for liver matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor liver transplants during 2020.

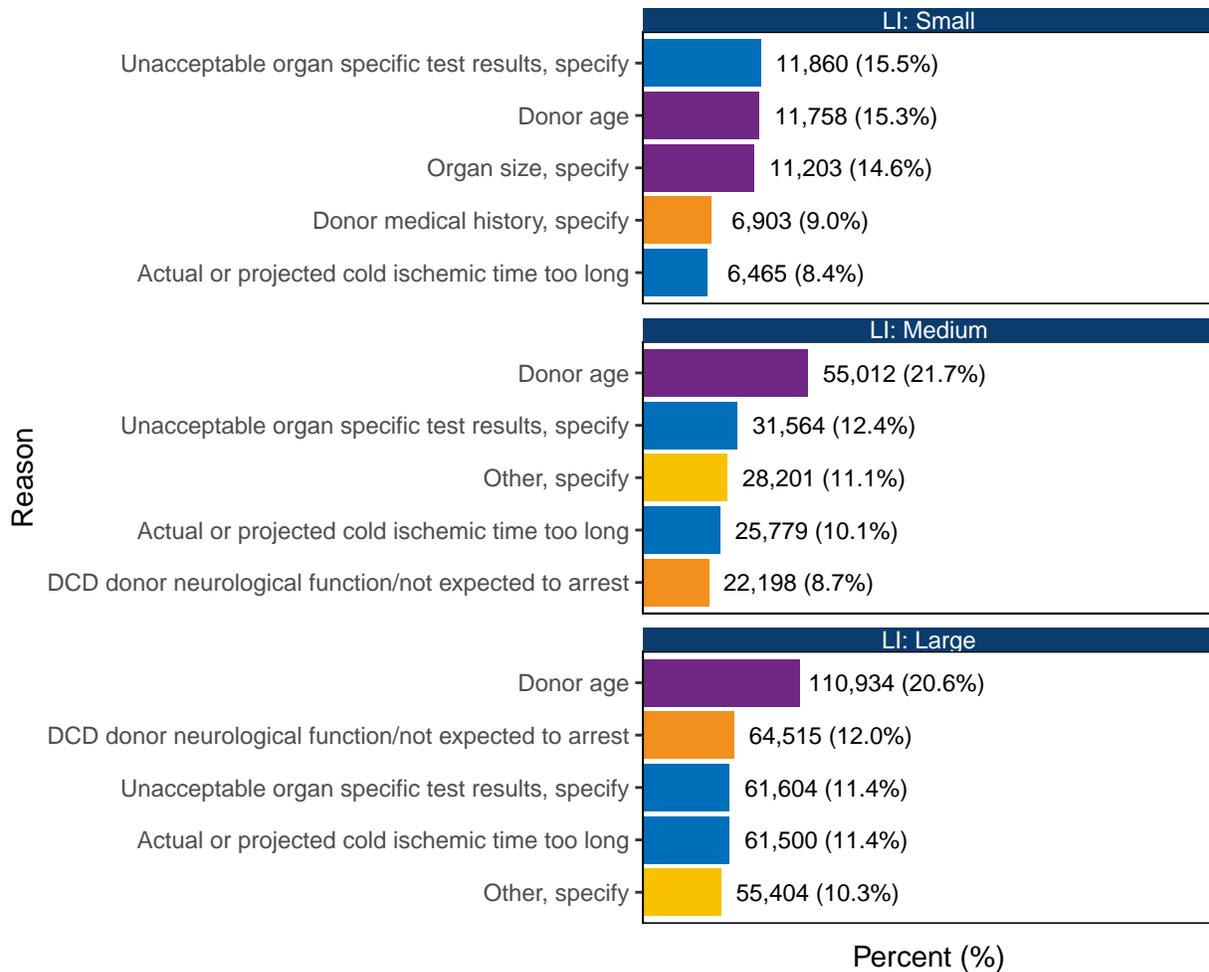


Figure 10: Top five reasons for refusal of heart and heart-lung match organ offers for transplant candidates post implementation stratified by program size, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor heart and heart-lung transplants during 2020.

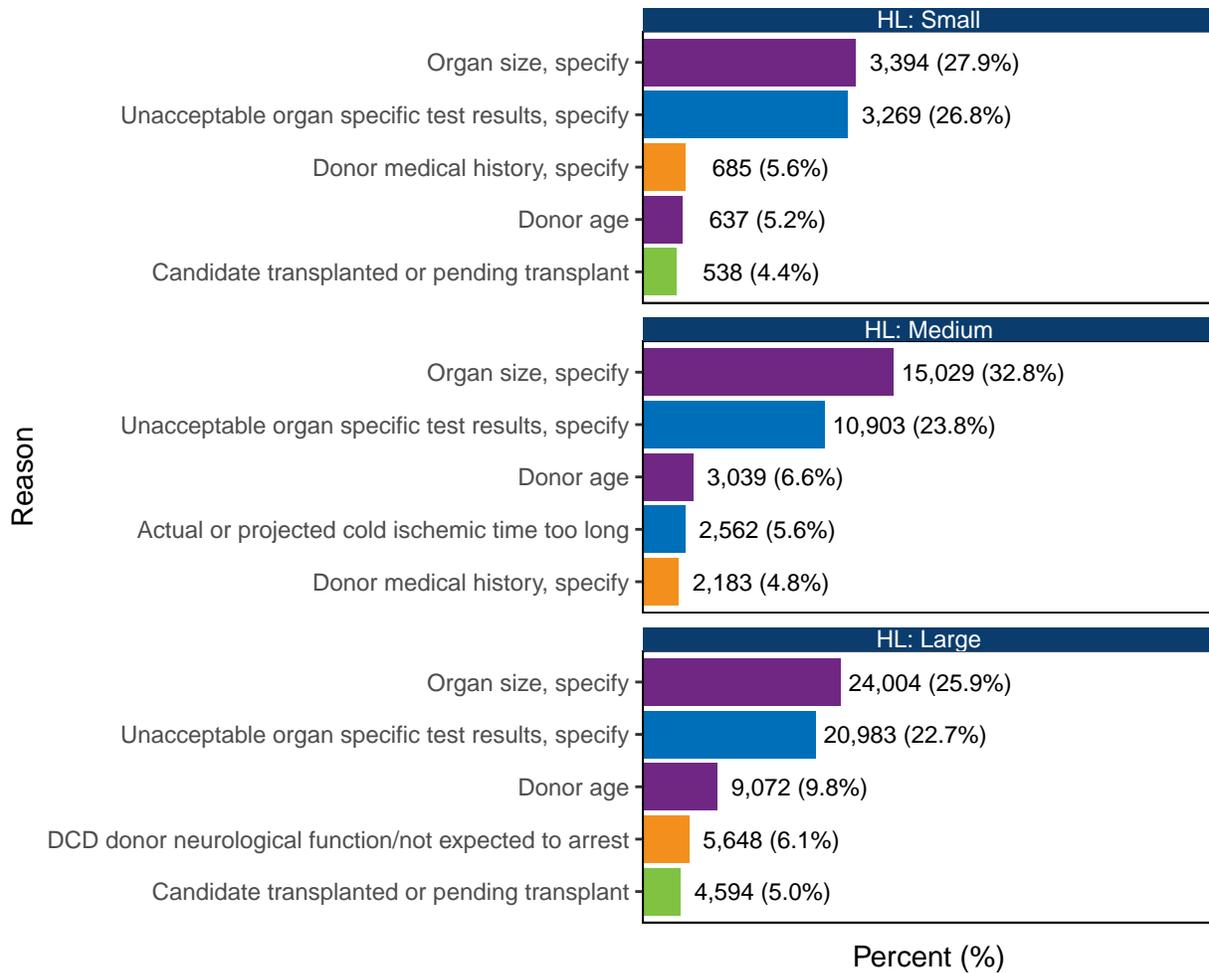


Figure 11: Top five reasons for refusal of lung match organ offers for transplant candidates post implementation stratified by program size, for lung matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor lung transplants during 2020.

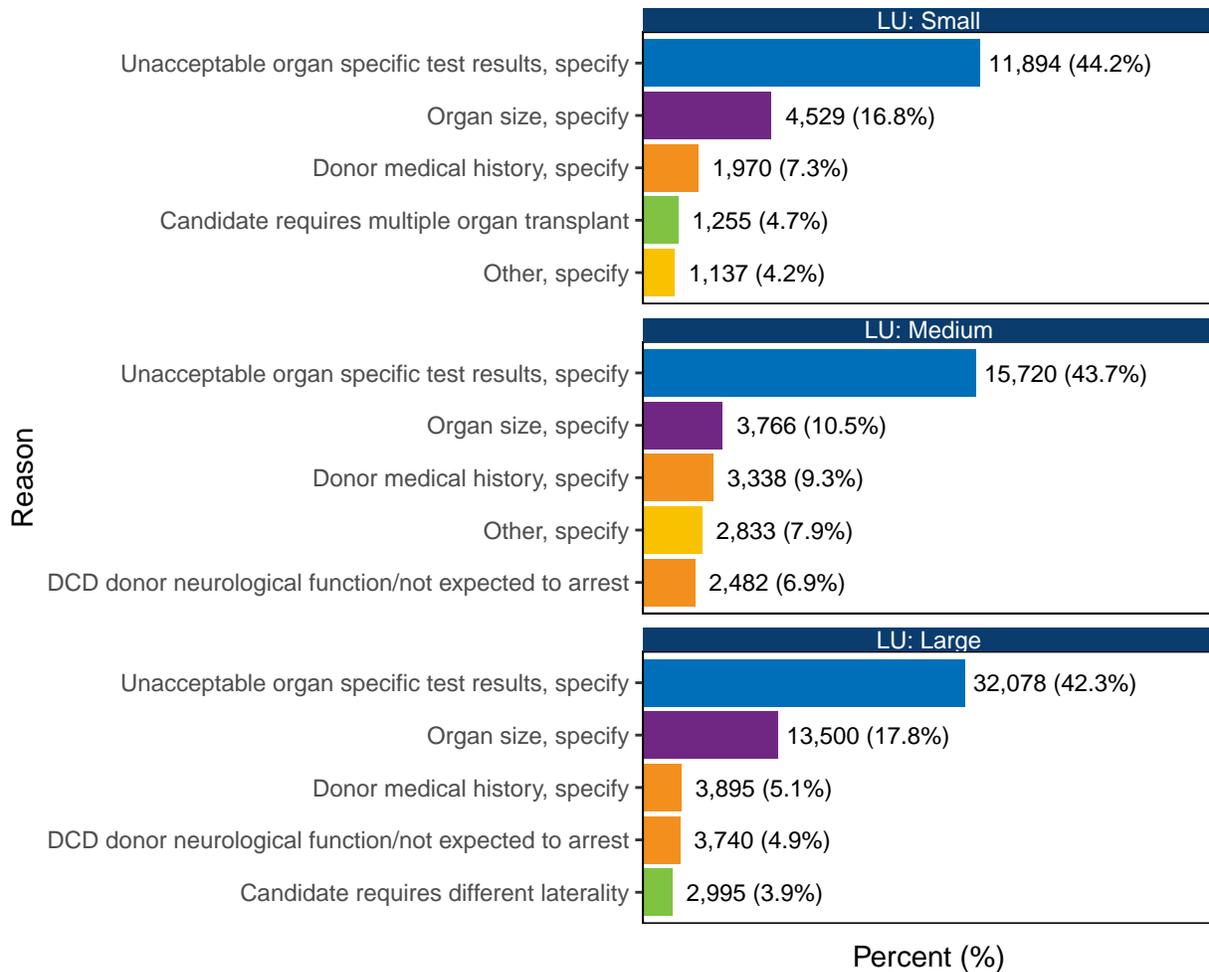
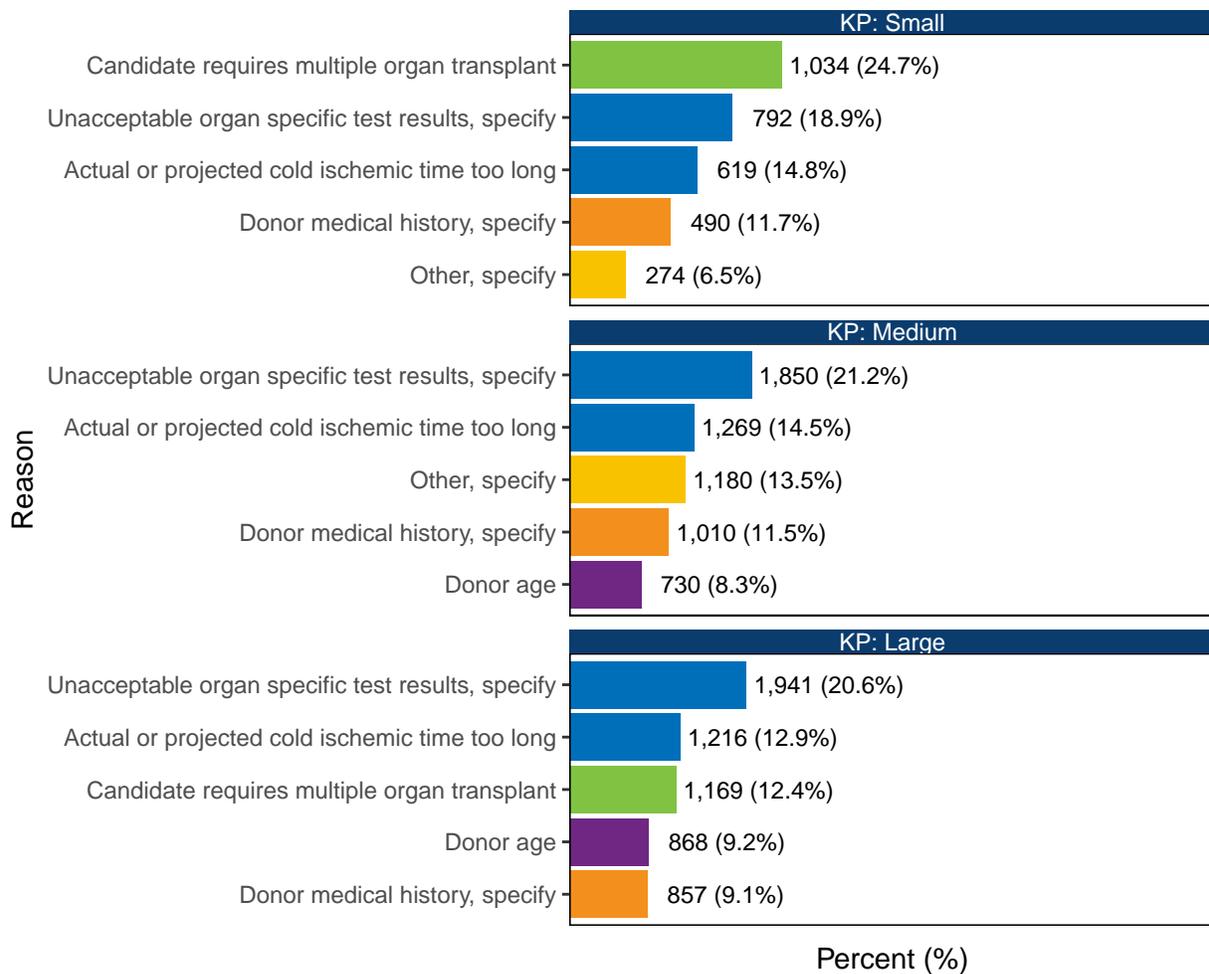


Figure 12: Top five reasons for refusal of kidney-pancreas match organ offers for transplant candidates post implementation stratified by program size, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor kidney-pancreas transplants during 2020.



By Sequence Number

The following figures group all offers on a match into one category based on the last sequence number of the acceptor on the match. We specify 'last' here as some organs may have more than one final acceptor, e.g. left and right kidney. Sequence number groups were defined by the 90th percentile of sequence numbers for organ acceptors in 2020 as the following:

Match Organ Type	Match Acceptor Sequence Number < 90th Percentile	Match Acceptor Sequence Number ≥ 90th Percentile
HL	[1, 41)	[41, 1396]
IN	[1, 34)	[34, 59]
KI	[1, 667)	[667, 31425]
KP	[1, 29)	[29, 286]
LI	[1, 78)	[78, 7555]
LU	[1, 53)	[53, 514]

Figure 13: Top five reasons for refusal of kidney match organ offers for transplant candidates post implementation stratified by match acceptance number, for kidney matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on kidney matches during 2020.

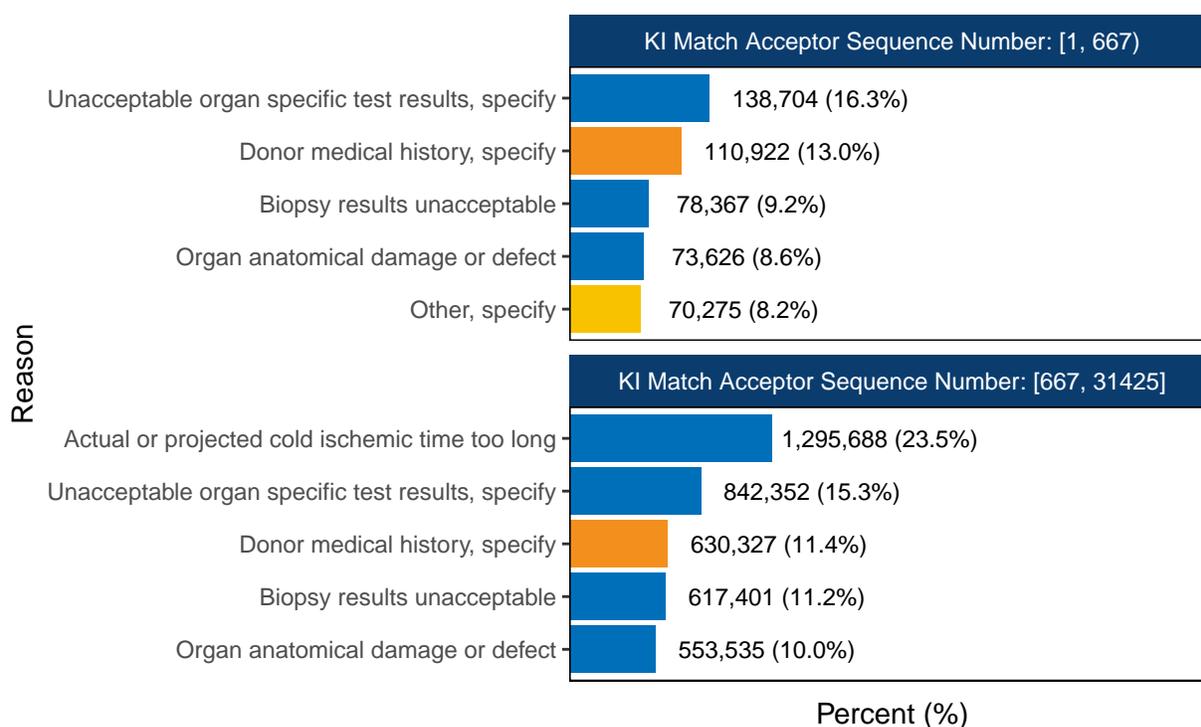


Figure 14: Top five reasons for refusal of liver match organ offers for transplant candidates post implementation stratified by match acceptance number, for liver matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on liver matches during 2020.

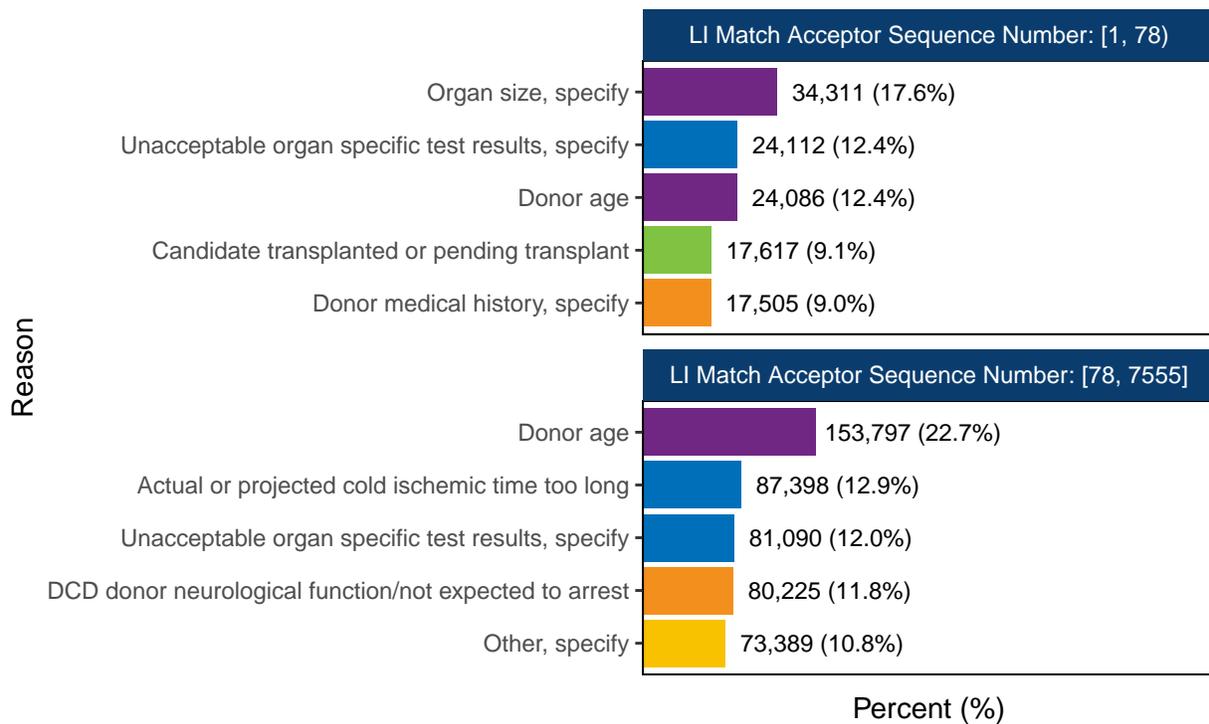


Figure 15: Top five reasons for refusal of heart and heart-lung match organ offers for transplant candidates post implementation stratified by match acceptance number, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on heart and heart-lung matches during 2020.

