OPTN ORGAN PROCUREMENT AND TRANSPLANTATION NETWORK

Continuous Distribution of Kidneys

Winter 2022 Prioritization Exercise – Community Results

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Summary

The transplant community participated in an Analytic Hierarchy Process (AHP)[1] exercise regarding the allocation of deceased donor kidneys from January 27 through March 23, 2022. This report provides background on the project and the results of the exercise. The project received 431 participants from across the transplant community. Areas suggested for discussion are highlighted to stimulate the Kidney Committee's deliberations. The Committee will then decide on which scenarios for the SRTR to model before the Committee develop policy proposals for public comment in 2023.

Participants were asked to weigh their preferences between pairs of attributes, described as patient profiles, in terms of how important each should be in prioritizing candidates for kidney transplantation. [2] These pairwise comparisons were then aggregated into overall preferences, or relative importance "weights," for the different attributes. The analysis revealed variability in the weights between the different demographic groups. Another way to compare their relative importance is to rank the attributes according to the AHP weights. **Figure 9** shows the ranking of each attribute by the different demographic groups and the average ranking across all demographic groups. When viewed as rankings, the most important attribute was medical urgency (a medically urgent "no dialysis access" candidate) and the least important attribute was improving placement efficiency ("a very nearby candidate, e.g. short drive from donor hospital"). Within each pairwise comparison, there is some variance within each demographic group. Because of this, many of the comparisons result in moderate preferences or equal balances between attributes.

This report also contains the comments submitted during the public comment process. They show general support for the project and its methodology while contributing details on specific attributes.

Project Background

Continuous distribution will be a move from a classification based system to a points based system for organ allocation. Continuous distribution means replacing the current classification approach, which draws hard boundaries between types of patients (blood type compatible vs identical; sensitized vs not; inside a circle vs outside), with a composite score that takes into account all of a candidate's characteristics. This score would be constructed with multiple attributes which align with NOTA and the OPTN Final Rule. One aspect of the project includes prioritizing the different attributes used to allocate organs. This report summarizes the results of the Winter 2022 community prioritization exercise.

Figure 1 shows the phases of the project's development. To construct the composite allocation score for kidneys, the Committee is currently building the framework by pursuing two parallel stages: 1) prioritizing attributes against each other (as described in this report) and 2) converting attributes into points. The Committee and the Kidney-Pancreas Continuous Distribution Workgroup (the Workgroup) spent part of 2020 and much of 2021 selecting and building evidence based rating scales to score candidates for each attribute. [3]

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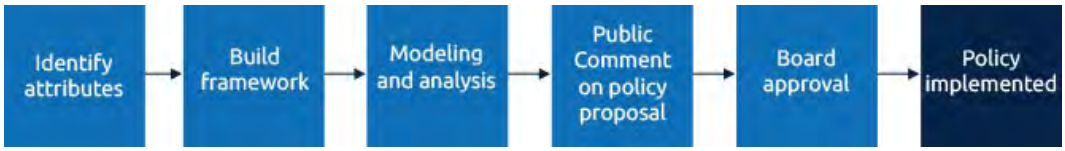
[1] Saaty, T.L., 1980, 1986 rev. *Multicriteria Decision Making: The Analytic Hierarchy Process*. Dolan, James. 2010. *Multi-criteria decision support: A primer on the use of multiple criteria decision making methods to promote evidence-based, patient-centered healthcare*.

[2] For example, "Candidate Biology" was described as "An extremely (biologically) difficult to match candidate".

[3] Rating scales are used to score candidates on clinical data for each attribute.

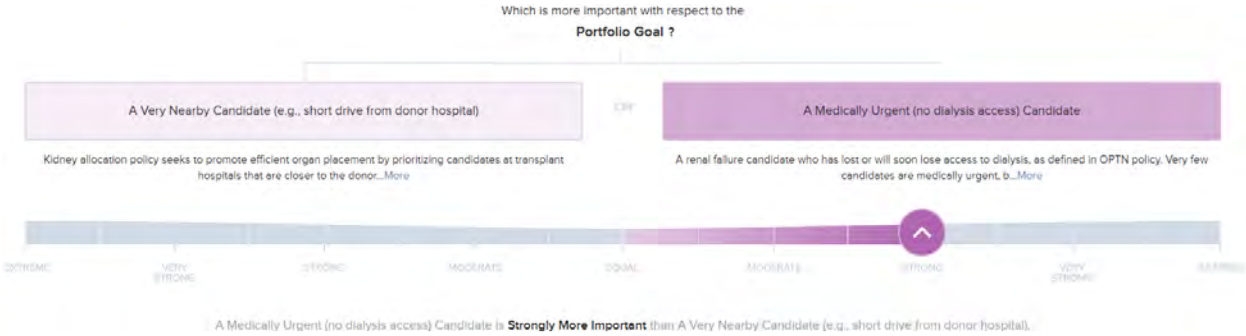
Figure 1: Project Overview



Next, the OPTN collected information from the transplant community on how the attributes should be prioritized relative to each other in a reimagined kidney allocation policy.[4] The Committee will review this analysis, along with their own priorities and the requirements in NOTA and the OPTN Final Rule. From here, the Committee will select a set of priorities to model and build into the composite allocation score.

In an AHP exercise, participants provide their personal value judgments for each pairwise comparisons of attributes, or patient profiles, in the project hierarchy (see **Figure 2**). Participants used the Decision Lens online tool for this exercise.[5] Attribute comparisons are rated from 1 (equal importance) to 9 (extremely important).

Figure 1: Sample Pairwise Comparison



Participation

The AHP exercise was available on the OPTN website, and presented at 11 regional meetings and ten OPTN committee meetings. [6] The exercise was available for participation from January 27 to March 23, 2022.[7] 431 individuals submitted responses to the AHP exercise. When signing up for the exercise, participants were asked for their relationship to transplant. The most frequent participant group was transplant hospital professionals (65%), followed by other transplant, medical, or research professionals (11%), patients (10%), OPO professionals (8%), histocompatibility laboratory professionals (6%), and

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[4] This is also referred to as an Analytic Hierarchy Process (AHP). See generally, Lin, Carol and Harris, Shannon 2013. *A Unified Framework for the Prioritization of Organ Transplant Patients: Analytic Hierarchy Process, Sensitivity, and Multifactor Robustness Study. Journal of Multi-Criteria Decision Analysis*.

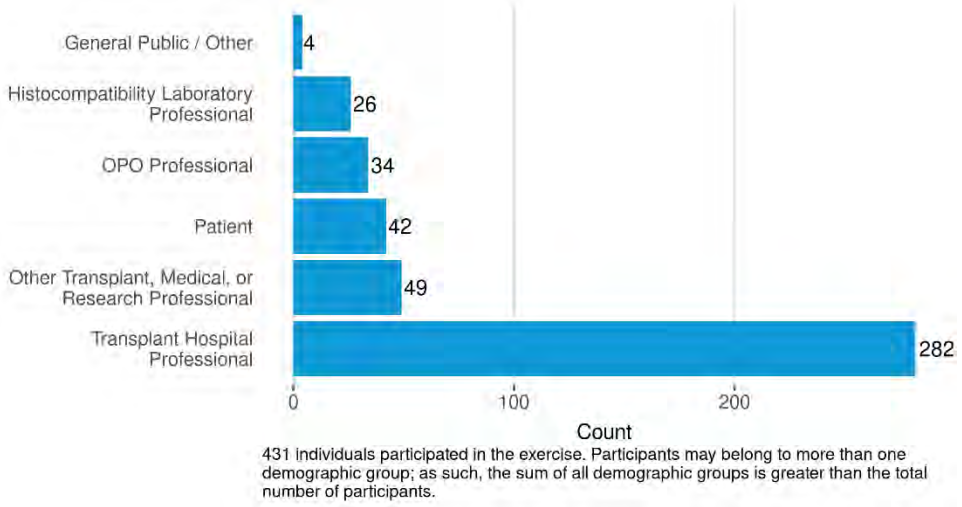
[5] https://www.decisionlens.com/

[6] Ethics, Multi-Organ Transplant, Transplant Coordinators, Transplant Administrators, Minority Affairs, Pediatrics, Patient Affairs, Organ Procurement Organization, Living Donor, and Histocompatibility Committees

[7] On January 31, 2022, the description of 'A Very Nearby Candidate' was updated slightly to clarify the participant should assume the other candidate is very far from the donor and that shipping the organ would require a very long flight.

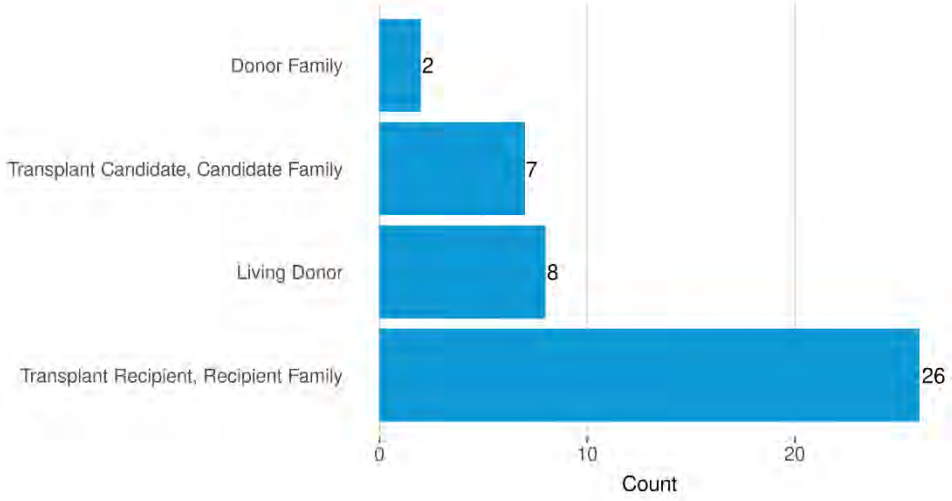
general public/other (1%). It's also important to note participants may belong to more than one demographic group (ex. a transplant hospital professional who is also a transplant recipient).

