OPTN

Request for Feedback

Establish Comprehensive Multi-Organ Allocation Policy: Request for Feedback

OPTN Ad Hoc Multi-Organ Transplantation Committee

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Establish Comprehensive Multi-Organ Allocation Policy: Request for Feedback

Sponsoring Committee: *Ad Hoc Multi-Organ Transplantation*
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Executive summary

The purpose of this request for feedback is to gather the community's input to help the Ad Hoc Multi-Organ Transplantation Committee (MOT Committee) refine an upcoming policy proposal, *Establish Comprehensive Multi-Organ Allocation Policy,* which the Committee plans to release for public comment in summer 2025. The upcoming proposal would apply to most donors with more than one organ available for donation and would standardize the order in which OPOs make offers across different organ match runs for highly prioritized candidate groups. It seeks to respond to the community's concerns about multi-organ allocation by promoting equitable access to transplant among multi- and single-organ candidates and consistent and efficient allocation.

Determining the order of priority among different organ groups is complex and challenging work. The MOT Committee's approach included a values prioritization exercise (VPE) and analysis of data on candidate waitlist mortality and outcomes, post-transplant survival, candidate access and time without an offer, and match run efficiency. Prioritization decisions were largely based on medical urgency. Some candidates were prioritized to promote access to transplantation or to avoid organ non-utilization.

Initial community feedback emphasized the importance of streamlining allocation. In response, the MOT Committee requested development of a system solution[1] to help guide the user through the proposed policy. The OPO would enter donor information, run the applicable organ matches, and the system would generate a donor-specific allocation plan to guide the user through the policy, including the relevant allocation table. As allocation progresses, the plan could be updated to track progress.

The upcoming policy proposal would standardize allocation for donors with more than one organ available by inserting multi-organ allocation tables in policy. The tables incorporate the order of priority set out in organ-specific policies, including the continuous distribution framework for lungs and the classification-based systems for other organs. The tables include approximately 50 high priority candidate groups across all organ types. If all organs are not placed upon completion of the relevant table, OPOs would determine the order for making offers across the remaining organ match runs.

The MOT Committee has developed six allocation tables covering approximately 96% of donors to multi-organ recipients between July 2021 and December 2023. Some donation after circulatory death (DCD) donors were included because acceptance of DCD organs is increasing, and some pediatric donors with livers and intestines were included to promote access to multivisceral transplants for pediatric patients. The Committee continues to analyze data to determine whether additional multi-allocation tables should be developed for inclusion in the upcoming policy proposal.

The MOT Committee's upcoming policy proposal provides an opportunity to establish policies directing the match runs from which multi-organ offers can be made. The Committee recommends that all other organs follow the primary organ on the heart, lung, and liver matches. The Committee also recommends

[1] "System solution" refers to changes to the Organ Procurement and Transplantation Network (OPTN) Computer System.

that all abdominal organs, except livers, follow the primary organ on the intestine, kidney, pancreas, and kidney-pancreas match runs. This approach aims to facilitate access to multivisceral transplants, while maintaining access to transplant for medically urgent liver candidates.

The MOT Committee requests the community's feedback on the proposed multi-organ allocation framework and the prioritization decisions set out in the multi-organ allocation tables.

Purpose

Two candidates need a liver. Candidate A is an adult Heart Status 3 candidate who is also registered for a liver. The candidate is supported by a mechanical circulatory support device (MCSD) and has been hospitalized for mucosal bleeding 3 times in the past 6 months. Candidate B is an adult Liver Status 1A candidate. The candidate is not expected to live for more than a week and there are no life sustaining technologies available.

Current policy does not direct which candidate should receive priority for the liver – right now, it depends which organ match run is used first.

Three candidates need a kidney. Candidate A is an adult liver candidate with a Model for End-Stage Liver Disease (MELD) score of 38 who is also eligible for a kidney. Candidate B is an adult kidney-pancreas candidate with a calculated panel reactive antibody (CPRA) score greater than or equal to 80%. Candidate C is an adult kidney candidate with CPRA equal to 100%.

Current policy requires that offers be made to Candidate A and Candidate B before Candidate C. It does not direct whether Candidate A or Candidate B should receive priority.

Currently, OPTN policy does not direct the order in which OPOs must execute match runs by organ type. This contributes to differing allocation practices across the country. Additionally, OPOs report directing a lot of resources to developing allocation plans for each donor. It may also mean that some candidates have limited access to transplant. For example, allocation typically starts with thoracic organs, meaning that heart and lung multi-organ candidates, such as heart-kidney and lung-liver candidates, may receive offers prior to highly sensitized kidney candidates and very medically urgent liver candidates.

The MOT Committee's upcoming policy proposal, planned for the 2025 summer public comment cycle, aims to standardize the order in which OPOs make offers across the different organ match runs (e.g. whether to make primary offers on the lung or liver match run first) by inserting multi-organ allocation tables in policy that cover the majority of donors. It seeks to promote equitable access to transplant among multi- and single-organ candidates and consistent and efficient allocation.

The upcoming policy proposal would incorporate existing organ-specific policies, including classifications, statuses, and scores, into the multi-organ allocation tables. Before considering the details, community members may wish to review *Appendix 1: Organ allocation classifications and statuses,* which provides a high-level overview of the organ-specific classifications, statuses, and scores.

Timeline

The MOT Committee has been working on policy prioritizing between single- and multi-organ candidates since late 2022. Initially, the MOT Committee's work focused on determining priority for kidneys among kidney-alone candidates and multi-organ candidates needing a kidney. Recognizing that the equity and efficiency challenges relating to kidney multi-organ policies also applied to other single-organ groups, the Committee expanded the scope of the project to address allocation priority among multi- and single-organ candidates more broadly. Through earlier public comment periods, open forum, and general community feedback, the Committee heard support for the following themes:

- Policy prioritizing between single- and multi-organ candidates
- Ensuring access to transplant for increased priority for medically urgent, highly-sensitized, and pediatric single-organ candidates compared to multi-organ candidates
- Promoting consistency in allocation across OPOs, with some flexibility to maximize organ utilization

The Committee welcomes additional community input during this public comment period, which will help refine a policy proposal planned for the summer 2025 public comment period, and development of the system solution.

MOT Committee approach

The MOT Committee is a diverse group, with representatives from patient and donor families, OPOs, and transplant programs, with expertise across all organs. The members typically have extensive OPTN experience, including serving as board members and leaders of other OPTN committees. They bring important experience and expertise on specific organs and work together to strengthen the system as a whole.

Determining the order of priority among different organ groups is complex and challenging work. Prioritizing one group of candidates over another (e.g. very sick liver candidates over very sick heart candidates or kidney-pancreas candidates over pediatric kidney candidates) impacts both groups' access to transplant. The MOT Committee has followed a robust policy development process (see *Data and clinical consensus*) to ensure sound rationale for these difficult decisions. Nonetheless, on some prioritization questions, MOT Committee members had diverging views. While there may not be a "perfect" solution, the MOT Committee believes that standardization will improve allocation and invites all community members to provide feedback on its prioritization decisions (see *Considerations for the community*).

The upcoming policy proposal would incorporate existing organ-specific policies, including the ranking order, into the multi-organ allocation tables. Currently, lung is the only organ allocated through a continuous distribution system. The other organs remain in classification-based allocation systems while the continuous distribution frameworks are under development. Accordingly, the MOT Committee's upcoming policy proposal is largely based on the classifications in existing allocation policy, and the MOT Committee established a Lung Multi-Organ Workgroup to consider how to modify the lung multi-organ policies to fit into this framework (see *Lung Composite Allocation Score (CAS) thresholds*). As each subsequent organ shifts to continuous distribution, the OPTN would also need to update these multi-organ allocation policies and corresponding system functionality. Additionally, if OPTN committees propose changes to organ allocation policies ahead of continuous distribution that modify the

classifications included in the multi-organ allocation tables, then those committees may also need to consider updates to the multi-organ policies and corresponding system functionality.

The upcoming policy proposal would not change the ranking order developed for organ-specific policies. For example, the order of heart classifications within the multi-organ allocation tables follows existing heart policy.[2] It would modify existing multi-organ policies (e.g. heart-kidney, lung-liver, etc.). The upcoming proposal does not include Vascularized Composite Allograft (VCA) organ allocation, since VCA are typically allocated after the other organs.

The MOT Committee recognizes and shares the community's desire for a single match run for each donor. While this is not feasible in the short term, the Committee's upcoming policy proposal, and the system generated allocation plan (see *System solution*) may be considered a step towards this goal. Once each organ is in a continuous distribution framework and all candidates are prioritized based on a score between 0-100, the OPTN could consider shifting towards a single or integrated match run. The MOT Committee's data analysis and clinical decision-making described in this request for feedback, together with the shift to continuous distribution for all organs, may inform future efforts to develop a single or integrated match run.

System solution

The MOT Committee has requested development of a system solution[3] to help guide the user through the proposed multi-organ allocation tables. OPTN contractor staff is in the beginning phases of discovery and requirements gathering to guide development of the system solution. OPTN contractor staff undertook user research with several OPOs and received initial feedback on the potential system solution from the OPO Committee. Key feedback themes included:

- Differing OPO-specific allocation practices that may vary across match runs
- Manual and laborious efforts to create OPO-specific allocation plans
- Support for policy and system solutions that reduce complexity
- Requests for system-level guidance specific to each donor that aids in streamlining the allocation process
- Recognition that allocation practices are non-linear and requests for policy and system guidance that offer OPOs flexibility to move through their allocation process and place as many organs as possible while meeting policy requirements
- Identification of potential contingencies that should be considered, such as the need to rerun a match

The OPO would enter donor information, run the applicable matches, and the system would generate a donor-specific allocation plan based on the applicable policy. As allocation progresses, the plan could be updated to track allocation progress.

The Committee and OPTN contractor staff will continue to work closely with OPOs and other stakeholders to elicit further feedback throughout the development process.

[2] *OPTN Policy Table 6-7: Allocation of Hearts from Deceased Donors At Least 18 Years Old* and *OPTN Policy Table 6-8: Allocation of Hearts from Donors Less Than 18 Years Old*.
[3] "System solution" refers to changes to the Organ Procurement and Transplantation Network (OPTN) Computer System.

Data and clinical consensus

To determine which classifications should be included in the multi-organ allocation policies, and the order of priority, the MOT Committee reviewed data and completed a values prioritization exercise (VPE) to help identify areas of consensus and divergence. This section summarizes the data requests and VPE results. More detailed information is available in *Appendix 2: Summary of data requests* and *Appendix 3: Values prioritization exercise (VPE) results and limitations*.

Overview of data analysis

Throughout 2024, the MOT Committee analyzed the results of a series of data requests. In alignment with the OPTN Final Rule, the committee considered data on multi- and single-organ candidates and recipients, as well as historic match run data for each organ in relation to the following key measures of evaluation:

- Candidate Waitlist Mortality and Outcomes
- Post-transplant Survival
- Candidate Access and Time without an Offer
- Match Run Efficiency

Measures on mortality rates, survival analysis, and estimated time without an offer were calculated and provided by the Scientific Registry of Transplant Recipients (SRTR). Statistics regarding waiting list outcomes and match run efficiency measures were provided by the OPTN. Similar measures were provided to the Lung Multi-Organ Workgroup, including estimated mortality rates and match run efficiency. The committee utilized data above to inform their approach. The specific data requested is summarized in *Appendix 2: Summary of data requests.*

Overview of values prioritization exercise (VPE)

In mid-2024, 20 current and past MOT Committee members participated in a VPE to help build clinical consensus on organ allocation priorities across match runs. The VPE was based on the Committee's draft multi-organ allocation table for adult donation after brain death (DBD) donors aged 18-69 with a Kidney Donor Profile Index (KDPI) of 0-34%. These donors constituted 65% of donors to multi-organ recipients between July 2021 and December 2023.[4]

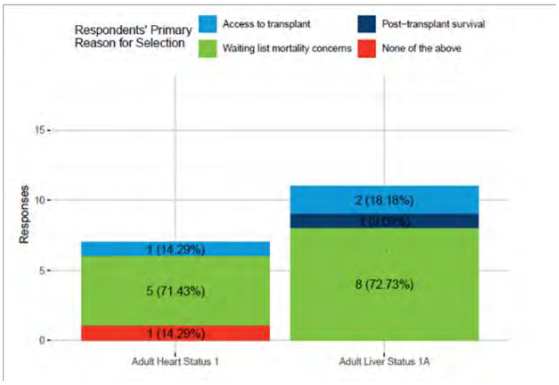
Participants compared 16 sets of candidates and determined which candidate should receive priority (see *Figure 1*[5] *and Figure 2*). They provided their primary reason for prioritizing candidates (access to transplant, distance, post-transplant survival, potential organ non-use, waitlist mortality concerns, or none of the above) and they rated their confidence in their prioritization decisions on a scale of 1 (not at all confident) to 5 (extremely confident). Participants were asked to provide their affiliation to transplant (e.g. OPO, patient and donor representative) and specific organ expertise/experience, allowing for deeper analysis based on these participant characteristics. More details on the VPE results are available in *Appendix 3: Values prioritization exercise (VPE) results and limitations.*

[4] Per OPTN data as of July 26, 2024. Data are subject to change based on future submission or correction.
[5] NM = nautical miles.

Figure 1: Example VPE comparison: Adult Heart Status 1 compared to Adult Liver Status 1A

Attribute	Candidate A	Candidate B
Organ Registration(s)	Heart-Liver	Liver
Medical Urgency	HR Status 1	LI Status 1A
Sensitization	-	-
Candidate Age Group	Adult	Adult
Prior Living Donor	-	-
Distance	250NM	300NM
Blood Type	B	B

Figure 2: Example VPE result, broken down by respondents' primary reasons for selection



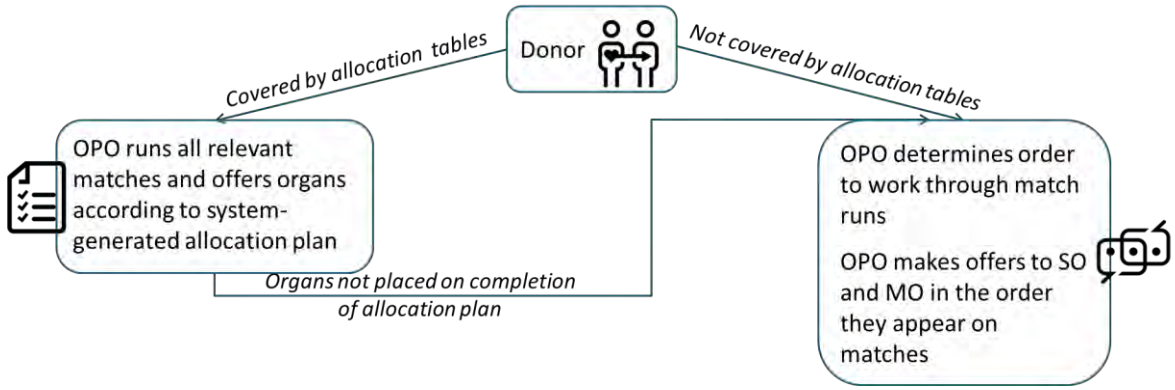
Potential policy changes

Proposed structure of multi-organ allocation

The upcoming policy proposal would make substantial reforms to organ allocation for donors with more than one organ available for donation. It would standardize the order in which OPOs would work across the different organ match runs for most multi-organ donors. For donors covered by a multi-organ allocation table (see *Figure 3*), OPOs would run all relevant match runs and make offers to both single- and multi-organ candidates as they appear on those match runs, guided by the system-generated allocation plan (see *System solution*).

If all organs are not placed upon completion of the allocation plan, OPOs would determine the order to make offers across the remaining organ match runs (e.g. whether to make primary offers on the lung or liver match run next, if both organs are still available). The OPO would still make offers to both single- and multi-organ candidates in the order they appear on match runs, consistent with current policy. For donors not covered by an allocation table, OPOs would follow the same process.

Figure 3: Processes for offers covered by allocation tables vs. those not covered by allocation tables[6]



[6] In *Figure 3*, SO means single-organ candidates and MO means multi-organ candidates.

Figure 4 shows an example of how allocation might proceed in accordance with a multi-organ allocation table. In this example, the OPO would make offers to single- and multi-organ candidates beginning on the liver match run through Classification 1 (status 1A candidates within 500 NM). The user would then move to the heart match run through Classifications 1 and 2 (Heart Status 1 and 1A candidates within 500 NM), and continue working through the allocation table, guided by the allocation plan.

In this example, no organs are placed in Liver Classifications 1 or Heart Classifications 1-2. This could be because there are no candidates in these classifications on the match runs, or the organs are not accepted for candidates in those classifications. As represented by the liver icon, the liver is allocated from the liver match to a candidate in Liver Classification 2 (pediatric Status 1B within 500NM). The heart and one kidney are allocated from the heart match to a candidate in Heart Classification 3 (Adult Heart Status 2 within 500NM), who is eligible for a heart-kidney offer. The lungs are allocated from the lung match to a candidate that meets the lung Composite Allocation Score (CAS) threshold. No organs are placed in Kidney Classifications 1-5 (CPRA equal to 100%, nation, and prior living donors within 250NM). The intestines are allocated from the intestine match to a candidate in Intestine Classification 1

(Status 1 within 500NM). The pancreas and remaining kidney are allocated from the kidney-pancreas match to a candidate in Classification 2 (CPRA greater than or equal to 80% within 250NM).

Figure 4: An example of how allocation may proceed according to a multi-organ allocation table[7]

Organ	Class.	Description
LI	1	Status 1A within 500NM
HR	1	Adult Status 1 or Pediatric Status 1A within 500NM
HR	2	
LI	2	Status 1B within 500NM
LI	3	Status 1A (HI/PR)
LI	4	Status 1B (HI/PR)
HR	3	Adult Status 2 within 500NM
HR	4	
LU	-	Composite Allocation Score TBD
KI	1	CPRA equal to 100% within 250NM
KI	2	
KI	3	CPRA equal to 100%, nation
KI	4	
KI	5	Prior living donors within 250NM
LI	5	MELD/PELD of at least 37 within 150NM
LI	6	
LI	7	MELD/PELD of at least 37 within 250NM
LI	8	

Organ	Class.	Description
LI	9	MELD/PELD of at least 37 within 500NM
LI	10	
LI	11	MELD/PELD of at least 37 (HI/PR)
LI	12	
IN	1	Status 1 within 500NM
IN	2	
IN	3	Status 1, nation
IN	4	
LU	-	Composite Allocation Score TBD
P or KP	1	Highly sensitized within 250NM
P or KP	2	
HR	5	Adult Status 3 or Pediatric Status 1B within 250NM
HR	6	
P or KP	3	Highly sensitized, nation
P or KP	4	Within 250NM
KI	6	Pediatric within 250NM
KI	7	Medically urgent within 250NM

The system solution is being developed to help the user move through the allocation process efficiently. For example, once the liver is accepted, the allocation plan could be updated to reflect the liver is no longer available for allocation. The allocation plan could also display the sequence numbers corresponding with the specific allocation classification.