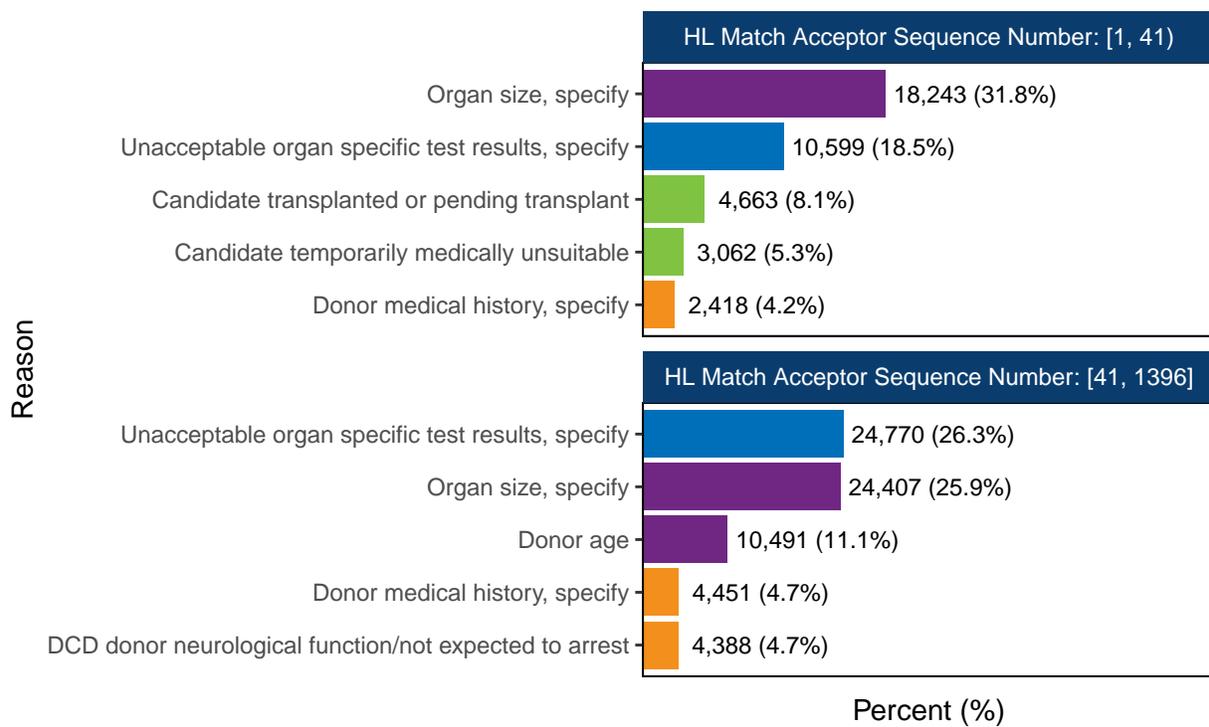


Figure 16: Top five reasons for refusal of lung match organ offers for transplant candidates post implementation stratified by match acceptance number, for lung matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on lung matches during 2020.

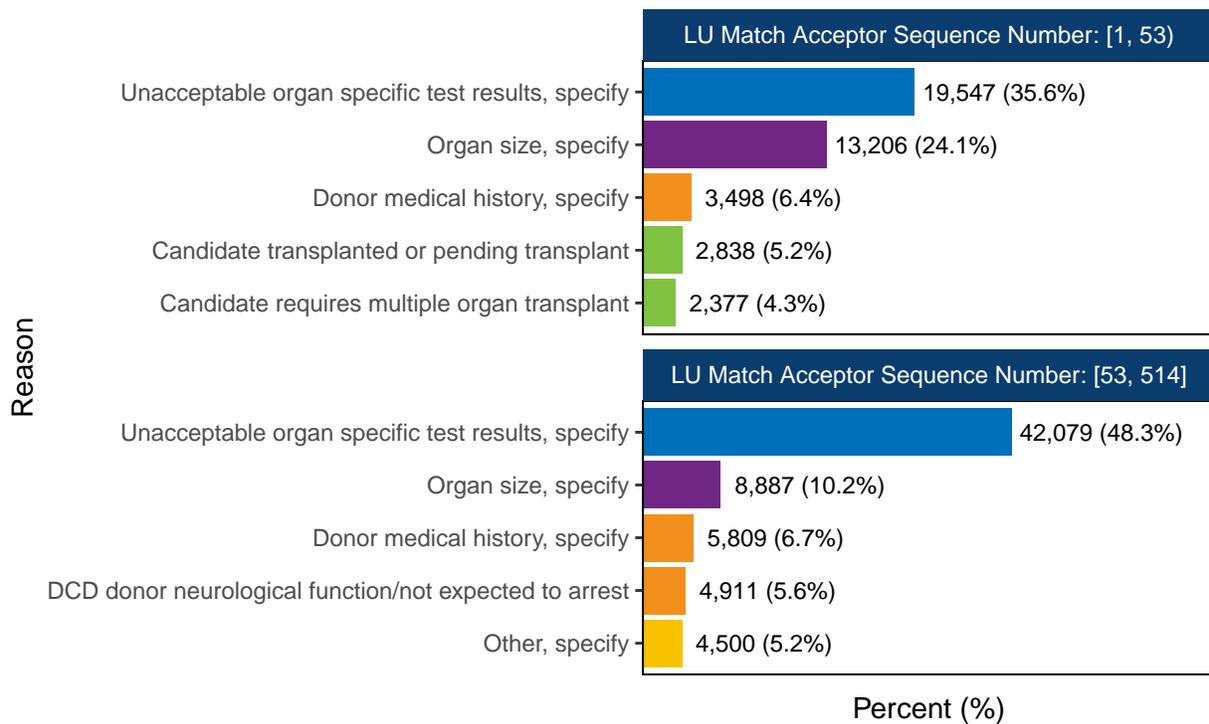
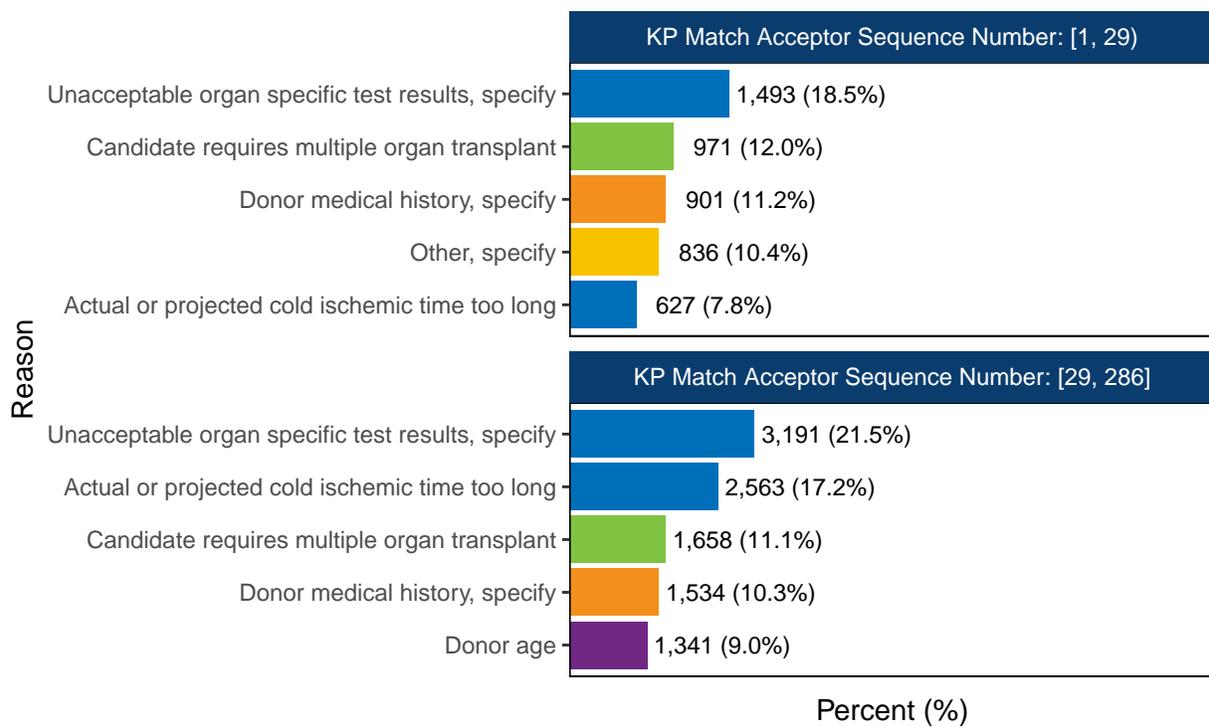


Figure 17: Top five reasons for refusal of kidney-pancreas match organ offers for transplant candidates post implementation stratified by match acceptance number, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on kidney-pancreas matches during 2020.

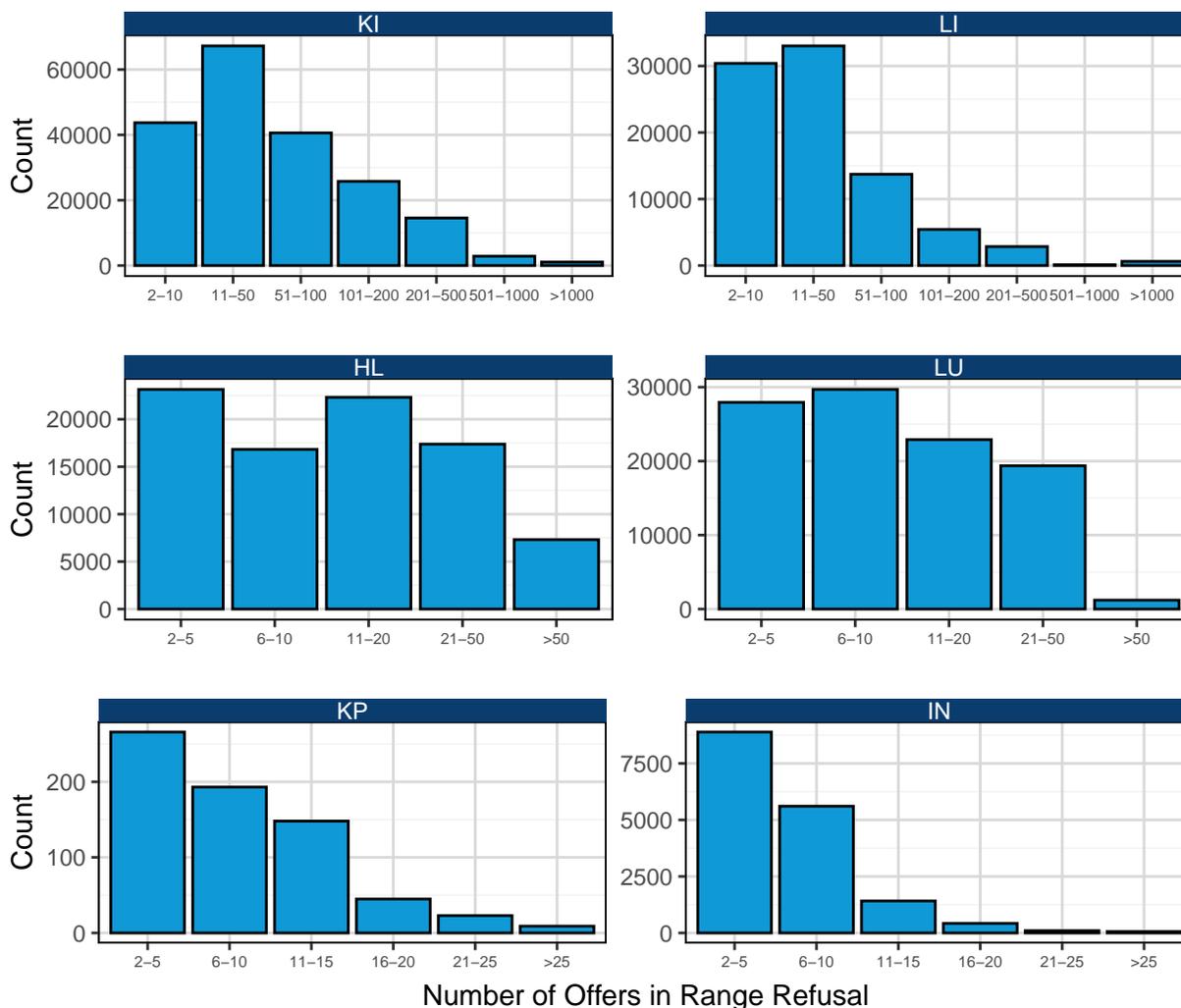


Range Refusals

Transplant centers are not only able to accept or refuse organ offers for an individual transplant candidate, they may also refuse an organ offer on a match run for multiple transplant candidates at their center. When this is done, the same reason for refusal is applied for all candidates with refusals logged to the same offer. Because the same reason for refusal is used for varying numbers of organ offers in a batch, the following are de-duplicated such that an instance of refusing organ offers for 15 transplant candidates at a center only presents this reason once rather than 15 times. This ensures that the results are not unnecessarily skewed by the number of offers in a range refusal.

Figure 18 indicates how many offers were typically included in a range refusal instance, by match organ type. For kidney and liver matches, there were most often 11-50 offers in a range refusal, though it was possible for there to be upwards of 1,000 offers in a range refusal instance. Heart-lung matches most often included 11-20 offers in a range refusal, though there could be upwards of 50 offers in some. There were most often 2-10 offers in a range refusal for lung matches, 2-5 offers for kidney-pancreas matches, and 6-10 offers for intestine matches.

Figure 18: Number of organ offers in range refusal post implementation by match organ type, December 02, 2021 - December 01, 2023



By Organ

Figure 19: Top ten reasons for refusal of range refused kidney match organ offers for transplant candidates post implementation, for kidney matches submitted December 02, 2021 - December 01, 2023.

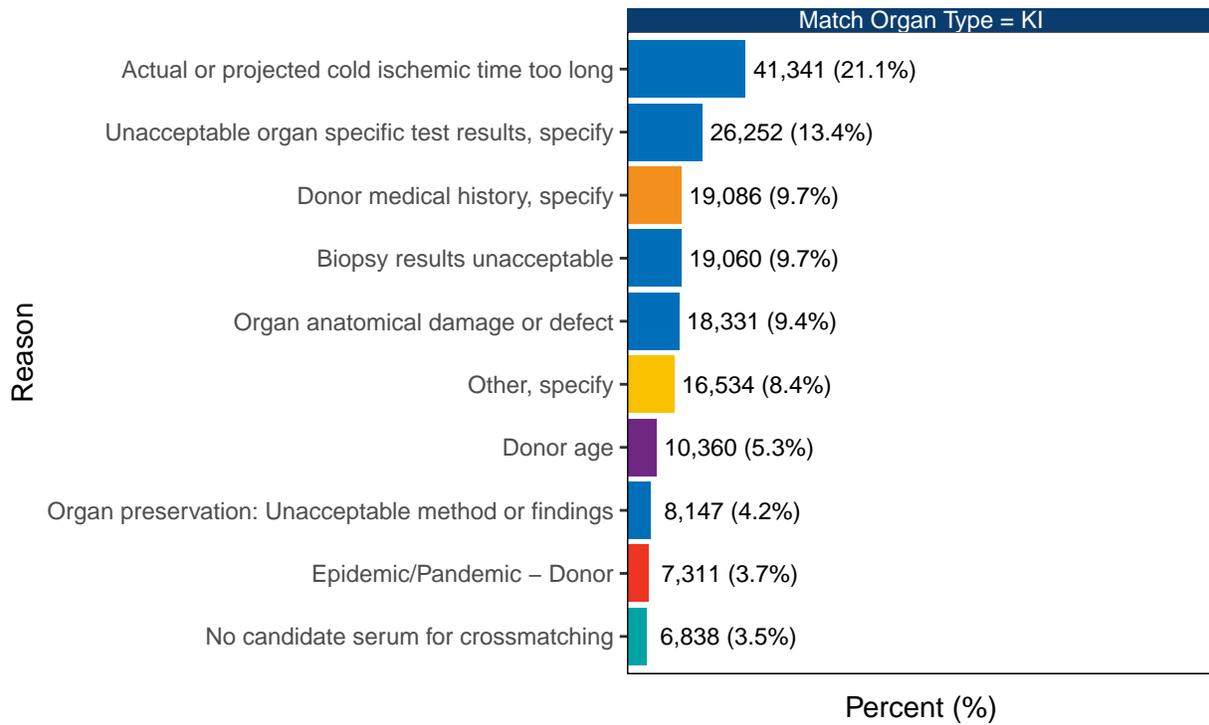


Figure 20: Top ten reasons for refusal of range refused liver match organ offers for transplant candidates post implementation, for liver matches submitted December 02, 2021 - December 01, 2023.

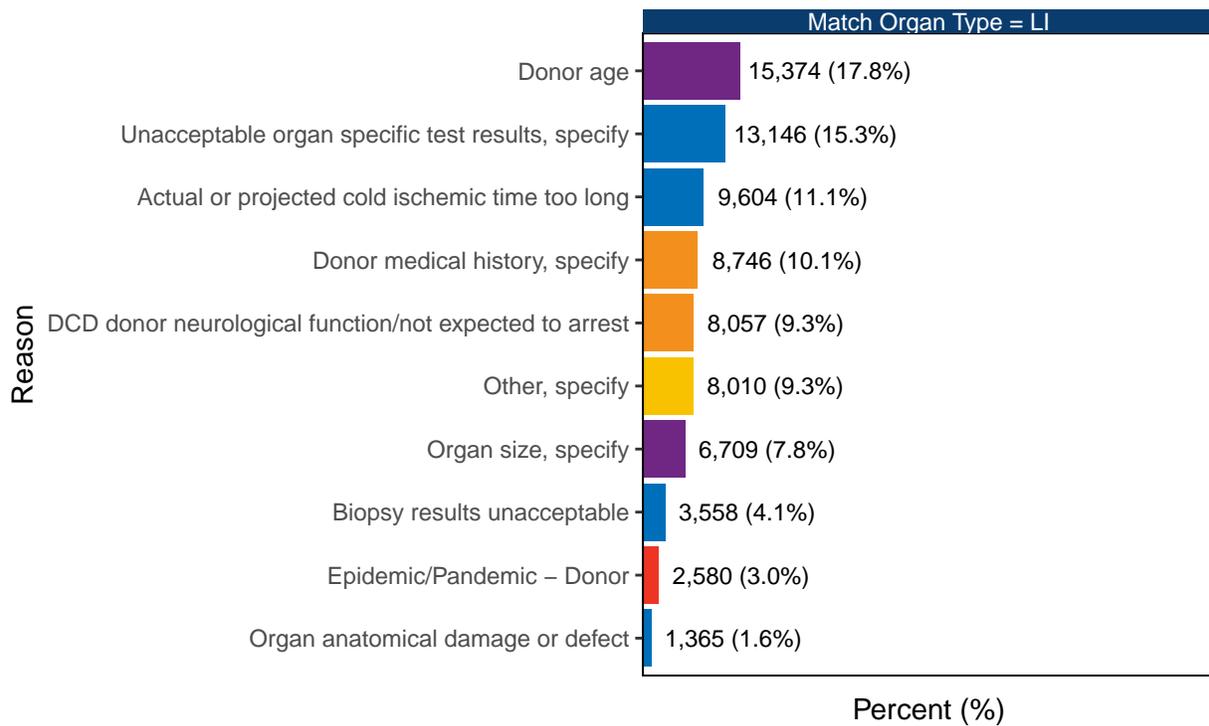


Figure 21: Top ten reasons for refusal of range refused heart and heart-lung match organ offers for transplant candidates post implementation, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023.