Figure 3: Participation by Demographic Group



The next chart shows the participation of the different patient populations included under the Patient demographic category. Within the patient populations, the majority of the participants were either transplant recipients or recipient family members.

Figure 4: Patient Participation by Patient Population



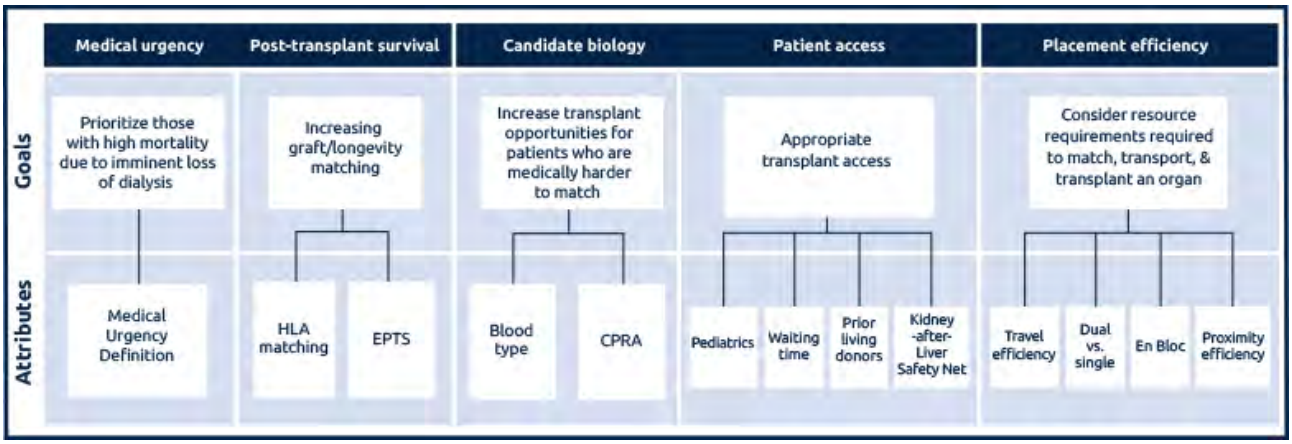
AHP Hierarchy for Allocating Deceased Donor Kidneys

From 2020-2021, the Committee and the Workgroup identified and discussed the attributes to include in the composite allocation score. In selecting the attributes, attention was given to the goal for each category of attributes and how these aligned with the requirements in NOTA and the OPTN Final Rule. The hierarchy of the composite score shows goals and attributes. The goals relate to the OPTN's goals for developing equitable allocation policies as defined by the OPTN Final Rule. The attributes are the organ specific criteria that support each goal. Rating scales use data to score each candidate. Allocation policy goals – for example, prioritizing the most urgent patients and maximizing post-transplant survival

– may be in tension, and continuous distribution aims to prioritize patients in a way that balances all five goals in a transparent way. The specific attributes, their weights, and their rating scales will be organ specific. The attributes align with the ethical principles of utility and equity.[8]

In the AHP exercise, participants were asked to weight pairs of patient profiles, or attributes. Where multiple attributes could be empirically weighed on a common scale, clinical data was used for that purpose. (For example, we can use clinical data to measure the likelihood of transplant based upon a candidate's blood type or CPRA.) The AHP exercise therefore included: medical urgency, post-transplant survival, candidate biology, access for pediatric, prior living donor, and kidney-after-liver safety net candidates, waiting time, and placement efficiency.

Figure 5: Hierarchy of Kidney Attributes



Overall Ratings

Below are the overall ratings from the community AHP exercise. **Figure 6** shows the overall, unweighted ratings. Because transplant hospital professionals participated in greater volume than other demographic groups, this view skews toward their preferences. In viewing these overall ratings, it is important that the Committees remember that this is not a public opinion survey and they should consider the comments alongside the ratings.

[8] *Ethical Principles in the Allocation of Human Organs*, OPTN Ethics Committee.

Figure 6: Overall Ratings

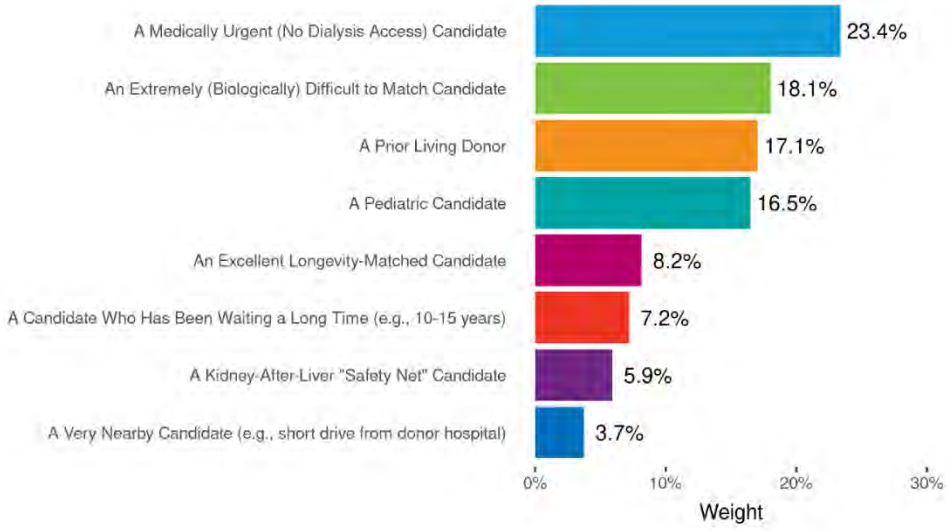
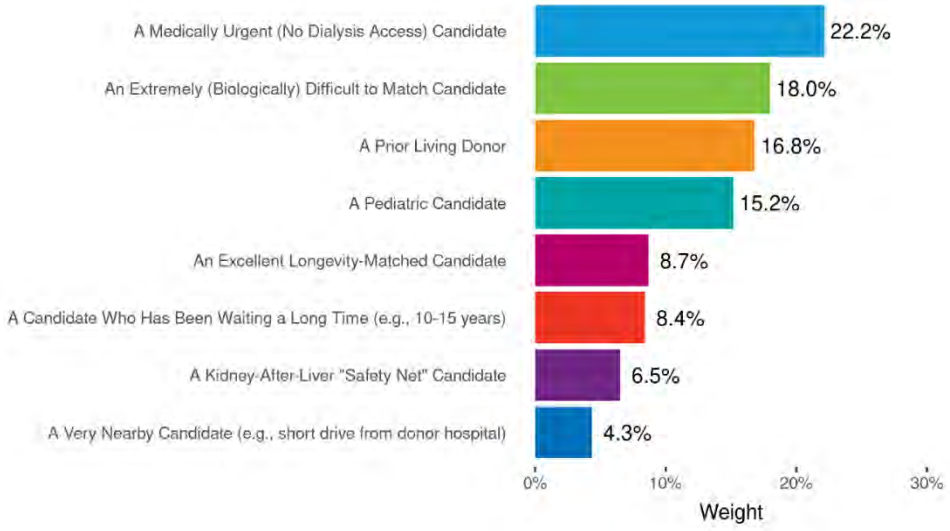


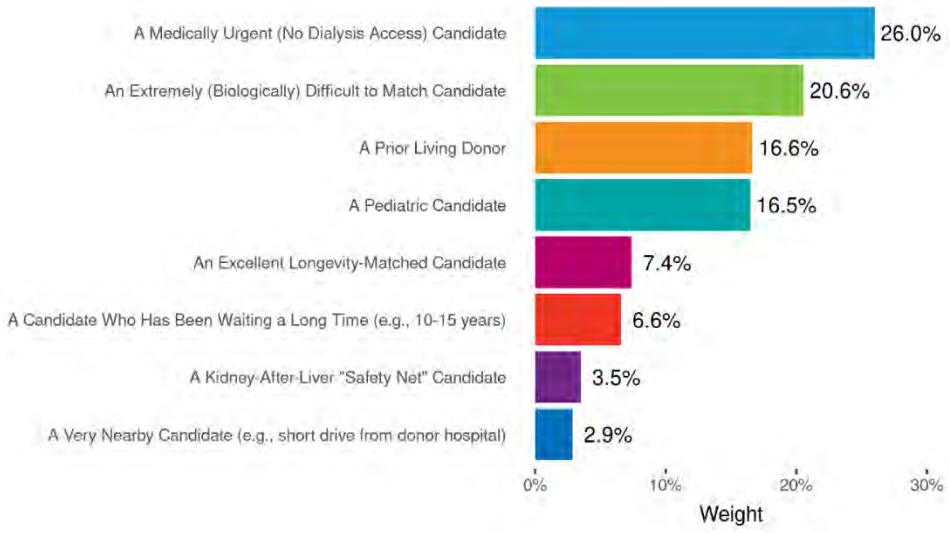
Figure 7 shows the six general demographic groups equally weighted, or population adjusted.

Figure 7: Overall Ratings, Population-Adjusted



Finally, **Figure 8** is an updated view of the Kidney Committee's results.