Multi-organ allocation tables

The MOT Committee has developed six multi-organ allocation tables for inclusion in the upcoming policy proposal. Different tables are necessary because the proposal would incorporate organ-specific allocation policies, which prioritize allocation differently depending on donor characteristics, such as donor age and KDPI. The Committee considered 12 potential tables covering different donor groups and has developed six for inclusion in this Request for Feedback. The six allocation tables, summarized in *Table 1*, below, were selected because they cover approximately 96% of donors to multi-organ recipients between July 2021 and December 2023. Some donation after circulatory death (DCD) donors

[7] In this, and subsequent figures and tables, Class. is the Classification number from the relevant OPTN policy table. Organ abbreviations are: LI = liver; HR = heart; LU = lung; KI = kidney; IN = intestine; P = pancreas; KP = kidney-pancreas.

were included because acceptance of DCD organs is increasing, and some pediatric donors with livers and intestines were included to promote access to multivisceral transplants for pediatric patients.

Information about donor groups not covered by the Committee's work to date is available in *Appendix 4: Multi-organ allocation tables not included in this Request for Feedback*. The Committee continues to analyze data to determine whether additional multi-allocation tables should be developed for inclusion in the policy proposal.

Importantly, the Committee acknowledges the importance of the gift of life from *all* organ donors, whether or not they are included in the multi-organ allocation tables. While the tables focus on donors that typically donate to multi-organ recipients, donors that are not covered by multi-organ allocation tables would still be able to donate multiple organs to both single- and multi-organ candidates.

Table 1: Six multi-organ donor tables included in this Request for Feedback[8]

Donor group	% of donors to multi-organ recipients	Comments
DBD donors aged 18-69, KDPI 0-34%	65%	Highest percentage of donations to multi-organ recipients
DBD donors aged 18-69, KDPI 35-85%	15%	Second highest percentage of donations to multi-organ recipients
DCD donors aged 18+, KDPI 0-34%	4%	Likely growing percentage of donations to multi-organ recipients
DBD donors aged 11-17, KDPI 0-34%	10%	Third highest percentage of donations to multi-organ recipients
DBD donors aged <11, KDPI 0-34% with liver and intestine available	1%	Important donor group for pediatric multivisceral candidates
DBD donors aged <11, KDPI 35-85% with liver and intestine available	1%	Important donor group for pediatric multivisceral candidates

Kidney allocation includes separate allocation sequences for donors with KDPI 0-20% and KDPI 21-34%, but classifications 1-11 in these allocation sequences are the same. Because the MOT Committee did not include any kidney classifications below classification 11 in these allocation tables, the committee was able to group KDPI 0-20% and KDPI 21-34% donors together.

Key differences between current and proposed multi-organ policies

The upcoming policy proposal would make changes to the following current multi-organ policies:

- Current OPTN policy prioritizes pediatric and qualifying adult liver-kidney, heart-kidney, and lung-kidney multi-organ candidates over kidney-alone candidates.[9]

[8] Table shows percent of donors to multi-organ recipients between July 2021 and December 2023. Per OPTN data as of July 26, 2024. Data are subject to change based on future submission or correction.
[9] See OPTN policies *5.10.E: Allocation of Heart-Kidneys*; *5.10.F: Allocation of Lung-Kidneys*; and *9.9 Liver-Kidney Allocation*.

- Current OPTN policy prioritizes pancreas and kidney-pancreas candidates over kidney-alone candidates.[10]

The proposed policy does not incorporate these priorities set out in current policies. Rather, offers would be made to all candidates in the order they appear on the match runs, as directed by the multi-organ allocation tables. Liver-kidney, heart-kidney, lung-kidney, pancreas, and kidney pancreas candidates covered by multi-organ allocation tables would still have priority over the majority of kidney-alone candidates waiting for transplant. For example, the multi-organ allocation table for DBD donors aged 18-69 with KDPI of 0-34% prioritizes kidney candidates in Classifications 1-7 (CPRA equal to 100%, prior living donors within 250NM, pediatric candidates within 250NM, and medically urgent candidates within 250NM) among high-priority heart, lung, liver, intestine, pancreas, and kidney-pancreas candidates. This means that liver-kidney, heart-kidney, lung-kidney, pancreas, and kidney pancreas candidates covered by multi-organ allocation tables would have priority over all other kidney alone candidates.[11] Information about which kidney classifications are included, and their positions in the multi-organ allocation tables, is described further below. These changes are intended to balance the needs and ensure equitable access to transplant among single- and multi-organ candidates.

Allocation table for DBD donors aged 18-69 with KDPI of 0-34%

DBD donors aged 18-69 with KDPI of 0-34% constitute 65% of donors to multi-organ recipients.[12] Given the importance of this donor group, the MOT Committee focused its initial work on developing an allocation table to determine the order of priority for these donors.

The recommended allocation table for DBD donors aged 18-69 with KDPI of 0-34% is in *Appendix 5: Allocation table for DBD donors aged 18-69 with KDPI of 0-34%.*[13] Informed by the data and VPE results, the MOT Committee recommends inclusion of 52 organ classifications and two lung CAS thresholds in this allocation table.

Figure 5: Placement of Liver Classification 1 in Table for DBD donors aged 18-69, KDPI 0-34%

Organ	Class.	Description
LI	1	Status 1A within 500NM
HR	1	Adult Status 1 or
HR	2	Pediatric Status 1A within 500NM

The Committee's rationale for the recommended order of priority is largely based on medical urgency, considering access to life sustaining technologies. For example, the Committee recommends that Liver Classification 1 candidates (Status 1A within 500NM) receive the highest priority because they are not expected to survive more than seven days without transplant, and they do not have access to life sustaining technologies (see *Figure 5*). The Committee considered placing Heart Classification 1-2 candidates (Adult Status 1 and Pediatric Status 1A within 500NM) above Liver Classification 1 candidates, but decided to prioritize liver candidates above heart candidates, because heart candidates have access to life sustaining technologies.

[10] See OPTN policies *11.4: Pancreas, Kidney-Pancreas, and Islet Allocation Classifications and Rankings.*

[11] Kidney Classifications not included in the multi-organ allocation table for DBD donors aged 18-69 with KDPI of 0-34% are Classifications 8-42 in *OPTN Policy Table 8-7: Allocation of Kidneys from Deceased Donors with KDPI Scores Less Than 20%* and Classifications 8-32 in *OPTN Policy Table 8-7: Allocation of Kidneys from Deceased Donors with KDPI Scores Greater Than 20% but Less Than 35%.*

[12] Per OPTN data from July 2021 to December 2023.

[13] In addition to the recommended order of priority, the table in *Appendix 4* shows several data points for each classification: Median appearances; Median waitlist survival; Median post-transplant (tx) survival; Mean time without offer; and Percent without offer. The table also includes a brief description of the Committee's rationale for placement of each classification in the overall order of priority.

While medical urgency is the main factor driving the Committee's prioritization decisions, some candidate groups are prioritized to promote access to transplantation and to avoid organ non-utilization. For example, the Committee recommends that highly sensitized kidney candidates in Classifications 1-4 (CPRA[14] equal to 100%, nation) are placed directly below the most medically urgent liver, heart, and lung candidates. Although they may not be as medically urgent based on estimated waitlist survival, the Committee recommends that they receive high priority because suitable organs for highly sensitized candidates are exceedingly rare. Similarly, although Kidney Classification 5 candidates (prior living donors within 250NM) may not be medically urgent, the Committee recommends giving them high priority to honor and promote the gift of life. The Committee requests public comment on the appropriate placement of Kidney Classifications 1-5 in all allocation tables (see *Figure 6*).

Figure 6: Placement of Kidney Class. 1-5 in Table for DBD donors aged 18-69, KDPI 0-34%

Organ	Class.	Description
LU	-	Composite Allocation Score TBD
KI	1	CPRA equal to 100% within 250NM
KI	2	
KI	3	CPRA equal to 100%, nation
KI	4	
KI	5	Prior living donors within 250NM
LI	5	MELD/PELD of at least 37 within 150NM
LI	6	

In determining the recommended placement of pancreas and kidney-pancreas candidates, the Committee recognizes that facilitating access to kidney-pancreas transplants is an important part of minimizing non-utilization of pancreata. With this aim in mind, the Committee recommends that Pancreas/Kidney-Pancreas Classification 1-2 candidates (CPRA greater than or equal to 80% within 250NM) are placed above Heart Classifications 5-6 (Adult Status 3 and Pediatric Status 1B within 250NM) so that kidney-pancreas candidates in those classifications could receive offers before the kidney could be offered to a Status 3 heart-kidney candidate. Pancreas/Kidney-Pancreas Classifications 3-4 candidates (CPRA greater than or equal to 80%, nation, and all pancreas/kidney-pancreas candidates within 250NM) are placed above pediatric kidney candidates to facilitate placement of the pancreas before offering the kidney(s) to pediatric candidates. The Committee requests public comment on the appropriate placement of Pancreas/Kidney-Pancreas Classifications 1-4 in all allocation tables (see *Figure 7*).

Figure 7: Placement of P and KP Class. 1-4 in Table for DBD donors aged 18-69, KDPI 0-34%

Organ	Class.	Description
P or KP	1	CPRA greater than or equal to 80% within 250NM
P or KP	2	
HR	5	Adult Status 3 or Pediatric Status 1B within 250NM
HR	6	
P or KP	3	CPRA greater than or equal to 80%, nation
P or KP	4	Within 250NM
KI	6	Pediatric within 250NM
KI	7	Medically urgent within 250NM

In addition to considering medical urgency, access to transplant, and non-utilization, the MOT Committee also considered median appearance data, which indicate how frequently candidates of interest appear, on average, on a donor match run. The measure also provides a sense of the volume of candidates that have historically been captured in the classifications included in the allocation tables.

The data helped the Committee determine the order of priority in two ways. Firstly, knowledge of how often candidates are likely to appear in each classification helps assess the impact of prioritizing those

[14] Calculated Panel Reactive Antibody.

candidates above others. For example, since highly sensitized kidney candidates in Kidney Classifications 1-4 (CPRA equal to 100%, nation) and Kidney Classification 5 (prior living donors within 250NM) have 0 median appearances, giving them high priority is not likely to significantly impact access to transplant for classifications appearing below. Secondly, knowledge of how often candidates are likely to appear in each classification helps understand how many offers OPOs may have to work through to complete the multi-organ allocation plan. In determining which classifications to include in the allocation table, the MOT Committee sought to balance including high priority candidates across organ types, while ensuring that the number of offers required is not overly burdensome and promotes efficiency in allocation.

The Committee has requested further data to assess which patients who previously received multi-organ transplants would have been covered by the proposed multi-organ allocation tables.

Lung Composite Allocation Score (CAS) thresholds

With the implementation of continuous distribution of lungs on March 9, 2023, a new lung composite allocation score (CAS) replaced the classifications and lung allocation score (LAS) used in the former allocation system.[15] Accordingly, the lung multi-organ policies (heart-lung, lung-liver, and lung-kidney) were updated to replace references to classifications and LAS with a new lung CAS threshold.[16] Generally, these policies require an OPO to offer a heart, liver, or kidney along with the lung(s) when the candidate is registered for the additional organ and has a lung CAS of 25 or greater.[17]

Since the 2023 implementation, the OPTN has received feedback from members regarding these policies. OPOs have suggested that the CAS threshold of 25 is too low, such that some OPOs are spending too much time making offers on the lung match run (up to sequence numbers between 100-300) to reach the last lung-liver candidate with a CAS of 25 or greater prior to making primary offers to candidates on the liver match run. In addition, transplant programs have reported challenges transplanting their heart-lung candidates due to a lack of suitable offers.

Accordingly, the Lung Multi-Organ Workgroup (Workgroup) was charged to evaluate the heart-lung, lung-kidney, and lung-liver policies and consider changes to these policies that would be incorporated into the upcoming policy proposal from the MOT Committee. The Workgroup reviewed data requested by the MOT Committee and requested and reviewed additional analysis, including lung multi-organ candidate match run appearances under continuous distribution and expected waitlist survival and post-transplant survival by lung CAS. Data reviewed by the Workgroup supported the feedback provided by OPOs, as the distribution of the sequence number of the last lung multi-organ candidate on the lung match run with a CAS of 25 or greater ranged from sequence number 1 to a maximum of sequence number 632 (median: 138) (see *Figure 6-1* in *Appendix 6: Key analyses undertaken by the Lung Multi-Organ Workgroup*).[18] The data also showed that heart-lungs are more frequently placed on the heart/heart-lung match than the lung match, with 29 heart-lungs placed on the heart/heart-lung match from September 28, 2023 – June 30, 2024, and 7 heart-lungs placed on the lung match in the same timeframe.

[15] "Establish Continuous Distribution of Lungs," OPTN, Policy Notice, accessed November 19, 2024, https://optn.transplant.hrsa.gov/media/b13dlep2/policy-notice_lung_continuous-distribution.pdf.
[16] "Update Multi-Organ Allocation for Continuous Distribution of Lungs," OPTN, Policy Notice, accessed November 19, 2024, https://optn.transplant.hrsa.gov/media/ai4npr5x/policy-notice_mot-for-cd_lung.pdf.
[17] A subsequent policy implementation in September 2023 added medical eligibility criteria for kidney function for lung-kidney candidates. See "Establish Eligibility Criteria and Safety Net for Heart-Kidney and Lung-Kidney Allocation," OPTN, Policy Notice, accessed November 19, 2024, https://optn.transplant.hrsa.gov/media/erucde2m/policy-notice_est-elgblty-crit-and-safety-for-hrt-kid-and-lung-kid-alloc_mot.pdf
[18] Per OPTN data as of September 13, 2024, for match runs executed between September 28, 2023, to June 30, 2024.

While current policy has one lung CAS threshold, the MOT Committee asked the Workgroup to consider establishing two lung CAS thresholds: a higher lung CAS threshold to capture the most highly prioritized candidates, and a lower lung CAS threshold to capture other lung candidates who should also be prioritized for multi-organ offers. These two thresholds will allow the Committee to better stratify the lung multi-organ candidates among high priority classifications on other organ match runs.

The Workgroup is also considering different lung CAS thresholds based on donor blood type. Lung candidates receive points based on blood type in their lung CAS, based on their likelihood of being blood-type compatible with a donor:[19]

- Blood type O: 5.0000 points
- Blood type B: 2.2382 points
- Blood type A: 0.3032 points
- Blood type AB: 0 points

While blood type O is the most common blood type, these candidates can only receive transplants from blood type O donors. Candidates with blood type B, A, and AB can also receive transplants from blood type O donors. Accordingly, blood type O match runs tend to be longer than match runs for other blood types because more candidates are eligible to appear on the match run based on blood type compatibility. In lung allocation, the blood type O candidates are assigned the most points so that they are more likely to appear ahead of candidates of other blood types on the O donor match runs, unless those candidates are highly prioritized based on other factors in the score (e.g. because they are more medically urgent or highly sensitized). Since the blood type O match runs tend to be longer and have more candidates with a higher lung CAS, the Workgroup is considering a higher lung CAS threshold for O donor match runs than for donor match runs of other blood types. The goal would be to capture a similar proportion of candidates on the O donor match run as the other match runs to provide similar priority for multi-organ offers regardless of candidate blood type.

The Workgroup identified possible options for lung CAS thresholds and is continuing to evaluate if these thresholds are appropriate or if they need to be adjusted:

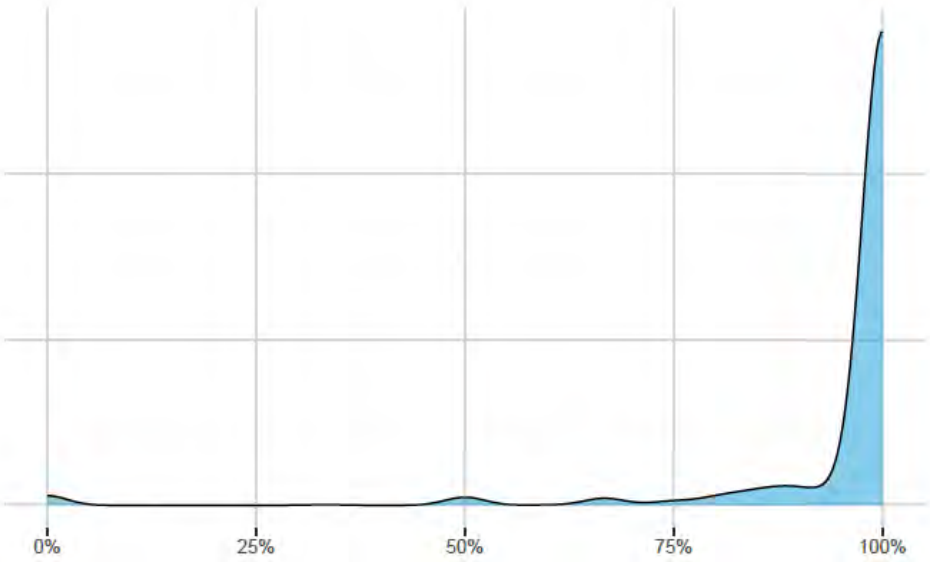
- Lower CAS threshold (minimum threshold to receive offers in the multi-organ allocation tables):
    - Non-O donor (A/AB/B): 30
    - O donor: 34
- Higher CAS threshold (intended to capture only the most highly prioritized/medically urgent):
    - Non-O donor (A/AB/B): 31
    - O donor: 35

These options are all higher than the current lung CAS threshold of 25. Since nearly all lung multi-organ candidates appearing on match runs have a lung CAS over 25 (see *Figure 8*), these higher thresholds are expected to facilitate offers to high priority liver and kidney candidates and improve efficiency in allocation for OPOs, without significantly reducing access to transplant for lung multi-organ candidates. These thresholds would capture a median of one-quarter to one-third of lung multi-organ candidates on each match run for the donors identified by the Committee. The thresholds would also capture medically urgent and pediatric lung-alone candidates. For donors with a final acceptor on the lung match between September 28, 2023 - August 31, 2024, the lungs from blood type O donors were placed

[19] "Modify Lung Allocation by Blood Type," OPTN, Policy Notice, accessed November 19, 2024, https://optn.transplant.hrsa.gov/media/rrkeagop/policy-notice_lung-blood-type_sep-2023.pdf.

above these thresholds more than 75% of the time, and the lungs from non-O blood type donors were placed above these thresholds more than 50% of the time.

Figure 8. Percent of Lung Multi-Organ Candidates on the Lung Match Run with a Lung CAS Greater than 25 for Match Runs Executed Between September 28, 2023 – June 30, 2024[20]



N Matches	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
6185	0	0	100	100	95.74	100	100

[a] Note that this analysis only includes match runs where at least one lung multi-organ candidate appeared.

The Workgroup observed that changing the lung CAS threshold is not expected to improve access to transplant for heart-lung candidates, since it will not impact where heart-lung candidates fall on the heart or heart-lung match, which is typically where heart-lung combinations are placed. However, the standardized approach to multi-organ allocation outlined in this paper is expected to result in more consistency in when OPOs are offering heart-lungs off the lung match.

The Workgroup intends to finalize their lung CAS threshold recommendations for inclusion in the MOT Committee's Summer 2025 public comment proposal. In the interim, the Workgroup welcomes any feedback on this approach. More information about the analysis reviewed by the Workgroup to date is included in *Appendix 6: Key analyses undertaken by the Lung Multi-Organ Workgroup*.