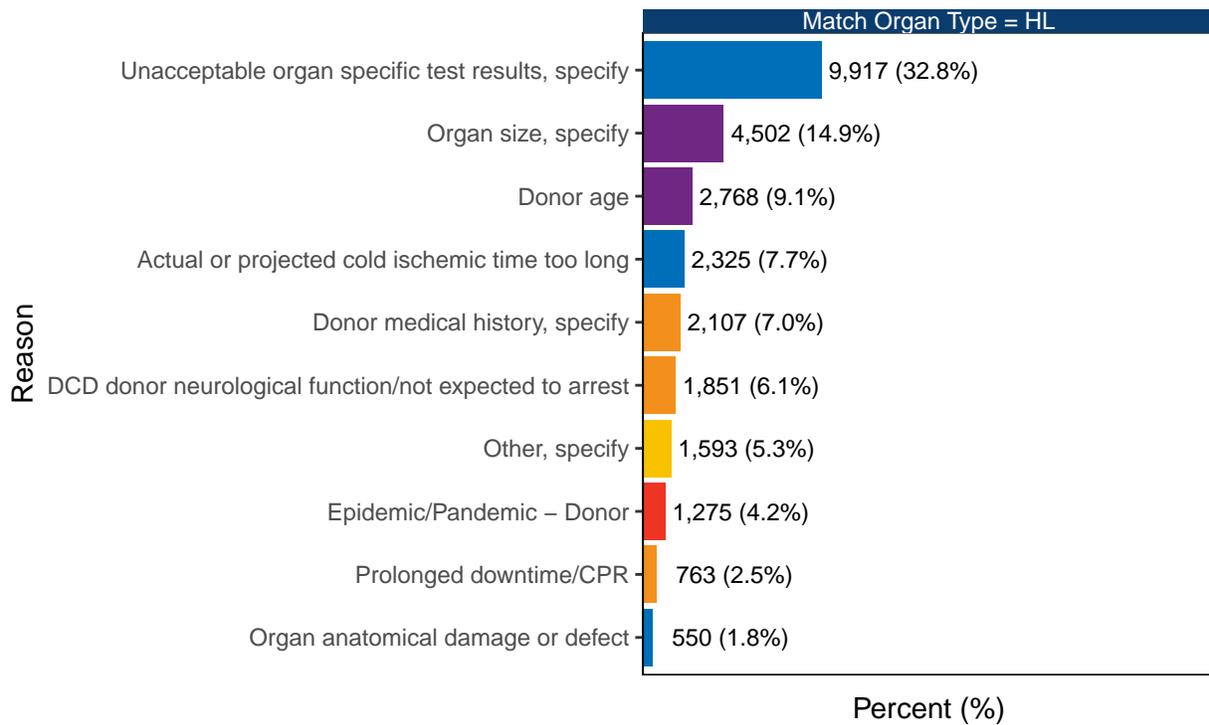


Figure 22: Top ten reasons for refusal of range refused lung match organ offers for transplant candidates post implementation, for lung matches submitted December 02, 2021 - December 01, 2023.

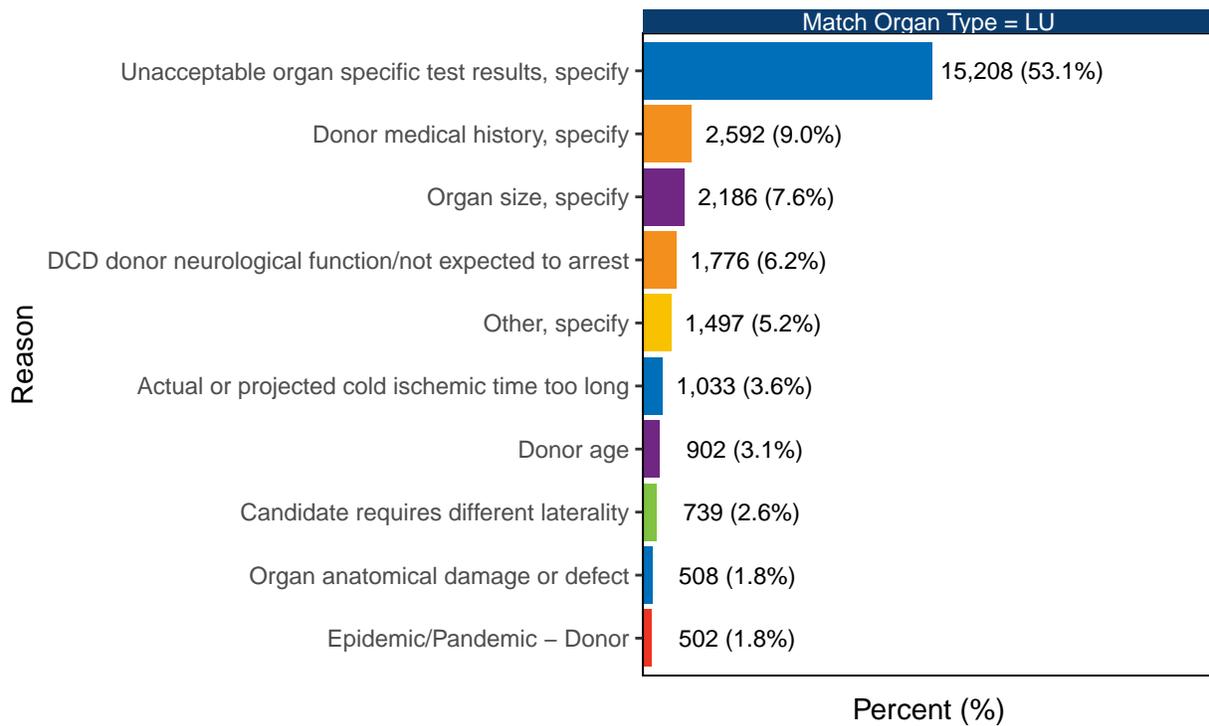


Figure 23: Top ten reasons for refusal of range refused kidney-pancreas match organ offers for transplant candidates post implementation, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023.

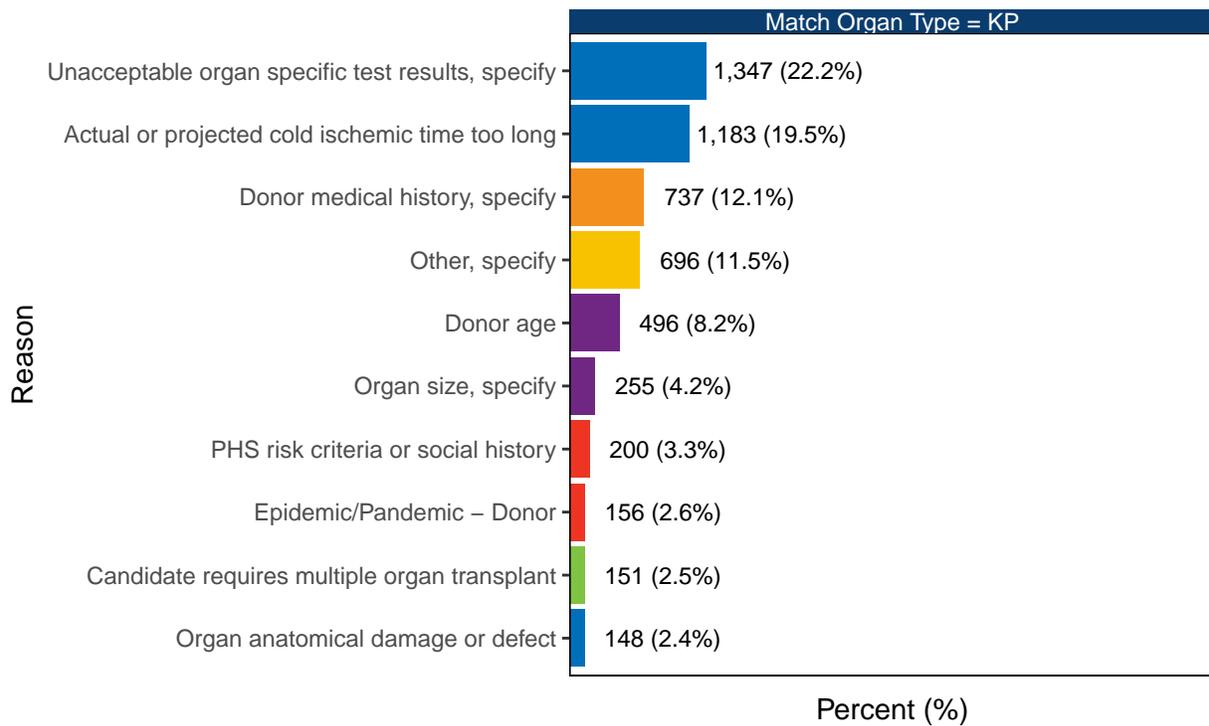
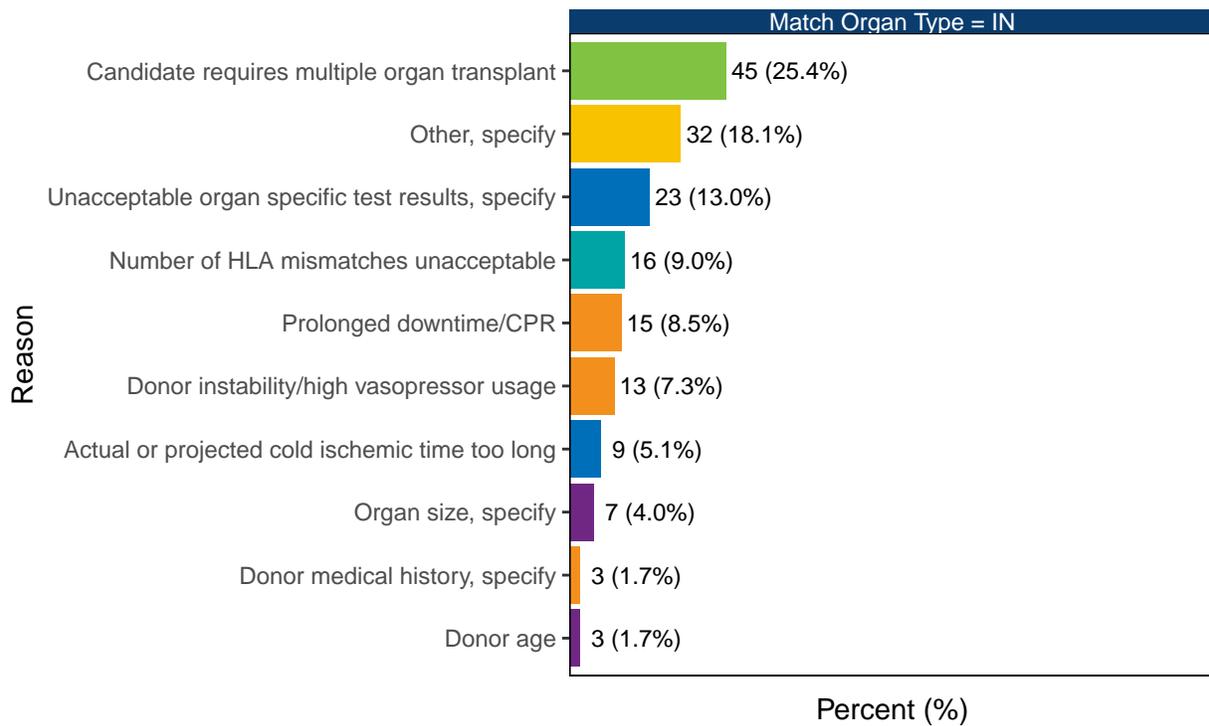


Figure 24: Top ten reasons for refusal of range refused intestine match organ offers for transplant candidates post implementation, for intestine matches submitted December 02, 2021 - December 01, 2023.



By Program Size

Figure 25: Top five reasons for refusal of range refused kidney match organ offers for transplant candidates post implementation stratified by program size, for kidney matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor kidney transplants during 2020.

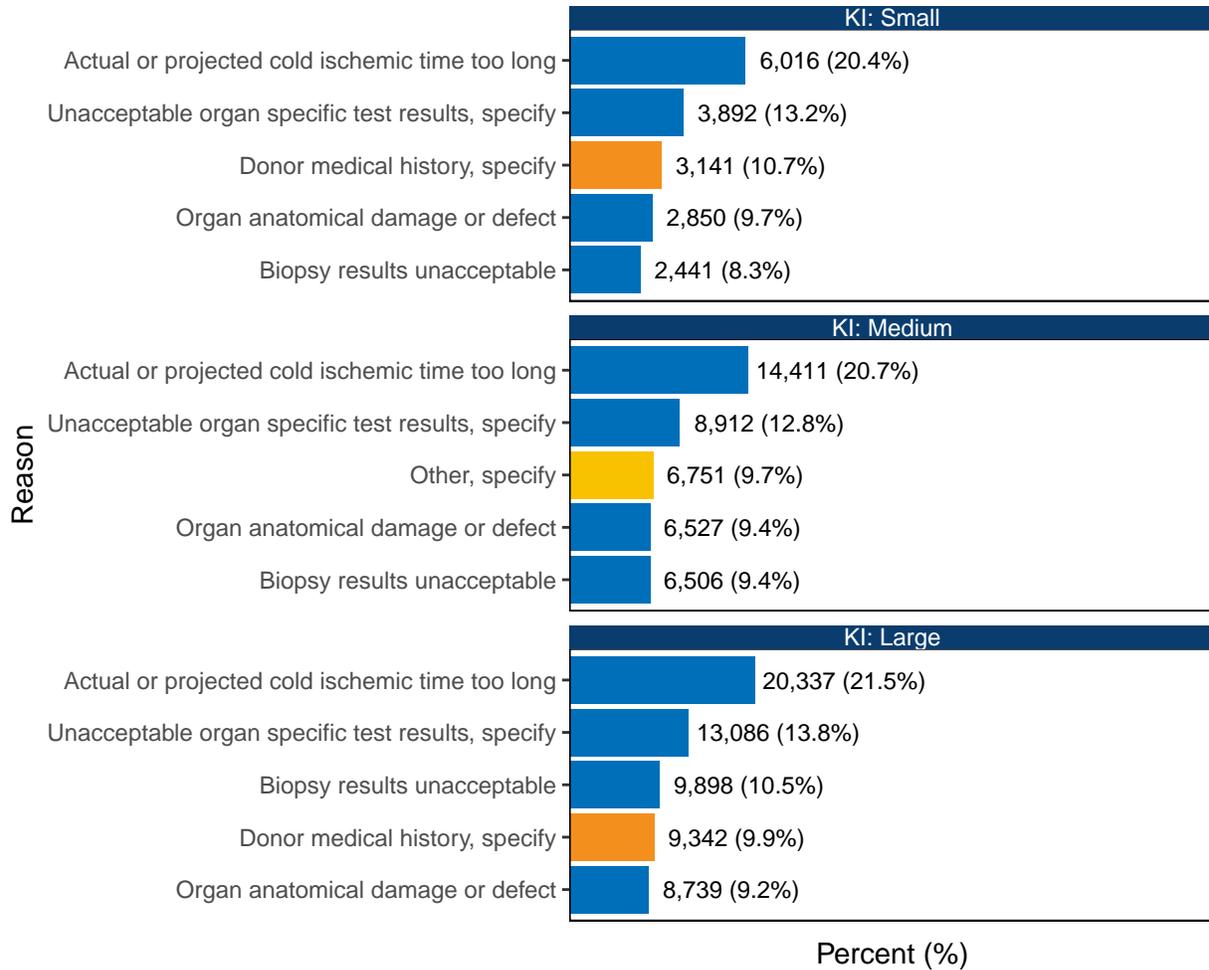


Figure 26: Top five reasons for refusal of range refused liver match organ offers for transplant candidates post implementation stratified by program size, for liver matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor liver transplants during 2020.

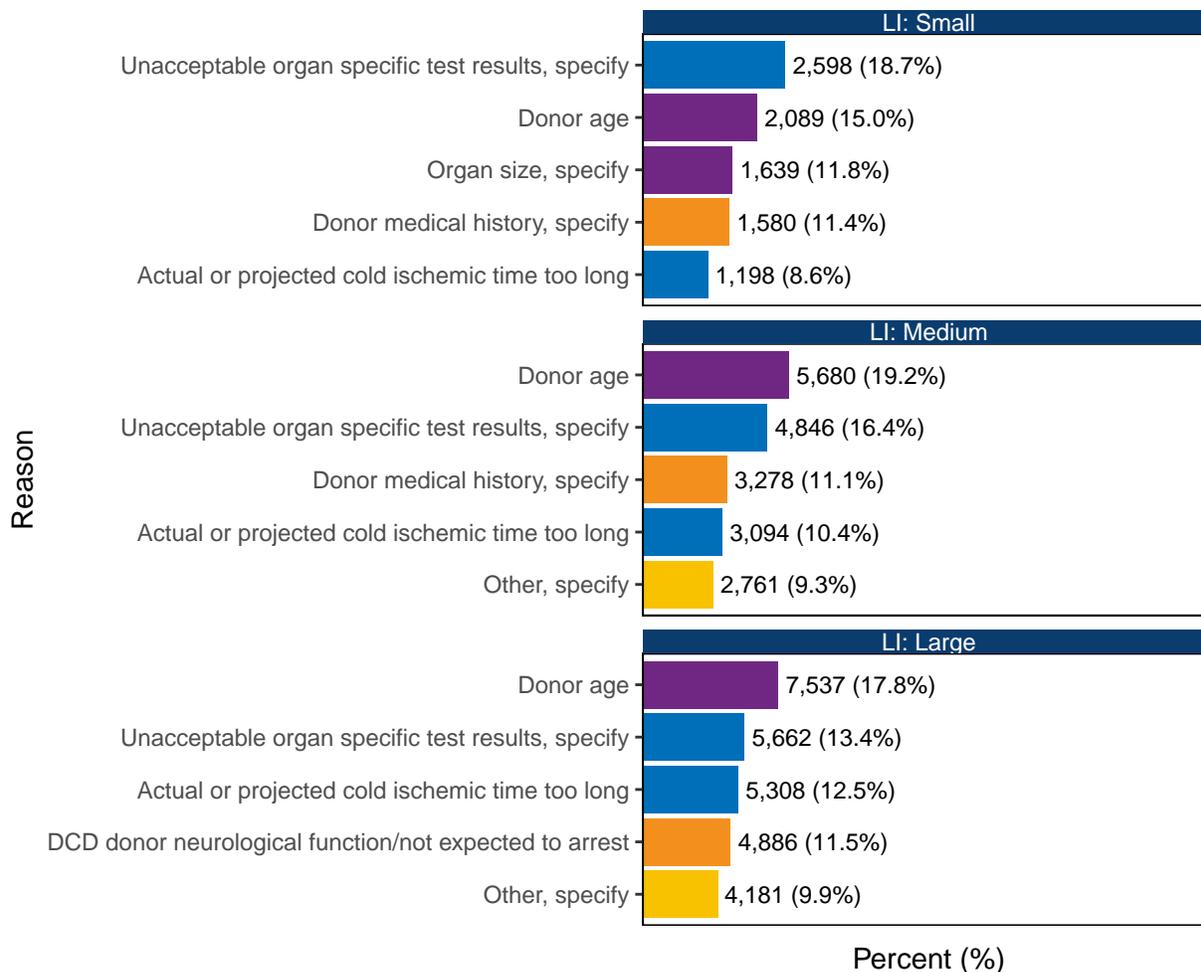


Figure 27: Top five reasons for refusal of range refused heart and heart-lung match organ offers for transplant candidates post implementation stratified by program size, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor heart and heart-lung transplants during 2020.