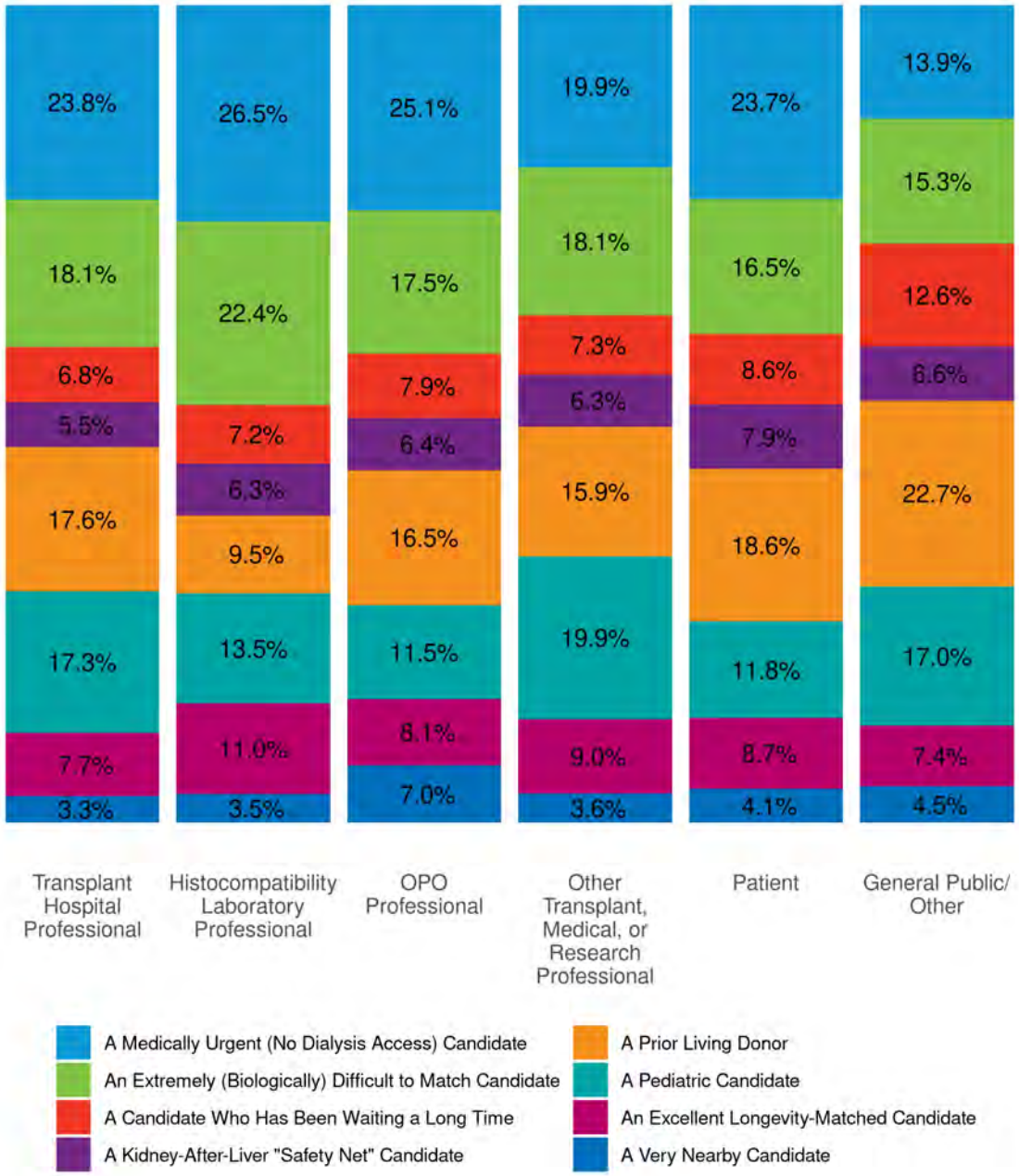
Figure 8: Kidney Committee Ratings



Priorities by Demographic Groups

Participants were asked to express their preference between each pair of attributes, in terms of which attribute should have more influence (and to what degree) on kidney candidate prioritization on the match run. These preferences were then aggregated into overall preferences, or relative importance weights, for each attribute. **Figure 9** shows the overall priorities by the six demographic groups. Note the variability in the priorities between the different demographic groups.

Figure 9: Overall Ratings by Demographic Group

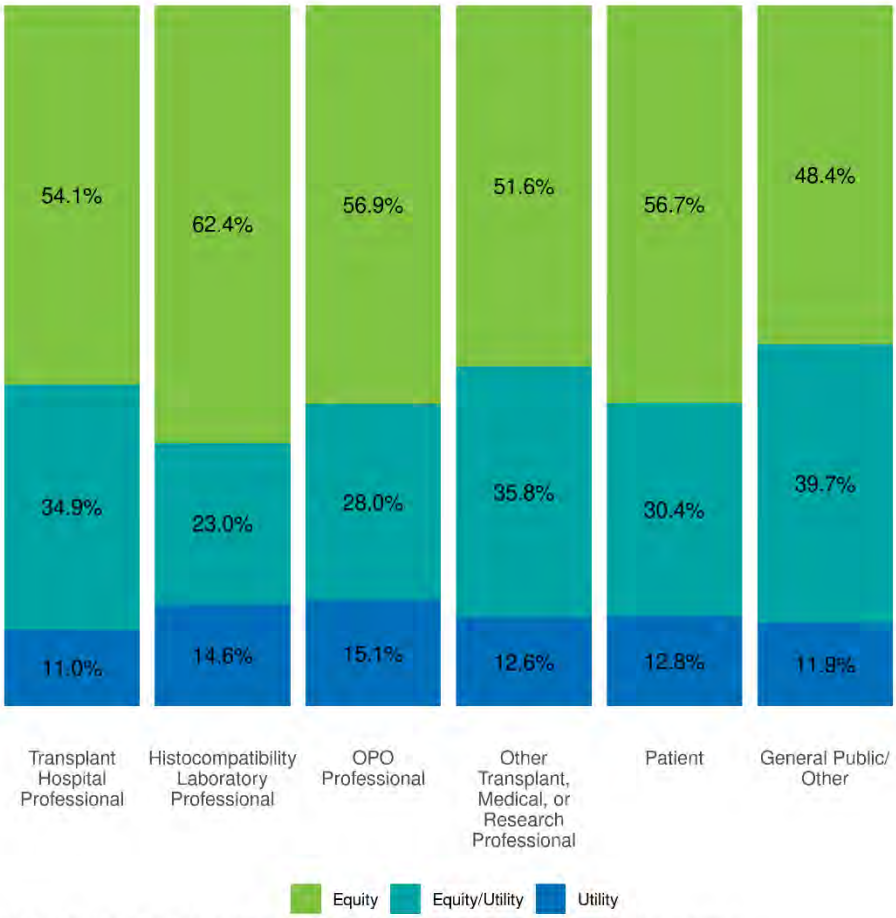


Ethical Principles

The hierarchy of attributes can be split into ethical principles of equity and utility. These principles have been expressed in NOTA, the 1986 Taskforce on Transplantation, the OPTN Ethical Principles in the Allocation of Human Organs, and the OPTN Ethical Considerations of Continuous Distribution in Organ Allocation. While these documents express a desire to consider and balance both equity and utility, they do not call for an exact 50/50 balance between these two ethical principles.

Each of the attributes can be grouped into these equitable principles, as shown in **Figure 10.**

Figure 10: Ethical Balance



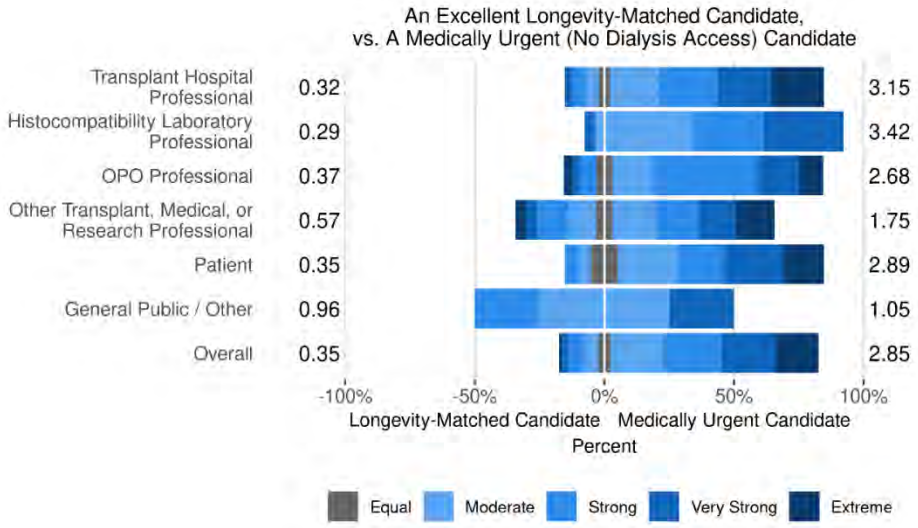
"Equity" includes the medical urgency, candidate biology, waiting time, and KAL safety net attributes.
"Equity/Utility" includes the pediatric and prior living donor attributes.
"Utility" includes the proximity efficiency and longevity matching attributes.

Specific Pairwise Comparisons

In reviewing the specific pairwise comparisons, we looked for agreement amongst voters (do participants agree which of the two attributes is most important) and alignment in their scores (do participants place similar levels of importance on the preferred attribute). We also look for any outliers to the overall group. When the Committee discusses these results, they should pay attention to areas where there is low alignment, low agreement, or outliers.