Allocation tables for other donor groups

In addition to the allocation table for DBD donors aged 18-69, KDPI 0-34%, the MOT Committee recommends five other allocation tables (see *Table 1: Six multi-organ donor tables included in this Request for Feedback* , above). When developing these tables, the Committee used the table for DBD donors aged 18-69, KDPI 0-34% as its starting point. The Committee adjusted the tables for the other donor groups based on organ-specific allocation policies, which prioritize allocation differently depending on donor characteristics. For example, kidneys from donors with higher KDPI scores are

[20] Per OPTN data as of September 13, 2024. Data are subject to change based on future submission or correction.

allocated differently than donors with lower KDPI scores and hearts from adult donors are allocated differently than pediatric donors. The Committee also made some adjustments to prioritize some candidate groups in the context of specific donors. For example, the Committee prioritized pediatric candidates in the context of younger pediatric donors and prioritized medically urgent kidney candidates in the context of donors with higher KDPI. The tables include approximately 50 high priority candidate groups across all organ types, but each table length differs slightly, based on the underlying organ-specific policies and the Committee's prioritization decisions.

Allocation table for DBD donors aged 18-69 with KDPI of 35-85%

The allocation table for DBD donors aged 18-69 with KDPI of 35-85% is similar to the table for DBD donors aged 18-69 with KDPI of 0-34%, with minor adjustments. Kidneys from donors with higher KDPI scores are allocated differently than donors with lower KDPI scores, especially in relation to pediatric and sensitized kidney candidates.[21] The MOT Committee recommends including Kidney Classifications 11-14[22] in the table to promote access to kidneys from donors with KDPI 35-85% among pediatric and sensitized kidney candidates prior to those kidneys being offered to remaining multi-organ candidates on other match runs (e.g. liver-kidney). Additionally, the Committee recommends higher priority for medically urgent and highly sensitized kidney candidates within 250NM (0-ABDR mismatch, CPRA equal to 99%), as compared to the placement of these classifications in the allocation table for DBD donors aged 18-69 with KDPI of 0-34%.

Appendix 7: Allocation table for DBD donors aged 18-69 with KDPI of 35-85% shows the recommended order of priority. It includes median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Allocation table for DCD donors aged 18+ with KDPI of 0-34%

The allocation table for DCD donors aged 18+ with KDPI of 0-34% is similar to the table for DBD donors aged 18-69 with KDPI of 0-34%, with the exception of the liver classifications. Livers from DCD donors are allocated differently than those from DBD donors, with more priority given to candidates closer to the hospital who are less urgent relative to the other liver allocation sequences.[23] To reflect this, the Committee recommends including Liver Classifications 1-13 in the allocation table.

Appendix 8: Allocation table for DCD donors age 18+ with KDPI of 0-34% shows the recommended order of priority. It includes median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Allocation table for DBD donors aged 11-17 with KDPI of 0-34%

The allocation table for DBD donors aged 11-17 with KDPI of 0-34% is based on the table for DBD donors aged 18-69 with KDPI of 0-34%, with several adjustments. Hearts from pediatric donors are prioritized differently than those from adult donors, with Pediatric Status 1A patients within 500NM prioritized above Adult Status 1 candidates within 250NM and Pediatric Status 1B candidates within 500NM prioritized above Adult Status 3 candidates.[24] Livers from older pediatric donors are prioritized

[21] *OPTN Policy 8.4.K: Allocation of Kidneys from Deceased Donors with KDPI Scores Greater than or Equal to 35% but less than or Equal to 85%.*
[22] *OPTN Policy Table 8-9: Allocation of Kidneys from Deceased Donors with KDPI Scores Greater than or Equal to 35% but less than or Equal to 85%.*
[23] *OPTN Policy 9.8.H: Allocation of Livers and Liver-Intestines from DCD Donors or Donors at Least 70 Years Old.*
[24] See: *OPTN Policy 6.6.E: Allocation of Hearts from Donors Less Than 18 Years Old*. For adult donors, Adult Status 1 and Pediatric Status 1A

differently than those from adult donors, with Pediatric Status 1A and 1B candidates prioritized above Adult Status 1A and 1B candidates and priority for pediatric candidates with PELD[25] and MELD[26] scores above adult candidates with equivalent scores.[27]

In addition to the changes to reflect the heart and liver policies described above, the MOT Committee's recommended order of priority aims to facilitate access to transplant for pediatric candidates from pediatric donors. Specifically, the Committee recommends higher priority for Heart Classifications 7-8 (Pediatric 1B within 500NM) and potentially for Kidney Classification 6 (registered prior to 18 years old within 250NM). In the allocation table for DBD adult donors with lower KDPI, Kidney Classification 6 (registered prior to 18 years old within 250NM) appears below Pancreas/Kidney-Pancreas Classification 4 (any candidate within 250NM). The Committee discussed how to best balance the needs of pediatric kidney candidates and kidney-pancreas candidates for offers from older pediatric donors and determined that it may be appropriate to increase priority for pediatric kidney candidates. It seeks public feedback on whether pediatric kidney candidates should be placed above Pancreas/Kidney-Pancreas Classification 1, between Pancreas/Kidney-Pancreas Classification 3 and 4, or below Pancreas/Kidney-Pancreas Classification 4 (see *Figure 9*).

Figure 9: Placement of KI Class. 6 in Table for DBD donors aged 11-17 with KDPI of 0-34%

Organ	Class.	Description
P or KP	1	CPRA greater than or equal to 80%, 250NM
P or KP	2	
P or KP	3	CPRA greater than or equal to 80%, nation
KI	6	Pediatric within 250NM
P or KP	4	Within 250NM
KI	7	Medically urgent within 250NM

It also recommends higher priority for Intestine Classifications 1-4 (Status 1, nation), to help promote access for pediatric candidates, as around 40% of intestine candidates on the OPTN waiting list are pediatric candidates.[28] The recommended liver classifications cover pediatric candidates (less than 18 at time of registration) with any PELD or MELD score within 500NM.

Appendix 9: Allocation table for DBD donors aged 11-17 with KDPI of 0-34% shows the recommended order of priority. It includes median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Allocation table for DBD donors aged <11 with KDPI of 0-34% and liver and intestine available

The allocation table for DBD donors aged <11 with KDPI of 0-34% and liver and intestine available is recommended for inclusion to promote access to transplant for pediatric multivisceral candidates. It is based on the table for DBD donors aged 18-69 with KDPI of 0-34%, with several adjustments. Livers from pediatric donors less than 11 years old with both a liver and an intestine available are prioritized differently than those from adult donors and older pediatric donors. Liver allocation policy differentiates between candidates less than 11 years, 11-17 years, and adult candidates, and prioritizes some candidates less than 11 years over older pediatric and adult candidates. For younger pediatric donors, liver policy also prioritizes pediatric candidates with PELD and MELD scores above adult candidates with

candidates are grouped together in the same classification. Similarly, Adult Status 3 and Pediatric Status 3 candidates are grouped together in the same classification.

[25] Model for End-Stage Liver Disease.

[26] Pediatric End-Stage Liver Disease.

[27] *OPTN Policy 9.8.F: Allocation of Livers from Non-DCD Deceased Donors 11 to 17 Years Old.*

[28] OPTN data as of November 20, 2024, https://optn.transplant.hrsa.gov/data/view-data-reports/build-advanced/.

equivalent scores.[29] As described above, hearts from pediatric donors are prioritized differently than those from adult donors.[30]

As with the donors aged 11-17, the MOT Committee recommends higher priority for Heart Classifications 7-8, Intestine Classifications 1-4, and potentially for Kidney Classification 6 (pediatric within 250NM). In the table for DBD donors aged 18-69 with KDPI of 0-34%, Kidney Classification 6 (pediatric within 250NM) appears below Pancreas/Kidney-Pancreas Classification 4 (any candidate within 250NM). The Committee discussed how to best balance the needs of pediatric kidney candidates and kidney-pancreas candidates in the context of younger pediatric donors, aged less than 11. It determined that it may be appropriate to place Kidney Classification 6 above all Pancreas/Kidney-Pancreas, to help ensure that young pediatric candidates have access to small organs from young pediatric donors. The Committee seeks public feedback on the appropriate placement of Kidney Classification 6 candidates within this table (see *Figure 10*).

Figure 10: Placement of KI Class. 6 in Table for DBD donors aged < 11 with KDPI of 0-34%

Organ	Class.	Description
KI	6	Pediatric within 250NM
P or KP	1	CPRA greater than or equal to 80%, 250NM
P or KP	2	
P or KP	3	CPRA greater than or equal to 80%, nation
P or KP	4	Within 250NM
KI	7	Medically urgent within 250NM

Appendix 10: Allocation table for DBD donors aged < 11 with KDPI of 0-34% and liver and intestine available shows the recommended order of priority. It includes median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

[29] *OPTN Policy 9.8.G: Allocation of Livers from Non-DCD Deceased Donors Less than 11 Years Old.*

[30] See: *OPTN Policy 6.6.E: Allocation of Hearts from Donors Less Than 18 Years Old*. For adult donors, Adult Status 1 and Pediatric Status 1A candidates are grouped together in the same classification. Similarly, Adult Status 3 and Pediatric Status 3 candidates are grouped together in the same classification.

Allocation table for DBD donors aged < 11 with KDPI of 35-85% and liver and intestine available

The allocation table for DBD donors aged < 11 with KDPI of 35-85% and liver and intestine available is also recommended for inclusion to promoted access to transplant for pediatric multivisceral candidates. The recommended table is the same as the table for DBD donors aged < 11 with KDPI of 0-34% and liver and intestine available, except that kidney policy prioritizes allocation differently for donors with higher KDPI. Specifically, there is no classification for pediatric candidates within 250NM.[31] Instead, prioritization is driven by sensitization, and pediatric kidney candidates first appear in Kidney Classification 14, which covers candidates less than 18 at the time of the match, with mismatch and CPRA between 0-20%. The Committee invites public feedback on whether Kidney Classifications 11-14 (see *Figure 11)* should be included in the table (as is currently recommended in the *Allocation table for DBD adult donors with higher KDPI*). Including them would help prioritize highly sensitized (CPRA of 98% or greater and 0-ABDR mismatch) and pediatric candidates for offers from pediatric donors with higher KDPI. However, it could also limit access to kidney multi-organ transplantation for heart, lung, and liver candidates not included in the table (see *Figure 11*).

Figure 11: Inclusion of KI Class. 7-14 in Table for DBD donors aged < 11 with KDPI of 0-34%

Organ	Class.	Description
KI	7	0-ABDR mismatch; CPRA equal to 99%; 250NM
KI	8	CPRA equal to 99%; 250NM
KI	9	0-ABDR mismatch; CPRA equal to 98%; 250NM
KI	10	CPRA equal to 98%; 250NM
KI	11	0-ABDR mismatch; 250NM
KI	12	0-ABDR mismatch; CPRA greater than or equal to 80%; nation
KI	13	0-ABDR mismatch; CPRA 21-79%; less than 18 at time of match; nation
KI	14	0-ABDR mismatch; CPRA 0-20%; less than 18 at time of match; nation

Appendix 11: Allocation table for DBD donors aged <11 with KDPI of 35-85% and liver and intestine available shows the recommended order of priority. It includes median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Pediatric multi-organ considerations

The National Organ Transplantation Act (NOTA) directs the OPTN to "recognize the differences in health and in organ transplantation issues between children and adults throughout the system and adopt criteria, policies, and procedures that address the unique health care needs of children."[32] The MOT Committee requests community input on whether the potential policy changes appropriately prioritize pediatric candidates. The Committee highlights the following considerations as particularly relevant to pediatric donors and candidates:

- The multi-organ allocation tables cover approximately 99% of donors to pediatric multi-organ recipients.
- Pediatric multi-organ transplants constitute a small proportion of overall multi-organ transplants (2.11%). The most common pediatric multi-organ transplants are liver-kidney, liver-intestine-pancreas, and liver-intestine-kidney transplants. For liver-intestine-pancreas, and liver-intestine-kidney transplants, pediatric recipients constitute more than 50% of overall recipients.

[31] Kidney Classification 6 in *OPTN Policy 8.4.1: Allocation of Kidneys from Deceased Donors with KDPI Scores less than or equal to 20%.*
[32] 42 USC 274(b)(2)(M).

- Current OPTN policy prioritizes pediatric and qualifying adult liver-kidney, heart-kidney, and lung-kidney multi-organ candidates over all kidney-alone candidates.[33] The proposed policy does not incorporate these priorities (see *Key differences between current and proposed multi-organ policies*).
- The multi-organ allocation tables, particularly the pediatric donor tables, aim to appropriately prioritize pediatric candidates to facilitate access to transplant for both single- and multi-organ pediatric candidates.

Data considered in relation to pediatric multi-organ transplants are provided in Appendix 12: Data considered in relation to pediatric multi-organ transplants.

Multi-organ offers and eligibility criteria

For the most part, current OPTN policy does not restrict match runs from which multi-organ offers can be made.[34] For example, while OPTN policy states when a liver must be offered along with a lung, it does not prohibit lungs from being offered to a lung-liver candidate on the liver match. In practice however, the MOT Committee understands that OPOs typically begin allocation on the heart and lung matches, and then move to the abdominal organs, and therefore follow multi-organ policies in this order. Multi-organ offers tend to be made from the heart, lung, and liver matches. Multi-organ offers do not tend to be made from the intestine, pancreas, kidney, or kidney-pancreas matches, with the exception of multivisceral offers (see *Multivisceral offers*, below). The MOT Committee's upcoming policy proposal provides an opportunity to establish policies directing the match runs from which multi-organ offers can be made.

Multi-organ offers from the heart, lung, and liver match runs

The Committee recommends that all other organs follow the primary organ on the heart, lung, and liver matches (see *Table 2*). This approach is largely consistent with current practice. The Committee recommends incorporating existing medical criteria for heart-lung,[35] heart-liver[36], heart-kidney,[37] lung-liver,[38] lung-kidney,[39] and liver-kidney.[40] The Committee plans to work with other committees to develop limits for offering the heart or liver from the liver match run.

The Committee recommends that this approach apply to offers covered by multi-organ allocation tables and those not covered by the tables. This allows for consistent eligibility requirements multi-organ offers.

Table 2: Multi-organ offers from the heart, lung, and liver match runs

Primary organ/ match run	Other organs offered from the match	Eligibility criteria

[33] See OPTN policies *5.10.E: Allocation of Heart-Kidneys*; *5.10.F: Allocation of Lung-Kidneys*; and *9.9 Liver-Kidney Allocation*.
[34] The Liver-Intestine match run and Kidney-Pancreas match run indicate that offers for these combinations should be made from the combined organ match runs, rather than single organ match runs.
[35] See *OPTN Policy 6.6.F: Allocation of Heart-Lungs.* The upcoming policy proposal will propose changes to the minimum lung CAS for multi-organ offers.
[36] See *OPTN Policy 5.10.G: Allocation of Heart-Liver and Lung-Liver.*
[37] See *OPTN Policy 5.10.E: Allocation of Heart-Kidneys*.
[38] See *OPTN Policy 5.10.G: Allocation of Heart-Liver and Lung-Liver.* The upcoming proposal will propose changes to the minimum lung CAS for multi-organ offers.
[39] See *OPTN Policy 5.10.F: Allocation of Lung-Kidneys.* The upcoming proposal will propose changes to the minimum lung CAS for multi-organ offers.
[40] *OPTN Policy 9.9 Liver-Kidney Allocation.*

Heart	All other organs	• Incorporate existing eligibility criteria for Heart-Lung, Heart-Liver, Heart-Kidney
Lung	All other organs	• Incorporate existing eligibility criteria for Heart-Lung, Lung-Liver, Lung-Kidney
Liver	All other organs	• Incorporate existing eligibility criteria for Lung-Liver • Develop criteria for Heart-Liver and Lung-Liver offers from the liver match run

Multivisceral offers

Current practices suggest that multivisceral offers are usually made from the liver match run. Multi-visceral offers may also be made from the intestine, kidney, pancreas, and kidney-pancreas (KP) match runs (e.g. Intestine-Pancreas-Kidney, Intestine-Pancreas, and Intestine Kidney). As stated above, the Committee recommends that all organs follow livers on the liver match run, which is likely to facilitate most multi-visceral offers. Additionally, the Committee recommends that all abdominal organs, except livers, follow the primary organ on the intestine match run. The Committee recommends that the rules for multi-organ offers from the liver and intestine match runs apply to donors covered by multi-organ allocation tables and those not covered by the tables. Additionally, to further facilitate access to multivisceral transplants, the Committee recommends that all abdominal organs, except livers, follow the primary organ on the kidney, pancreas, and kidney-pancreas match runs, but only for offers covered by multi-organ allocation tables. The Committee believes this restriction on livers following other abdominal organs is necessary to maintain access to transplant for medically urgent liver candidates.

Overall, the Committee believes the recommended approach for multivisceral offers (see *Table 3*) is largely consistent with current practices. Current policy does not include eligibility criteria for multivisceral offers,[41] and the Committee does not believe that such criteria is necessary for these highly technical and rare transplants. *Appendix 13: Number of multivisceral transplants, 2020-2024* includes data on the number of multivisceral transplants, by combination, from 2020-2024.

Table 3: Multivisceral offers from the liver, intestine, kidney, pancreas, and KP match runs

Primary organ/ match run	Other organs offered from the match
Liver	All abdominal organs
Intestine, kidney, pancreas, kidney-pancreas	All abdominal organs except livers

Should multi-organ offers be available from all match runs?

The MOT Committee's proposed approach to multi-organ offers and eligibility criteria is largely consistent with current policy and practices. The Committee considered the option of developing policy on multi-organ offers from all match runs and requests community input on whether this approach should be included in the upcoming policy proposal.

[41] Except for Liver-Intestine, Liver-Kidney, or Kidney-Pancreas. These criteria will be incorporated into the policy proposal.

In addition to all other organs following the primary organ on the heart, lung, and liver matches, the Committee is interested in community feedback on whether multi-organ offers should be available from the intestine, kidney, and pancreas match runs. This would mean, for example, that a heart-kidney offer could be made from the kidney match. Such offers would be subject to both organs being available and meeting established eligibility criteria. This approach could be limited to the high priority candidate groups included in the multi-organ allocation tables.