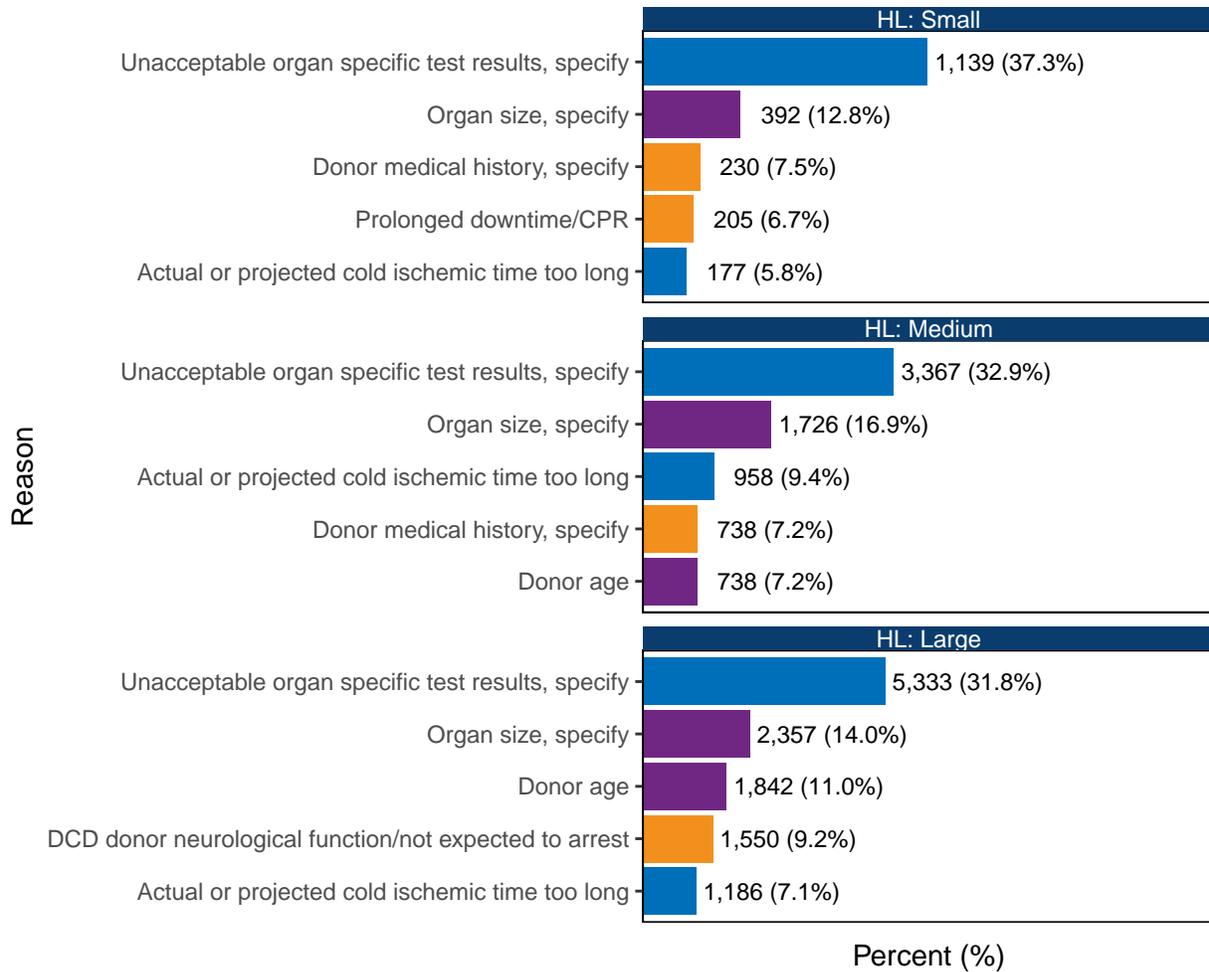
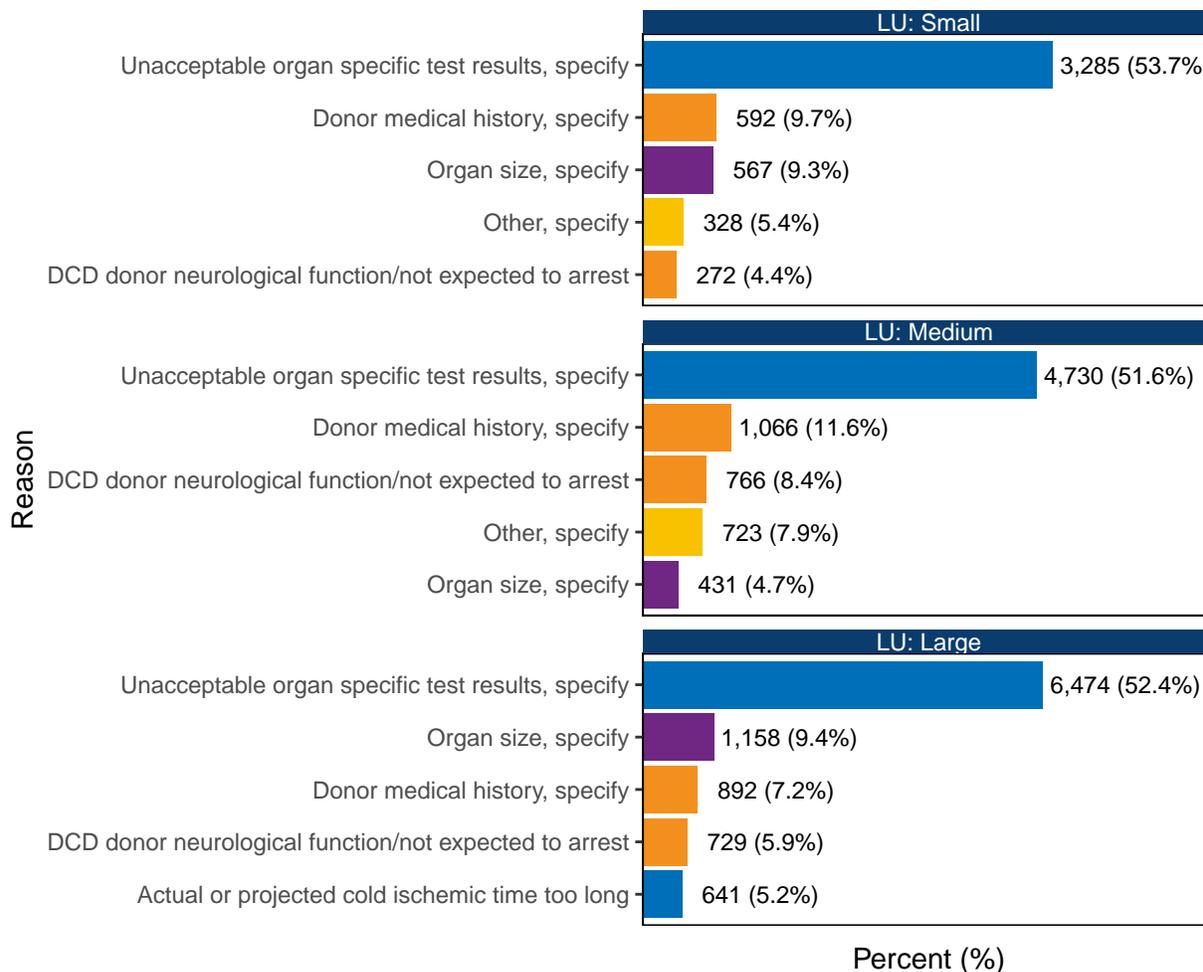


Figure 28: Top five reasons for refusal of range refused lung match organ offers for transplant candidates post implementation stratified by program size, for lung matches submitted December 02, 2021 - December 01, 2023. Program size defined by volume of deceased donor lung transplants during 2020.



By Sequence Number

Figure 29: Top five reasons for refusal of range refused kidney match organ offers for transplant candidates post implementation stratified by match acceptance number, for kidney matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on kidney matches during 2020.

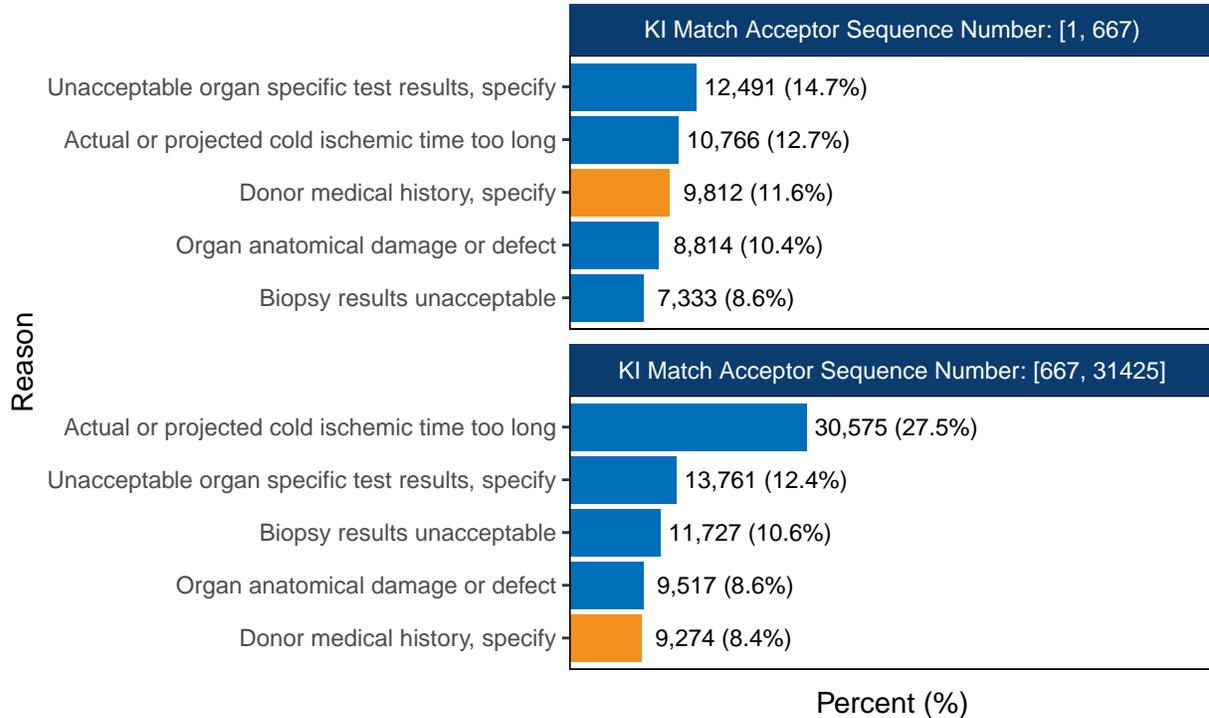


Figure 30: Top five reasons for refusal of range refused liver match organ offers for transplant candidates post implementation stratified by match acceptance number, for liver matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on liver matches during 2020.

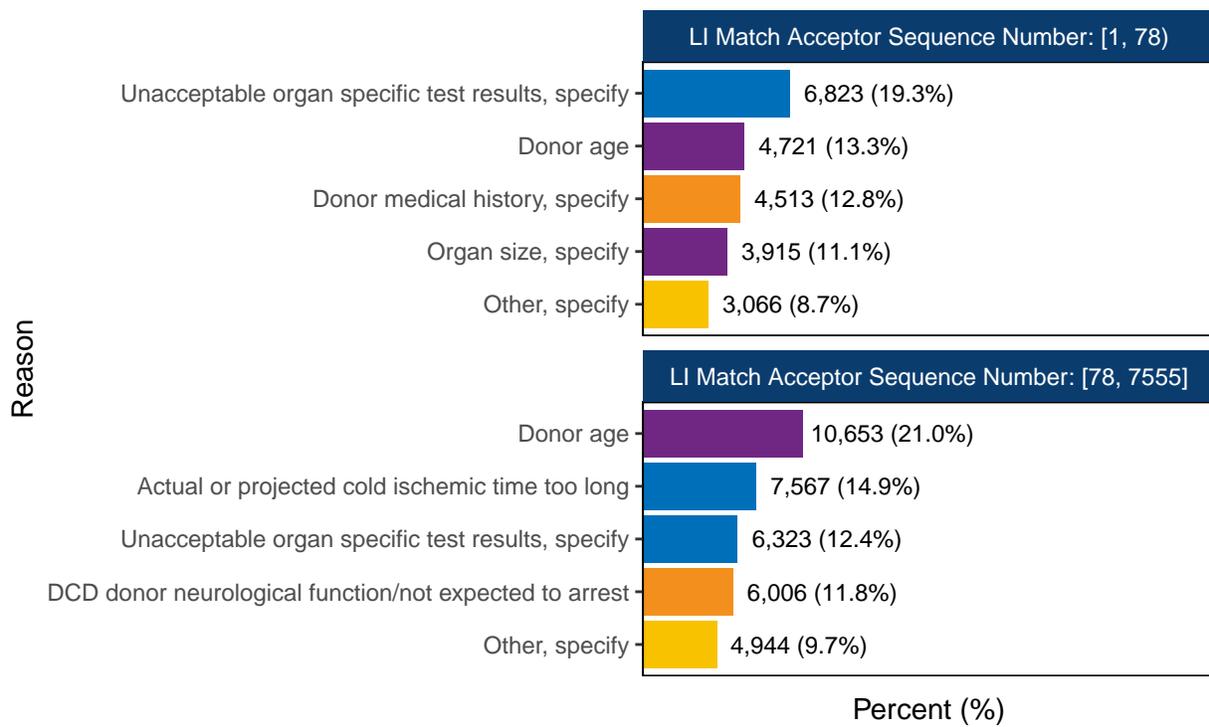


Figure 31: Top five reasons for refusal of range refused heart and heart-lung match organ offers for transplant candidates post implementation stratified by match acceptance number, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on heart and heart-lung matches during 2020.

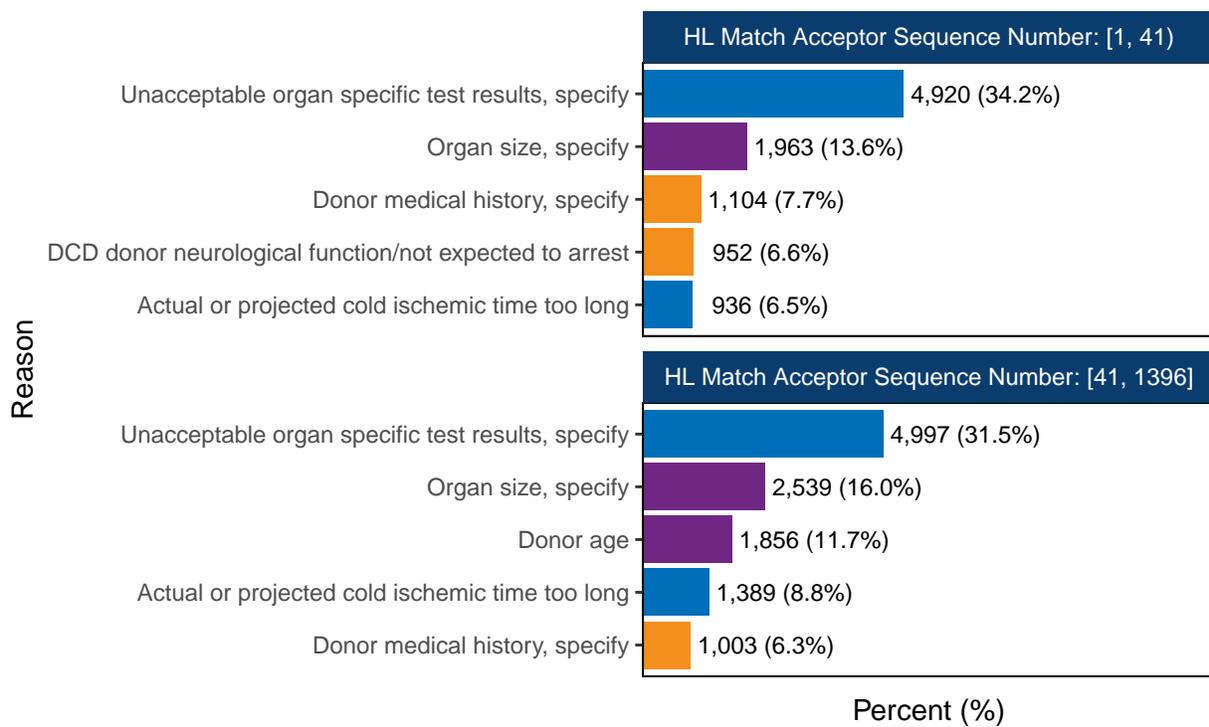
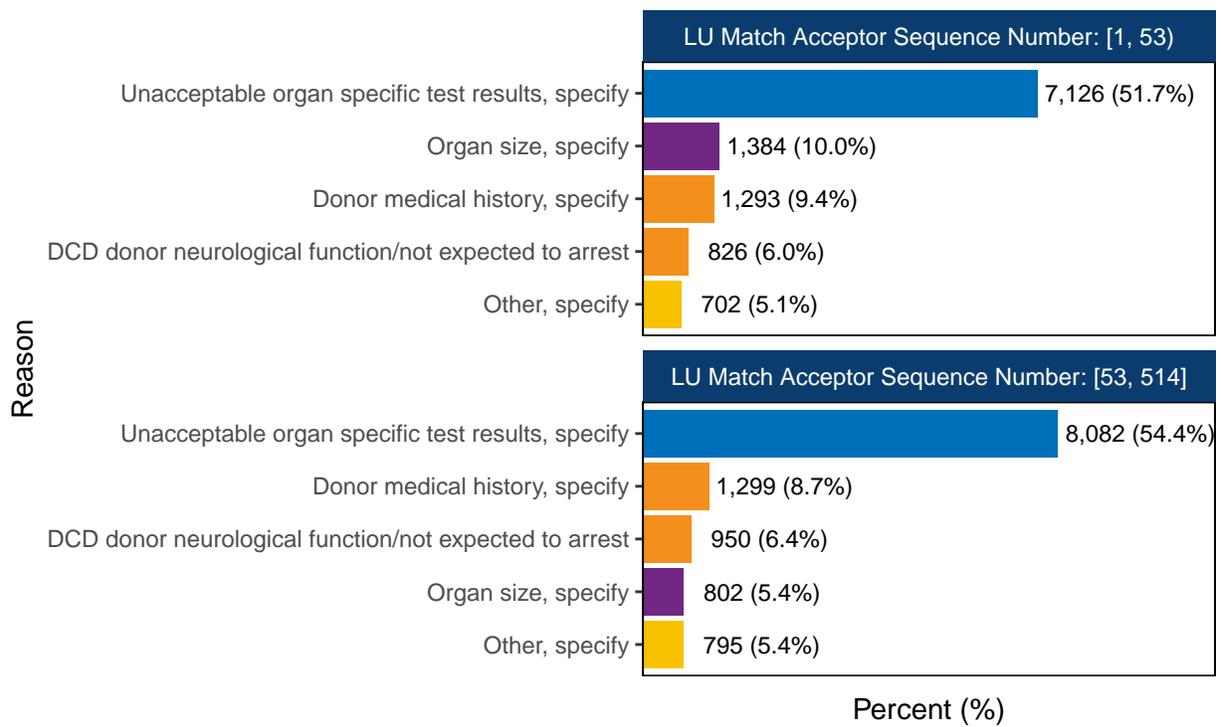


Figure 32: Top five reasons for refusal of range refused lung match organ offers for transplant candidates post implementation stratified by match acceptance number, for lung matches submitted December 02, 2021 - December 01, 2023. Group was defined by the 90th percentile of sequence numbers for acceptances on lung matches during 2020.



“Other, Specify” Free Text Fields

At the request of the DAC, this report also includes an analysis of the use of “Other, specify” organ refusal reasons. We carried out this analysis by analyzing the most frequent word use of any free text entered by the user for a primary or secondary “Other, specify” refusal code for all match types. These codes included:

- 701 - Organ size, specify
- 750 - Donor medical history, specify
- 717 - Unacceptable organ specific test results, specify
- 798 - Other, specify

Note that this analysis was restricted to the post-policy era. Range refusal text was limited to one observation per unique donor and listing center. Standard natural language processing (NLP) pre-processing techniques were used to standardize the free text, accounting for capitalization variation, removing common English words, and removing punctuation, numerals, and additional spacing.

For each included refusal code and match type, an aggregated table of the top 10 words entered, along with a wordcloud displaying the top 20 words entered, is presented below. Note that due to very small numbers, analysis of words reported commonly for IN matches has not been reported here.

701: Organ size, specify

The following graphs and tables report free text words most commonly found in the **701: Organ size, specify** field by organ. Words commonly used in these free text blocks did, in fact, tend to cluster around physical descriptions of size, including “small”, “large”, “undersized”, “bmi”, “big”, “height”, etc., suggesting that the more common responses in this field are providing more detail about the nature of the organ size issue that led to the refusal.

Table 9: Top ten words in free text for refusal code 701 and match type KI

Word	Frequency
small	384
donor	250
size	135
weight	66
kidney	45
kidneys	42
bmi	38
recipient	35
pediatric	30
dcd	29

Figure 33: Top twenty words in free text for refusal code 701 and match type KI

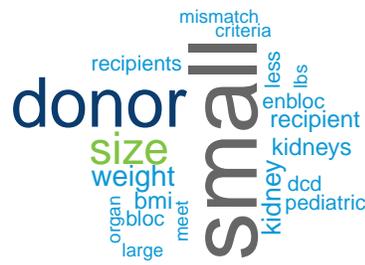


Table 10: Top ten words in free text for refusal code 701 and match type KP

Word	Frequency
bmi	35
donor	20
small	19
size	13
high	3
weight	1
recips	1
match	1
mis	1
mismatch	1

Figure 34: Top twenty words in free text for refusal code 701 and match type KP



Table 11: Top ten words in free text for refusal code 701 and match type LI

Word	Frequency
bmi	579
donor	396
big	254
large	234
size	176
small	129
liver	123
recipient	100
dcd	79
organ	66

Figure 35: Top twenty words in free text for refusal code 701 and match type LI

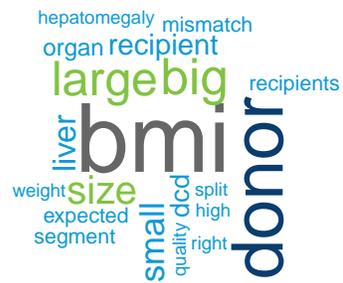


Table 12: Top ten words in free text for refusal code 701 and match type HR

Word	Frequency
small	158
donor	108
female	47
size	47
male	33
recipient	23
mismatch	19
recipients	17
mass	17
cardiac	16

Figure 36: Top twenty words in free text for refusal code 701 and match type HR

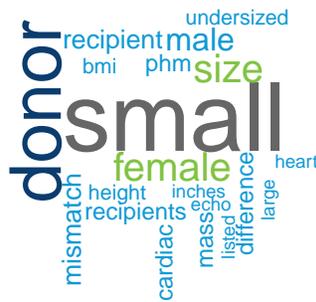


Table 13: Top ten words in free text for refusal code 701 and match type LU

Word	Frequency
big	75
size	72
donor	65
large	65
small	58
lung	52
recipient	36
measurements	34
lungs	25
mismatch	24

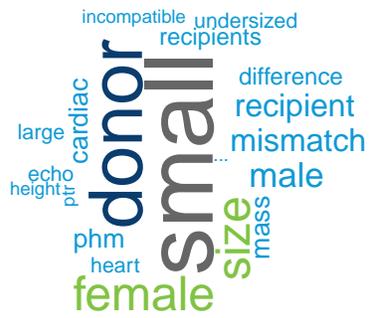
Figure 37: Top twenty words in free text for refusal code 701 and match type LU



Table 14: Top ten words in free text for refusal code 701 and match type HL

Word	Frequency
small	377
donor	271
size	154
female	150
male	94
mismatch	76
recipient	74
mass	56
phm	54
cardiac	47

Figure 38: Top twenty words in free text for refusal code 701 and match type HL



750: Donor medical history, specify

The following graphs and tables report free text words most commonly found in the **750: Donor medical history, specify** field by organ. Words commonly used in this field varied considerably by organ type, but largely included clinical terms that appear to describe things like smoking, drug or alcohol history, circumstances that led to the death (i.e. “trauma”, “cardiac arrest”, “dcd”), or risk of co-occurring infection or co-morbidity (e.g. “htn”, “asthma”, “insulin”, “lvh”, etc.).