Medical urgency vs Post-transplant survival

This pairwise comparison indicates an overall strong preference for a medically urgent (no dialysis access candidate) over an excellent longevity-matched candidate.



Comments:

Prioritize a medically urgent (no dialysis access) candidate

- *medically urgent needs transplant first or they will perish without dialysis*

Equal

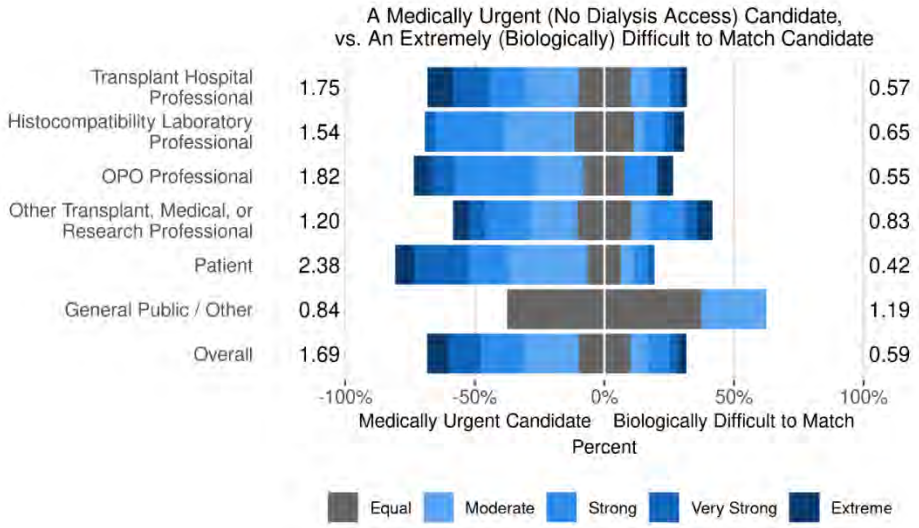
- *Consider exception process for no vascular access*

Prioritize an excellent longevity-matched candidate.

- *Medical urgency and kidney donation is very limited and very prone to gaming for this reason I'm not in favor of utilizing it in kidney transplant*

Medical urgency vs Candidate biology

This pairwise comparison indicates an overall preference for a medically urgent (no dialysis access candidate) over an extremely (biologically) difficult to match candidate.



Comments:

Prioritize a medically urgent (no dialysis access) candidate.

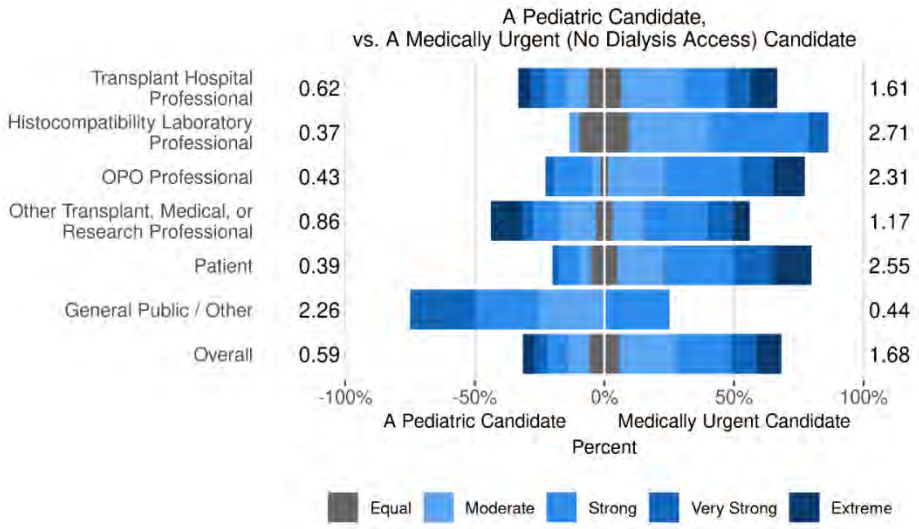
- *This is such a difficult question...what if this is the only chance an extremely difficult to match candidate has for transplant but medically urgent candidate won't live without transplant...this one is so hard*

Prioritize an extremely (biologically) difficult to match candidate.

- No comments.

Medical urgency vs Increase Access for Patients Under the Age of 18

This pairwise comparison indicates an overall preference for a medically urgent (no dialysis access candidate) over a pediatric candidate.



Comments:

Prioritize a medically urgent (no dialysis access) candidate.

- *The pediatric candidate can wait at this time. And they should be off the special pediatric list if they are over 21 years old.*
- *Medically Urgent Needs are near the top since there is no cure for death. They should fall immediately behind Prior Living Donors.*
- *medically urgent needs transplant before anyone or they will perish*

Equal

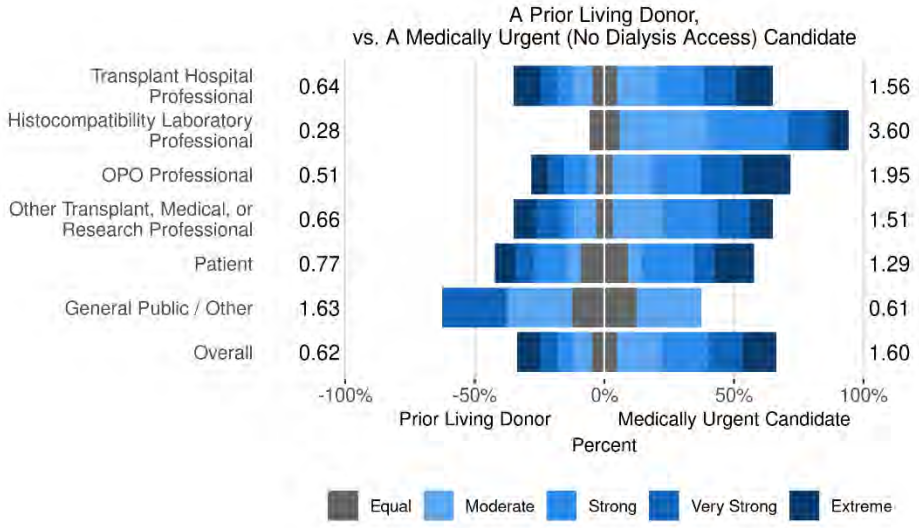
- *No access - medically urgent - consider exception process*

Increase access for a pediatric candidate.

- *The pediatric patient who is medically urgent should get priority over the medically urgent adult.*

Medical urgency vs Increase Access for Prior Living Donor

This pairwise comparison indicates an overall preference for a medically urgent (no dialysis access candidate) over a prior living donor.



Comments:

Prioritize a medically urgent (no dialysis access) candidate.

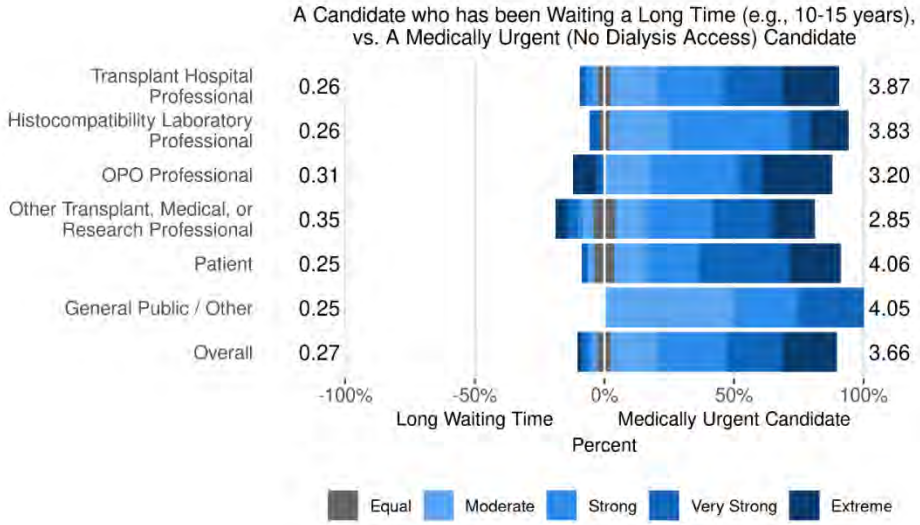
- *medically urgent candidate needs transplant before any other patient*

Increase access for a prior living donor.

- *Prior donor should be offered, but then given the option of differing to the next kidney, based on the urgency of the other candidate.*
- *Consider exception process for no vascular access*
- *Prior Living Donor wins every time. This is a person with one kidney so if that kidney fails, he's dead. Also, he was such a humanitarian that he provided his "safety net" of a second kidney to another human being. He is most deserving of all on the waiting list.*

Medical urgency vs Waiting Time

This pairwise comparison indicates an overall preference for a medically urgent (no dialysis access candidate) over a candidate who has been waiting a long time (e.g., 10-15 years).



Comments:

Prioritize a medically urgent (no dialysis access) candidate.

- *Obviously a patient without dialysis access will die without a transplant. However, lack of access should be taken into consideration and the team should ask - is there a possibility for access in the future or not. Assuming there is not, then this patient will be in the same situation should*

they have rejection/failure of the transplant and dialysis or apheresis is needed as part of the treatment.

- *There is no cure for death. So, we must prevent death even at the cost of additional waiting for a candidate who has already waited a long time.*
- *This is a no brainer, if the medically urgent candidate does not get a kidney they may die. Not to mention this is rare situation.*

Equal

- *This is tough because I believe both should have equal access to organ available but if person waiting 10-15 years still has access to dialysis, then the person who has no way to have dialysis should come first.*
- *No vascular access - consider using the exception process (similar to liver/lung) for these patients v. prioritizing with other recipients*

Prioritize a candidate who has been waiting a long time (e.g., 10-15 years).