Frequently asked questions

Please find below answers to some common questions about the MOT Committee's upcoming policy proposal: *Establish Comprehensive Multi-Organ Allocation Policy.*

1. **What are the key differences between current multi-organ policies and the upcoming policy proposal *Establish Comprehensive Multi-Organ Allocation Policy?***
   - Currently, multi-organ policies address some multi-organ combinations and are found in different sections of OPTN Policy.[42] The upcoming policy proposal would provide a comprehensive multi-organ allocation policy consolidated within OPTN Policy.
   - Currently, OPTN policy does not direct the order in which OPOs execute match runs by organ type. The MOT Committee's upcoming policy proposal aims to standardize the order in which OPOs make offers across the different organ match runs for most donors. This will help ensure equitable access to transplant among multi- and single-organ candidates and promote efficiency in allocation.
   - For the most part, current OPTN policy does not restrict match runs from which multi-organ offers can be made. The MOT Committee's upcoming policy proposal provides an opportunity to establish policies directing the match runs from which multi-organ offers can be made.
   - Current OPTN policy prioritizes pediatric and qualifying adult liver-kidney, heart-kidney, and lung-kidney candidates over all kidney alone candidates.[43] Current policy also prioritizes pancreas and kidney-pancreas candidates over kidney-alone candidates. The proposed policy does not incorporate these priorities. Rather, offers would be made to all candidates in the order they appear on the match runs, as directed by the multi-organ allocation tables. The multi-organ allocation tables include high priority kidney candidates, including some highly-sensitized candidates, prior living donors, pediatric, and medically urgent candidates. Liver-kidney, heart-kidney, lung-kidney, pancreas, and kidney pancreas candidates covered by multi-organ allocation tables would still have priority over other kidney-alone candidates waiting for transplant. These changes are intended to balance the needs and ensure equitable access to transplant among single- and multi-organ candidates.
2. **Can the OPTN develop a single match run for each donor?**
   - The MOT Committee recognizes and shares the community's desire for a single match run for each donor. While this is not feasible in the short term, the Committee's upcoming policy proposal, and the system generated allocation plan (see *System solution*) may be considered a step towards this goal. Once each organ is in a continuous distribution framework and all candidates are prioritized based on a score between 0-100, the OPTN could consider shifting towards a single or integrated match run. The MOT Committee's data analysis and clinical

[42] Current policies on multi-organ combinations: Heart-Lung *(Policy 6.6.F)*, Heart-Liver *(Policy 5.10.G),* Heart-Kidney *(5.10.E)*, Lung-Liver *(Policy 5.10.G)*, Lung-Kidney *(5.10.F)*, Liver-Intestine *(Policy 9)*, Liver-Kidney *(Policy 9.9),* Kidney-Pancreas *(Policy 11).*
[43] See OPTN policies *5.10.E: Allocation of Heart-Kidneys*; *5.10.F: Allocation of Lung-Kidneys*; and *9.9 Liver-Kidney Allocation*.

decision-making described in this request for feedback, together with the shift to continuous distribution for all organs, may inform future efforts to develop a single or integrated match run.

3. **Why are there so many multi-organ allocation tables?**
   - Different tables are necessary because the upcoming policy proposal would incorporate organ-specific allocation policies, which prioritize allocation differently depending on donor characteristics, such as donor age and KDPI. The MOT Committee has developed six tables that cover approximately 96% of donors to multi-organ recipients between July 2021 and December 2023. Some DCD donors were included because acceptance of DCD organs is increasing, and some pediatric donors with livers and intestines were included to promote access to multivisceral transplants for pediatric patients.

4. **The upcoming policy proposal seems complex – how would it help streamline allocation?**
   - The MOT Committee acknowledges the complexity of the upcoming policy proposal and the substantial reforms that the proposal would make to organ allocation for donors with more than one organ available. The Committee appreciates community members taking the time to familiarize themselves with the request for feedback and providing comments, whether on the higher-level concepts or specific prioritization decisions.
   - The MOT Committee believes that the potential policy changes would streamline allocation by standardizing allocation for the vast majority of multi-organ donors. The policy, together with the system solution, would reduce the amount of OPO resources dedicated to developing allocation plans for each donor. The system solution is being developed to help the user move through the relevant allocation table efficiently. For example, once the liver is accepted, the allocation plan could be updated to reflect the liver is no longer available for allocation. The allocation plan could also display the sequence numbers corresponding with the specific allocation classification. If any organs have not been placed upon completion of the allocation plan, OPOs would need to determine the order to make offers across the remaining organ match run(s). On each organ match run, the OPO would still offer to single- and multi-organ candidates in the order they appear.

5. **How would the upcoming policy proposal help make allocation fairer?**
   - The proposed policy would help make allocation fairer in two main ways. First, by standardizing the order in which OPOs make offers across different organ match runs, it would reduce differences in allocation practices across the country. Second, the multi-organ donor allocation tables help ensure that medically urgent, highly-sensitized, and pediatric single-organ candidates are appropriately prioritized among comparable multi-organ candidates.

6. **How did the MOT Committee determine the order or priority between candidates needing different organs?**
   - Determining the order of priority among different organ groups (e.g. very sick liver candidates over very sick heart candidates or kidney-pancreas candidates over pediatric kidney candidates) is complex and challenging work. To determine which classifications should be included in the multi-organ allocation tables, and the order of priority, the MOT Committee reviewed data on several key measures of evaluation, including candidate waitlist mortality and outcomes, post-transplant survival, candidate access and time without an offer, and match run efficiency. Current and past MOT Committee members also completed a VPE to help identify areas of consensus and divergence. On some policy design and prioritization questions, Committee members had diverging views. While there may not be a “perfect” solution, the MOT Committee

believes that standardization will improve allocation and invites all community members to provide feedback.

7. **What about donors not covered by multi-organ allocation tables – how will OPOs allocate these organs?**
   - The MOT Committee chose to focus the scope of the upcoming policy proposal on donors that are likely to donate organs to multi-organ candidates. Accordingly, the MOT Committee decided not to develop tables for all donors (e.g. donors with KDPI greater than 85%). For donors not covered by allocation tables, OPOs would determine the order for making offers across the remaining organ match runs and make offers to both single- and multi-organ candidates in the order they appear on match runs. This approach is consistent with current policy. If all organs are not placed upon completion of an allocation plan, OPOs would follow the same process. This approach is intended to provide flexibility to OPOs to support placement of organs that are less likely to be accepted.
8. **How does the upcoming policy proposal relate to the transition to continuous distribution?**
   - Currently, lung is the only organ allocated through a continuous distribution system, and the other organs remain in classification-based allocation systems while the continuous distribution frameworks are under development. Accordingly, the MOT Committee's upcoming proposal is largely based on the classifications in existing allocation policy, and the MOT Committee established a Lung Multi-Organ Workgroup to consider how to modify the lung multi-organ policies to fit into this framework.
9. **If adopted, how would the multi-organ allocation policy be monitored for member compliance?**
   - Currently, monitoring is limited to whether multi-organ offers are made to candidates who meet qualifying criteria and whether recipients are appropriately listed per OPTN policy. Monitoring compliance with the proposed multi-organ allocation policies will be informed by the details of the system solution. Future monitoring may include the ability to identify allocation deviations for review and provide more responsive follow up and feedback.
10. **If adopted, how would the impacts of the multi-organ allocation policy be evaluated?**
    - The following key metrics are proposed to measure the impacts of the upcoming policy proposal:
      1) Number and proportion of multi-organ/single organ candidates who receive a transplant pre- vs. post-policy
      2) Median waiting time to transplant for different single and multi-organ combinations pre- vs. post-policy provide more responsive follow up and feedback
      3) Median time from start of first match run to time of cross clamp (recovery of organs) for donors pre- vs. post-policy

NOTA and Final Rule Analysis

The Committee submits this request for feedback under the authority of the National Organ Transplant Act of 1984 (NOTA), which states that the OPTN shall "establish... medical criteria for allocating organs,"[44] as well as the OPTN Final Rule, which states, "the Board of Directors shall be responsible for developing... [p]olicies for the equitable allocation of cadaveric organs..."[45] While this request for

[44] 42 USC §274(b)(2)(B).
[45] 42 CFR 121.4(a)(1).

feedback will not immediately result in a policy change, it will aid in the development of a future policy directing allocation order across match runs when a donor has more than one organ available for transplantation, with the aims of promoting efficiency in organ allocation and equity between multi- and single-organ candidates.

The Final Rule requires that when developing policies for the equitable allocation of cadaveric organs, such policies must be developed "in accordance with §121.8," which requires that allocation policies "(1) Shall be based on sound medical judgment; (2) Shall seek to achieve the best use of donated organs; (3) Shall preserve the ability of a transplant program to decline an offer of an organ or not to use the organ for the potential recipient in accordance with §121.7(b)(4)(d) and (e); (4) Shall be specific for each organ type or combination of organ types to be transplanted into a transplant candidate; (5) Shall be designed to avoid wasting organs, to avoid futile transplants, to promote patient access to transplantation, and to promote the efficient management of organ placement;…(8) Shall not be based on the candidate's place of residence or place of listing, except to the extent required by paragraphs (a)(1)-(5) of this section."[46]

While this request for feedback will not immediately result in allocation policy changes, the multi-organ policy framework presented in this paper:

- **Is based on sound medical judgment**[47] in that the Committee is analyzing descriptive and inferential data including data on waitlist survival and post-transplant survival to inform allocation priority. The Committee has also completed a VPE to help identify/build clinical consensus on organ allocation priorities across match runs, especially where clinical data is limited.
- **Seeks to achieve the best use of donated organs**[48] by retaining how candidates are ranked on each organ match run and preserve the considerations for medical urgency that are incorporated into the organ-specific allocation policies. To inform prioritization across match runs, the Committee is considering data and has completed a VPE, as described above.
- **Is designed to…promote patient access to transplantation**[49] by promoting equity in access to transplant among multi- and single- organ candidates, including highly-sensitized and medically urgent single-organ candidates who may currently experience limited access to transplant as compared to multi-organ candidates.
- **Would promote the efficient management of organ placement**[50] by directing allocation order when a donor has more than one organ available for transplantation. Under current OPTN policy, organ procurement organizations (OPOs) must follow match runs but have discretion to decide the order in which they will make offers across different organ match runs. OPOs report varying allocation practices and inefficiencies in determining how to proceed when there candidates appearing on different organ match runs who meet policy requirements to receive offers for some of the same organs.
- **Is not based on the candidate's place of residence or place of listing**.[51]

This framework would also preserve the ability of a transplant program to decline an offer or not use the organ for a potential recipient,[52] and it is specific for each organ type or combination of organ types to

[46] 42 CFR §121.8(a).
[47] 42 CFR §121.8(a)(1).
[48] 42 CFR §121.8(a)(2).
[49] 42 CFR §121.8(a)(5).
[50] 42 CFR §121.8(a)(5).
[51] 42 CFR §121.8(a)(8).
[52] 42 CFR §121.8(a)(3).

be transplanted,[53] as the proposed allocation order would maintain the organ-specific criteria used to prioritize candidates waiting for transplantation.

The framework is not expected to have a significant impact on the Final Rule requirement that allocation policies shall be designed to avoid wasting organs,[54] though the project does aim to promote efficiency in allocation for OPOs and may reduce delays in allocation that can contribute to organ non-use. Additionally, the approach is tailored towards donors whose organs that are likely to be used for multi-organ transplants and excludes more medically complex donors so that their organs can be allocated through the appropriate pathways.

The Final Rule also requires the OPTN to "consider whether to adopt transition procedures that would treat people on the waiting list and awaiting transplantation prior to the adoption or effective date of the revised policies no less favorably than they would have been treated under the previous policies" whenever organ allocation policies are revised.[55] Prior to adoption of any allocation policies, the OPTN will determine whether any candidates will be treated less favorably under the future policy, and if there is a need for transition procedures for those candidates or others. This would allow members and patients time to prepare for these changes. The Committee will continue discussions on transition procedures as the project progresses.

Conclusion

The MOT Committee is developing a policy proposal for the summer 2025 public comment period, which would standardize the order in which OPOs make offers across the different organ match runs for donors with more than one organ available for donation. The upcoming proposal would also standardize the match runs from which multi-organ offers could be made. It aims to promote equitable access to transplant among multi- and single-organ candidates and consistent and efficient allocation.

The upcoming policy proposal would standardize allocation for donors with more than one organ available by inserting multi-organ allocation tables in policy. The MOT Committee has developed six allocation tables covering approximately 96% of deceased donors between July 2021 and December 2023 and continues to analyze data to determine whether additional tables should be included in the upcoming policy proposal.

To facilitate implementation, the MOT Committee requested development of a system solution to help guide the user through the proposed policy. The OPO would enter donor information, run the applicable matches, and the system would generate a donor-specific allocation plan to guide the user through the applicable allocation table.

If adopted, the upcoming policy proposal would make substantial reforms to organ allocation policy and practices. The Committee requests the community's input on the proposed framework for multi-organ allocation. Determining priority across organ groups is complex and challenging, and while there may not be a "perfect" solution, the MOT Committee believes that standardization will improve efficiency and equity in allocation.

[53] 42 CFR §121.8(a)(4).
[54] 42 CFR §121.8(a)(5).
[55] 42 CFR §121.8(d)(1)

Considerations for the community

The MOT Committee welcomes the community's feedback to help shape the upcoming policy proposal, *Establish Comprehensive Multi-Organ Allocation Policy*. If your feedback relates to specific table(s), please specify which table(s).

General

1. Does the community support the standardization of allocation order across match runs?
2. Do the proposed allocation tables cover appropriate donor groups?
3. Do the proposed allocation tables include appropriate candidate classifications?
4. Do the proposed allocation tables appropriately balance the needs of different candidate groups and promote equity in access to transplant among multi- and single-organ candidates?
5. In addition to all other organs following the primary organ on the heart, lung, and liver matches, should multi-organ offers be available from the intestine, kidney, and pancreas match runs?
6. Does the proposed policy appropriately prioritize pediatric candidates?
7. Does the community support the approach for incorporating the lung composite allocation score into the multi-organ allocation tables?
8. What potential barriers to operationalization/implementation challenges does the community anticipate?
9. Does the proposed policy allow sufficient flexibility to maximize organ utilization?

Key prioritization decisions

10. In all multi-organ allocation tables, are Kidney Classifications 1-4 (CPRA equal to 100%) candidates appropriately prioritized relative to the other organ classifications? (see *Figure 6*)
11. In all multi-organ allocation tables, are Kidney Classification 5 (prior living donor within 250NM) candidates appropriately prioritized relative to the other organ classifications? (see *Figure 6*)

Figure 6: Placement of Kidney Class. 1-5 in Table for DBD donors aged 18-69, KDPI 0-34%

Organ	Class.	Description
LU	-	Composite Allocation Score TBD
KI	1	CPRA equal to 100% within 250NM
KI	2	
KI	3	CPRA equal to 100%, nation
KI	4	
KI	5	Prior living donors within 250NM
LI	5	MELD/PELD of at least 37 within 150NM
LI	6	

12. In the table for DBD donors age 18-69 with KDPI of 0-34%, are Pancreas/Kidney-Pancreas Classifications 1-4 (CPRA greater than or equal to 80% and all candidates within 250NM), Heart Classifications 5-6 (Adult Status 3 and Pediatric Status 1B within 250NM), and Kidney Classifications 6 (registered prior to 18 years within 250NM) and 7 (medically urgent within 250NM) appropriately prioritized? (see *Figure 7*)

Figure 7: Placement of P and KP Class. 1-4 in Table for DBD donors aged 18-69, KDPI 0-34%

Organ	Class.	Description
P or KP	1	CPRA greater than or equal to 80% within 250NM
P or KP	2	
HR	5	Adult Status 3 or Pediatric Status 1B within 250NM
HR	6	
P or KP	3	CPRA greater than or equal to 80%, nation
P or KP	4	Within 250NM
KI	6	Pediatric within 250NM
KI	7	Medically urgent within 250NM

13. In the tables for DBD donors aged 11-17 with KDPI of 34%, should Kidney Classification 6 (registered prior to 18 years within 250NM) be placed above Pancreas/Kidney-Pancreas Classification 1 (CPRA greater than 80% within 250NM), between Pancreas/Kidney-Pancreas Classification 3 (CPRA greater than or equal to 80%, nation) and 4 (all candidates within 250NM), or below Pancreas/Kidney-Pancreas Classification 4? (see *Figure 9*)

Figure 9: Placement of KI Class. 6 in Table for DBD donors aged 11-17 with KDPI of 0-34%

Organ	Class.	Description
P or KP	1	CPRA greater than or equal to 80%, 250NM
P or KP	2	
P or KP	3	CPRA greater than or equal to 80%, nation
KI	6	Pediatric within 250NM
P or KP	4	Within 250NM
KI	7	Medically urgent within 250NM

14. In the table for DBD donors aged 11-17 with KDPI of 0-34%, should Kidney Classification 6 (registered prior to 18 years within 250NM) be placed above Pancreas/Kidney-Pancreas Classification 1 (CPRA greater than or equal to 80% within 250NM), between Pancreas/Kidney-Pancreas Classification 3 (CPRA greater than or equal to 80%, nation) and 4 (all candidates within 250NM), or below Pancreas/Kidney-Pancreas Classification 4 (see *Figure 10*)

Figure 10: Placement of KI Class. 6 in Table for DBD donors aged < 11 with KDPI of 0-34%

Organ	Class.	Description
KI	6	Pediatric within 250NM
P or KP	1	CPRA greater than or equal to 80%, 250NM
P or KP	2	
P or KP	3	CPRA greater than or equal to 80%, nation
P or KP	4	Within 250NM
KI	7	Medically urgent within 250NM

15. In the table for DBD donors aged <11 with KDPI of 35-85%, should Kidney Classifications 7-14 (CPRA of 98% or greater; or 0-ABDR mismatch within 250NM; or 0-ABDR mismatch pediatric candidates, national) be included in the table? (*See Figure 11*)

Figure 11: Inclusion of KI Class. 7-14 in Table for DBD donors aged < 11 with KDPI of 0-34%

Organ	Class.	Description
KI	7	0-ABDR mismatch; CPRA equal to 99%; 250NM
KI	8	CPRA equal to 99%; 250NM
KI	9	0-ABDR mismatch; CPRA equal to 98%; 250NM
KI	10	CPRA equal to 98%; 250NM
KI	11	0-ABDR mismatch; 250NM
KI	12	0-ABDR mismatch; CPRA greater than or equal to 80%; nation
KI	13	0-ABDR mismatch; CPRA 21-79%; less than 18 at time of match; nation
KI	14	0-ABDR mismatch; CPRA 0-20%; less than 18 at time of match; nation

Appendices

Appendix 1: Organ allocation classifications and statuses

This appendix provides information to help community members understand the classifications, statuses, and scores referred to in this Request for Feedback. Please note that this is a high-level summary and is not a complete description or interpretation of OPTN policies. Full details are available in the relevant OPTN policies.

Lung has transitioned to a continuous distribution framework and uses a composite allocation score (CAS) to determine order of priority.[56] For the other organs, candidates are ordered into classifications based on their status, score, and other characteristics including age, level of sensitization, and geographical area.[57] High-level summaries of the classifications, statuses, and scores relevant to the multi-organ allocation tables are provided below, by organ.

Heart

Heart allocation policy is set out in *OPTN Policy 6: Allocation of Heart and Heart-Lungs. Table 1-1* summarizes the heart statuses relevant to the proposed multi-organ allocation tables.