Table 15: Top ten words in free text for refusal code 750 and match type KI

Word	Frequency
htn	1753
kdpi	1102
dcd	818
creatinine	715
age	437
elevated	419
quality	418
history	393
crrt	383
kidney	328

Figure 39: Top twenty words in free text for refusal code 750 and match type KI

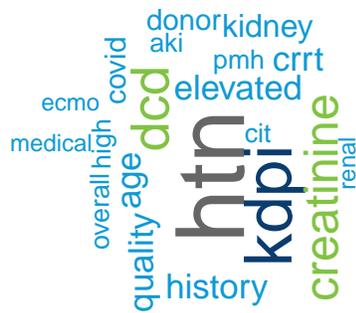


Table 16: Top ten words in free text for refusal code 750 and match type KP

Word	Frequency
etoh	39
use	27
history	24
bmi	23
drug	19
elevated	19
htn	16
heavy	16
insulin	15
abuse	14

Figure 40: Top twenty words in free text for refusal code 750 and match type KP

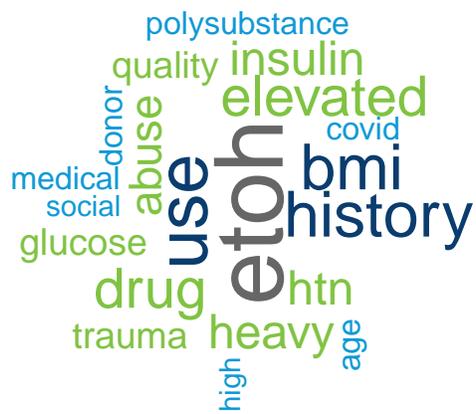


Table 17: Top ten words in free text for refusal code 750 and match type LI

Word	Frequency
etoh	379
quality	365
htn	333
bmi	312
dcd	253
overall	210
history	210
age	181
liver	179
donor	166

Figure 41: Top twenty words in free text for refusal code 750 and match type LI



Table 18: Top ten words in free text for refusal code 750 and match type HR

Word	Frequency
quality	38
use	27
history	21
cath	20
echo	20
cardiac	18
htn	18
drug	17
unknown	15
arrest	14

Figure 42: Top twenty words in free text for refusal code 750 and match type HR



Table 19: Top ten words in free text for refusal code 750 and match type LU

Word	Frequency
smoking	154
history	77
quality	65
asthma	64
pack	27
smoker	24
covid	24
overall	23
sternotomy	23
lung	22

Figure 43: Top twenty words in free text for refusal code 750 and match type LU



Table 20: Top ten words in free text for refusal code 750 and match type HL

Word	Frequency
quality	66
history	60
use	52
drug	43
echo	42
htn	42
unknown	38
endocarditis	35
abuse	33
cath	32

Figure 44: Top twenty words in free text for refusal code 750 and match type HL



717: Unacceptable organ specific test results, specify

The following graphs and tables report free text words most commonly found in the **717: Unacceptable organ specific test results, specify** field by organ. Words used in these fields generally indicated varied clinical test results indicating a potential issue with the organ (e.g. “glucose”, “lipase”, “sternotomy”, “troponin”, “amylase”, “labs”, etc.).

Table 21: Top ten words in free text for refusal code 717 and match type KI

Word	Frequency
creatinine	3540
elevated	1369
pump	1152
kdpi	749
numbers	740
high	540
crrt	391
poor	301
terminal	284
dcd	268

Figure 45: Top twenty words in free text for refusal code 717 and match type KI



Table 22: Top ten words in free text for refusal code 717 and match type KP

Word	Frequency
elevated	106
creatinine	71
lipase	50
amylase	40
labs	29
insulin	17
high	17
glucose	16
blood	14
sugars	13

Figure 46: Top twenty words in free text for refusal code 717 and match type KP

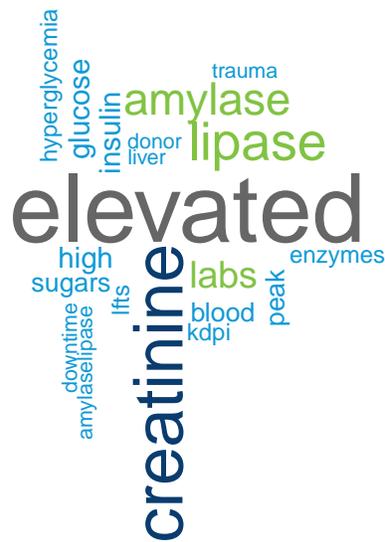


Table 23: Top ten words in free text for refusal code 717 and match type LI

Word	Frequency
lfts	721
elevated	679
liver	659
steatosis	448
fatty	344
hepatic	298
enzymes	196
labs	186
imaging	185
results	154

Figure 47: Top twenty words in free text for refusal code 717 and match type LI

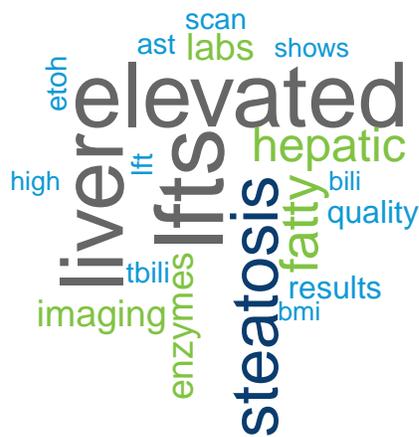


Table 24: Top ten words in free text for refusal code 717 and match type HR

Word	Frequency
echo	295
cath	176
lvh	93
quality	66
results	57
cad	57
elevated	57
troponin	49
mild	42
poor	39

Figure 48: Top twenty words in free text for refusal code 717 and match type HR

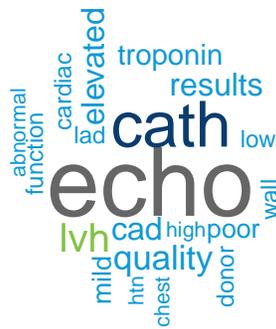


Table 25: Top ten words in free text for refusal code 717 and match type LU

Word	Frequency
chest	352
imaging	289
bronch	236
cxr	218
poor	196
pneumonia	187
quality	170
aspiration	149
results	147
bilateral	143

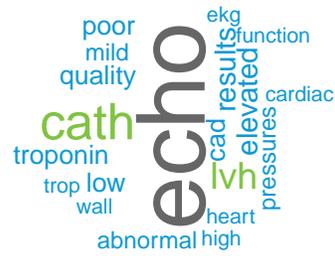
Figure 49: Top twenty words in free text for refusal code 717 and match type LU



Table 26: Top ten words in free text for refusal code 717 and match type HL

Word	Frequency
echo	917
cath	392
lvh	239
elevated	158
results	144
quality	132
troponin	124
low	117
poor	111
cad	110

Figure 50: Top twenty words in free text for refusal code 717 and match type HL



798: Other, specify

The following graphs and tables report free text words most commonly found in the **717: Other, specify** field by organ. Words captured in this field did seem to vary by theme, with some suggestion that perhaps another listed refusal code would have been more appropriate (e.g. “cit”, “dcd”, “quality”, “anatomy”, “kdpi”, “distance”, “import”, “age”, “bmi”, “covid”, “echo”, “time”, “smoking”, “downtime”). Use of this field in particular should be monitored to determine if there are opportunities for further revision of this option as a refusal code.

Table 27: Top ten words in free text for refusal code 798 and match type KI

Word	Frequency
criteria	1563
kdpi	1481
dcd	1424
cit	1333
meet	1057
center	1013
pump	868
quality	804
donor	554
anatomy	519

Figure 51: Top twenty words in free text for refusal code 798 and match type KI



Table 28: Top ten words in free text for refusal code 798 and match type KP

Word	Frequency
import	53
quality	45
non	43
distance	28
donor	20
elevated	19
insulin	15
offer	13
criteria	12
dcd	11

Figure 52: Top twenty words in free text for refusal code 798 and match type KP



Table 29: Top ten words in free text for refusal code 798 and match type LI

Word	Frequency
dcd	1020
quality	839
donor	319
age	314
distance	294
criteria	271
liver	227
overall	196
bmi	171
covid	145

Figure 53: Top twenty words in free text for refusal code 798 and match type LI



Table 30: Top ten words in free text for refusal code 798 and match type HR

Word	Frequency
quality	79
dcd	46
donor	36
distance	35
time	31
covid	28
heart	22
overall	20
elevated	11
echo	11

Figure 54: Top twenty words in free text for refusal code 798 and match type HR



Table 31: Top ten words in free text for refusal code 798 and match type LU

Word	Frequency
quality	197
dcd	47
lung	46
donor	35
chest	25
bilateral	23
overall	22
covid	21
offer	18
smoking	17

Figure 55: Top twenty words in free text for refusal code 798 and match type LU

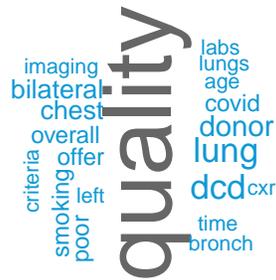


Table 32: Top ten words in free text for refusal code 798 and match type HL

Word	Frequency
quality	109
dcd	76
donor	61
distance	39
time	38
echo	35
overall	33
unknown	32
downtime	32
heart	27

Summary

Thus far, it does not appear that any one code has replaced the previously dominant “860: Donor age and quality” code, as no code now comprises the majority of refusal reasons regardless of organ type. Furthermore, there is some clear differentiation in the most frequently used reasons for refusal by organ type, program size, and whether the last acceptor on a match is within the 90th percentile or not. This also holds true for range refusals.

In reviewing free text responses in ‘Other, Specify’ fields, we note that common terms used in the more specific codes (i.e. “701: Organ size, specify”, “750: Donor medical history, specify”, and “717: Unacceptable organ specific test results, specify”) largely seemed to reflect those specific themes, suggesting that free text responses are being provided appropriately. However, responses in “798: Other, specify” often contained words that at least suggest that other, currently-existing and more specific and informative codes could have been selected instead. The utility of this more vaguely-defined free text field should therefore be further considered over time and potentially phased out.

The implementation of these new refusal reasons appears to have accomplished its goals of providing more relevant, discrete, and mutually exclusive information and promoting the collection of more actionable data. One refusal code no longer dominates refusals across multiple organ types, and the top listed refusal reasons offer more nuanced information than the old **Donor age and quality** code that previously predominated.

Appendix

Table 33: Count and percent of reasons for refusal of kidney match organ offers post implementation stratified by program size, for kidney matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor kidney transplants during 2020.

Description	Large		Medium		Small	
	N	%	N	%	N	%
Actual or projected cold ischemic time too long	959,064	22.1%	333,420	20.5%	65,932	18.1%
Unacceptable organ specific test results, specify	694,970	16.0%	234,582	14.4%	46,798	12.8%
Donor medical history, specify	531,831	12.2%	160,795	9.9%	46,805	12.8%
Biopsy results unacceptable	482,800	11.1%	174,829	10.7%	34,761	9.5%
Organ anatomical damage or defect	425,140	9.8%	160,419	9.8%	38,555	10.6%
Other, specify	300,358	6.9%	161,104	9.9%	22,859	6.3%
Donor age	207,798	4.8%	68,503	4.2%	24,638	6.8%
Organ preservation: Unacceptable method or findings	161,293	3.7%	78,207	4.8%	14,037	3.9%
Warm ischemic time too long	140,953	3.2%	52,281	3.2%	12,074	3.3%
Epidemic/Pandemic - Donor	140,357	3.2%	83,481	5.1%	19,916	5.5%
Organ size, specify	59,409	1.4%	16,432	1.0%	5,407	1.5%
Candidate temporarily medically unsuitable	34,932	0.8%	22,479	1.4%	6,235	1.7%
Biopsy not available	31,954	0.7%	7,275	0.4%	2,005	0.6%
Malignancy or suspected malignancy	28,269	0.7%	13,498	0.8%	2,965	0.8%
Candidate requires multiple organ transplant	23,961	0.6%	6,138	0.4%	1,754	0.5%
DCD donor neurological function/not expected to arrest	21,685	0.5%	8,520	0.5%	2,207	0.6%
Donor infection or positive culture	20,792	0.5%	8,775	0.5%	2,754	0.8%
Organ specific test results not available, specify	20,409	0.5%	6,532	0.4%	2,296	0.6%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	9,417	0.2%	3,799	0.2%	1,204	0.3%
PHS risk criteria or social history	8,595	0.2%	2,534	0.2%	2,921	0.8%
Candidate transplanted or pending transplant	6,885	0.2%	2,977	0.2%	871	0.2%
Positive virtual crossmatch/unacceptable antigens	6,874	0.2%	3,192	0.2%	975	0.3%
Candidate refused	4,455	0.1%	1,785	0.1%	878	0.2%
No candidate serum for crossmatching	3,888	0.1%	5,689	0.3%	654	0.2%
Candidate unavailable	2,637	0.1%	1,402	0.1%	507	0.1%
Transplant team or transplant facility availability	2,571	0.1%	1,340	0.1%	390	0.1%
Donor instability/high vasopressor usage	2,245	0.1%	1,866	0.1%	376	0.1%
Prolonged downtime/CPR	2,177	0.1%	2,086	0.1%	997	0.3%
Positive physical crossmatch	2,053	0.0%	1,241	0.1%	322	0.1%
Resource time constraint (OPO, TXC, donor hospital, etc.)	1,942	0.0%	437	0.0%	340	0.1%
Candidate temporarily ineligible due to insurance or financial issue	1,326	0.0%	641	0.0%	341	0.1%
Epidemic/Pandemic - Candidate	1,305	0.0%	1,432	0.1%	399	0.1%
Exceeded policy defined response time	1,222	0.0%	425	0.0%	113	0.0%
Number of HLA mismatches unacceptable	1,139	0.0%	269	0.0%	470	0.1%
No donor cells/specimen for crossmatching, or no time for crossmatch	949	0.0%	202	0.0%	452	0.1%
Disaster Emergency Management Consideration	648	0.0%	338	0.0%	3	0.0%
Candidate requires different laterality	205	0.0%	108	0.0%	17	0.0%
Transportation availability	182	0.0%	132	0.0%	21	0.0%
Candidate's condition improved, transplant not needed	54	0.0%	46	0.0%	12	0.0%

Recovery team availability	40	0.0%	43	0.0%	0	0.0%
Donor family time constraint	1	0.0%	2	0.0%	18	0.0%

Table 34: Count and percent of reasons for refusal of liver match organ offers post implementation stratified by program size, for liver matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor liver transplants during 2020.

Description	Large		Medium		Small		No Transplants in 2020	
	N	%	N	%	N	%	N	%
Donor age	110,934	20.6%	55,012	21.7%	11,758	15.3%	179	13.2%
DCD donor neurological function/not expected to arrest	64,515	12.0%	22,198	8.7%	3,170	4.1%	39	2.9%
Unacceptable organ specific test results, specify	61,604	11.4%	31,564	12.4%	11,860	15.5%	174	12.9%
Actual or projected cold ischemic time too long	61,500	11.4%	25,779	10.1%	6,465	8.4%	29	2.1%
Other, specify	55,404	10.3%	28,201	11.1%	5,967	7.8%	48	3.5%
Donor medical history, specify	45,644	8.5%	20,769	8.2%	6,903	9.0%	83	6.1%
Organ size, specify	41,489	7.7%	17,787	7.0%	11,203	14.6%	186	13.7%
Biopsy results unacceptable	19,305	3.6%	10,105	4.0%	2,655	3.5%	49	3.6%
Candidate transplanted or pending transplant	14,513	2.7%	6,620	2.6%	1,899	2.5%	221	16.3%
Candidate temporarily medically unsuitable	12,615	2.3%	7,975	3.1%	1,861	2.4%	142	10.5%
Epidemic/Pandemic - Donor	9,780	1.8%	9,397	3.7%	3,067	4.0%	7	0.5%
Candidate requires multiple organ transplant	6,891	1.3%	1,855	0.7%	989	1.3%	25	1.8%
Organ anatomical damage or defect	6,208	1.2%	2,597	1.0%	1,260	1.6%	16	1.2%
Resource time constraint (OPO, TXC, donor hospital, etc.)	4,284	0.8%	2,222	0.9%	518	0.7%	5	0.4%
Malignancy or suspected malignancy	3,743	0.7%	1,939	0.8%	542	0.7%	14	1.0%
Organ preservation: Unacceptable method or findings	2,536	0.5%	510	0.2%	1,389	1.8%	2	0.1%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	2,518	0.5%	1,947	0.8%	420	0.5%	12	0.9%
Donor infection or positive culture	1,898	0.4%	908	0.4%	478	0.6%	8	0.6%
Organ specific test results not available, specify	1,719	0.3%	1,029	0.4%	381	0.5%	2	0.1%
Candidate unavailable	1,571	0.3%	444	0.2%	147	0.2%	6	0.4%
Donor family time constraint	1,487	0.3%	525	0.2%	95	0.1%	3	0.2%
Donor instability/high vasopressor usage	1,432	0.3%	923	0.4%	429	0.6%	0	0.0%
Warm ischemic time too long	1,366	0.3%	508	0.2%	298	0.4%	1	0.1%
Biopsy not available	1,340	0.2%	624	0.2%	149	0.2%	7	0.5%
PHS risk criteria or social history	1,038	0.2%	735	0.3%	696	0.9%	8	0.6%
Prolonged downtime/CPR	789	0.1%	483	0.2%	1,037	1.4%	3	0.2%
Candidate's condition improved, transplant not needed	756	0.1%	259	0.1%	135	0.2%	7	0.5%
Candidate refused	559	0.1%	224	0.1%	84	0.1%	7	0.5%
Transplant team or transplant facility availability	476	0.1%	236	0.1%	28	0.0%	0	0.0%
Recovery team availability	445	0.1%	110	0.0%	38	0.0%	0	0.0%
Epidemic/Pandemic - Candidate	440	0.1%	186	0.1%	122	0.2%	0	0.0%
Exceeded policy defined response time	398	0.1%	200	0.1%	63	0.1%	3	0.2%
Candidate temporarily ineligible due to insurance or financial issue	188	0.0%	93	0.0%	43	0.1%	32	2.4%
Transportation availability	106	0.0%	41	0.0%	45	0.1%	0	0.0%
Positive virtual crossmatch/unacceptable antigens	88	0.0%	77	0.0%	167	0.2%	0	0.0%
Disaster Emergency Management Consideration	73	0.0%	0	0.0%	32	0.0%	0	0.0%
No candidate serum for crossmatching	19	0.0%	2	0.0%	0	0.0%	0	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	9	0.0%	3	0.0%	2	0.0%	0	0.0%
Positive physical crossmatch	7	0.0%	4	0.0%	6	0.0%	0	0.0%
Number of HLA mismatches unacceptable	3	0.0%	0	0.0%	324	0.4%	36	2.7%

Table 45: Count and percent of reasons for refusal of range refused kidney match organ offers post implementation stratified by program size, for kidney matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor kidney transplants during 2020.

Large

Medium

Small

Description	N	%	N	%	N	%
Actual or projected cold ischemic time too long	302,758	20.8%	109,963	18.4%	25,629	19.1%
Unacceptable organ specific test results, specify	207,949	14.3%	76,532	12.8%	16,095	12.0%
Donor medical history, specify	194,553	13.4%	63,873	10.7%	18,925	14.1%
Organ anatomical damage or defect	150,909	10.4%	60,517	10.1%	12,075	9.0%
Biopsy results unacceptable	145,135	10.0%	52,437	8.8%	11,001	8.2%
Epidemic/Pandemic - Donor	126,530	8.7%	69,588	11.7%	16,090	12.0%
Other, specify	88,500	6.1%	59,950	10.1%	8,717	6.5%
Donor age	73,037	5.0%	34,201	5.7%	9,999	7.5%
Organ preservation: Unacceptable method or findings	43,847	3.0%	21,092	3.5%	3,607	2.7%
Warm ischemic time too long	38,696	2.7%	16,608	2.8%	3,461	2.6%
Organ size, specify	22,490	1.5%	5,017	0.8%	1,542	1.2%
Biopsy not available	12,328	0.8%	2,697	0.5%	617	0.5%
Donor infection or positive culture	10,394	0.7%	5,123	0.9%	1,186	0.9%
Malignancy or suspected malignancy	9,178	0.6%	5,011	0.8%	935	0.7%
DCD donor neurological function/not expected to arrest	7,878	0.5%	2,512	0.4%	653	0.5%
Organ specific test results not available, specify	7,189	0.5%	3,374	0.6%	802	0.6%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	4,141	0.3%	1,905	0.3%	401	0.3%
PHS risk criteria or social history	3,027	0.2%	584	0.1%	838	0.6%
Donor instability/high vasopressor usage	1,376	0.1%	669	0.1%	77	0.1%
No candidate serum for crossmatching	1,252	0.1%	1,182	0.2%	168	0.1%
Candidate temporarily medically unsuitable	1,124	0.1%	207	0.0%	80	0.1%
Transplant team or transplant facility availability	938	0.1%	312	0.1%	299	0.2%
Candidate requires multiple organ transplant	840	0.1%	63	0.0%	51	0.0%
Epidemic/Pandemic - Candidate	401	0.0%	938	0.2%	110	0.1%
Prolonged downtime/CPR	351	0.0%	1,068	0.2%	210	0.2%
Resource time constraint (OPO, TXC, donor hospital, etc.)	313	0.0%	264	0.0%	100	0.1%
Positive virtual crossmatch/unacceptable antigens	281	0.0%	25	0.0%	24	0.0%
Exceeded policy defined response time	200	0.0%	68	0.0%	24	0.0%
Transportation availability	124	0.0%	9	0.0%	1	0.0%
Positive physical crossmatch	122	0.0%	122	0.0%	23	0.0%
Candidate refused	106	0.0%	39	0.0%	24	0.0%
Candidate unavailable	104	0.0%	81	0.0%	7	0.0%
Candidate transplanted or pending transplant	75	0.0%	45	0.0%	5	0.0%
Disaster Emergency Management Consideration	31	0.0%	207	0.0%	0	0.0%
Candidate requires different laterality	13	0.0%	4	0.0%	0	0.0%
Candidate temporarily ineligible due to insurance or financial issue	11	0.0%	6	0.0%	0	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	11	0.0%	42	0.0%	90	0.1%
Number of HLA mismatches unacceptable	8	0.0%	2	0.0%	9	0.0%
Candidate's condition improved, transplant not needed	1	0.0%	0	0.0%	1	0.0%
Donor family time constraint	1	0.0%	0	0.0%	0	0.0%
Recovery team availability	0	0.0%	41	0.0%	0	0.0%

Table 35: Count and percent of reasons for refusal of heart and heart-lung match organ offers post implementation stratified by program size, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor heart and heart-lung transplants during 2020.