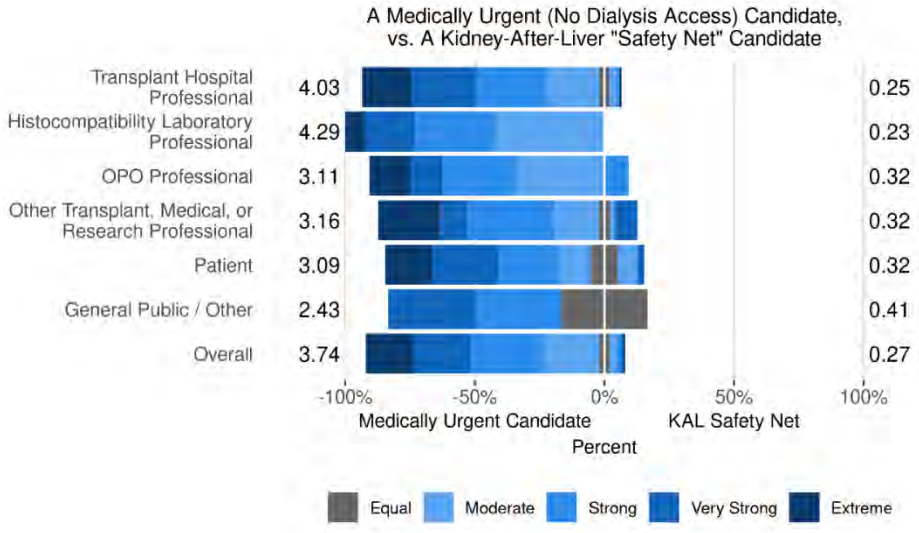
- No comments.

Other

- *Would be important to me to understand whether the pt's behavior played any role in significantly influencing their state of medical urgency.*

Medical urgency vs Increase Access for Safety Net Candidates

This pairwise comparison indicates an overall preference for a medically urgent (no dialysis access candidate) over a kidney-after-liver "Safety Net" candidate.



Comments:

Prioritize a medically urgent (no dialysis access) candidate.

- *I think that medically urgent candidates priority depends on other factors as well including predicted longevity, so it's hard to prioritize medically urgent candidates in general.*
- *Medically Urgent candidates may die if they don't get a new kidney. "Safety Net" candidates can wait.*

Equal

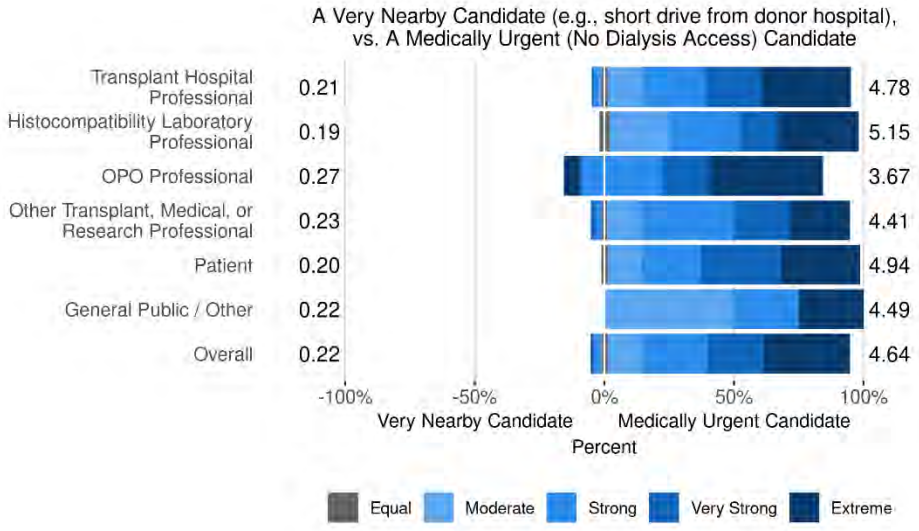
- *No vascular access - consider exception process*

Increase access for a kidney-after-liver "safety net" candidate.

- No comments.

Medical urgency vs Improve Placement Efficiency

This pairwise comparison indicates an overall preference for a medically urgent (no dialysis access candidate) over a very nearby candidate (e.g., short drive from the donor hospital).



Comments:

Prioritize a medically urgent (no dialysis access) candidate.

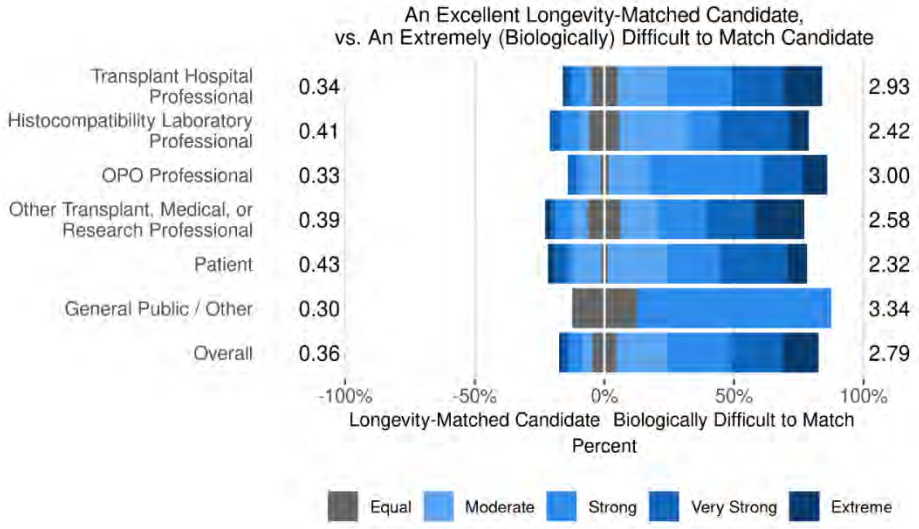
- *If the kidney will save the life of the medically urgent candidate, then it should go to them first. But if the nearby candidate is in worse health then the kidney should go to them,*
- *Consider exception process for no access patients*
- *Per earlier comments, fix the transportation logistics and give the kidneys to those in most need.*
- *medically urgent needs transplant before anyone*

Prioritize a very nearby candidate (e.g., short drive from donor hospital).

- No comments.

Post-transplant survival vs Candidate biology

This pairwise comparison indicates an overall preference for an extremely (biologically) difficult to match candidate over an excellent longevity-matched candidate.



Comments:

Prioritize an excellent longevity-matched candidate.

- No comments.

Prioritize an extremely (biologically) difficult to match candidate.

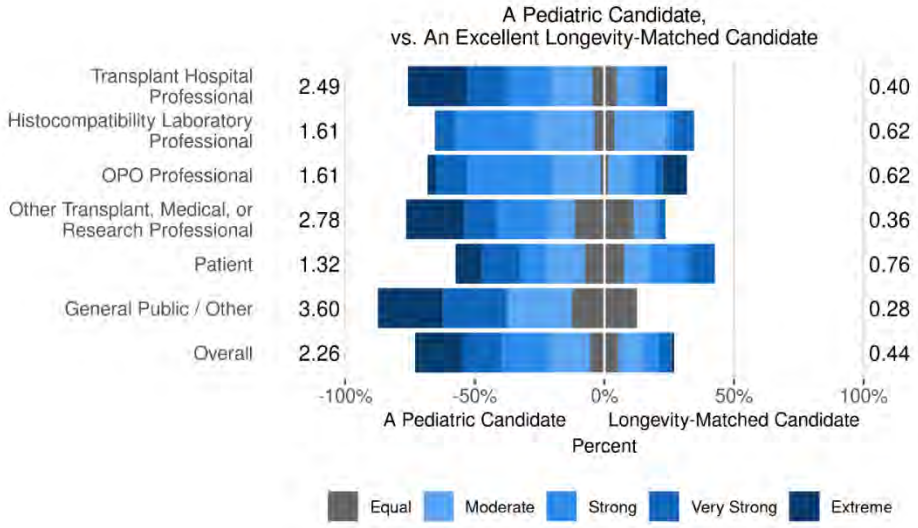
- *Difficult match candidates could accrue time on a sliding scale, again with priority to B blood type or first transplant with high PRA patients. Rather than each year of wait time counting equally and then added points for these additional factors, a B blood type patient could accrue time at 1x for first year, 1.3x second year, 1.6x etc. or something like that. Doesn't solve the organ shortage problem but perhaps gives them some help to get an "O" donor. This would*

have to be weighed to how much extra time O blood type candidates have to wait longer then potentially.

- *Tough decision here. But the vote has to go to the candidate most likely to die if they don't get this particular kidney.*
- *extremely difficult to match candidates have a difficult time as it is getting a match, give them every opportunity available to get their transplant*

Post-transplant survival vs Increase Access for Patients Under the Age of 18

This pairwise comparison indicates an overall preference for a pediatric candidate over an excellent longevity-matched candidate.



Comments:

Prioritize an excellent longevity-matched candidate.