Table 1-1: Summary of heart statuses

Status	Criteria
Adult Status 1	Hospitalized and at least one of: • Veno-arterial extracorporeal membrane oxygenation (VA ECMO) • Non-dischargeable, surgically implanted, non-endovascular biventricular support device • Mechanical circulatory support device (MCSD) with a life-threatening ventricular arrhythmia
Pediatric Status 1A	Less than 18 at time of registration and at least one of: • Continuous mechanical ventilation and hospitalized • Intra-aortic balloon pump (IABP) and hospitalized • Ductal dependent pulmonary or systemic circulation, with ductal patency maintained by stent or prostaglandin infusion and hospitalized • Hemodynamically significant congenital heart disease diagnosis, requires infusion of multiple intravenous inotropes or a high dose of a single intravenous inotrope and hospitalized • MCSD
Adult Status 2	At least one of: • Non-dischargeable, surgically implanted, non-endovascular LVAD

[56] *OPTN Policy 10: Allocation of Lungs.*

[57] *OPTN Policy 1.2: Definitions.* "Classification" is defined as: "A collection of potential transplant recipients grouped by similar characteristics and within a given geographical area. Classifications are used to rank potential recipients of deceased or living donor organs. A collection of ranked classifications of potential transplant recipients is also known as an organ allocation algorithm."

Status	Criteria
	• Total artificial heart (TAH), biventricular assist device (BiVAD), right ventricular assist device (RVAD), or ventricular assist device (VAD) for single ventricle patients • MCSD that is malfunctioning • Percutaneous endovascular MCSD • IABP • Recurrent or sustained ventricular tachycardia or ventricular fibrillation
Adult Status 3	At least one of: • Dischargeable LVAD and is exercising 30 days of discretionary time • Multiple inotropes or a single high dose inotrope and has hemodynamic monitoring • MCSD with hemolysis, pump thrombosis, right heart failure, a device infection, bleeding, or aortic insufficiency • VA ECMO after 7 days • Non-dischargeable, surgically implanted, non-endovascular LVAD after 14 days • Percutaneous endovascular MCSD after 14 days • IABP after 14 days • MCSD and has life threatening ventricular arrhythmia after 7 days
Pediatric Status 1B	Less than 18 at time of registration and at least one of: • Infusion of one or more inotropic agents but does not qualify for pediatric status 1A • Less than one year old at the time of the registration and has a diagnosis of hypertrophic or restrictive cardiomyopathy
Adult Status 4	At least one of: • Dischargeable LVAD • Inotropes without continuous hemodynamic monitoring • Congenial heart disease • Ischemic heart disease with intractable angina • Amyloidosis, hypertrophic cardiomyopathy or restrictive cardiomyopathy • Re-transplant
Adult Status 5	Registered on the heart waiting list and also registered on the waiting list for at least one other organ at the same hospital
Adult Status 6	Suitable for transplant
Pediatric Status 2	Less than 18 years old at the time of registration and does not meet the criteria for pediatric status 1A or 1B but is suitable for transplant

Figure 1-2 shows an example of how heart candidates are ordered into classifications based on their status and other characteristics including age and geographical area. Note that the same status can appear in multiple classifications, differentiated by geographical area or blood type.

Figure 1-2: Example Heart Classifications[58]

Table 6-7: Allocation of Hearts from Deceased Donors At Least 18 Years Old

Classification	Candidates that are within the	And registered at a transplant hospital that is at or within this distance from the donor hospital
1	Adult status 1 or pediatric status 1A and primary blood type match with the donor	500NM
2	Adult status 1 or pediatric status 1A and secondary blood type match with the donor	500NM

Kidney

Kidney allocation policy is set out in *OPTN Policy 8: Allocation of Kidneys.* Kidney candidates are grouped into classifications based on several characteristics, described below.

- Candidates with **high Calculated Panel Reactive Antibody (CPRA)**, often referred to as sensitized or highly sensitized candidates.[59] Suitable organs for highly sensitized candidates are rare.
- **0-ABDR** or zero-antigen mismatch. Zero-antigen mismatch indicates that the tissue markers of the candidate and potential donor match fully. These types of transplants are expected to have the best longer-term results.[60]
- **Prior living donor** candidates. A kidney candidate who donated a kidney, liver segment, lung segment, partial pancreas and/or small bowel segment, within the United States.[61]
- **Medically urgent** candidates. A kidney candidate who is unable to receive dialysis or at high risk for not being able to receive dialysis has lost access to dialysis.[62]
- **Pediatric** candidates. A kidney candidate less than 18 years old at the time of registration or less than 18 at the time of the match run.[63]

[58] Heart Classifications 1-2 from *OPTN Policy Table 6-7: Allocation of Hearts from Deceased Donors At Least 18 Years Old.*
[59] *OPTN Policy 1.2: Definitions.* CPRA is defined as: "The percentage of deceased donors expected to have one or more of the unacceptable antigens indicated on the waiting list for the candidate. The CPRA is derived from HLA antigen, allele, and epitope genotype frequencies for the different populations in proportion to their representation in the national deceased donor population."
[60] *OPTN Policy 1.2: Definitions.* 0-ABDR mismatch is defined as: "A candidate is considered a 0-ABDR mismatch with a deceased or living donor if all of the following conditions are met: 1. At least one donor antigen is identified for each of the A, B, and DR loci 2. At least one candidate antigen is identified for each of the A, B, and DR loci 3. The donor has zero non-equivalent A, B, or DR antigens with the candidate's antigens 4. The donor and the candidate have compatible or permissible blood types."
[61] *OPTN Policy 8.4.E: Prior Living Organ Donors.*
[62] *OPTN Policy 8.4.A.i: Medically Urgent Status for Adult and Pediatric Candidates.* See also: OPTN Kidney Transplantation Committee. *Addressing Medically Urgent Candidates in New Kidney Allocation Policy.* Available at: https://optn.transplant.hrsa.gov/policies-bylaws/public-comment/addressing-medically-urgent-candidates-in-new-kidney-allocation-policy/. Last accessed: December 11, 2024.
[63] Candidates registered prior to 18 years of age retain pediatric priority until that registration results in transplantation.

- Candidates with **Estimated Post Transplant Survival (EPTS) scores in the top 20%**.[64] EPTS scores are assigned to candidates on the kidney waiting list, once they turn 18 years old. Candidates with lower EPTS scores are expected to have more years of graft function compared to candidates with higher scores.[65]

Figure 1-1 shows an example kidney classification.

Figure 1-1: Example Kidney Classification[66]

Table 8-7: Allocation of Kidneys from Deceased Donors with KDPI Less Than or Equal To 20%

Classification	Candidates that are	And registered at a transplant hospital that is at or within this distance from the hospital that distribution will be based upon	With this donor blood type:
1	0-ABDR mismatch, CPRA equal to 100%, blood type identical or permissible	250NM	Any

Intestine

Intestine allocation policy is set out in *OPTN Policy 7: Allocation of Intestines. Table 1-2* summarizes the intestine statuses relevant to the proposed multi-organ allocation tables.

Table 1-2: Summary of intestine statuses

Status	Criteria

Status 1	• Candidate must have any of the following conditions:
	  • Liver function test abnormalities
	  • No vascular access through the subclavian, jugular, or femoral veins for intravenous feeding
	  • Medical indications that warrant intestinal organ transplantation on an urgent basis

Status 2	• Any active candidate that does not meet the criteria for status 1 must be registered as status 2

[64] *OPTN Policy 8.4.A.* Estimated Post Transplant Survival (EPTS) score is defined as: "A candidate's EPTS score represents the percentage of kidney candidates in the nation with a longer expected post-transplant survival time. EPTS is based on *all* of the following: 1. Candidate time on dialysis 2. Whether or not the candidate has a current diagnosis of diabetes 3. Whether or not the candidate has had any prior solid organ transplant 4. Candidate age."

[65] OPTN. *A Guide to Calculating and Interpreting the Estimated Post-Transplant Survival (EPTS) Score Used in the Kidney Allocation System (KAS).* Available at: https://optn.transplant.hrsa.gov/media/pn1pt2bc/epts_guide.pdf. Last accessed: December 11, 2024.

[66] Kidney Classification 1 from *OPTN Policy Table 8-7: Allocation of Kidneys from Deceased Donors with KDPI Less Than or Equal to 20%.*

Liver

Liver allocation policy is set out in *OPTN Policy 9: Allocation of Livers and Liver-Intestines.* Liver policy has statuses covering the most medically urgent candidates. Other candidates are prioritized based on their Model for End-Stage Liver Disease (MELD) and Pediatric End-Stage Liver Disease (PELD) scores (see *Table 1-4: Summary of liver statuses and MELD and PELD scores*).

Table 1-3: Summary of liver statuses and MELD and PELD scores

Status	Criteria

Adult Status 1A	• Candidate has a life expectancy without liver transplant of less than 7 days
	• Has at least one of the following:
	  • Fulminant liver failure
	  • Anhepatic
	  • Primary non-function of a transplanted whole liver within 7 days of transplant
	  • Non-function within 7-days of transplant of a transplanted liver segment from a deceased or living donor
	  • Hepatic artery thrombosis within 7-days of transplant
	  • Acute decompensated Wilson's disease

Pediatric Status 1A	• Has at least one of the following:
	  • Fulminant liver failure
	  • Diagnosis of primary non-function of a transplanted liver within 7 days of transplant
	  • Diagnosis of hepatic artery thrombosis in a transplanted liver within 14 days of transplant
	  • Acute decompensated Wilson's disease

Pediatric Status 1B	• Has at least one of the following:
	  • Biopsy-proven hepatoblastoma without evidence of metastatic disease
	  • Organic acidemia or urea cycle defect and an approved MELD/PELD exception meeting standard criteria for metabolic disease for at least 30 days
	  • Chronic liver disease
	  • Chronic liver disease and is a combined liver-intestine candidate

Liver MELD and PELD scores	• Model for End-Stage Liver Disease (MELD) score is a score that reflects the probability of death within a 3-month period. It is utilized for candidates 12 years and older. The scale is 6-40. Calculated MELD scores are based on current lab values. Exception MELD scores are adjusted scores based on an approved or assigned standard or non-standard exception requests. • Pediatric End-Stage Liver Disease (PELD) score is a score that reflects the probability of death within a 3-month period. It is utilized for candidates under the age of 12. The scale of is 6-99. Calculated PELD scores are based

Status	Criteria
	on current lab values. Exception PELD scores are adjusted scores based on an approved or assigned standard or non-standard exception requests.

Lung

Lung allocation policy is set out in *OPTN Policy 10: Allocation of Lungs.* Lung has transitioned to a continuous distribution framework and uses a composite allocation score (CAS) to determine order of priority. CAS scores are made up of several weighted elements:[67]

- Medical urgency (up to 25 points)
- Post-transplant survival (up to 25 points)
- Biological Disadvantage: blood type, CPRA score, and height (up to 15 points)
- Patient access: pediatric (20 points) and prior living donor candidates (5 points)
- Travel efficiency and proximity efficiency depending on location of donor (up to 10 points)

Theoretically, the maximum CAS score is 100, however, it is rare to see CAS scores greater than ~55.

Pancreas

Pancreas allocation policy is set out in *OPTN Policy 11: Allocation of Pancreas, Kidney-Pancreas, and Islets.*

To be registered on the pancreas waiting list, candidates must be diagnosed with diabetes; have pancreatic exocrine insufficiency; or require the procurement or transplantation of a pancreas as part of a multiple organ transplant for technical reasons. To be registered on the kidney-pancreas waiting list, candidates must be diagnosed with diabetes or have pancreatic exocrine insufficiency with renal insufficiency.

Pancreas and Kidney-Pancreas Classifications describe the characteristics of the groups of candidates. Classifications refer to several candidate characteristics:

- Candidates with **high Calculated Panel Reactive Antibody (CPRA)**, often referred to as sensitized or highly sensitized candidates.[68] Suitable organs for highly sensitized candidates are rare.

[67] OPTN. *A guide to calculating the Lung Composite Allocation Score (Lung CAS).* Available at: https://optn.transplant.hrsa.gov/media/jhcppfnd/guide_to_calculating_lung_composite_allocation_scorepdf.pdf. Last accessed December 11, 2024.

[68] *OPTN Policy 1.2: Definitions.* CPRA is defined as: "The percentage of deceased donors expected to have one or more of the unacceptable antigens indicated on the waiting list for the candidate. The CPRA is derived from HLA antigen, allele, and epitope genotype frequencies for the different populations in proportion to their representation in the national deceased donor population."

- **0-ABDR** or zero-antigen mismatch. Zero-antigen mismatch indicates that the tissue markers of the candidate and potential donor match fully. These types of transplants are expected to have the best longer-term results.[69]

[69] *OPTN Policy 1.2: Definitions.* 0-ABDR mismatch is defined as: "A candidate is considered a 0-ABDR mismatch with a deceased or living donor if all of the following conditions are met: 1. At least one donor antigen is identified for each of the A, B, and DR loci 2. At least one candidate antigen is identified for each of the A, B, and DR loci 3. The donor has zero non-equivalent A, B, or DR antigens with the candidate's antigens 4. The donor and the candidate have compatible or permissible blood types."

Figure 1-3 shows an example pancreas classification.

Figure 1-3: Example Pancreas/Kidney-Pancreas Classification[70]

Table 11-5: Allocation of Kidneys and Pancreas from Deceased Donors 50 Years Old and Less with a BMI Less Than or Equal To 30 kg/m²

Classification	Candidates that are	And registered at a transplant program that is at or within this distance from the donor hospital:
1	Either pancreas or kidney-pancreas candidates, 0-ABDR mismatch, and CPRA greater than or equal to 80%	250NM

Terms to know

Please find below an explanation of other terms used in this request for feedback.

Multi-organ allocation: offering more than one organ from a deceased donor to the same waitlist candidate.

Multi-organ donor allocation plan: a system-generated donor-specific plan to guide the user through the applicable multi-organ allocation table.

Multi-organ donor allocation table: a table in policy directing the order in which OPOs make offers across the different organ match runs when a donor has more than one organ available for donation.

[70] Pancreas/Kidney-Pancreas Classification 1 from *OPTN Policy Table 11-5: Allocation of Kidneys and Pancreas from Deceased Donors 50 Years Old and Less with BMI Less Than or Equal to 30kg/m²*.

Appendix 2: Summary of data requests

Table 2-1 summarizes the data requests informing the MOT Committee's upcoming policy proposal.

Table 2-1: Summary of data requests

Title	Overarching research question	Description of data provided
Waitlist survival	Among candidates waiting for multi-organ transplant compared to candidates waiting for single organ transplant, what is the risk of waitlist mortality, including if relevant death after removal from the waitlist or removal for being too sick to transplant?	Survival models estimated the risk of mortality on the waiting list for candidates on or added to the list during a period of at least 2 years.
Post-transplant survival	What is the expected posttransplant survival among multiorgan transplant recipients?	Survival models estimated the risk of posttransplant mortality for multi-organ transplant recipients to 10 years where possible.
Time without an offer	Among multiorgan transplant candidates what is the expected time between offers?	Time without an offer for multiorgan candidates on or added to the list during a period of at least 2 years summarized with mean, median, and interquartile range.
Waiting list outcomes	What were the reasons for single- and multi-organ candidate removal from the waitlist?	For candidates removed from the wait list over a 2-year period, summarized counts were provided based on their reason for removal.
Median time to transplant	What was the median time candidates spent on the waitlist for a multi- or single-organ transplant?	For candidates transplanted over a 2-year period, median time to transplant was calculated.
Small populations/efficiency	For donor and candidate populations of interest, how many candidates would appear on each match run	Summary statistics of the number of candidates of interest appearing on match runs over a year's time.
Multi-organ donors[71]	What are the characteristics of donors that have historically donate to multi-organ recipients?	Summary statistics based on candidate and donor characteristic for multi-organ recipients over a two-year period.

[71] This data request is ongoing. The MOT Committee will analyze results and make any necessary adjustments prior to releasing the policy proposal for public comment.

Title	Overarching research question	Description of data provided
Lung multi-organ match run appearances	What composite allocation scores (CAS) do lung multi-organ candidates have under continuous distribution and where do they appear on lung match runs?	Summary statistics of CAS and sequence number on lung match runs for lung multi-organ candidates and recipients over a 9-month period.
Lung multi-organ CAS threshold evaluation[72]	How many and what types of candidates appear above various CAS thresholds on lung match runs?	Summary statistics of the number and types of candidates the fell above and below various CAS thresholds on lung match runs over an 11-month period.

[72] This data request is ongoing. The MOT Committee will analyze results and make any necessary adjustments prior to releasing the policy proposal for public comment.

Appendix 3: Values prioritization exercise (VPE) results and limitations

Table 3-1 sets out the results of the VPE. Participants compared 16 sets of candidates and determined which candidate should receive priority. The table includes the number of votes for each candidate and the primary factor(s) for the participants' prioritization decisions. Nineteen results are shown because some questions included variations on candidate characteristics.

Table 3-1: Summary of VPE results

Candidate (votes)	Candidate (votes)	Factor(s) driving prioritization
Adult Liver Status 1A (11)	Adult Heart Status 1 (7)	Waitlist mortality
Heart Status 1 (9)	Pediatric Liver Status 1B (9)	Waitlist mortality/Access to transplant
Pediatric Heart Status 1A (16)	Pediatric Liver Status 1B (2)	Waitlist mortality/Access to transplant
Adult Liver Status 1A (16)	Adult Heart Status 2 (2)	Waitlist mortality
Pediatric Liver Status 1B (12)	Adult Heart Status 2 (6)	Waitlist mortality/Access to transplant
Adult Heart Status 1 (16)	Lung CAS > 25 (2)	Waitlist mortality
Adult Heart Status 2 (11)	Lung CAS > 25 (7)	Waitlist mortality
Adult Liver Status 1A (14)	Lung CAS > 25 (4)	Waitlist mortality
Pediatric Liver Status 1B (16)	Lung CAS > 25 (2)	Waitlist mortality
Liver MELD > 37 (16)	Intestine Status 1 (2)	Waitlist mortality
Intestine Status 1 (12)	Pancreas or KP Class. 1 and 2 (6)	Waitlist mortality/Access to transplant
Liver MELD > 37 (12)	Pancreas or KP Class. 1 and 2 (6)	Waitlist mortality
Pancreas or KP Class. 1 or 2 (10)	Kidney Class. 1 and 2 (8)	Access to transplant
Kidney Class. 1 or 2 (11)	Pancreas or KP Class. 3 (7)	Access to transplant
Kidney Class. 7 (12)	Pancreas or KP Class. 3 (7)	Waitlist mortality
Adult Heart Status 3 (12)	Kidney Class. 5 (6)	Waitlist mortality
Kidney Class. 6 (11)	Heart Status 3 (7)	Access to transplant
Pediatric Heart Status 1B (15)	Kidney Class. 6 (3)	Waitlist mortality/Access to transplant
Kidney Class. 7 (12)	Adult Heart Status 3 (6)	Waitlist mortality

The VPE had limitations. It did not ask participants to compare all organ classifications included in the draft allocation for DBD donors aged 18-69 with KDPI of 0-34%, rather comparisons focused on classifications placed close to each other in the initial draft. Additionally, many participants indicate selecting the "access to transplant" option for different reasons, including to emphasize prioritization of pediatric candidates, highly sensitized candidates, prior living donors, and those candidates that were very sick. The latter of these justifications may have been more rightfully placed in the "waitlist mortality concerns" option as was highlighted during discussion of the results by the MOT Committee.