Description	Large		Medium		Small		No Transplants in 2020	
	N	%	N	%	N	%	N	%
Organ size, specify	24,004	25.9%	15,029	32.8%	3,394	27.9%	223	25.0%
Unacceptable organ specific test results, specify	20,983	22.7%	10,903	23.8%	3,269	26.8%	214	24.0%
Donor age	9,072	9.8%	3,039	6.6%	637	5.2%	87	9.8%
DCD donor neurological function/not expected to arrest	5,648	6.1%	927	2.0%	34	0.3%	23	2.6%
Candidate transplanted or pending transplant	4,594	5.0%	1,954	4.3%	538	4.4%	63	7.1%
Candidate temporarily medically unsuitable	4,470	4.8%	448	1.0%	202	1.7%	126	14.1%
Donor medical history, specify	3,949	4.3%	2,183	4.8%	685	5.6%	52	5.8%
Actual or projected cold ischemic time too long	3,206	3.5%	2,562	5.6%	490	4.0%	12	1.3%
Other, specify	3,049	3.3%	2,033	4.4%	420	3.4%	8	0.9%
Candidate requires multiple organ transplant	2,302	2.5%	775	1.7%	49	0.4%	1	0.1%
Epidemic/Pandemic - Donor	1,945	2.1%	1,547	3.4%	452	3.7%	20	2.2%
Organ specific test results not available, specify	1,429	1.5%	359	0.8%	104	0.9%	22	2.5%
Positive virtual crossmatch/unacceptable antigens	1,345	1.5%	534	1.2%	188	1.5%	6	0.7%
Prolonged downtime/CPR	1,207	1.3%	686	1.5%	475	3.9%	7	0.8%
Organ anatomical damage or defect	810	0.9%	852	1.9%	203	1.7%	3	0.3%
Resource time constraint (OPO, TXC, donor hospital, etc.)	564	0.6%	240	0.5%	66	0.5%	2	0.2%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	441	0.5%	93	0.2%	58	0.5%	0	0.0%
Donor infection or positive culture	418	0.5%	261	0.6%	155	1.3%	11	1.2%
PHS risk criteria or social history	377	0.4%	403	0.9%	362	3.0%	4	0.4%
Donor instability/high vasopressor usage	339	0.4%	154	0.3%	84	0.7%	1	0.1%
No donor cells/specimen for crossmatching, or no time for crossmatch	292	0.3%	37	0.1%	10	0.1%	1	0.1%
Number of HLA mismatches unacceptable	278	0.3%	50	0.1%	27	0.2%	0	0.0%
Organ preservation: Unacceptable method or findings	269	0.3%	147	0.3%	16	0.1%	1	0.1%
Malignancy or suspected malignancy	225	0.2%	122	0.3%	31	0.3%	1	0.1%
Candidate temporarily ineligible due to insurance or financial issue	212	0.2%	4	0.0%	1	0.0%	0	0.0%
Donor family time constraint	203	0.2%	155	0.3%	68	0.6%	0	0.0%
No candidate serum for crossmatching	198	0.2%	11	0.0%	38	0.3%	0	0.0%
Warm ischemic time too long	186	0.2%	23	0.1%	8	0.1%	0	0.0%
Candidate's condition improved, transplant not needed	116	0.1%	10	0.0%	7	0.1%	0	0.0%
Positive physical crossmatch	112	0.1%	50	0.1%	21	0.2%	0	0.0%
Transplant team or transplant facility availability	107	0.1%	30	0.1%	48	0.4%	0	0.0%
Epidemic/Pandemic - Candidate	89	0.1%	37	0.1%	24	0.2%	1	0.1%
Candidate unavailable	49	0.1%	30	0.1%	3	0.0%	2	0.2%
Candidate refused	40	0.0%	17	0.0%	9	0.1%	0	0.0%
Exceeded policy defined response time	33	0.0%	15	0.0%	3	0.0%	0	0.0%
Recovery team availability	26	0.0%	14	0.0%	1	0.0%	0	0.0%
Transportation availability	22	0.0%	11	0.0%	1	0.0%	0	0.0%
Disaster Emergency Management Consideration	16	0.0%	1	0.0%	0	0.0%	0	0.0%
Biopsy results unacceptable	6	0.0%	3	0.0%	2	0.0%	0	0.0%
Biopsy not available	3	0.0%	2	0.0%	0	0.0%	0	0.0%
Candidate requires different laterality	3	0.0%	0	0.0%	0	0.0%	0	0.0%

Table 36: Count and percent of reasons for refusal of lung match organ offers post implementation stratified by program size, for lung matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor lung transplants during 2020.

Description	Large		Medium		Small		No Transplants in 2020	
	N	%	N	%	N	%	N	%
Unacceptable organ specific test results, specify	32,078	42.3%	15,720	43.7%	11,894	44.2%	1,934	62.2%
Organ size, specify	13,500	17.8%	3,766	10.5%	4,529	16.8%	298	9.6%
Donor medical history, specify	3,895	5.1%	3,338	9.3%	1,970	7.3%	104	3.3%
DCD donor neurological function/not expected to arrest	3,740	4.9%	2,482	6.9%	843	3.1%	20	0.6%
Candidate requires different laterality	2,995	3.9%	1,480	4.1%	989	3.7%	96	3.1%
Actual or projected cold ischemic time too long	2,567	3.4%	552	1.5%	523	1.9%	88	2.8%
Donor age	2,500	3.3%	911	2.5%	934	3.5%	97	3.1%
Candidate requires multiple organ transplant	2,496	3.3%	573	1.6%	1,255	4.7%	29	0.9%
Other, specify	2,492	3.3%	2,833	7.9%	1,137	4.2%	222	7.1%
Candidate transplanted or pending transplant	2,360	3.1%	1,480	4.1%	645	2.4%	82	2.6%
Epidemic/Pandemic - Donor	1,503	2.0%	714	2.0%	337	1.3%	23	0.7%
Organ anatomical damage or defect	1,192	1.6%	344	1.0%	335	1.2%	9	0.3%
Positive virtual crossmatch/unacceptable antigens	700	0.9%	213	0.6%	98	0.4%	1	0.0%
Resource time constraint (OPO, TXC, donor hospital, etc.)	586	0.8%	258	0.7%	170	0.6%	7	0.2%
PHS risk criteria or social history	579	0.8%	199	0.6%	160	0.6%	23	0.7%
Organ specific test results not available, specify	485	0.6%	152	0.4%	95	0.4%	15	0.5%
Candidate temporarily medically unsuitable	484	0.6%	238	0.7%	307	1.1%	9	0.3%
Donor infection or positive culture	450	0.6%	167	0.5%	131	0.5%	9	0.3%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	410	0.5%	81	0.2%	159	0.6%	23	0.7%
Donor family time constraint	202	0.3%	51	0.1%	23	0.1%	2	0.1%
Malignancy or suspected malignancy	91	0.1%	61	0.2%	19	0.1%	1	0.0%
Number of HLA mismatches unacceptable	75	0.1%	22	0.1%	9	0.0%	0	0.0%
Warm ischemic time too long	65	0.1%	4	0.0%	0	0.0%	0	0.0%
Disaster Emergency Management Consideration	49	0.1%	10	0.0%	1	0.0%	0	0.0%
Epidemic/Pandemic - Candidate	49	0.1%	15	0.0%	19	0.1%	2	0.1%
Organ preservation: Unacceptable method or findings	48	0.1%	21	0.1%	76	0.3%	1	0.0%
Candidate unavailable	46	0.1%	12	0.0%	13	0.0%	0	0.0%
Transportation availability	46	0.1%	4	0.0%	7	0.0%	0	0.0%
Positive physical crossmatch	45	0.1%	41	0.1%	11	0.0%	0	0.0%
Candidate refused	42	0.1%	8	0.0%	15	0.1%	0	0.0%
Exceeded policy defined response time	29	0.0%	20	0.1%	16	0.1%	1	0.0%
Prolonged downtime/CPR	27	0.0%	5	0.0%	5	0.0%	0	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	24	0.0%	18	0.0%	1	0.0%	0	0.0%
Transplant team or transplant facility availability	23	0.0%	105	0.3%	42	0.2%	5	0.2%
Recovery team availability	11	0.0%	26	0.1%	10	0.0%	7	0.2%
Candidate's condition improved, transplant not needed	6	0.0%	3	0.0%	92	0.3%	1	0.0%
No candidate serum for crossmatching	6	0.0%	44	0.1%	4	0.0%	0	0.0%
Donor instability/high vasopressor usage	5	0.0%	7	0.0%	2	0.0%	0	0.0%
Candidate temporarily ineligible due to insurance or financial issue	2	0.0%	3	0.0%	4	0.0%	0	0.0%
Biopsy results unacceptable	1	0.0%	16	0.0%	12	0.0%	0	0.0%
Biopsy not available	0	0.0%	10	0.0%	0	0.0%	0	0.0%

Table 37: Count and percent of reasons for refusal of kidney-pancreas match organ offers post implementation stratified by program size, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor kidney-pancreas transplants during 2020.

Description	Large		Medium		Small		No Transplants in 2020	
	N	%	N	%	N	%	N	%
Unacceptable organ specific test results, specify	1,941	20.6%	1,850	21.2%	792	18.9%	101	17.5%
Actual or projected cold ischemic time too long	1,216	12.9%	1,269	14.5%	619	14.8%	86	14.9%
Candidate requires multiple organ transplant	1,169	12.4%	394	4.5%	1,034	24.7%	32	5.5%
Donor age	868	9.2%	730	8.3%	183	4.4%	29	5.0%
Donor medical history, specify	857	9.1%	1,010	11.5%	490	11.7%	78	13.5%
Other, specify	642	6.8%	1,180	13.5%	274	6.5%	62	10.7%
Organ size, specify	506	5.4%	315	3.6%	88	2.1%	6	1.0%
Candidate temporarily medically unsuitable	406	4.3%	399	4.6%	66	1.6%	11	1.9%
Epidemic/Pandemic - Donor	233	2.5%	168	1.9%	105	2.5%	22	3.8%
PHS risk criteria or social history	208	2.2%	361	4.1%	67	1.6%	26	4.5%
Organ anatomical damage or defect	182	1.9%	186	2.1%	77	1.8%	14	2.4%
Transplant team or transplant facility availability	139	1.5%	39	0.4%	29	0.7%	9	1.6%
Resource time constraint (OPO, TXC, donor hospital, etc.)	126	1.3%	48	0.5%	9	0.2%	2	0.3%
Organ preservation: Unacceptable method or findings	115	1.2%	63	0.7%	39	0.9%	3	0.5%
Candidate transplanted or pending transplant	102	1.1%	44	0.5%	20	0.5%	1	0.2%
Positive virtual crossmatch/unacceptable antigens	100	1.1%	60	0.7%	23	0.5%	1	0.2%
Prolonged downtime/CPR	98	1.0%	104	1.2%	60	1.4%	45	7.8%
Number of HLA mismatches unacceptable	70	0.7%	61	0.7%	22	0.5%	0	0.0%
Donor instability/high vasopressor usage	62	0.7%	51	0.6%	52	1.2%	26	4.5%
DCD donor neurological function/not expected to arrest	52	0.6%	72	0.8%	7	0.2%	0	0.0%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	51	0.5%	34	0.4%	22	0.5%	1	0.2%
Candidate refused	43	0.5%	40	0.5%	3	0.1%	0	0.0%
Epidemic/Pandemic - Candidate	39	0.4%	22	0.3%	9	0.2%	0	0.0%
Candidate unavailable	32	0.3%	36	0.4%	8	0.2%	3	0.5%
Organ specific test results not available, specify	30	0.3%	44	0.5%	28	0.7%	2	0.3%
Recovery team availability	29	0.3%	26	0.3%	23	0.5%	3	0.5%
Candidate temporarily ineligible due to insurance or financial issue	25	0.3%	23	0.3%	3	0.1%	0	0.0%
Donor family time constraint	25	0.3%	2	0.0%	2	0.0%	0	0.0%
Donor infection or positive culture	25	0.3%	35	0.4%	8	0.2%	0	0.0%
No candidate serum for crossmatching	12	0.1%	13	0.1%	1	0.0%	0	0.0%
Positive physical crossmatch	10	0.1%	22	0.3%	8	0.2%	5	0.9%
Transportation availability	10	0.1%	2	0.0%	1	0.0%	0	0.0%
Malignancy or suspected malignancy	4	0.0%	4	0.0%	3	0.1%	1	0.2%
No donor cells/specimen for crossmatching, or no time for crossmatch	4	0.0%	8	0.1%	4	0.1%	8	1.4%
Exceeded policy defined response time	3	0.0%	5	0.1%	1	0.0%	0	0.0%
Warm ischemic time too long	3	0.0%	22	0.3%	3	0.1%	0	0.0%
Candidate requires different laterality	1	0.0%	0	0.0%	0	0.0%	0	0.0%
Candidate's condition improved, transplant not needed	1	0.0%	5	0.1%	0	0.0%	0	0.0%
Biopsy results unacceptable	0	0.0%	0	0.0%	1	0.0%	0	0.0%

Table 38: Count and percent of reasons for refusal of intestine match organ offers post implementation stratified by program size, for intestine matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor intestine transplants during 2020.

Description	Large		Medium		Small		No Transplants in 2020	
	N	%	N	%	N	%	N	%
Candidate requires multiple organ transplant	552	65.8%	392	44.0%	28	23.0%	9	45.0%
Number of HLA mismatches unacceptable	158	18.8%	3	0.3%	2	1.6%	0	0.0%
Organ size, specify	23	2.7%	25	2.8%	5	4.1%	6	30.0%
Other, specify	18	2.1%	182	20.4%	11	9.0%	0	0.0%
Donor age	15	1.8%	8	0.9%	1	0.8%	1	5.0%
Actual or projected cold ischemic time too long	13	1.5%	58	6.5%	11	9.0%	1	5.0%
Donor medical history, specify	11	1.3%	1	0.1%	3	2.5%	0	0.0%
Candidate temporarily medically unsuitable	10	1.2%	6	0.7%	7	5.7%	0	0.0%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	8	1.0%	3	0.3%	9	7.4%	0	0.0%
Warm ischemic time too long	8	1.0%	0	0.0%	0	0.0%	0	0.0%
Positive virtual crossmatch/unacceptable antigens	5	0.6%	3	0.3%	1	0.8%	0	0.0%
Prolonged downtime/CPR	5	0.6%	61	6.8%	11	9.0%	0	0.0%
Unacceptable organ specific test results, specify	5	0.6%	45	5.1%	26	21.3%	2	10.0%
Candidate transplanted or pending transplant	2	0.2%	4	0.4%	0	0.0%	0	0.0%
Donor infection or positive culture	2	0.2%	2	0.2%	0	0.0%	0	0.0%
Organ anatomical damage or defect	2	0.2%	3	0.3%	1	0.8%	0	0.0%
Candidate unavailable	1	0.1%	0	0.0%	0	0.0%	0	0.0%
Organ preservation: Unacceptable method or findings	1	0.1%	0	0.0%	0	0.0%	0	0.0%
Donor instability/high vasopressor usage	0	0.0%	83	9.3%	5	4.1%	1	5.0%
PHS risk criteria or social history	0	0.0%	8	0.9%	0	0.0%	0	0.0%
Resource time constraint (OPO, TXC, donor hospital, etc.)	0	0.0%	3	0.3%	0	0.0%	0	0.0%
Epidemic/Pandemic - Donor	0	0.0%	1	0.1%	0	0.0%	0	0.0%
Positive physical crossmatch	0	0.0%	0	0.0%	1	0.8%	0	0.0%

Table 39: Count and percent of reasons for refusal of kidney match organ offers post implementation stratified by match acceptance number, for kidney matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on kidney matches during 2020.

Description	Acceptor Sequence Number: [1, 667]		Acceptor Sequence Number: [667, 31425]	
	N	%	N	%
Unacceptable organ specific test results, specify	138,704	16.3%	842,352	15.3%
Donor medical history, specify	110,922	13.0%	630,327	11.4%
Biopsy results unacceptable	78,367	9.2%	617,401	11.2%
Organ anatomical damage or defect	73,626	8.6%	553,535	10.0%
Other, specify	70,275	8.2%	415,114	7.5%
Actual or projected cold ischemic time too long	69,556	8.2%	1,295,688	23.5%
Donor age	64,368	7.5%	237,591	4.3%
Candidate temporarily medically unsuitable	40,484	4.7%	23,370	0.4%
Organ preservation: Unacceptable method or findings	29,923	3.5%	225,210	4.1%
Warm ischemic time too long	25,637	3.0%	180,206	3.3%
Epidemic/Pandemic - Donor	25,014	2.9%	219,608	4.0%
Organ size, specify	24,056	2.8%	57,485	1.0%
Candidate requires multiple organ transplant	18,738	2.2%	13,116	0.2%
Positive virtual crossmatch/unacceptable antigens	8,456	1.0%	2,650	0.0%
Biopsy not available	8,088	0.9%	33,664	0.6%
DCD donor neurological function/not expected to arrest	7,980	0.9%	24,501	0.4%
Candidate transplanted or pending transplant	7,075	0.8%	3,735	0.1%
Donor infection or positive culture	6,633	0.8%	25,810	0.5%
Candidate refused	5,230	0.6%	1,932	0.0%
Malignancy or suspected malignancy	5,038	0.6%	39,830	0.7%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	4,968	0.6%	9,547	0.2%
PHS risk criteria or social history	4,940	0.6%	9,183	0.2%
No candidate serum for crossmatching	4,257	0.5%	5,982	0.1%
Organ specific test results not available, specify	4,104	0.5%	25,360	0.5%
Candidate unavailable	3,185	0.4%	1,379	0.0%
Positive physical crossmatch	2,887	0.3%	742	0.0%
Transplant team or transplant facility availability	1,657	0.2%	2,788	0.1%
Number of HLA mismatches unacceptable	1,562	0.2%	320	0.0%
Candidate temporarily ineligible due to insurance or financial issue	1,475	0.2%	839	0.0%
Epidemic/Pandemic - Candidate	1,417	0.2%	1,724	0.0%
Prolonged downtime/CPR	1,374	0.2%	3,911	0.1%
Donor instability/high vasopressor usage	1,224	0.1%	3,263	0.1%
Resource time constraint (OPO, TXC, donor hospital, etc.)	721	0.1%	1,998	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	473	0.1%	1,132	0.0%
Exceeded policy defined response time	306	0.0%	1,482	0.0%
Candidate requires different laterality	236	0.0%	95	0.0%
Disaster Emergency Management Consideration	163	0.0%	826	0.0%
Candidate's condition improved, transplant not needed	79	0.0%	34	0.0%
Recovery team availability	46	0.0%	37	0.0%
Transportation availability	36	0.0%	299	0.0%
Donor family time constraint	3	0.0%	18	0.0%

Table 40: Count and percent of reasons for refusal of liver match organ offers post implementation stratified by match acceptance number, for liver matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on liver matches during 2020.

Description	Acceptor Sequence Number: [1, 78)		Acceptor Sequence Number: [78, 7555]	
	N	%	N	%
Organ size, specify	34,311	17.6%	36,354	5.4%
Unacceptable organ specific test results, specify	24,112	12.4%	81,090	12.0%
Donor age	24,086	12.4%	153,797	22.7%
Candidate transplanted or pending transplant	17,617	9.1%	5,636	0.8%
Donor medical history, specify	17,505	9.0%	55,894	8.3%
Other, specify	16,231	8.3%	73,389	10.8%
Candidate temporarily medically unsuitable	15,687	8.1%	6,906	1.0%
DCD donor neurological function/not expected to arrest	9,697	5.0%	80,225	11.8%
Actual or projected cold ischemic time too long	6,375	3.3%	87,398	12.9%
Candidate requires multiple organ transplant	5,955	3.1%	3,805	0.6%
Biopsy results unacceptable	3,405	1.8%	28,709	4.2%
Epidemic/Pandemic - Donor	3,308	1.7%	18,943	2.8%
Organ anatomical damage or defect	2,073	1.1%	8,008	1.2%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	1,536	0.8%	3,361	0.5%
Resource time constraint (OPO, TXC, donor hospital, etc.)	1,284	0.7%	5,745	0.8%
Candidate unavailable	1,158	0.6%	1,010	0.1%
Prolonged downtime/CPR	1,144	0.6%	1,168	0.2%
PHS risk criteria or social history	1,064	0.5%	1,413	0.2%
Candidate's condition improved, transplant not needed	864	0.4%	293	0.0%
Organ specific test results not available, specify	832	0.4%	2,299	0.3%
Donor infection or positive culture	796	0.4%	2,496	0.4%
Organ preservation: Unacceptable method or findings	665	0.3%	3,772	0.6%
Donor instability/high vasopressor usage	602	0.3%	2,182	0.3%
Candidate refused	598	0.3%	276	0.0%
Donor family time constraint	499	0.3%	1,611	0.2%
Biopsy not available	486	0.2%	1,634	0.2%
Malignancy or suspected malignancy	471	0.2%	5,767	0.9%
Warm ischemic time too long	403	0.2%	1,770	0.3%
Epidemic/Pandemic - Candidate	370	0.2%	378	0.1%
Number of HLA mismatches unacceptable	307	0.2%	56	0.0%
Positive virtual crossmatch/unacceptable antigens	281	0.1%	51	0.0%
Candidate temporarily ineligible due to insurance or financial issue	251	0.1%	105	0.0%
Transplant team or transplant facility availability	246	0.1%	494	0.1%
Exceeded policy defined response time	152	0.1%	512	0.1%
Recovery team availability	75	0.0%	518	0.1%
Transportation availability	47	0.0%	145	0.0%
Disaster Emergency Management Consideration	29	0.0%	76	0.0%
No candidate serum for crossmatching	18	0.0%	3	0.0%
Positive physical crossmatch	15	0.0%	2	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	4	0.0%	10	0.0%

Table 41: Count and percent of reasons for refusal of heart and heart-lung match organ offers post implementation stratified by match acceptance number, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on heart and heart-lung matches during 2020.