- *Longevity donor and candidate matching should be extended to other levels of kidneys.*
- *I strongly believe that longevity of the transplant should definitely be considered and receive priority over the age of a patient. The goal should be for the transplanted organ to have best possible outcome and longevity it can.*
- *Per my earlier comments, excellent matching is critical. Spend efforts on getting more living donors which will improve matching and, therefore, many of the other issues should fall away.*

Equal

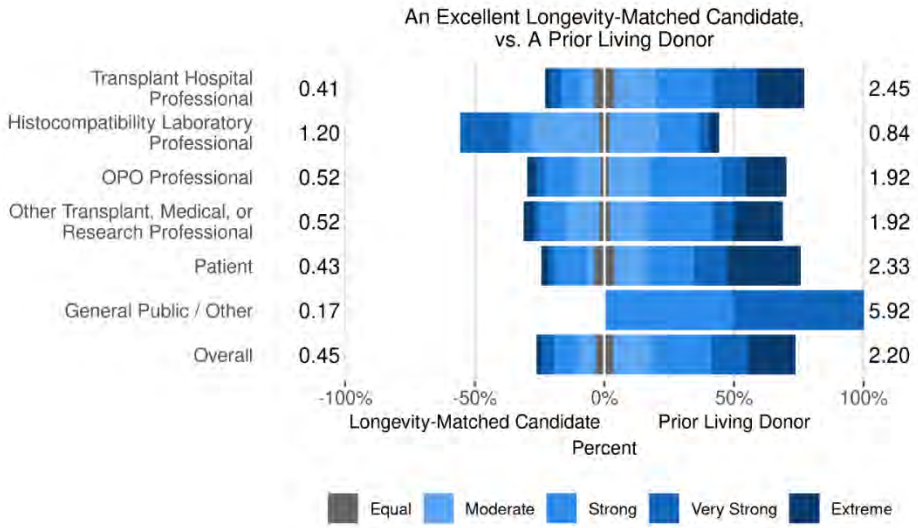
- *All should be considered and based on the health and wellness of both candidates.*

Increase Access for a pediatric candidate.

- *A pediatric patient will probably have an excellent longevity of transplant*
- *The comparison between a pediatric patient and using the EPTS for an adult should not be made. By default, a pediatric patient would be expected to have longer survival.*

Post-transplant survival vs Increase Access for Prior Living Donor

This pairwise comparison indicates an overall preference for a prior living donor over an excellent longevity-matched candidate.



Comments:

Prioritize an excellent longevity-matched candidate.

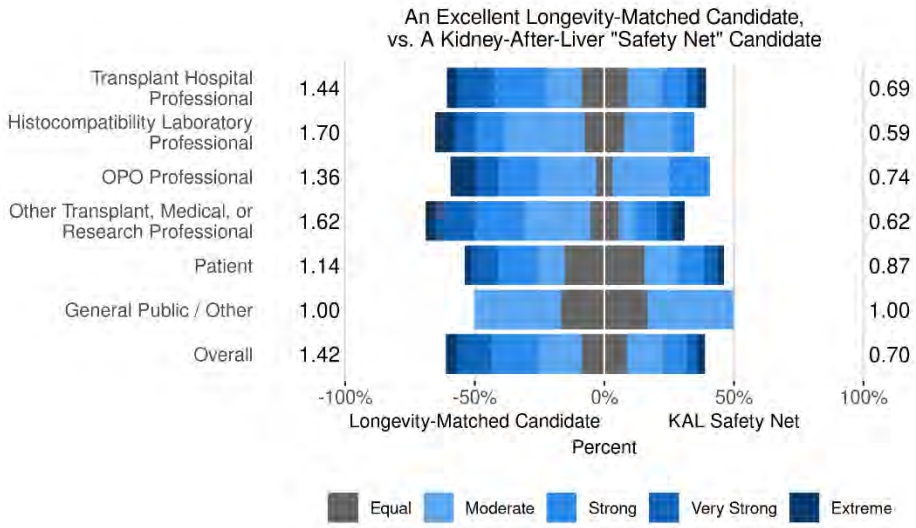
- No comments.

Increase Access for a prior living donor.

- *living donor should be offered first. but also be asked it they are willing to wait for the next kidney.*
- *Prior Living Donors should get our highest priority.*

Post-transplant survival vs Increase Access for Safety Net Candidates

This pairwise comparison indicates an overall preference for a an excellent longevity-matched candidate over a kidney-after-liver "Safety Net" candidate.



Comments:

Prioritize an excellent longevity-matched candidate.

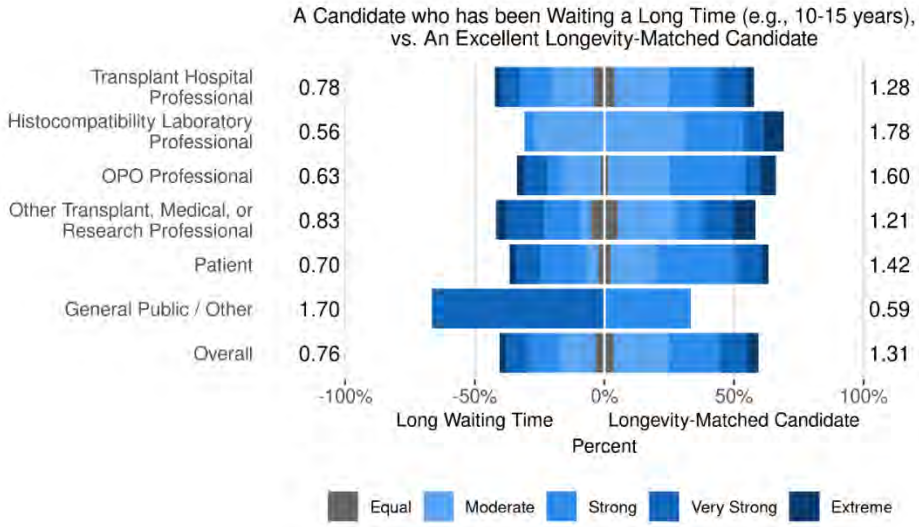
- *Another tough decision but Excellent Matching trumps a Safety Net.*

Increase Access for a kidney-after-liver "safety net" candidate.

- *High KDPI kidneys (85+) should be allocated to the closed candidates*

Post-transplant survival vs Waiting Time

This pairwise comparison indicates an overall preference for an excellent longevity-matched candidate over a candidate who has been waiting a long time (e.g., 10-15 years).



Comments:

Prioritize an excellent longevity-matched candidate.

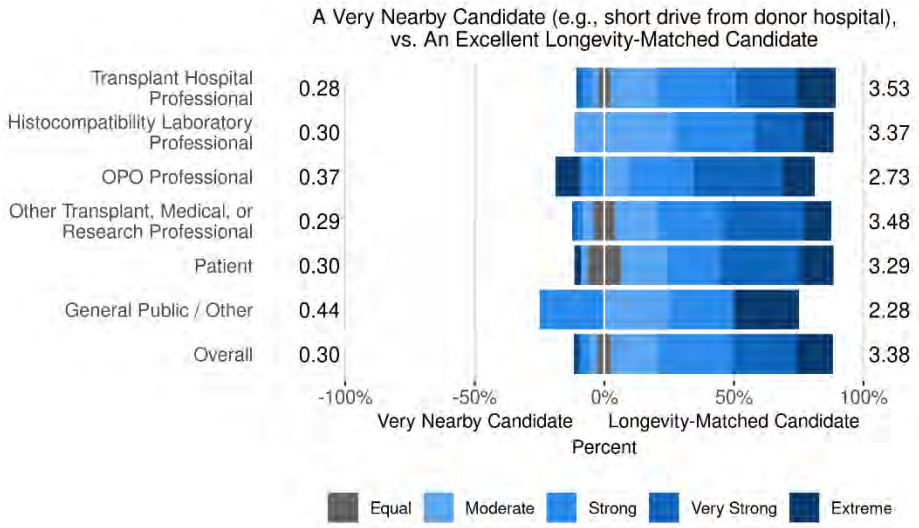
- *Excellent matching should be our goal. We need better ways to define all the potential donors (e.g., volunteer donors who are not matches for the primary recipient and, therefore, "drop out" as a potential donor). If someone was willing to donate once, they have proven their willingness to donate and should be gently "offered" another chance to donate to someone with a better match.*
- *Consider increasing EPTS score to 40%*
- *I would extend the EPTS score farther out from 20%. The EPTS calculator in its current form excludes some young diabetic patients in their 30's.*
- *A longer lifespan of the transplant means longer time before another transplant is needed, hopefully less sensitization and an expected overall better quality of life for this recipient.*

Prioritize a candidate who has been waiting a long time (e.g., 10-15 years)

- *A candidate who has been waiting an extended period of time likely has a higher mortality rate if this offer is bypassed*
- *Equal opportunity would be better. But if the kidney is at the same location as the EL-M candidate, then it should be used there instead of shipping two or three hours away. Now if both candidates are at the same location, then the candidate who has been waiting 10-15 years should get the kidney.*
- *would be great if longevity matching could be applied also for the higher KDPI kidneys (including maybe even preemptive candidates that could use a really high kdpi kidney.)*
- *While the EPTS score in theory is to be used for patients that have the longest likelihood of post transplant survival, it automatically excludes pediatric patients. This in itself is contradictory to the proposed definition of this score. If the goal is to truly consider the longest longevity in the calculation, then include pediatric patients.*
- *Patient has been waiting for 10-15 years for transplant? How much longer are they able to wait over person who has an excellent longevity-match?*

Post-transplant survival vs Placement Efficiency

This pairwise comparison indicates an overall preference for an excellent longevity-matched candidate over a very nearby candidate (e.g., short drive from donor hospital).



Comments:

Prioritize an excellent longevity-matched candidate.