Appendix 4: Multi-organ allocation tables not included in this Request for Feedback

Some organs are allocated differently based on donor characteristics, as summarized in *Table 4-1*.

Table 4-1: Allocation differences based on donor characteristics

Organ(s)	Allocation sequences based on donor criteria
Heart and heart-lungs	• Adult (at least 18 years old) • Pediatric (less than 18 years old)
Lung	N/A (single allocation sequence)
Liver and liver-intestines	• Non-DCD donors at least 18 years old and less than 70 years old • Non-DCD donors 11 to 17 years old • Non-DCD donors less than 11 years old • DCD donors or donors at least 70 years old
Intestine	N/A (single allocation sequence)
Kidney	• KDPI 0-20% • KDPI 21-34% • KDPI 35-85% • KDPI 86-100% • En bloc (weighs less than 18 kg)
Pancreas, kidney-pancreas, and islets	• 50 years old and less, with body mass index (BMI) less than or equal to 30 kg/m^2 • More than 50 years old, or with BMI greater than 30 kg/m^2
Vascularized composite allograft (VCA)	N/A (single allocation sequence)

The MOT Committee chose to focus the scope of the upcoming policy proposal on donors that are likely to donate organs to multi-organ candidates. Accordingly, the MOT Committee decided not to develop tables for donors who meet the following characteristics:

- KDPI 86-100%
- En bloc (weights less than 18 kg)

Because these donors are unlikely to donate organs to multi-organ candidates, OPOs would not need to follow a multi-organ table to allocate organs from these donors. Excluding these donors from the scope of the upcoming proposal is intended to provide flexibility to OPOs to support placement of organs that are less likely to be accepted.

While pancreas, kidney-pancreas, and islet allocation varies based on donor age and BMI, the first four classifications in each allocation sequence is the same. Because the MOT Committee opted only to include the first four classifications in the selected tables, the MOT Committee did not need to consider

alternate tables based on BMI or whether donor age was less than or greater than 50 years. The MOT Committee also chose not to include VCA classifications in the tables since VCA allocation is typically handled following allocation of the other organs.

This left the MOT Committee with 12 possible combinations of donor factors for which the committee could consider developing separate tables. As described above, the MOT Committee decided to develop tables for six of these 12 groups of donors. The table below sets out the multi-organ allocation tables not developed at this stage.

Table 4-2: Multi-organ allocation tables not recommended for inclusion

Donor group	% of donors to multi-organ recipients[73]	Comments
DCD donors aged 18+ with KDPI of 35-85%	2%	Small percentage
DBD donors aged 11-17 with KDPI of 34-85%	<1%	Small percentage
DBD donors aged <11 with KDPI of 0-34% and liver but no intestine available	1%	Small percentage; inclusion would not promote access to transplant for pediatric multivisceral candidates
DBD donors aged <11 with KDPI of 35-85% and liver but no intestine available	1%	Small percentage; inclusion would not promote access to transplant for pediatric multivisceral candidates
DCD donors age <18 with KDPI of 0-34%	1%	Small percentage
DCD donors aged <18 with KDPI of 35-85%	<1%	Small percentage

[73] Table shows percent of donors to multi-organ recipients between July 2021 and December 2023. Per OPTN data as of July 26, 2024. Data are subject to change based on future submission or correction.

Appendix 5: Allocation table for DBD donors aged 18-69 with KDPI of 0-34%

Table 5-1 shows the order of priority for DBD donors aged 18-69 with KDPI of 0-34%. Guided by the system-generated allocation plan, OPOs would make offers across the different organ match runs as shown in the table and make offers to single- and multi-organ candidates in the order that they appear on the match runs. An explanation of each data point is provided in the footnotes. The table also includes a brief description of the Committee's rationale for placement of the classifications.

Median appearances means the median number of registrations that appeared in each classification on all match runs with a final acceptance.

The data indicate how frequently candidates appear, on average, on a match run for a donor covered by this table. This provides a sense of the volume of candidates that have historically been captured in the classifications in the allocation tables.

Table 5-1: Allocation table for DBD donors aged 18-69 with KDPI of 0-34%

Organ classification[74]	Median appearances[75]	Median waitlist survival[76]	Median post-tx survival[77]	Median time without offer[78]	Percent without offer[79]	Rational for placement
Liver Class 1: Status 1A (adult and pediatric); 500NM	0	94.3	86.8	2	14	Medical urgency. No life-sustaining technology.
Heart Class 1: Adult Status 1 or Pediatric Status 1A; 500NM	1	85.1	90.3	12	26	Medical urgency.
Heart Class 2: Adult Status 1 or Ped Status 1A; 500NM	0	85.1	91.3	34	80	
Liver Class 2: Status 1B; 500NM	0	94.8	88.1	3	8	Medical urgency. Pediatric access to transplant.
Liver Class 3: Status 1A; HI or PR	0	94.3	81.1	2	10	

[74] Most blood type information omitted from organ classification description for brevity.
[75] Median appearances: The median number of registrations that appeared in the classification on all match runs with an acceptance for the donor type indicated (from the *small populations/efficiency* data request based on matches submitted between February 1st, 2023 and December 31st, 2023). Note that the median appearance data for intestines is based on a smaller number of match runs with a final acceptance than seen for other organs.
[76] Median waitlist survival: Median estimated risk for 1-year survival pretransplant for candidates within the class (from the waitlist survival data request based on candidates waiting between July 1, 2021, through June 30, 2023).
[77] Median post-tx survival: Median predicted 1-year graft survival for candidates within the class (from *Post-transplant* survival data request based on candidates waiting between July 1, 2021, through June 30, 2023).
[78] Mean time without offer: Mean time in days candidates within the class went without an organ offer (from *Time without an offer* data request based on candidates waiting between July 1, 2021, through June 30, 2023).
[79] Percent without offer: The proportion of candidates in the class that did not receive an organ offer during the cohort time frame (from *Time without an offer* data request based on candidates waiting between July 1, 2021, through June 30, 2023).

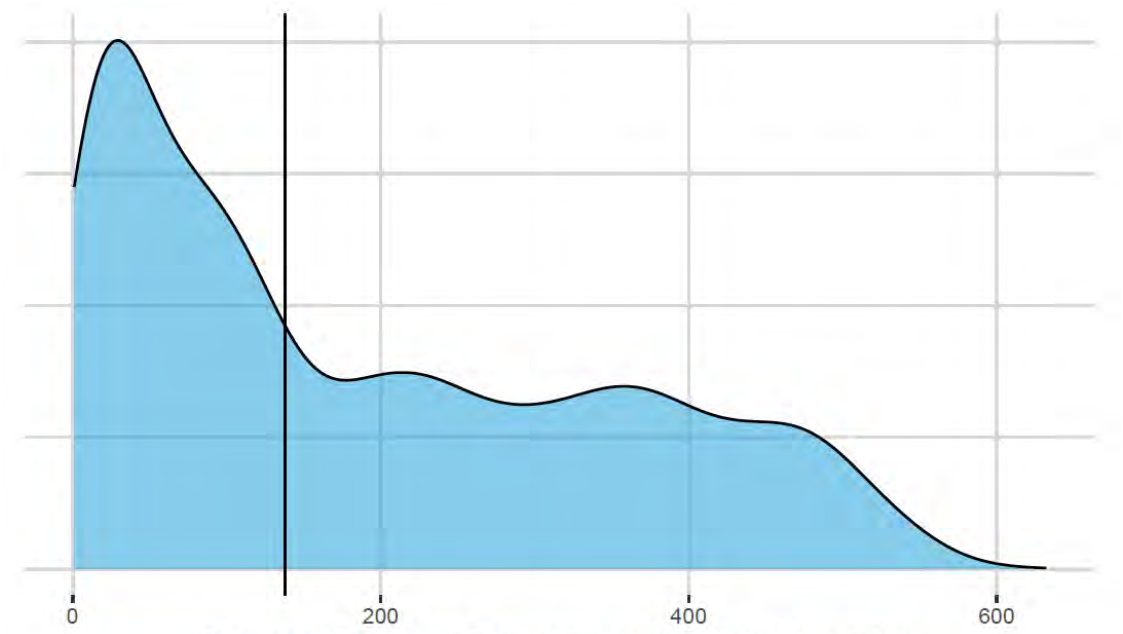
Organ classification[74]	Median appearances[75]	Median waitlist survival[76]	Median post-tx survival[77]	Median time without offer[78]	Percent without offer[79]	Rational for placement
Liver Class 4: Status 1B; HI or PR	0	94.8	93.7	--	--	
Heart Class 3: Adult Status 2; 500NM	10	82.1	91.7	4	14	Medical urgency. Access to transplant.
Heart Class 4: Adult Status 2; 500NM	0	82.1	92.2	16	76	
Lung: Composite Allocation Score (CAS) to be determined						Ongoing analysis of lung CAS threshold.
Kidney Class 1: 0-ABDR mismatch; CPRA =equal to 100%; 250NM	0	95.9	95.5	449	98	Access to transplant. Small population.
Kidney Class 2: CPRA equal to 100%; 250NM	0	95.9	94.3	178	72	
Kidney Class 3: 0-ABDR mismatch; CPRA equal to 100%; nation	0	95.9	95.5	407	92	
Kidney Class 4: CPRA equal to 100%; nation	0	95.9	94	84	45	
Kidney Class 5: Prior living donor; 250NM	0	96.2	93.8	37	25	Honor gift of life.
Liver Class 5: MELD/PELD of at least 37; 150NM	0	72.6	88.4	4	40	Medical urgency.
Liver Class 6: MELD/PELD of at least 37; 150 NM	0	72	88.3	5	46	
Liver Class 7: MELD/PELD of at least 37; 250NM	0	72.6	88.9	3	25	
Liver Class 7: MELD/PELD of at least 37; 250NM	0	72	88.7	3	31	
Liver Class 9: MELD/PELD of at least 37; 500NM	2	72.6	89.3	2	11	
Liver Class 9: MELD/PELD of at least 37; 500NM	1	72	89	2	13	
Intestine Class 1: Status 1; 500NM	4.5	92.7	80	76	44	Access to transplant. No life-sustaining technology.
Intestine Class 2: Status 1; 500NM	1	92.7	89.2	137	69	
Intestine Class 3: Status 1; nation	5.5	92.7	81	51	26	
Intestine Class 4: Status 1; nation	2	92.7	90	107	62	
Lung: Composite Allocation Score TBD						Ongoing analysis of lung CAS threshold.
Pancreas or K/P Class 1: 0-ABDR mismatch; CPRA ≥ 80%; 250NM	0	94.6	96.7	361	98.5	Access to transplant. Utilization of pancreata.
Pancreas or K/P Class 2: CPRA ≥ 80%; 250NM	0	94.6	98.6	203	66	
Heart Class 5: Adult Status 3 or Pediatric Status 1B; 250NM	3	91.3	90.4	25	44	Medical urgency and access to transplant for pediatric candidates.
Heart Class 6: Adult Status 3 or Pediatric Status 1B; 250NM	0	91.3	91.2	60	87	
Pancreas or K/P Class 3: 0-ABDR mismatch; CPRA ≥ 80%; nation	0	94.6	96.2	355	97	Access to transplant. Utilization of pancreata.
Pancreas or K/P Classification 4: 250NM	27	95.7	90.1	96	43	

Organ classification[74]	Median appearances[75]	Median waitlist survival[76]	Median post-tx survival[77]	Median time without offer[78]	Percent without offer[79]	Rational for placement
Kidney Class 6: Registered prior to 18 years old; 250NM	3	99.1	97.2	44	52	Access to transplant for pediatric candidates.
Kidney Class 7: Medically Urgent; 250NM	0	95.2	91.9	21	28	Medical urgency.
Kidney Class 8: 0-ABDR mismatch; CPRA equal to 99%; 250NM	0	95.3	95.5	339	98.2	Access to transplant.
Kidney Class 9: CPRA equal to 99%; 250NM	0	95.3	94.9	89	50.2	
Kidney Class 10: 0-ABDR mismatch; CPRA equal to 98%; 250NM	0	95.4	96.1	297	98.1	
Kidney Class 11: CPRA equal to 98%; 250NM	0	95.4	95.8	69	42	
Liver Class 13: MELD/PELD of at least 33; 150NM	1	79.9	92.8	7	49.7	Medical urgency
Liver Class 14: MELD/PELD of at least 33; 150NM	0	79.6	92.7	6	54.1	
Liver Class 15: MELD/PELD of at least 33; 250NM	0	79.9	92.3	5	35.9	
Liver Class 16: MELD/PELD of at least 33; 250NM	0	79.6	92.2	5	39.6	
Liver Class 17: MELD/PELD of at least 33; 500NM	3	79.9	92.6	3	23.1	
Liver Class 18: MELD/PELD of at least 33; 500NM	1	79.6	92.4	3	23.3	
Liver Class 19: MELD/PELD of at least 30; O donor; O or B candidate; 150NM	1	80.8	91.3	10	49.9	
Liver Class 20: MELD/PELD of at least 29; O donor; O candidate; 150NM	0	81.6	93.7	9	54.9	
Liver Class 21: MELD/PELD of at least 29; non-O donor; any cand.; 150NM	1	81.7	93.8	11	61.9	
Liver Class 22: MELD/PELD of at least 30; O donor; O or B candidate; 250NM	1	80.8	91.2	8	39.4	
Liver Class 23: MELD/PELD of at least 29; O donor; O candidate; 250NM	0	81.6	94.1	8	43.8	
Liver Class 24: MELD/PELD of at least 29; non-O donor; any cand.; 250NM	1	81.71	94.1	9	48.5	
Liver Class 25: MELD/PELD of at least 30; O donor; O or B candidate; 500NM	5	80.8	91.8	5	27.2	
Liver Class 26: MELD/PELD of at least 29; O donor; O candidate; 500NM	2	81.6	93.7	5	32.3	
Liver Class 27: MELD/PELD of at least 29; O donor; O candidate; 500NM	4	81.7	93.7	6	33.2	

Appendix 6: Key analyses undertaken by the Lung Multi-Organ Workgroup

Figure 6-1 shows the distribution of the sequence number of the last lung multi-organ candidate on the lung match run with a lung CAS greater than 25 for match runs executed between September 28, 2023 and June 30, 2024.

Figure 6-1: Sequence number of the last lung multi-organ candidate on the lung match run with a lung CAS greater than 25 for lung match runs executed between September 28, 2023, and June 30, 2024

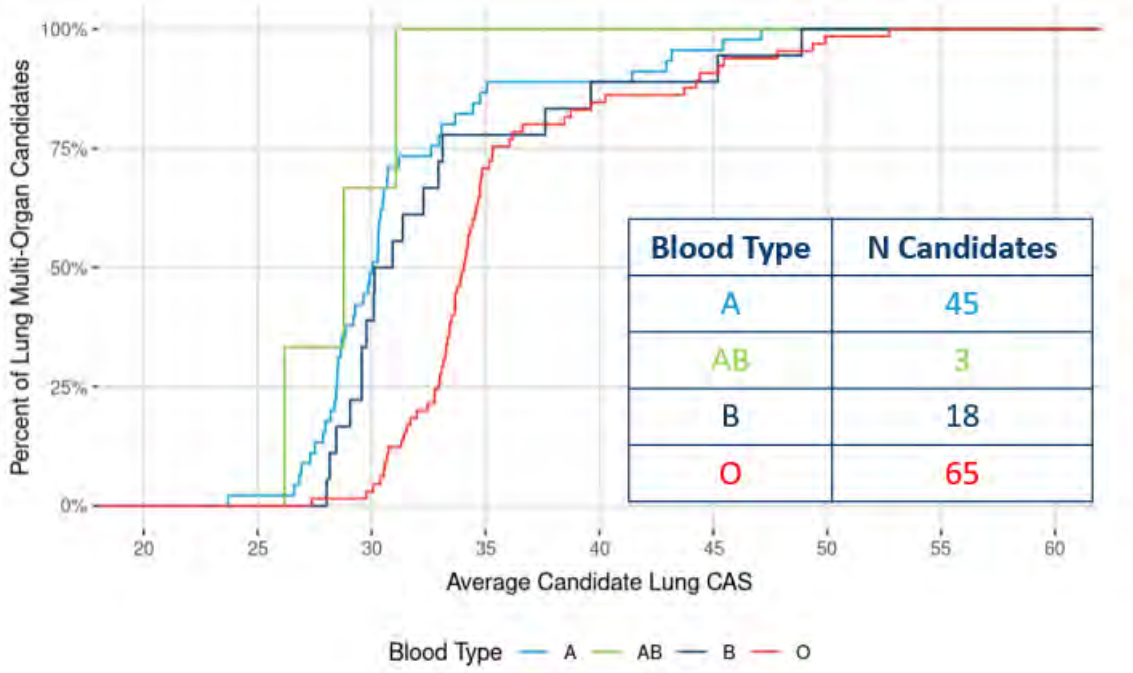


N Matches	N Missing	Min	25th Percentile	Median	Mean	75th Percentile	Max
6078	109	1	47	138	190.57	324	632

Source: OPTN data as of September 13, 2024 were used for this analysis. Data are subject to change based on future submission or correction.

Figure 6-2 shows the distribution of the average lung CAS for lung multi-organ candidates across all lung match runs executed between September 28, 2023, and June 30, 2024, by blood type.

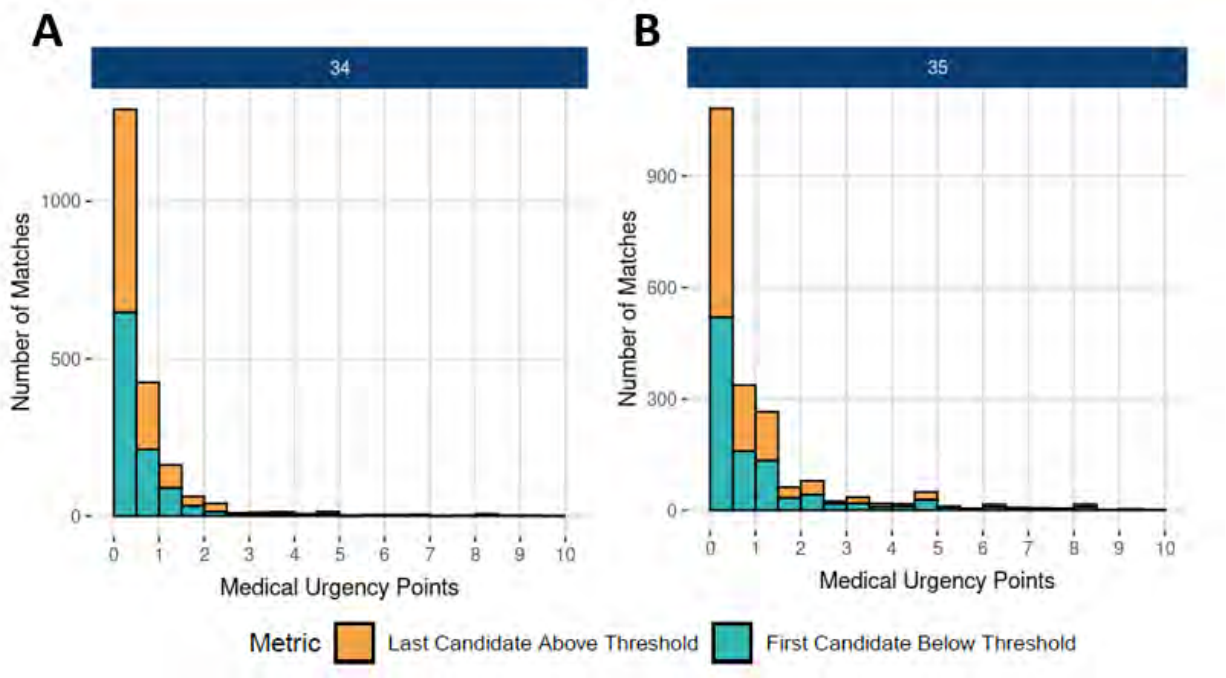
Figure 6-2: Distribution of the average lung CAS for lung multi-organ candidates across all lung match runs executed between September 28, 2023, and June 30, 2024, by blood type



Source: OPTN data as of September 13, 2024 were used for this analysis. Data are subject to change based on future submission or correction.