Description	Acceptor Sequence Number: [1, 41]		Acceptor Sequence Number: [41, 1396]	
	N	%	N	%
Organ size, specify	18,243	31.8%	24,407	25.9%
Unacceptable organ specific test results, specify	10,599	18.5%	24,770	26.3%
Candidate transplanted or pending transplant	4,663	8.1%	2,486	2.6%
Candidate temporarily medically unsuitable	3,062	5.3%	2,184	2.3%
Donor medical history, specify	2,418	4.2%	4,451	4.7%
Donor age	2,344	4.1%	10,491	11.1%
DCD donor neurological function/not expected to arrest	2,244	3.9%	4,388	4.7%
Other, specify	2,151	3.8%	3,359	3.6%
Actual or projected cold ischemic time too long	1,987	3.5%	4,283	4.5%
Candidate requires multiple organ transplant	1,596	2.8%	1,531	1.6%
Positive virtual crossmatch/unacceptable antigens	1,324	2.3%	749	0.8%
Epidemic/Pandemic - Donor	1,252	2.2%	2,712	2.9%
Prolonged downtime/CPR	925	1.6%	1,450	1.5%
Organ anatomical damage or defect	657	1.1%	1,211	1.3%
PHS risk criteria or social history	594	1.0%	552	0.6%
Organ specific test results not available, specify	591	1.0%	1,323	1.4%
Resource time constraint (OPO, TXC, donor hospital, etc.)	318	0.6%	554	0.6%
Donor infection or positive culture	314	0.5%	531	0.6%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	211	0.4%	381	0.4%
Donor instability/high vasopressor usage	207	0.4%	371	0.4%
No donor cells/specimen for crossmatching, or no time for crossmatch	196	0.3%	144	0.2%
Number of HLA mismatches unacceptable	185	0.3%	170	0.2%
Donor family time constraint	166	0.3%	260	0.3%
Positive physical crossmatch	150	0.3%	33	0.0%
Organ preservation: Unacceptable method or findings	130	0.2%	303	0.3%
No candidate serum for crossmatching	127	0.2%	120	0.1%
Warm ischemic time too long	110	0.2%	107	0.1%
Candidate temporarily ineligible due to insurance or financial issue	96	0.2%	121	0.1%
Transplant team or transplant facility availability	89	0.2%	96	0.1%
Epidemic/Pandemic - Candidate	81	0.1%	70	0.1%
Malignancy or suspected malignancy	79	0.1%	300	0.3%
Candidate unavailable	55	0.1%	29	0.0%
Candidate's condition improved, transplant not needed	45	0.1%	88	0.1%
Candidate refused	35	0.1%	31	0.0%
Exceeded policy defined response time	29	0.1%	22	0.0%
Recovery team availability	21	0.0%	20	0.0%
Disaster Emergency Management Consideration	12	0.0%	5	0.0%
Transportation availability	11	0.0%	23	0.0%
Biopsy results unacceptable	6	0.0%	5	0.0%
Biopsy not available	3	0.0%	2	0.0%
Candidate requires different laterality	0	0.0%	3	0.0%

Table 42: Count and percent of reasons for refusal of lung match organ offers post implementation stratified by match acceptance number, for lung matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on lung matches during 2020.

Description	Acceptor Sequence Number: [1, 53]		Acceptor Sequence Number: [53, 514]	
	N	%	N	%
Unacceptable organ specific test results, specify	19,547	35.6%	42,079	48.3%
Organ size, specify	13,206	24.1%	8,887	10.2%
Donor medical history, specify	3,498	6.4%	5,809	6.7%
Candidate transplanted or pending transplant	2,838	5.2%	1,729	2.0%
Candidate requires multiple organ transplant	2,377	4.3%	1,976	2.3%
Other, specify	2,184	4.0%	4,500	5.2%
DCD donor neurological function/not expected to arrest	2,174	4.0%	4,911	5.6%
Donor age	1,570	2.9%	2,872	3.3%
Candidate requires different laterality	1,166	2.1%	4,394	5.0%
Actual or projected cold ischemic time too long	1,106	2.0%	2,624	3.0%
Organ anatomical damage or defect	741	1.4%	1,139	1.3%
Candidate temporarily medically unsuitable	700	1.3%	338	0.4%
Positive virtual crossmatch/unacceptable antigens	698	1.3%	314	0.4%
Epidemic/Pandemic - Donor	516	0.9%	2,061	2.4%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	371	0.7%	302	0.3%
PHS risk criteria or social history	361	0.7%	600	0.7%
Organ specific test results not available, specify	326	0.6%	421	0.5%
Donor infection or positive culture	303	0.6%	454	0.5%
Resource time constraint (OPO, TXC, donor hospital, etc.)	278	0.5%	743	0.9%
Donor family time constraint	101	0.2%	177	0.2%
Transplant team or transplant facility availability	86	0.2%	89	0.1%
Candidate's condition improved, transplant not needed	79	0.1%	23	0.0%
Positive physical crossmatch	78	0.1%	19	0.0%
Number of HLA mismatches unacceptable	72	0.1%	34	0.0%
Malignancy or suspected malignancy	59	0.1%	113	0.1%
Organ preservation: Unacceptable method or findings	52	0.1%	94	0.1%
Candidate refused	49	0.1%	16	0.0%
Warm ischemic time too long	39	0.1%	30	0.0%
Epidemic/Pandemic - Candidate	38	0.1%	47	0.1%
Exceeded policy defined response time	37	0.1%	29	0.0%
Recovery team availability	34	0.1%	20	0.0%
Candidate unavailable	33	0.1%	38	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	32	0.1%	11	0.0%
No candidate serum for crossmatching	28	0.1%	26	0.0%
Disaster Emergency Management Consideration	22	0.0%	38	0.0%
Transportation availability	18	0.0%	39	0.0%
Candidate temporarily ineligible due to insurance or financial issue	8	0.0%	1	0.0%
Prolonged downtime/CPR	6	0.0%	31	0.0%
Biopsy not available	5	0.0%	5	0.0%
Donor instability/high vasopressor usage	3	0.0%	11	0.0%
Biopsy results unacceptable	2	0.0%	27	0.0%

Table 43: Count and percent of reasons for refusal of kidney-pancreas match organ offers post implementation stratified by match acceptance number, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on kidney-pancreas matches during 2020.

Description	Acceptor Sequence Number: [1, 29]		Acceptor Sequence Number: [29, 286]	
	N	%	N	%
Unacceptable organ specific test results, specify	1,493	18.5%	3,191	21.5%
Candidate requires multiple organ transplant	971	12.0%	1,658	11.1%
Donor medical history, specify	901	11.2%	1,534	10.3%
Other, specify	836	10.4%	1,322	8.9%
Actual or projected cold ischemic time too long	627	7.8%	2,563	17.2%
Candidate temporarily medically unsuitable	571	7.1%	311	2.1%
Donor age	469	5.8%	1,341	9.0%
Organ size, specify	416	5.2%	499	3.4%
PHS risk criteria or social history	291	3.6%	371	2.5%
Organ anatomical damage or defect	143	1.8%	316	2.1%
Prolonged downtime/CPR	135	1.7%	172	1.2%
Positive virtual crossmatch/unacceptable antigens	132	1.6%	52	0.3%
Epidemic/Pandemic - Donor	127	1.6%	401	2.7%
DCD donor neurological function/not expected to arrest	107	1.3%	24	0.2%
Candidate transplanted or pending transplant	89	1.1%	78	0.5%
Transplant team or transplant facility availability	88	1.1%	128	0.9%
Donor instability/high vasopressor usage	77	1.0%	114	0.8%
Organ preservation: Unacceptable method or findings	73	0.9%	147	1.0%
Number of HLA mismatches unacceptable	70	0.9%	83	0.6%
Candidate refused	61	0.8%	25	0.2%
Resource time constraint (OPO, TXC, donor hospital, etc.)	60	0.7%	125	0.8%
Candidate unavailable	49	0.6%	30	0.2%
Epidemic/Pandemic - Candidate	39	0.5%	31	0.2%
Candidate temporarily ineligible due to insurance or financial issue	35	0.4%	16	0.1%
Positive physical crossmatch	35	0.4%	10	0.1%
Recovery team availability	34	0.4%	47	0.3%
Organ specific test results not available, specify	30	0.4%	74	0.5%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	29	0.4%	79	0.5%
Warm ischemic time too long	18	0.2%	10	0.1%
Donor infection or positive culture	15	0.2%	53	0.4%
Donor family time constraint	10	0.1%	19	0.1%
No candidate serum for crossmatching	10	0.1%	16	0.1%
Malignancy or suspected malignancy	9	0.1%	3	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	8	0.1%	16	0.1%
Transportation availability	7	0.1%	6	0.0%
Exceeded policy defined response time	6	0.1%	3	0.0%
Candidate's condition improved, transplant not needed	3	0.0%	3	0.0%
Biopsy results unacceptable	1	0.0%	0	0.0%
Candidate requires different laterality	0	0.0%	1	0.0%

Table 44: Count and percent of reasons for refusal of intestine match organ offers post implementation stratified by match acceptance number, for intestine matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on intestine matches during 2020.

Description	Acceptor Sequence Number: [1, 34)		Acceptor Sequence Number: [34, 59]	
	N	%	N	%
Candidate requires multiple organ transplant	651	56.7%	330	45.6%
Other, specify	118	10.3%	93	12.8%
Number of HLA mismatches unacceptable	102	8.9%	61	8.4%
Unacceptable organ specific test results, specify	53	4.6%	25	3.5%
Actual or projected cold ischemic time too long	46	4.0%	37	5.1%
Prolonged downtime/CPR	46	4.0%	31	4.3%
Organ size, specify	41	3.6%	18	2.5%
Donor instability/high vasopressor usage	28	2.4%	61	8.4%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	15	1.3%	5	0.7%
Candidate temporarily medically unsuitable	11	1.0%	12	1.7%
Donor age	10	0.9%	15	2.1%
Donor medical history, specify	6	0.5%	9	1.2%
Positive virtual crossmatch/unacceptable antigens	6	0.5%	3	0.4%
Organ anatomical damage or defect	4	0.3%	2	0.3%
Candidate transplanted or pending transplant	3	0.3%	3	0.4%
Donor infection or positive culture	3	0.3%	1	0.1%
Resource time constraint (OPO, TXC, donor hospital, etc.)	2	0.2%	1	0.1%
Epidemic/Pandemic - Donor	1	0.1%	0	0.0%
Organ preservation: Unacceptable method or findings	1	0.1%	0	0.0%
Positive physical crossmatch	1	0.1%	0	0.0%
PHS risk criteria or social history	0	0.0%	8	1.1%
Warm ischemic time too long	0	0.0%	8	1.1%
Candidate unavailable	0	0.0%	1	0.1%

Table 46: Count and percent of reasons for refusal of range refused liver match organ offers post implementation stratified by program size, for liver matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor liver transplants during 2020.

Description	Large		Medium		Small	
	N	%	N	%	N	%
Donor age	25,896	20.0%	14,981	19.6%	3,854	16.1%
Other, specify	15,935	12.3%	8,550	11.2%	2,018	8.4%
Actual or projected cold ischemic time too long	15,866	12.2%	8,489	11.1%	2,355	9.8%
Unacceptable organ specific test results, specify	15,051	11.6%	9,514	12.5%	3,764	15.7%
DCD donor neurological function/not expected to arrest	13,084	10.1%	5,626	7.4%	855	3.6%
Donor medical history, specify	11,914	9.2%	6,738	8.8%	2,577	10.7%
Epidemic/Pandemic - Donor	8,021	6.2%	8,008	10.5%	2,130	8.9%
Organ size, specify	6,148	4.7%	4,270	5.6%	2,270	9.5%
Biopsy results unacceptable	5,637	4.3%	3,874	5.1%	1,126	4.7%
Organ anatomical damage or defect	2,067	1.6%	1,075	1.4%	619	2.6%
Malignancy or suspected malignancy	1,334	1.0%	729	1.0%	213	0.9%
Resource time constraint (OPO, TXC, donor hospital, etc.)	1,168	0.9%	529	0.7%	187	0.8%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	1,064	0.8%	675	0.9%	211	0.9%
Organ specific test results not available, specify	836	0.6%	384	0.5%	133	0.6%
Donor infection or positive culture	783	0.6%	314	0.4%	149	0.6%
Organ preservation: Unacceptable method or findings	726	0.6%	229	0.3%	536	2.2%
Donor instability/high vasopressor usage	670	0.5%	488	0.6%	160	0.7%
Biopsy not available	496	0.4%	238	0.3%	25	0.1%
Candidate unavailable	402	0.3%	21	0.0%	42	0.2%
Candidate temporarily medically unsuitable	341	0.3%	149	0.2%	50	0.2%
PHS risk criteria or social history	337	0.3%	390	0.5%	154	0.6%
Transplant team or transplant facility availability	303	0.2%	65	0.1%	7	0.0%
Donor family time constraint	302	0.2%	112	0.1%	60	0.2%
Candidate transplanted or pending transplant	260	0.2%	115	0.2%	30	0.1%
Candidate requires multiple organ transplant	244	0.2%	32	0.0%	13	0.1%
Exceeded policy defined response time	214	0.2%	97	0.1%	28	0.1%
Epidemic/Pandemic - Candidate	158	0.1%	39	0.1%	22	0.1%
Warm ischemic time too long	136	0.1%	261	0.3%	45	0.2%
Prolonged downtime/CPR	111	0.1%	201	0.3%	277	1.2%
Transportation availability	40	0.0%	16	0.0%	40	0.2%
Candidate refused	39	0.0%	20	0.0%	4	0.0%
Recovery team availability	7	0.0%	37	0.0%	10	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	6	0.0%	0	0.0%	0	0.0%
Candidate temporarily ineligible due to insurance or financial issue	4	0.0%	0	0.0%	0	0.0%
Candidate's condition improved, transplant not needed	3	0.0%	4	0.0%	12	0.0%
Number of HLA mismatches unacceptable	2	0.0%	0	0.0%	0	0.0%
Positive virtual crossmatch/unacceptable antigens	1	0.0%	2	0.0%	1	0.0%
Positive physical crossmatch	0	0.0%	1	0.0%	2	0.0%
Disaster Emergency Management Consideration	0	0.0%	0	0.0%	32	0.1%

Table 47: Count and percent of reasons for refusal of range refused heart and heart-lung match organ offers post implementation stratified by program size, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor heart and heart-lung transplants during 2020.

Description	Large		Medium		Small	
	N	%	N	%	N	%
Unacceptable organ specific test results, specify	4,555	37.5%	2,176	30.6%	620	41.4%
Organ size, specify	1,545	12.7%	1,638	23.1%	165	11.0%
Donor age	1,196	9.8%	640	9.0%	52	3.5%
Donor medical history, specify	938	7.7%	632	8.9%	104	7.0%
DCD donor neurological function/not expected to arrest	586	4.8%	53	0.7%	0	0.0%
Other, specify	584	4.8%	250	3.5%	88	5.9%
Prolonged downtime/CPR	476	3.9%	257	3.6%	126	8.4%
Epidemic/Pandemic - Donor	475	3.9%	291	4.1%	64	4.3%
Actual or projected cold ischemic time too long	413	3.4%	437	6.2%	78	5.2%
Organ anatomical damage or defect	381	3.1%	339	4.8%	27	1.8%
Organ specific test results not available, specify	172	1.4%	46	0.6%	15	1.0%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	161	1.3%	13	0.2%	3	0.2%
PHS risk criteria or social history	137	1.1%	87	1.2%	64	4.3%
Resource time constraint (OPO, TXC, donor hospital, etc.)	105	0.9%	21	0.3%	14	0.9%
Organ preservation: Unacceptable method or findings	91	0.7%	18	0.3%	0	0.0%
Donor infection or positive culture	80	0.7%	43	0.6%	24	1.6%
Malignancy or suspected malignancy	49	0.4%	40	0.6%	4	0.3%
Warm ischemic time too long	41	0.3%	12	0.2%	1	0.1%
Candidate requires multiple organ transplant	25	0.2%	19	0.3%	1	0.1%
Candidate temporarily medically unsuitable	23	0.2%	8	0.1%	2	0.1%
Donor instability/high vasopressor usage	21	0.2%	43	0.6%	21	1.4%
Transplant team or transplant facility availability	19	0.2%	2	0.0%	5	0.3%
Epidemic/Pandemic - Candidate	15	0.1%	4	0.1%	8	0.5%
Candidate transplanted or pending transplant	14	0.1%	12	0.2%	3	0.2%
Exceeded policy defined response time	12	0.1%	4	0.1%	1	0.1%
Positive virtual crossmatch/unacceptable antigens	12	0.1%	4	0.1%	1	0.1%
Donor family time constraint	8	0.1%	4	0.1%	2	0.1%
No donor cells/specimen for crossmatching, or no time for crossmatch	4	0.0%	0	0.0%	0	0.0%
Number of HLA mismatches unacceptable	4	0.0%	0	0.0%	0	0.0%
Positive physical crossmatch	3	0.0%	0	0.0%	0	0.0%
Candidate refused	2	0.0%	0	0.0%	0	0.0%
Transportation availability	2	0.0%	1	0.0%	0	0.0%
Recovery team availability	0	0.0%	6	0.1%	0	0.0%
Candidate's condition improved, transplant not needed	0	0.0%	2	0.0%	0	0.0%
Biopsy results unacceptable	0	0.0%	1	0.0%	2	0.1%
Candidate unavailable	0	0.0%	1	0.0%	0	0.0%
No candidate serum for crossmatching	0	0.0%	1	0.0%	1	0.1%

Table 48: Count and percent of reasons for refusal of range refused lung match organ offers post implementation stratified by program size, for lung matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor lung transplants during 2020.

Description	Large		Medium		Small		No Transplants in 2020	
	N	%	N	%	N	%	N	%
Unacceptable organ specific test results, specify	7,542	49.7%	4,669	49.8%	2,281	51.3%	112	47.3%
Organ size, specify	1,171	7.7%	461	4.9%	513	11.5%	19	8.0%
Donor medical history, specify	1,028	6.8%	916	9.8%	381	8.6%	16	6.8%
Other, specify	991	6.5%	1,184	12.6%	195	4.4%	46	19.4%
Epidemic/Pandemic - Donor	804	5.3%	384	4.1%	119	2.7%	7	3.0%
DCD donor neurological function/not expected to arrest	728	4.8%	370	3.9%	80	1.8%	0	0.0%
Organ anatomical damage or defect	669	4.4%	190	2.0%	132	3.0%	3	1.3%
Donor age	518	3.4%	290	3.1%	226	5.1%	7	3.0%
Candidate requires different laterality	387	2.5%	325	3.5%	101	2.3%	9	3.8%
Organ specific test results not available, specify	236	1.6%	65	0.7%	53	1.2%	1	0.4%
Actual or projected cold ischemic time too long	225	1.5%	121	1.3%	194	4.4%	14	5.9%
Resource time constraint (OPO, TXC, donor hospital, etc.)	197	1.3%	121	1.3%	26	0.6%	0	0.0%
PHS risk criteria or social history	153	1.0%	47	0.5%	3	0.1%	0	0.0%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	144	0.9%	10	0.1%	2	0.0%	1	0.4%
Donor infection or positive culture	124	0.8%	58	0.6%	10	0.2%	1	0.4%
Organ preservation: Unacceptable method or findings	40	0.3%	3	0.0%	31	0.7%	0	0.0%
Donor family time constraint	39	0.3%	8	0.1%	3	0.1%	0	0.0%
Candidate requires multiple organ transplant	34	0.2%	51	0.5%	74	1.7%	1	0.4%
Prolonged downtime/CPR	26	0.2%	2	0.0%	2	0.0%	0	0.0%
Epidemic/Pandemic - Candidate	23	0.2%	1	0.0%	0	0.0%	0	0.0%
Warm ischemic time too long	22	0.1%	1	0.0%	0	0.0%	0	0.0%
Candidate unavailable	18	0.1%	6	0.1%	0	0.0%	0	0.0%
Candidate temporarily medically unsuitable	14	0.1%	5	0.1%	2	0.0%	0	0.0%
Candidate transplanted or pending transplant	11	0.1%	10	0.1%	1	0.0%	0	0.0%
Positive virtual crossmatch/unacceptable antigens	10	0.1%	7	0.1%	3	0.1%	0	0.0%
Exceeded policy defined response time	9	0.1%	4	0.0%	3	0.1%	0	0.0%
Positive physical crossmatch	5	0.0%	4	0.0%	1	0.0%	0	0.0%
Disaster Emergency Management Consideration	3	0.0%	0	0.0%	0	0.0%	0	0.0%
Number of HLA mismatches unacceptable	3	0.0%	0	0.0%	0	0.0%	0	0.0%
Donor instability/high vasopressor usage	2	0.0%	0	0.0%	0	0.0%	0	0.0%
Malignancy or suspected malignancy	2	0.0%	2	0.0%	0	0.0%	0	0.0%
Candidate refused	1	0.0%	0	0.0%	1	0.0%	0	0.0%
No candidate serum for crossmatching	1	0.0%	0	0.0%	2	0.0%	0	0.0%
Transplant team or transplant facility availability	0	0.0%	60	0.6%	3	0.1%	0	0.0%
Biopsy not available	0	0.0%	4	0.0%	0	0.0%	0	0.0%
Recovery team availability	0	0.0%	3	0.0%	1	0.0%	0	0.0%
Transportation availability	0	0.0%	1	0.0%	0	0.0%	0	0.0%

Table 49: Count and percent of reasons for refusal of range refused kidney-pancreas match organ offers post implementation stratified by program size, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor kidney-pancreas transplants during 2020.