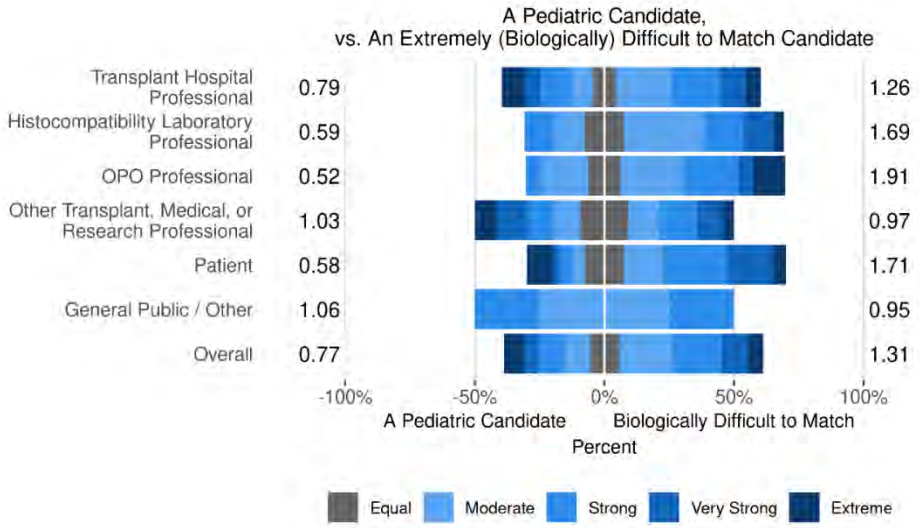
- *High KDPI kidneys should be offered first to nearby candidates to minimize CIT.*
- *I would NOT advocate long-distance shipping of high KDPI organs even if longevity matching would be better. This answer applies to average and low KDPI organs only. High KDPI organs should be used locally to minimize ischemic time.*
- *Give the kidney to the best match and reduce the need for subsequent transplants to the same person. This makes more kidneys available to others on the waiting list.*
- *placement efficiency isn't necessarily related to distance and kidneys can tolerate more cold time*
- *Longevity matching will favor good organs for pediatric patients - the geographic considerations will potentially negatively impact children*

Prioritize a very nearby candidate (e.g., short drive from donor hospital).

- *If the nearby candidate is in worse health then they should have first option.*
- *I feel in certain circumstances (DCD or high KDPI) priority should go to the patient who is closer to the hospital, the less warm/cold time an organ has, the better chance success.*

Candidate biology vs Increase Access for Patients Under the Age of 18

This pairwise comparison indicates an overall preference for an extremely (biologically) difficult to match candidate over a pediatric candidate.



Comments:

Prioritize an extremely (biologically) difficult to match candidate.

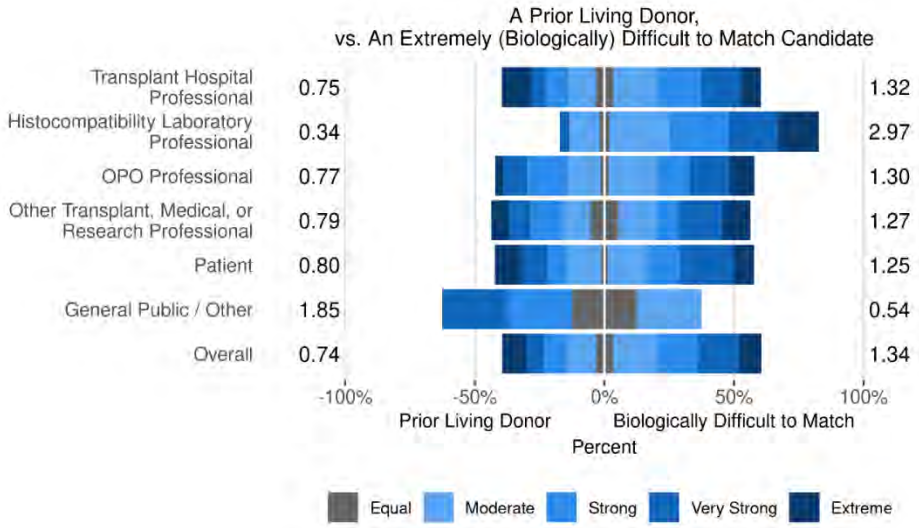
- *The pediatric candidate should come off the pediatric list at age 21 and the kidney should go to the difficult to match candidate.*
- *extremely biologically difficult to match candidates already have such a hard time receiving a transplant, I should know as I am one of those extremely biologically difficult patients awaiting a kidney transplant*
- *Extremely Difficult to Match candidates are similar to Medically Urgent and should fall immediately behind the Prior Living Donor on the waiting list.*

Increase Access for a pediatric candidate.

- *Would give higher priority to pediatric candidates for KDPI <=20% and higher priority to extremely difficult to match adult candidates for KDPI >20%*
- *2nd organ transplant recipients should be excluded from this list.*
- *The pediatric patient who is extremely difficult to match should get priority over the adult patient who is extremely difficult to match.*

Candidate biology vs Increase Access for Prior Living Donor

This pairwise comparison indicates an overall preference for an extremely (biologically) difficult to match candidate over a prior living donor.



Comments:

Prioritize an extremely (biologically) difficult to match candidate.

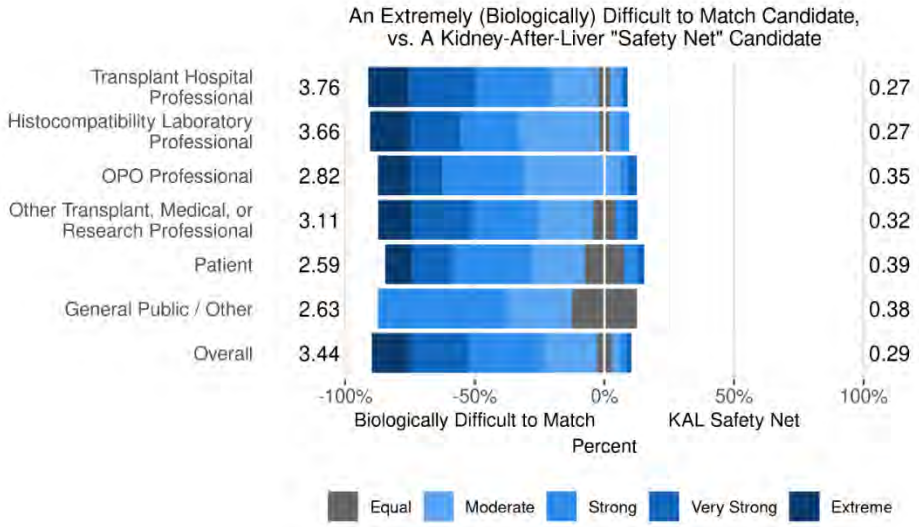
- *there aren't many options out there for extremely difficult to match candidates without living donors and if you have no one to be a living donor, then what? We go on without transplant?*

Increase Access for a prior living donor.

- *As before, we must encourage (or, at least, not discourage) living donations. Putting prior living donors at the top of the waiting list is one of the best ways to accomplish this goal.*

Candidate biology vs Increase Access for Safety Net Candidates

This pairwise comparison indicates an overall preference for an extremely (biologically) difficult to match candidate over a kidney-after-liver "Safety Net" candidate.



Comments:

Prioritize an extremely (biologically) difficult to match candidate.

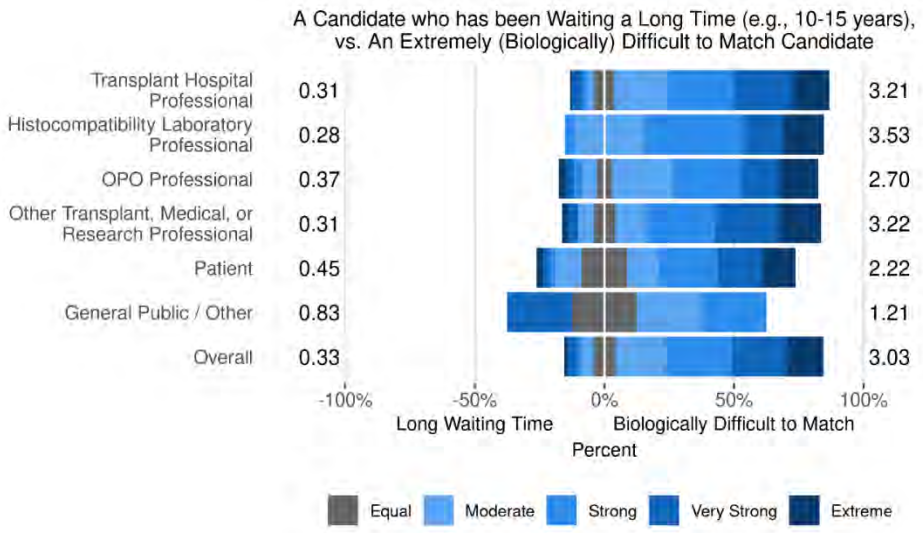
- *I believe since an extremely difficult to match candidate should have a better chance of getting an organ when it becomes available since these patients have a harder time than anyone else receiving an organ*

Increase Access for a kidney-after-liver "safety net" candidate.

- No comments.

Candidate biology vs Waiting Time

This pairwise comparison indicates an overall preference for an extremely (biologically) difficult to match candidate over a candidate who has been waiting a long time (e.g., 10-15 years).



Comments:

Prioritize an extremely (biologically) difficult to match candidate.