Figure 6-3 shows medical urgency points for lung candidates appearing on match runs for blood type O donors between September 28, 2023 and August 31, 2024. Specifically, this figure shows the distribution of medical urgency points for the last adult candidate above and first adult candidate below potential lung CAS thresholds of 34 (*panel A*) and 35 (*panel B*) for blood type O donors. Each bar width represents 0.5 medical urgency points.

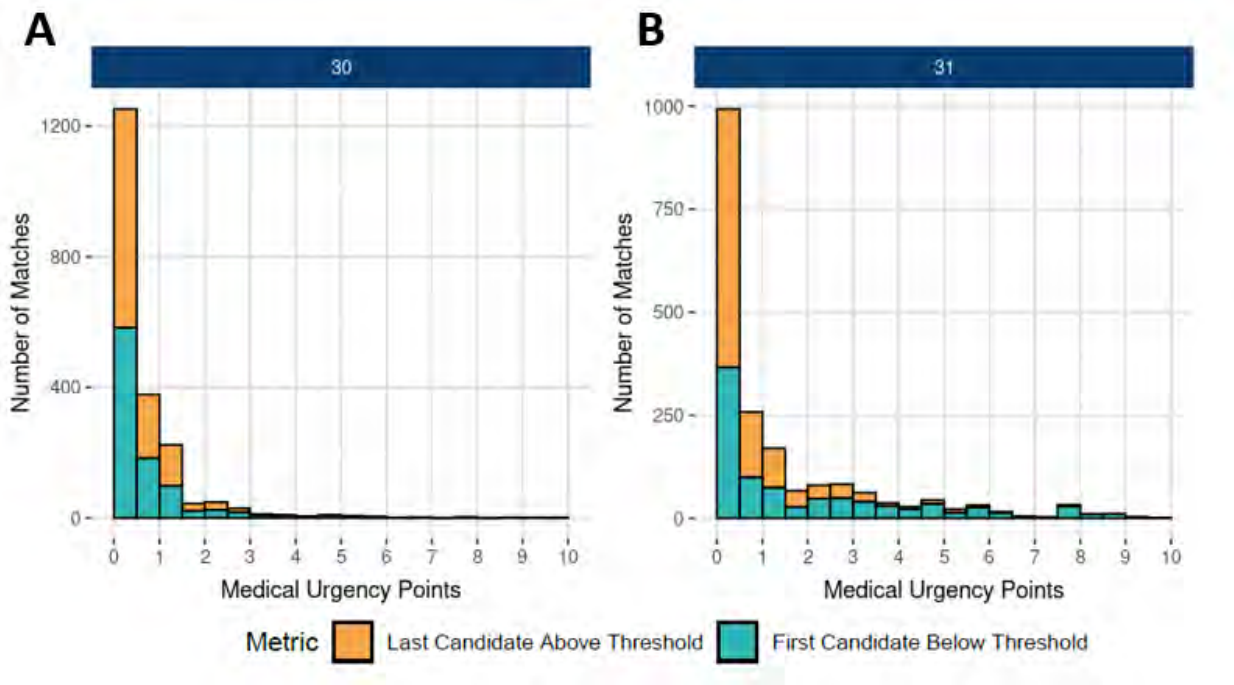
Figure 6-3: Distribution of medical urgency points for adult lung candidates appearing on blood type O donor matches between September 28, 2023, and August 31, 2024



Source: OPTN data as of November 22, 2024 were used for this analysis. Data are subject to change based on future submission or correction.

Figure 6-4 shows medical urgency points for lung candidates appearing on match runs for blood type A, B, and AB donors between September 28, 2023 and August 31, 2024. Specifically, this figure shows the distribution of medical urgency points for the last adult candidate above and first adult candidate below potential lung CAS thresholds of 30 (*panel A*) and 31 (*panel B*) for blood type A, B, and AB donors. Each bar width represents 0.5 medical urgency points.

Figure 6-4: Distribution of median medical urgency points for lung candidates appearing on blood type A, B, and AB donor matches between September 28, 2023, and August 31, 2024



Source: OPTN data as of November 22, 2024 were used for this analysis. Data are subject to change based on future submission or correction.

Appendix 7: Allocation table for DBD donors aged 18-69 with KDPI of 35-85%

Table 7-1 shows the order of priority for DBD donors aged 18-69 with KDPI of 35-85%. Guided by the system-generated allocation plan, OPOs would make offers across the different organ match runs as shown in the table and make offers to single- and multi-organ candidates in the order that they appear on the match runs. The table shows median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Median appearances means the median number of registrations that appeared in each classification on all match runs with a final acceptance.

The data indicate how frequently candidates appear, on average, on a match run for a donor covered by this table. This provides a sense of the volume of candidates that have historically been captured in the classifications in the allocation tables.

Table 7-1: Allocation table for DBD donors aged 18-69 with KDPI of 35-85%

Organ classification[81]	Median appearances[82]	Rational for placement
Liver Class 1: Status 1A (adult and pediatric); 500NM	0	
Heart Class 1: Adult Status 1 or Pediatric Status 1A; 500NM	1	
Heart Class 2: Adult Status 1 or Ped Status 1A; 500NM	0	
Liver Class 2: Status 1B; 500NM	0	
Liver Class 3: Status 1A; HI or PR	0	
Liver Class 4: Status 1B; HI or PR	0	
Heart Class 3: Adult Status 2; 500NM	9	
Heart Class 4: Adult Status 2; 500NM	1	
Lung: Composite Allocation Score TBD		Ongoing analysis of lung CAS threshold
Kidney Class 1: 0-ABDR mismatch; CPRA equal to 100%; 250NM	0	
Kidney Class 2: CPRA equal to 100%; 250NM	0	
Kidney Class 3: 0-ABDR mismatch; CPRA equal to 100%; nation	0	
Kidney Class 4: CPRA equal to 100%; nation	0	

[80] Median appearances: The median number of registrations that appeared in the classification on all match runs with an acceptance for the donor type indicated (based on matches submitted between February 1st, 2023 and December 31st, 2023). Note that the median appearance data for intestines is based on a smaller number of match runs with a final acceptance than seen for other organs.

[81] Most blood type information omitted from organ classification description for brevity.

[82] Median appearances: The median number of registrations that appeared in the classification on all match runs with an acceptance for the donor type indicated (based on matches submitted between February 1st, 2023 and December 31st, 2023). Note that the median appearance data for intestines is based on a smaller number of match runs with a final acceptance than seen for other organs.

Organ classification[81]	Median appearances[82]	Rational for placement
Kidney Class 5: Prior living donor; 250NM	0	
Liver Class 5: MELD/PELD of at least 37; 150NM	0	
Liver Class 6: MELD/PELD of at least 37; 150 NM	0	
Liver Class 7: MELD/PELD of at least 37; 250NM	0	
Liver Class 7: MELD/PELD of at least 37; 250NM	0	
Liver Class 9: MELD/PELD of at least 37; 500NM	1	
Liver Class 9: MELD/PELD of at least 37; 500NM	1	
Liver Class 11: MELD/PELD of at least 37; HI or PR	0	
Liver Class 12: MELD/PELD of at least 37; HI or PR	0	
Intestine Class 1: Status 1; 500NM	4	
Intestine Class 2: Status 1; 500NM	2	
Intestine Class 3: Status 1; nation	3	
Intestine Class 4: Status 1; nation	2	
Lung: Composite Allocation Score TBD		Ongoing analysis of lung CAS threshold
Pancreas or K/P Class 1: 0-ABDR mismatch; CPRA ≥ 80%; 250NM	0	
Pancreas or K/P Class 2: CPRA ≥ 80%; 250NM	0	
Kidney Class 6: Medically Urgent; 250NM	0	Increased priority for medically urgent kidney candidates
Kidney Class 7: 0-ABDR mismatch; CPRA equal to 99%; 250NM	0	Increased priority for highly sensitized candidates
Heart Class 5: Adult Status 3 or Pediatric Status 1B; 250NM	3	
Heart Class 6: Adult Status 3 or Pediatric Status 1B; 250NM	0	
Pancreas or K/P Class 3: 0-ABDR mismatch; CPRA ≥ 80%; nation	0	
Pancreas or K/P Classification 4: 250NM	21	
Kidney Class 8: CPRA equal to 99%; 250NM	0	
Kidney Class 9: 0-ABDR mismatch; CPRA equal to 98%; 250NM	0	
Kidney Class 10: CPRA equal to 98%; 250NM	0	
Kidney Class 11: 0-ABDR mismatch; 250NM	0	
Kidney Class 12: 0-ABDR mismatch; CPRA ≥ 80%; nation	0	Included to promote access for highly sensitized kidney candidates
Liver Class 13: MELD/PELD of at least 33; 150NM		Median appearance data for these classifications not available as they were added to promote consistency across the allocation tables, after completion of the data request.

Organ classification[81]	Median appearances[82]	Rational for placement
Liver Class 14: MELD/PELD of at least 33; 150NM		
Liver Class 15: MELD/PELD of at least 33; 250NM		
Liver Class 16: MELD/PELD of at least 33; 250NM		
Liver Class 17: MELD/PELD of at least 33; 500NM		
Liver Class 18: MELD/PELD of at least 33; 500NM		
Liver Class 19: MELD/PELD of at least 30; O donor; O or B candidate; 150NM		
Liver Class 20: MELD/PELD of at least 29; O donor; O candidate; 150NM		
Liver Class 21: MELD/PELD of at least 29; non-O donor; any cand.; 150NM		
Liver Class 22: MELD/PELD of at least 30; O donor; O or B candidate; 250NM		
Liver Class 23: MELD/PELD of at least 29; O donor; O candidate; 250NM		
Liver Class 24: MELD/PELD of at least 29; non-O donor; any cand.; 250NM		
Liver Class 25: MELD/PELD of at least 30; O donor; O or B candidate; 500NM		
Liver Class 26: MELD/PELD of at least 29; O donor; O candidate; 500NM		
Liver Class 27: MELD/PELD of at least 29; O donor; O candidate; 500NM		
Kidney Class 13: 0-ABDR mismatch; CPRA 21%-79%; < 18 at time of match; nation	0	Included to promote access for pediatric kidney candidates
Kidney Class 14: 0-ABDR mismatch; CPRA 0-20%; < 18 at time of match; nation	0	

Appendix 8: Allocation table for DCD donors aged 18+ with KDPI of 0-34%

Table 8-1 shows the order of priority for DCD donors aged 18+ with KDPI of 0-34%. Guided by the system-generated allocation plan, OPOs would make offers across the different organ match runs as shown in the table and make offers to single- and multi-organ candidates in the order that they appear on the match runs. The table shows median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Median appearances means the median number of registrations that appeared in each classification on all match runs with a final acceptance.

The data indicate how frequently candidates appear, on average, on a match run for a donor covered by this table. This provides a sense of the volume of candidates that have historically been captured in the classifications in the allocation tables.

Table 8-1: Allocation table for DCD donors aged 18+ with KDPI of 0-34%

Organ classification[83]	Median appearances[84]	Rational for placement
Liver Class 1: Status 1A (adult and pediatric); 500NM	0	
Heart Class 1: Adult Status 1 or Pediatric Status 1A; 500NM	0	
Heart Class 2: Adult Status 1 or Ped Status 1A; 500NM	0	
Liver Class 2: Status 1B; 500NM	0	
Heart Class 3: Adult Status 2; 500NM	4	
Heart Class 4: Adult Status 2; 500NM	0	
Lung: Composite Allocation Score TBD		Ongoing analysis of lung CAS threshold.
Kidney Class 1: 0-ABDR mismatch; CPRA equal to 100%; 250NM	0	
Kidney Class 2: CPRA equal to 100%; 250NM	0	
Kidney Class 3: 0-ABDR mismatch; CPRA equal to 100%; nation	0	
Kidney Class 4: CPRA equal to 100%; nation	0	
Kidney Class 5: Prior living donor; 250NM	0	
Liver Class 3: MELD/PELD of at least 30; O donor, O or B candidate; 150NM	1	

[83] Most blood type information omitted from organ classification description for brevity.

[84] Median appearances: The median number of registrations that appeared in the classification on all match runs with an acceptance for the donor type indicated (based on matches submitted between February 1st, 2023 and December 31st, 2023). Note that the median appearance data for intestines is based on a smaller number of match runs with a final acceptance than seen for other organs.

Organ classification[83]	Median appearances[84]	Rational for placement
Liver Class 4: MELD/PELD of at least 15; O donor, O or B candidate; 150 NM	52	
Liver Class 5: MELD/PELD of at least 15; non-O donor, any candidate; 150NM	28	
Intestine Class 1: Status 1; 500NM	NA	No intestine matches had acceptances for DCD adult donors with lower KDPI (based on data between February 1, 2023, and December 31, 2023).
Intestine Class 2: Status 1; 500NM	NA	
Intestine Class 3: Status 1; nation	NA	
Intestine Class 4: Status 1; nation	NA	
Lung: Composite Allocation Score (CAS) to be determined		Ongoing analysis of lung CAS threshold.
Pancreas or K/P Class 1: 0-ABDR mismatch; CPRA ≥ 80%; 250NM	0	
Pancreas or K/P Class 2: CPRA ≥ 80%; 250NM	0	
Heart Class 5: Adult Status 3 or Pediatric Status 1B; 250NM	1	
Heart Class 6: Adult Status 3 or Pediatric Status 1B; 250NM	0	
Pancreas or K/P Class 3: 0-ABDR mismatch; CPRA ≥ 80%; nation	0	
Pancreas or K/P Classification 4: 250NM	13	
Kidney Class 6: Registered prior to 18 years old; 250NM	1	
Kidney Class 7: Medically Urgent; 250NM	0	
Liver Class 6: MELD/PELD of at least 30; O donor, O or B candidate; 250NM	1	Liver Classifications 6-13 placed at the end of the table because liver allocation policy for DCD donors gives higher priority to candidates closer to the hospital who are less urgent relative to the other liver allocation sequences.
Liver Class 7: MELD/PELD of at least 15; O donor, O candidate; 250NM	47	
Liver Class 8: MELD/PELD of at least 15; non-O donor, any candidate; 250NM	28	
Liver Class 9: MELD/PELD of at least 30; O donor, O or B candidate; 500NM	4	
Liver Class 10: MELD/PELD of at least 15; O donor, O candidate; 500NM	124	
Liver Class 11: MELD/PELD of at least 15; non-O donor, any candidate; 500NM	105	
Liver Class 12: Status 1A; nation	0	
Liver Class 13: Status 1B; nation	0	

Appendix 9: Allocation table for DBD donors aged 11-17 with KDPI of 0-34%

Table 9-1 shows the order of priority for DBD donors aged 11-17 with KDPI of 0-34%. Guided by the system-generated allocation plan, OPOs would make offers across the different organ match runs as shown in the table and make offers to single- and multi-organ candidates in the order that they appear on the match runs. The table shows median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Median appearances means the median number of registrations that appeared in each classification on all match runs with a final acceptance.

The data indicate how frequently candidates appear, on average, on a match run for a donor covered by this table. This provides a sense of the volume of candidates that have historically been captured in the classifications in the allocation tables.

Table 9-1: Allocation table for DBD donors aged 11-17 with KDPI of 0-34%

Organ classification[85]	Median appearances[86]	Rational for placement
Liver Class 1: Pediatric Status 1A; 500NM	0	
Liver Class 2: Adult Status 1A; 500NM	0	
Heart Class 1: Pediatric Status 1A; 500NM	1	
Heart Class 2: Pediatric Status 1A; 500NM	0	
Heart Class 3: Adult Status 1; 250NM	0	
Heart Class 4: Adult Status 1; 250NM	0	
Liver Class 3: Pediatric Status 1B; 500NM	0	
Liver Class 4: Pediatric Status 1A; 2400NM (HI) or 1100NM (PR)	0	
Liver Class 5: Adult Status 1A; 2400NM (HI) or 1100NM (PR)	0	
Liver Class 6: Pediatric Status 1B; 2400NM (HI) or 1100NM (PR)	0	
Heart Class 5: Adult status 2; 250NM	1	
Heart Class 6: Adult status 2; 250NM	0	

[85] Most blood type information omitted from organ classification description for brevity.

[86] Median appearances: The median number of registrations that appeared in the classification on all match runs with an acceptance for the donor type indicated (based on matches submitted between February 1st, 2023 and December 31st, 2023). Note that the median appearance data for intestines is based on a smaller number of match runs with a final acceptance than seen for other organs.