Description	Large		Medium		Small		No Transplants in 2020	
	N	%	N	%	N	%	N	%
Unacceptable organ specific test results, specify	471	19.2%	455	21.0%	247	24.7%	38	22.2%
Actual or projected cold ischemic time too long	398	16.2%	415	19.1%	205	20.5%	27	15.8%
Donor age	355	14.5%	226	10.4%	63	6.3%	8	4.7%
Donor medical history, specify	253	10.3%	272	12.5%	144	14.4%	15	8.8%
Other, specify	169	6.9%	282	13.0%	59	5.9%	17	9.9%
Organ size, specify	156	6.4%	67	3.1%	21	2.1%	2	1.2%
Epidemic/Pandemic - Donor	123	5.0%	125	5.8%	71	7.1%	9	5.3%
Transplant team or transplant facility availability	68	2.8%	3	0.1%	18	1.8%	4	2.3%
Candidate requires multiple organ transplant	65	2.6%	3	0.1%	9	0.9%	3	1.8%
PHS risk criteria or social history	62	2.5%	93	4.3%	31	3.1%	15	8.8%
Organ anatomical damage or defect	61	2.5%	41	1.9%	28	2.8%	3	1.8%
Organ preservation: Unacceptable method or findings	48	2.0%	29	1.3%	1	0.1%	3	1.8%
Resource time constraint (OPO, TXC, donor hospital, etc.)	48	2.0%	17	0.8%	0	0.0%	0	0.0%
Donor instability/high vasopressor usage	28	1.1%	22	1.0%	13	1.3%	11	6.4%
Candidate temporarily medically unsuitable	27	1.1%	14	0.6%	5	0.5%	0	0.0%
Prolonged downtime/CPR	27	1.1%	42	1.9%	32	3.2%	13	7.6%
Recovery team availability	13	0.5%	4	0.2%	15	1.5%	3	1.8%
Donor infection or positive culture	12	0.5%	0	0.0%	5	0.5%	0	0.0%
DCD donor neurological function/not expected to arrest	10	0.4%	10	0.5%	5	0.5%	0	0.0%
Organ specific test results not available, specify	9	0.4%	24	1.1%	16	1.6%	0	0.0%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	9	0.4%	7	0.3%	3	0.3%	0	0.0%
Candidate transplanted or pending transplant	8	0.3%	1	0.0%	1	0.1%	0	0.0%
Epidemic/Pandemic - Candidate	8	0.3%	4	0.2%	4	0.4%	0	0.0%
Transportation availability	7	0.3%	0	0.0%	0	0.0%	0	0.0%
Donor family time constraint	5	0.2%	0	0.0%	0	0.0%	0	0.0%
Candidate refused	3	0.1%	1	0.0%	0	0.0%	0	0.0%
Malignancy or suspected malignancy	3	0.1%	4	0.2%	0	0.0%	0	0.0%
Candidate unavailable	2	0.1%	1	0.0%	2	0.2%	0	0.0%
Warm ischemic time too long	2	0.1%	2	0.1%	3	0.3%	0	0.0%
Exceeded policy defined response time	1	0.0%	2	0.1%	0	0.0%	0	0.0%
Number of HLA mismatches unacceptable	1	0.0%	2	0.1%	0	0.0%	0	0.0%
Positive physical crossmatch	1	0.0%	1	0.0%	0	0.0%	0	0.0%
Positive virtual crossmatch/unacceptable antigens	1	0.0%	2	0.1%	1	0.1%	0	0.0%

Table 50: Count and percent of reasons for refusal of range refused intestine match organ offers post implementation stratified by program size, for intestine matches submitted December 02, 2021 - December 01, 2023. Program size is defined by volume of deceased donor intestine transplants during 2020.

Description	Large		Medium		Small		No Transplants in 2020	
	N	%	N	%	N	%	N	%
Candidate requires multiple organ transplant	36	48.0%	23	25.3%	1	3.4%	0	0.0%
Number of HLA mismatches unacceptable	12	16.0%	0	0.0%	0	0.0%	0	0.0%
Donor age	9	12.0%	5	5.5%	0	0.0%	0	0.0%
Warm ischemic time too long	8	10.7%	0	0.0%	0	0.0%	0	0.0%
Unacceptable organ specific test results, specify	4	5.3%	13	14.3%	7	24.1%	2	50.0%
Actual or projected cold ischemic time too long	2	2.7%	0	0.0%	5	17.2%	0	0.0%
Organ size, specify	2	2.7%	9	9.9%	0	0.0%	2	50.0%
Donor infection or positive culture	1	1.3%	0	0.0%	0	0.0%	0	0.0%
Other, specify	1	1.3%	23	25.3%	6	20.7%	0	0.0%
PHS risk criteria or social history	0	0.0%	8	8.8%	0	0.0%	0	0.0%
Prolonged downtime/CPR	0	0.0%	7	7.7%	6	20.7%	0	0.0%
Organ anatomical damage or defect	0	0.0%	2	2.2%	0	0.0%	0	0.0%
Epidemic/Pandemic - Donor	0	0.0%	1	1.1%	0	0.0%	0	0.0%
Donor instability/high vasopressor usage	0	0.0%	0	0.0%	3	10.3%	0	0.0%
Positive virtual crossmatch/unacceptable antigens	0	0.0%	0	0.0%	1	3.4%	0	0.0%

Table 51: Count and percent of reasons for refusal of range refused kidney match organ offers post implementation stratified by match acceptance number, for kidney matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on kidney matches during 2020.

Description	Acceptor Sequence Number: [1, 667)		Acceptor Sequence Number: [667, 31425]	
	N	%	N	%
Unacceptable organ specific test results, specify	45,074	16.6%	256,224	13.3%
Donor medical history, specify	39,017	14.4%	238,611	12.4%
Organ anatomical damage or defect	27,160	10.0%	196,856	10.3%
Actual or projected cold ischemic time too long	26,900	9.9%	412,118	21.5%
Biopsy results unacceptable	25,930	9.6%	182,897	9.5%
Other, specify	22,567	8.3%	134,683	7.0%
Donor age	22,508	8.3%	94,852	4.9%
Epidemic/Pandemic - Donor	20,169	7.4%	192,559	10.0%
Organ preservation: Unacceptable method or findings	8,729	3.2%	60,070	3.1%
Warm ischemic time too long	7,733	2.9%	51,060	2.7%
Organ size, specify	5,170	1.9%	23,913	1.2%
Donor infection or positive culture	2,923	1.1%	13,822	0.7%
Biopsy not available	2,886	1.1%	12,858	0.7%
DCD donor neurological function/not expected to arrest	2,536	0.9%	8,514	0.4%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	1,728	0.6%	4,754	0.2%
Organ specific test results not available, specify	1,626	0.6%	9,756	0.5%
PHS risk criteria or social history	1,552	0.6%	2,939	0.2%
Malignancy or suspected malignancy	1,546	0.6%	13,578	0.7%
No candidate serum for crossmatching	985	0.4%	1,617	0.1%
Candidate temporarily medically unsuitable	723	0.3%	689	0.0%
Donor instability/high vasopressor usage	602	0.2%	1,520	0.1%
Transplant team or transplant facility availability	575	0.2%	974	0.1%
Candidate requires multiple organ transplant	388	0.1%	566	0.0%
Prolonged downtime/CPR	358	0.1%	1,274	0.1%
Epidemic/Pandemic - Candidate	269	0.1%	1,180	0.1%
Positive physical crossmatch	187	0.1%	80	0.0%
Resource time constraint (OPO, TXC, donor hospital, etc.)	160	0.1%	517	0.0%
Candidate refused	123	0.0%	46	0.0%
Candidate unavailable	119	0.0%	74	0.0%
Positive virtual crossmatch/unacceptable antigens	115	0.0%	215	0.0%
Candidate transplanted or pending transplant	98	0.0%	27	0.0%
Exceeded policy defined response time	88	0.0%	204	0.0%
Disaster Emergency Management Consideration	63	0.0%	175	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	48	0.0%	95	0.0%
Recovery team availability	32	0.0%	9	0.0%
Number of HLA mismatches unacceptable	16	0.0%	3	0.0%
Candidate requires different laterality	15	0.0%	2	0.0%
Candidate temporarily ineligible due to insurance or financial issue	14	0.0%	4	0.0%
Transportation availability	8	0.0%	126	0.0%
Candidate's condition improved, transplant not needed	2	0.0%	0	0.0%
Donor family time constraint	0	0.0%	1	0.0%

Table 52: Count and percent of reasons for refusal of range refused liver match organ offers post implementation stratified by match acceptance number, for liver matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on liver matches during 2020.

Description	Acceptor Sequence Number: [1, 78)		Acceptor Sequence Number: [78, 7555]	
	N	%	N	%
Donor age	5,700	16.6%	39,038	20.0%
Unacceptable organ specific test results, specify	5,308	15.4%	23,022	11.8%
Donor medical history, specify	4,008	11.6%	17,221	8.8%
Organ size, specify	3,621	10.5%	9,070	4.6%
Other, specify	3,467	10.1%	23,043	11.8%
DCD donor neurological function/not expected to arrest	2,502	7.3%	17,063	8.7%
Actual or projected cold ischemic time too long	2,104	6.1%	24,606	12.6%
Epidemic/Pandemic - Donor	1,927	5.6%	16,232	8.3%
Biopsy results unacceptable	960	2.8%	9,681	5.0%
Organ anatomical damage or defect	721	2.1%	3,042	1.6%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	510	1.5%	1,440	0.7%
Candidate temporarily medically unsuitable	400	1.2%	144	0.1%
Candidate transplanted or pending transplant	344	1.0%	63	0.0%
Resource time constraint (OPO, TXC, donor hospital, etc.)	277	0.8%	1,607	0.8%
PHS risk criteria or social history	258	0.7%	623	0.3%
Donor infection or positive culture	244	0.7%	1,002	0.5%
Prolonged downtime/CPR	244	0.7%	345	0.2%
Organ specific test results not available, specify	229	0.7%	1,125	0.6%
Organ preservation: Unacceptable method or findings	215	0.6%	1,277	0.7%
Donor instability/high vasopressor usage	189	0.5%	1,129	0.6%
Candidate requires multiple organ transplant	187	0.5%	102	0.1%
Malignancy or suspected malignancy	173	0.5%	2,103	1.1%
Biopsy not available	161	0.5%	598	0.3%
Donor family time constraint	120	0.3%	354	0.2%
Warm ischemic time too long	120	0.3%	323	0.2%
Transplant team or transplant facility availability	116	0.3%	259	0.1%
Candidate unavailable	109	0.3%	356	0.2%
Exceeded policy defined response time	49	0.1%	290	0.1%
Epidemic/Pandemic - Candidate	45	0.1%	174	0.1%
Candidate refused	34	0.1%	29	0.0%
Recovery team availability	22	0.1%	32	0.0%
Disaster Emergency Management Consideration	19	0.1%	13	0.0%
Transportation availability	17	0.0%	79	0.0%
Candidate's condition improved, transplant not needed	13	0.0%	7	0.0%
Candidate temporarily ineligible due to insurance or financial issue	4	0.0%	0	0.0%
Positive physical crossmatch	3	0.0%	0	0.0%
Positive virtual crossmatch/unacceptable antigens	2	0.0%	2	0.0%
No donor cells/specimen for crossmatching, or no time for crossmatch	0	0.0%	6	0.0%
Number of HLA mismatches unacceptable	0	0.0%	2	0.0%

Table 53: Count and percent of reasons for refusal of range refused heart and heart-lung match organ offers post implementation stratified by match acceptance number, for heart and heart-lung matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on heart and heart-lung matches during 2020.

Description	Acceptor Sequence Number: [1, 41)		Acceptor Sequence Number: [41, 1396]	
	N	%	N	%
Unacceptable organ specific test results, specify	1,731	32.0%	5,621	36.6%
Organ size, specify	913	16.9%	2,439	15.9%
Donor medical history, specify	377	7.0%	1,297	8.5%
Actual or projected cold ischemic time too long	323	6.0%	607	4.0%
Donor age	321	5.9%	1,567	10.2%
DCD donor neurological function/not expected to arrest	303	5.6%	336	2.2%
Prolonged downtime/CPR	298	5.5%	562	3.7%
Other, specify	280	5.2%	642	4.2%
Epidemic/Pandemic - Donor	172	3.2%	658	4.3%
Organ anatomical damage or defect	133	2.5%	614	4.0%
Organ specific test results not available, specify	115	2.1%	118	0.8%
PHS risk criteria or social history	76	1.4%	212	1.4%
Donor infection or positive culture	41	0.8%	106	0.7%
Resource time constraint (OPO, TXC, donor hospital, etc.)	40	0.7%	100	0.7%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	39	0.7%	138	0.9%
Donor instability/high vasopressor usage	33	0.6%	52	0.3%
Malignancy or suspected malignancy	28	0.5%	65	0.4%
Warm ischemic time too long	25	0.5%	29	0.2%
Candidate temporarily medically unsuitable	24	0.4%	9	0.1%
Candidate requires multiple organ transplant	23	0.4%	22	0.1%
Candidate transplanted or pending transplant	22	0.4%	7	0.0%
Organ preservation: Unacceptable method or findings	22	0.4%	87	0.6%
Transplant team or transplant facility availability	19	0.4%	7	0.0%
Exceeded policy defined response time	15	0.3%	2	0.0%
Positive virtual crossmatch/unacceptable antigens	11	0.2%	6	0.0%
Donor family time constraint	10	0.2%	4	0.0%
Epidemic/Pandemic - Candidate	10	0.2%	17	0.1%
No donor cells/specimen for crossmatching, or no time for crossmatch	2	0.0%	2	0.0%
Positive physical crossmatch	2	0.0%	1	0.0%
Recovery team availability	2	0.0%	4	0.0%
Candidate refused	1	0.0%	1	0.0%
Candidate unavailable	1	0.0%	0	0.0%
No candidate serum for crossmatching	1	0.0%	1	0.0%
Transportation availability	1	0.0%	2	0.0%
Number of HLA mismatches unacceptable	0	0.0%	4	0.0%
Biopsy results unacceptable	0	0.0%	3	0.0%
Candidate's condition improved, transplant not needed	0	0.0%	2	0.0%

Table 54: Count and percent of reasons for refusal of range refused lung match organ offers post implementation stratified by match acceptance number, for lung matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on lung matches during 2020.

Description	Acceptor Sequence Number: [1, 53)		Acceptor Sequence Number: [53, 514]	
	N	%	N	%
Unacceptable organ specific test results, specify	4,927	47.5%	9,677	51.3%
Organ size, specify	1,256	12.1%	908	4.8%
Donor medical history, specify	977	9.4%	1,364	7.2%
Other, specify	717	6.9%	1,699	9.0%
Donor age	423	4.1%	618	3.3%
DCD donor neurological function/not expected to arrest	413	4.0%	765	4.1%
Organ anatomical damage or defect	403	3.9%	591	3.1%
Epidemic/Pandemic - Donor	232	2.2%	1,082	5.7%
Candidate requires different laterality	191	1.8%	631	3.3%
Organ specific test results not available, specify	174	1.7%	181	1.0%
Actual or projected cold ischemic time too long	118	1.1%	436	2.3%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	115	1.1%	42	0.2%
PHS risk criteria or social history	75	0.7%	128	0.7%
Resource time constraint (OPO, TXC, donor hospital, etc.)	73	0.7%	271	1.4%
Donor infection or positive culture	49	0.5%	144	0.8%
Candidate requires multiple organ transplant	45	0.4%	115	0.6%
Transplant team or transplant facility availability	32	0.3%	31	0.2%
Organ preservation: Unacceptable method or findings	24	0.2%	50	0.3%
Warm ischemic time too long	23	0.2%	0	0.0%
Candidate transplanted or pending transplant	19	0.2%	3	0.0%
Candidate temporarily medically unsuitable	12	0.1%	9	0.0%
Exceeded policy defined response time	12	0.1%	4	0.0%
Positive virtual crossmatch/unacceptable antigens	12	0.1%	8	0.0%
Positive physical crossmatch	10	0.1%	0	0.0%
Donor family time constraint	8	0.1%	42	0.2%
Candidate unavailable	6	0.1%	18	0.1%
Biopsy not available	4	0.0%	0	0.0%
Recovery team availability	4	0.0%	0	0.0%
Epidemic/Pandemic - Candidate	3	0.0%	21	0.1%
Number of HLA mismatches unacceptable	3	0.0%	0	0.0%
Donor instability/high vasopressor usage	2	0.0%	0	0.0%
Malignancy or suspected malignancy	2	0.0%	2	0.0%
No candidate serum for crossmatching	2	0.0%	1	0.0%
Prolonged downtime/CPR	2	0.0%	28	0.1%
Candidate refused	1	0.0%	1	0.0%
Transportation availability	1	0.0%	0	0.0%
Disaster Emergency Management Consideration	0	0.0%	3	0.0%

Table 55: Count and percent of reasons for refusal of range refused kidney-pancreas match organ offers post implementation stratified by match acceptance number, for kidney-pancreas matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on kidney-pancreas matches during 2020.

Description	Acceptor Sequence Number: [1, 29)		Acceptor Sequence Number: [29, 286]	
	N	%	N	%
Unacceptable organ specific test results, specify	459	23.4%	752	19.6%
Donor medical history, specify	245	12.5%	439	11.5%
Other, specify	243	12.4%	284	7.4%
Actual or projected cold ischemic time too long	191	9.7%	854	22.3%
Donor age	150	7.6%	502	13.1%
Organ size, specify	118	6.0%	128	3.3%
PHS risk criteria or social history	90	4.6%	111	2.9%
Epidemic/Pandemic - Donor	64	3.3%	264	6.9%
Prolonged downtime/CPR	59	3.0%	55	1.4%
Organ anatomical damage or defect	48	2.4%	85	2.2%
Transplant team or transplant facility availability	43	2.2%	50	1.3%
Candidate temporarily medically unsuitable	42	2.1%	4	0.1%
Candidate requires multiple organ transplant	33	1.7%	47	1.2%
Organ preservation: Unacceptable method or findings	30	1.5%	51	1.3%
DCD donor neurological function/not expected to arrest	25	1.3%	0	0.0%
Donor instability/high vasopressor usage	23	1.2%	51	1.3%
Recovery team availability	22	1.1%	13	0.3%
Resource time constraint (OPO, TXC, donor hospital, etc.)	18	0.9%	47	1.2%
Organ specific test results not available, specify	8	0.4%	41	1.1%
Candidate transplanted or pending transplant	7	0.4%	3	0.1%
Malignancy or suspected malignancy	7	0.4%	0	0.0%
Positive infectious disease screening test: CMV, HBV, HCV, etc.	7	0.4%	12	0.3%
Warm ischemic time too long	7	0.4%	0	0.0%
Candidate unavailable	5	0.3%	0	0.0%
Epidemic/Pandemic - Candidate	4	0.2%	12	0.3%
Exceeded policy defined response time	3	0.2%	0	0.0%
Number of HLA mismatches unacceptable	3	0.2%	0	0.0%
Transportation availability	3	0.2%	4	0.1%
Candidate refused	2	0.1%	2	0.1%
Donor infection or positive culture	2	0.1%	15	0.4%
Positive virtual crossmatch/unacceptable antigens	2	0.1%	2	0.1%
Positive physical crossmatch	1	0.1%	1	0.0%
Donor family time constraint	0	0.0%	5	0.1%

Table 56: Count and percent of reasons for refusal of range refused intestine match organ offers post implementation stratified by match acceptance number, for intestine matches submitted December 02, 2021 - December 01, 2023. Group is defined by the 90th percentile of sequence numbers for acceptances on intestine matches during 2020.

Description	Acceptor Sequence Number: [1, 34)		Acceptor Sequence Number: [34, 59]	
	N	%	N	%
Candidate requires multiple organ transplant	18	24.7%	42	33.3%
Organ size, specify	13	17.8%	0	0.0%
Unacceptable organ specific test results, specify	12	16.4%	14	11.1%
Number of HLA mismatches unacceptable	9	12.3%	3	2.4%
Prolonged downtime/CPR	9	12.3%	4	3.2%
Other, specify	5	6.8%	25	19.8%
Donor instability/high vasopressor usage	3	4.1%	0	0.0%
Organ anatomical damage or defect	2	2.7%	0	0.0%
Donor infection or positive culture	1	1.4%	0	0.0%
Epidemic/Pandemic - Donor	1	1.4%	0	0.0%
Donor age	0	0.0%	14	11.1%
PHS risk criteria or social history	0	0.0%	8	6.3%
Warm ischemic time too long	0	0.0%	8	6.3%
Actual or projected cold ischemic time too long	0	0.0%	7	5.6%
Positive virtual crossmatch/unacceptable antigens	0	0.0%	1	0.8%