Organ classification[85]	Median appearances[86]	Rational for placement
Heart Class 7: Pediatric status 1B; 500NM	2	Increased priority for Heart Classifications 7-8 to promote pediatric candidates' access to pediatric donor hearts.
Heart Class 8: Pediatric status 1B; 500NM	0	
Lung: Composite Allocation Score (CAS) to be determined		Ongoing analysis of lung CAS threshold.
Kidney Class 1: 0-ABDR mismatch; CPRA equal to 100%; 250NM	0	
Kidney Class 2: CPRA equal to 100%; 250NM	0	
Kidney Class 3: 0-ABDR mismatch, CPRA equal to 100%; nation	0	
Kidney Class 4: CPRA equal to 100%; nation	0	
Kidney Class 5: Prior living donor; 250NM	0	
Intestine Class 1: Status 1; 500NM	9	Increased priority for Intestine Classifications 1-4 to promote access for pediatric candidates.
Intestine Class 2: Status 1; 500NM	8	
Intestine Class 3: Status 1; nation	6	
Intestine Class 4: Status 1; nation	2	
Liver Class 7: PELD of at least 37; O donor, O or B candidate; 500NM	0	
Liver Class 8: PELD of at least 37; non-O donor, any candidate; 500NM	0	
Liver Class 9: PELD of at least 37; 2400NM (HI) or 1100NM (PR); O donor, O or B candidate	0	
Liver Class 10: PELD of at least 37; 2400NM (HI) or 1100NM (PR); non-O donor, any candidate	0	
Liver Class 11: PELD of at least 37; O donor, O or B candidate; 500NM	2	
Liver Class 12: Any PELD; O donor, O candidate; 500NM	7	
Liver Class 13: Any PELD; non-O donor, any candidate; 500NM	3	
Liver Class 14: MELD of at least 37; < 18 at registration; O donor, O or B candidate; 500NM	0	
Liver Class 15: MELD of at least 37 < 18 at registration; non-O donor, any candidate; 500NM	0	

Organ classification[85]	Median appearances[86]	Rational for placement
Liver Class 16: MELD of at least 37; < 18 at registration, 2400NM (HI) or 1100NM (PR); O donor, O or B candidate	0	
Liver Class 17: MELD of at least 37; < 18 at registration; 2400NM (HI) or 1100NM (PR), non-O donor, any candidate	0	
Lung: Composite Allocation Score (CAS) to be determined		Ongoing analysis of lung CAS threshold.
Liver Class 18: MELD of at least 30; < 18 years old at registration; O donor, O or B candidate; 500NM	1	
Liver Class 19: Any MELD; < 18 years old at registration; O donor, O candidate; 500NM	4	
Liver Class 20: Any MELD; < 18 years old at registration; Non-O donor, any candidate; 500NM	2	
Pancreas or K/P Class 1: 0-ABDR mismatch; CPRA ≥ 80%; 250NM	0	
Pancreas or K/P Class 2: CPRA ≥ 80%; 250NM	0	
Pancreas or K/P Class 3: 0-ABDR mismatch; CPRA ≥ 80; nation	0	
Kidney Class 6: Registered prior to 18 years old; 250NM	3	Increased priority for Kidney Classification 6 to promote pediatric candidates' access to pediatric donor kidneys. Committee seeks public feedback on whether pediatric kidney candidates should be placed above Pancreas/Kidney-Pancreas Classification 1, between Pancreas/Kidney-Pancreas Classification 3 and 4, or below Pancreas/Kidney-Pancreas Classification 4.
Pancreas or K/P Classification 4: 250NM	28	
Kidney Class 7: Medically Urgent; 250NM	0	

Appendix 10: Allocation table for DBD donors aged <11 with KDPI of 0-34% and liver and intestine available

Table 10-1 shows the order of priority for DBD donors aged <11 with KDPI of 0-34% and liver and intestine available. Guided by the system-generated allocation plan, OPOs would make offers across the different organ match runs as shown in the table and make offers to single- and multi-organ candidates in the order that they appear on the match runs. The table shows median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Median appearances means the median number of registrations that appeared in each classification on all match runs with a final acceptance.

The data indicate how frequently candidates appear, on average, on a match run for a donor covered by this table. This provides a sense of the volume of candidates that have historically been captured in the classifications in the allocation tables.

Table 10-1: Allocation table for DBD donors aged <11 with KDPI of 0-34% and liver and intestine available

Organ classification[87]	Median appearances[88]	Rational for placement
Liver Class 1: Pediatric Status 1A; 500NM	0	
Liver Class 2: Pediatric Status 1A; < 12 years old; nation	0	
Liver Class 3: Pediatric Status 1A; at least 12 years old; also registered for intestine; nation	0	
Liver Class 4: Adult Status 1A; 500NM	0	
Heart Class 1: Pediatric Status 1A; 500NM	2	
Heart Class 2: Pediatric Status 1A; 500NM	1	
Heart Class 3: Adult Status 1; 250NM	0	
Heart Class 4: Adult Status 1; 250NM	0	
Liver Class 5: Pediatric Status 1B; 500NM	2	
Liver Class 6: Pediatric Status 1A; at least 12 years old; 2400NM (HI) or 1100NM (PR)	0	
Liver Class 7: Adult Status 1A; 2400NM (HI) or 1100NM (PR)	0	Increased priority for Heart Classifications 7-8 to promote pediatric candidates' access to pediatric donor hearts.
Liver Class 8: Pediatric Status 1B; 2400NM (HI) or 1100NM (PR)	0	

[87] Most blood type information omitted from organ classification description for brevity.

[88] Median appearances: The median number of registrations that appeared in the classification on all match runs with an acceptance for the donor type indicated (based on matches submitted between February 1st, 2023 and December 31st, 2023). Note that the median appearance data for intestines is based on a smaller number of match runs with a final acceptance than seen for other organs.

Organ classification[87]	Median appearances[88]	Rational for placement
Heart Class 5: Adult status 2; 250NM	0	
Heart Class 6: Adult status 2; 250NM	0	
Heart Class 7: Pediatric status 1B; 500NM	3	
Heart Class 8: Pediatric status 1B; 500NM	0	
Lung: Composite Allocation Score (CAS) to be determined		Ongoing analysis of lung CAS threshold.
Kidney Class 1: 0-ABDR mismatch; CPRA equal to 100%; 250NM	0	
Kidney Class 2: CPRA equal to 100%; 250NM	0	
Kidney Class 3: 0-ABDR mismatch, CPRA equal to 100%; nation	0	
Kidney Class 4: CPRA equal to 100%; nation	0	
Kidney Class 5: Prior living donor; 250NM	0	
Intestine Class 1: Status 1; 500NM	11	Increased priority for Intestine Classifications 1-4 to promote access for pediatric candidates
Intestine Class 2: Status 1; 500NM	4	
Intestine Class 3: Status 1; nation	5	
Intestine Class 4: Status 1; nation	5	
Liver Class 9: PELD of at least 37; O donor, O or B candidate; 500NM	2	
Liver Class 10: PELD of at least 37; O donor, any candidate; 500NM	0	
Liver Class 11: PELD of at least 37; 2400NM (HI) or 1100NM (PR); O donor, O or B candidate	0	
Liver Class 12: PELD of at least 37; 2400NM (HI) or 1100NM (PR); non-O donor, any candidate	0	
Liver Class 13: PELD 30; O donor, O or B candidate; 500NM	5	
Liver Class 14: PELD 20; O donor, O candidate; 500NM	2	
Liver Class 15: PELD 20; non-O donor, any candidate; 500NM	1	
Liver Class 16: Pediatric Status 1B; registered for intestine; any donor and any candidate blood type; nation	0	
Liver Class 17: PELD of at least 30; registered for intestine; O donor, O or B candidate blood type; nation	1	
Liver Class 18: PELD of at least 20; registered for intestine; O donor, O candidate; nation	1	
Liver Class 19: PELD of at least 20; registered for intestine; non-O donor, any candidate; nation	0.5	
Liver Class 20: Any PELD; O donor, O candidate; 500NM	11	

Organ classification[87]	Median appearances[88]	Rational for placement
Liver Class 21: Any PELD; non-O donor, any candidate; 500NM	3	
Liver Class 22: MELD of at least 37; < 18 at registration, 500NM, O donor, O or B candidate	1	
Liver Class 23: MELD of at least 37; < 18 at registration, 500NM, non-O donor, any candidate	0	
Liver Class 24: MELD of at least 37; < 18 at registration, 2,400NM (HI), 1,100NM (PR); O donor, O or B cand	0	
Liver Class 25: MELD of at least 37; < 18 at registration; 2,400NM (HI), 1,100NM (PR), non-O donor, any cand	0	
Lung: Composite Allocation Score (CAS) to be determined		
Liver Class 26: MELD of at least 30; < 18 years old at registration; O donor, O or B candidate; 500NM	2	
Liver Class 27: Any MELD; < 18 years old at registration; O donor, O candidate; 500NM	6	
Liver Class 28: Any MELD; < 18 years old at registration; Non-O donor, any candidate; 500NM	1	
Kidney Class 6: Registered prior to 18 years old; blood type identical or permissible; 250NM	4.5	Increased priority for Kidney Classification 6 to promote young pediatric candidates' access to young pediatric donor kidneys. Committee seeks public feedback on whether pediatric kidney candidates should be placed above Pancreas/KP Classification 1, between Pancreas/KP Classification 3 and 4, or below Pancreas/KP Classification 4.
Pancreas or K/P Class 1: 0-ABDR mismatch; CPRA ≥ 80%; 250NM	0	
Pancreas or K/P Class 2: CPRA ≥ 80%; 250NM	0	
Pancreas or K/P Class 3: 0-ABDR mismatch; CPRA ≥ 80; nation	0	
Pancreas or K/P Classification 4: 250NM	8	
Kidney Class 7: Medically Urgent; 250NM	0	

Appendix 11: Allocation table for DBD donors aged <11 with KDPI 0-34% and liver and intestine available

Table 11-1 shows the order of priority for DBD donors aged <11 with KDPI 0-34% and liver and intestine available and liver and intestine available. Guided by the system-generated allocation plan, OPOs would make offers across the different organ match runs as shown in the table and make offers to single- and multi-organ candidates in the order that they appear on the match runs. The table shows median appearance data and highlights instances where candidate groups have been prioritized differently in the context of specific donors.

Median appearances means the median number of registrations that appeared in each classification on all match runs with a final acceptance.

The data indicate how frequently candidates appear, on average, on a match run for a donor covered by this table. This provides a sense of the volume of candidates that have historically been captured in the classifications in the allocation tables.

Table 11-1: Allocation table for DBD donors aged <11 with KDPI 0-34% and liver and intestine available and liver and intestine available (DBD, age less than 11, KDPI 35-85%)

Organ classification[89]	Median appearances[90]	Rational for placement
Liver Class 1: Pediatric Status 1A; 500NM	0	
Liver Class 2: Pediatric Status 1A; < 12 years old; nation	0	
Liver Class 3: Pediatric Status 1A; at least 12 years old; also registered for intestine; nation	0	
Liver Class 4: Adult Status 1A; 500NM	0	
Heart Class 1: Pediatric Status 1A; 500NM	9	
Heart Class 2: Pediatric Status 1A; 500NM	1	
Heart Class 3: Adult Status 1; 250NM	0	
Heart Class 4: Adult Status 1; 250NM	0	
Liver Class 5: Pediatric Status 1B; 500NM	2	
Liver Class 6: Pediatric Status 1A; at least 12 years old; 2400NM (HI) or 1100NM (PR)	0	
Liver Class 7: Adult Status 1A; 2400NM (HI) or 1100NM (PR)	0	Increased priority for Heart Classifications 7-8 to promote pediatric candidates' access to pediatric donor hearts.

[89] Most blood type information omitted from organ classification description for brevity.

[90] Median appearances: The median number of registrations that appeared in the classification on all match runs with an acceptance for the donor type indicated (based on matches submitted between February 1st, 2023 and December 31st, 2023). Note that the median appearance data for intestines is based on a smaller number of match runs with a final acceptance than seen for other organs.

Organ classification[89]	Median appearances[90]	Rational for placement
Liver Class 8: Pediatric Status 1B; 2400NM (HI) or 1100NM (PR)	0	
Heart Class 5: Adult status 2; 250NM	0	
Heart Class 6: Adult status 2; 250NM	0	
Heart Class 7: Pediatric status 1B; 500NM	2	
Heart Class 8: Pediatric status 1B; 500NM	0	
Lung: Composite Allocation Score (CAS) to be determined		Ongoing analysis of lung CAS threshold.
Kidney Class 1: 0-ABDR mismatch; CPRA equal to 100%; 250NM	0	
Kidney Class 2: CPRA equal to 100%; 250NM	0	
Kidney Class 3: 0-ABDR mismatch, CPRA equal to 100%; nation	0	
Kidney Class 4: CPRA equal to 100%; nation	0	
Kidney Class 5: Prior living donor; 250NM	0	
Intestine Class 1: Status 1; 500NM	6.5	Increased priority for Intestine Classifications 1-4 to promote access for pediatric candidates.
Intestine Class 2: Status 1; 500NM	2.5	
Intestine Class 3: Status 1; nation	4.5	
Intestine Class 4: Status 1; nation	2.5	
Liver Class 9: PELD of at least 37; O donor, O or B candidate; 500NM	2	
Liver Class 10: PELD of at least 37; O donor, any candidate; 500NM	0	
Liver Class 11: PELD of at least 37; 2400NM (HI) or 1100NM (PR); O donor, O or B candidate	0	
Liver Class 12: PELD of at least 37; 2400NM (HI) or 1100NM (PR); non-O donor, any candidate	0	
Liver Class 13: PELD 30; O donor, O or B candidate; 500NM	5	
Liver Class 14: PELD 20; O donor, O candidate; 500NM	3	
Liver Class 15: PELD 20; non-O donor, any candidate; 500NM	4	
Liver Class 16: Pediatric Status 1B; registered for intestine; any donor and any candidate blood type; nation	0	
Liver Class 17: PELD of at least 30; registered for intestine; O donor, O or B candidate blood type; nation	1	
Liver Class 18: PELD of at least 20; registered for intestine; O donor, O candidate; nation	3	

Organ classification[89]	Median appearances[90]	Rational for placement
Liver Class 19: PELD of at least 20; registered for intestine; non-O donor, any candidate; nation	2	
Liver Class 20: Any PELD; O donor, O candidate; 500NM	10	
Liver Class 21: Any PELD; non-O donor, any candidate; 500NM	3	
Liver Class 22: MELD of at least 37; < 18 at registration, 500NM, O donor, O or B candidate	1	
Liver Class 23: MELD of at least 37; < 18 at registration, 500NM, non-O donor, any candidate	0	
Liver Class 24: MELD of at least 37; < 18 at registration, 2,400NM (HI), 1,100NM (PR); O donor, O or B cand	0	
Liver Class 25: MELD of at least 37; < 18 at registration; 2,400NM (HI), 1,100NM (PR), non-O donor, any cand	0	
Lung: Composite Allocation Score (CAS) to be determined		Ongoing analysis of lung CAS threshold.
Liver Class 26: MELD of at least 30; < 18 years old at registration; O donor, O or B candidate; 500NM	0	
Liver Class 27: Any MELD; < 18 years old at registration; O donor, O candidate; 500NM	2	
Liver Class 28: Any MELD; < 18 years old at registration; Non-O donor, any candidate; 500NM	1	
Pancreas or K/P Class 1: 0-ABDR mismatch; CPRA ≥ 80%; 250NM	0	
Pancreas or K/P Class 2: CPRA ≥ 80%; 250NM	0	
Pancreas or K/P Class 3: 0-ABDR mismatch; CPRA ≥ 80; nation	0	
Pancreas or K/P Classification 4: 250NM	9	
Kidney Class 6: Medically Urgent; 250NM	0	
Kidney Class 7: 0-ABDR mismatch; CPRA equal to 99%; 250NM	0	The Committee invites public feedback on whether Kidney Classifications 11-14 should be included in the table. Including them would be consistent with the *Allocation table for DBD adult donors with higher KDPI* and would help prioritize highly sensitized (CPRA of 98% or greater and 0-ABDR mismatch) and pediatric candidates in the context of pediatric donors. It could also limit access to kidney multi-organ transplantation for heart, lung, and liver candidates not included in the table.
Kidney Class 8: CPRA equal to 99%; 250NM	0	

Organ classification[89]	Median appearances[90]	Rational for placement
Kidney Class 9: 0-ABDR mismatch; CPRA equal to 98%; 250NM	0	
Kidney Class 10: CPRA equal to 98%; 250NM	0	
Kidney Class 11: 0-ABDR mismatch; 250NM	0	
Kidney Class 12: 0-ABDR mismatch; CPRA ≥ 80%; nation	0	
Kidney Class 13: 0-ABDR mismatch; CPRA 21%-79%; < 18 at time of match; nation	0	
Kidney Class 14: 0-ABDR mismatch; CPRA 0-20%; < 18 at time of match; nation	0	

Appendix 12: Data considered in relation to pediatric multi-organ transplants

Donors to pediatric multi-organ recipients

Table 12-1 shows donors to pediatric multi-organ recipients. The red boxes show multi-organ allocation tables included in the upcoming policy proposal, meaning that the multi-organ allocation tables cover approximately 99% of donors to pediatric multi-organ recipients.

Table 12-1: Pediatric multi-organ transplant donors between July 1, 2021, and December 31, 2023

Donor Type	Pediatric MOT Donor Count
DBD age 18-69, KDPI 0-34%	18 (16.36%)
DBD age 18-69, KDPI 35-85%	4 (3.64%)
DBD age 11-17, KDPI 0-34%	28 (25.45%)
DBD age 11-17, KDPI 35-85%	1 (0.91%)
DBD age <11, KDPI 0-34%	14 (12.73%)
DBD age <11, KDPI 35-85%	45 (40.91%)
Total	110 (100.00%)

*OPTN data as of September 20, 2024 were used for this analysis. Data are subject to change based on future submission or correction.

Pediatric multi-organ transplants

Table 12-2 shows the number and percentage of pediatric multi-organ transplants by combination type.

Table 12-2: Multi-organ transplants (including heart-lung and kidney-pancreas) by age group between July 1, 2021 and December 31, 2023

Transplant Type	Adult	Pediatric	Total
Liver - Kidney	1,941 (97.78%)	44 (2.22%)	1,985 (100.00%)
Liver - Intestine - Pancreas	37 (49.33%)	38 (50.67%)	75 (100.00%)
Heart - Liver	167 (93.82%)	11 (6.18%)	178 (100.00%)
Heart - Kidney	973 (99.18%)	8 (0.82%)	981 (100.00%)
Heart - Lung	124 (96.12%)	5 (3.88%)	129 (100.00%)
Liver - Intestine - Kidney - Pancreas	3 (42.86%)	4 (57.14%)	7 (100.00%)
Intestine - Pancreas	13 (81.25%)	3 (18.75%)	16 (100.00%)
Kidney - Pancreas	1,992 (99.95%)	1 (0.05%)	1,993 (100.00%)
Liver - Pancreas	1 (50.00%)	1 (50.00%)	2 (100.00%)
Heart - Liver - Intestine - Pancreas	0 (0.00%)	1 (100.00%)	1 (100.00%)
Heart - Liver - Kidney	20 (100.00%)	0 (0.00%)	20 (100.00%)
Heart - Lung - Kidney	3 (100.00%)	0 (0.00%)	3 (100.00%)
Intestine - Kidney	7 (100.00%)	0 (0.00%)	7 (100.00%)
Liver - Intestine	1 (100.00%)	0 (0.00%)	1 (100.00%)
Lung - Kidney	48 (100.00%)	0 (0.00%)	48 (100.00%)
Lung - Liver	39 (100.00%)	0 (0.00%)	39 (100.00%)
Total	5,369 (97.89%)	116 (2.11%)	5,485 (100.00%)

*OPTN data as of October 11, 2024 were used for this analysis. Data are subject to change based on future submission or correction.

Appendix 13: Number of multivisceral transplants, 2020-2024

Table 13-1 sets out the number of multivisceral transplants, by combination, from 2020-2024.[91]

Table 13-1: Number of multivisceral transplants, by combination, from 2020-2024

Combination	2020	2021	2022	2023	2024
Liver-Intestine-Pancreas-Kidney	6	2	3	3	2
Liver-Intestine-Pancreas	35	35	28	31	27
Liver-Intestine-Kidney	0	0	0	0	0
Liver-Kidney-Pancreas	0	0	0	0	0
Liver-Pancreas	1	1	0	1	0
Intestine-Pancreas-Kidney	1	0	0	0	0
Intestine-Pancreas	6	8	3	8	2
Intestine-Kidney	2	1	3	3	3

Source: OPTN data as of October 10, 2024 were used for this analysis. Data are subject to change based on future submission or correction.

[91] Note: Does not include data on Liver-Intestine, Liver-Kidney, or Kidney-Pancreas.