- *2nd or more transplant candidates should not be included in the difficult to match category.*
- *This may be the candidate's only chance to get a kidney and those they should have first option to receive. To me this understandable.*
- *This is similar to a Medically Urgent Need candidate. Without a specific transplant that happens to become available, this candidate might never have another chance. The candidate on the waiting list a long time will have another chance.*
- *I chose this because extremely (biological) difficult to match candidates are going to be waiting an awful long time before getting a transplant (I am one of those patients waiting a long time for a transplant because of being difficult to match*
- *Consideration for these patients should also be weighed into dual organ allocation such a liver/kidney. the kidney should not always go with the other solid organ. We must remember the longer a patient is on dialysis and the hard they are to match increased their chance of death on*

the kidney weight list. Kidneys for these patients should not be directed away from them to other solid organ recipients.

Equal

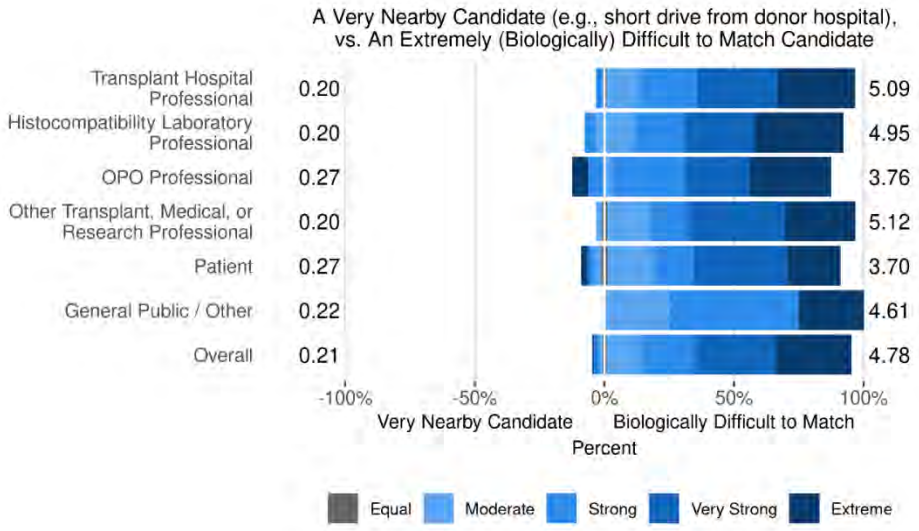
- *previously noted concerns about B blood type receiving consideration based on any estimation we can make on how much longer those candidates have to wait compared to A type. But this should not be weighed the same as a candidate who is high PRA due to prior non-adherence as long as they were competent at that time.*

Prioritize a candidate who has been waiting a long time (e.g., 10-15 years).

- *difficult to match should also be categorized into prior transplants vs no transplants*

Candidate biology vs Improve Placement Efficiency

This pairwise comparison indicates an overall preference for an extremely (biologically) difficult to match candidate over a very nearby candidate (e.g., short drive from donor hospital).



Comments:

Prioritize an extremely (biologically) difficult to match candidate.

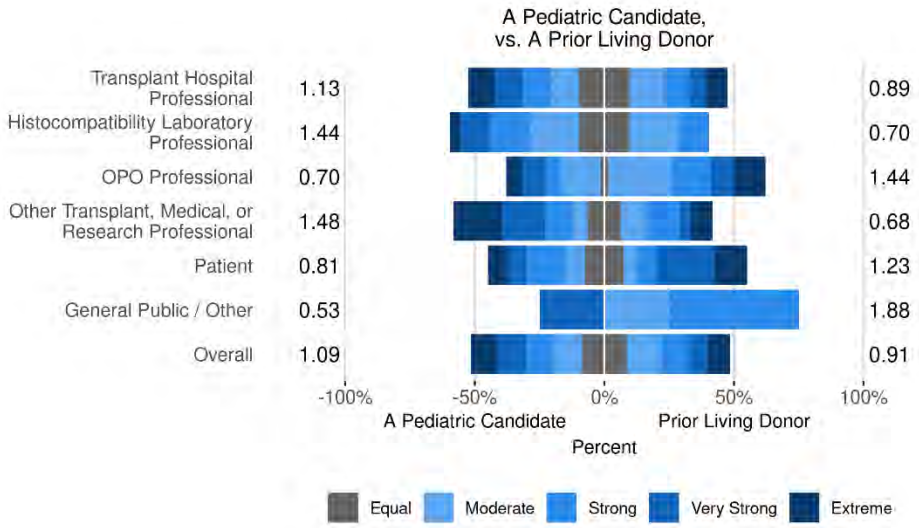
- *This may be their only opportunity to get a kidney.*
- *Same as before, fix the logistics and give the kidney to those in most need.*
- *extremely difficult to match should be transplanted before nearby candidate because we don't know when another organ will become available for difficult to match patient*

Prioritize a very nearby candidate (e.g., short drive from donor hospital).

- No comments.

Increase Access for Patients Under the Age of 18 vs Increase Access for Prior Living Donor

This pairwise comparison indicates responses were split between the pediatric and the prior living donor attributes.



Comments:

Increase access for a pediatric candidate.

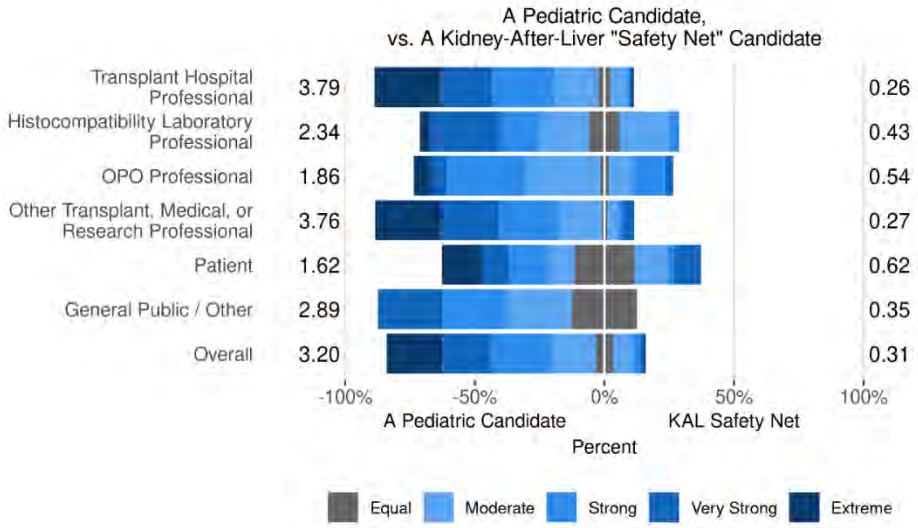
- *Would give higher priority to pediatric candidates for KDPI <=20% and higher priority to prior living donors for KDPI 21-85%*

Increase access for a prior living donor.

- *Prior living donors should be awarded a kidney first because they donated one of their own and who knows what happened that they are going through needing a kidney transplant, would their donated kidney been enough for them to continue without needing transplant?*
- *Again, the living donor should be looked at first and offered first, but if the pediatric candidate is in worse health then they should receive the kidney. I would ask the living donor if they are willing to wait for the next kidney in order to save another life. They may more than likely say yes.*
- *All living donors are our most precious resource. There is every reason to put prior living donors at the top of our waiting list. It's the least we can do for these benefactors.*
- *Though I am very much a proponent of weighing pediatrics VERY HIGH- I have to say that we cannot change what we have been saying/doing for those that have already donated. As a living donor, and as someone whose friend altruistically donated, priority is a very huge safety net.*

Increase Access for Patients Under the Age of 18 vs Increase Access for Safety Net Candidates

This pairwise comparison indicates an overall preference for a pediatric candidate over a kidney-after-liver "Safety Net" candidate.



Comments:

Increase access for a pediatric candidate.

- No comments.

Equal

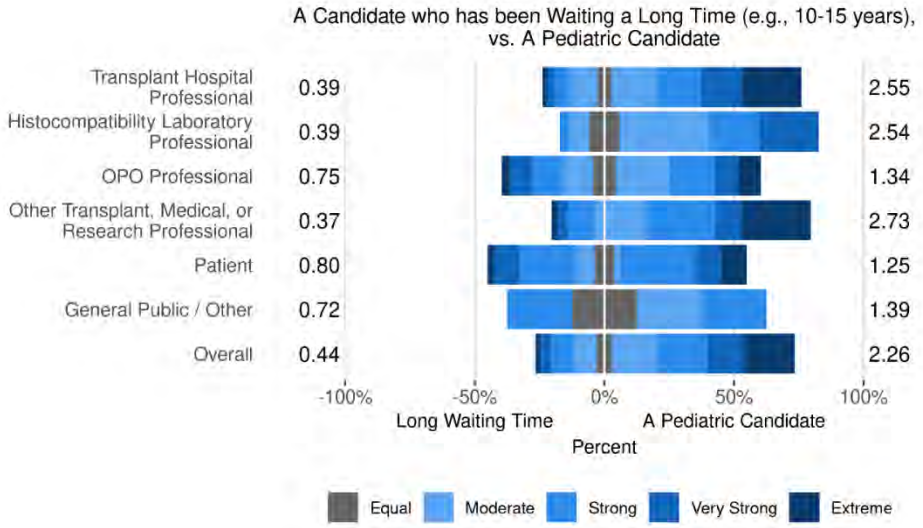
- *There really isn't a comparison between these two. Different factors involved.*
- *They should be looked at equally and based on the health of both candidates, who needs it the most should get the kidney.*

Increase access for a kidney-after-liver "safety net" candidate.

- No comments.

Increase Access for Patients Under the Age of 18 vs Waiting Time

This pairwise comparison indicates an overall preference for a pediatric candidate over a candidate you has been waiting a long time (e.g., 10-15 years).



Comments:

Increase access for a pediatric candidate.

- *Children should be a priority in allocation, but adults with significant wait time> 10 years have a high mortality rate on dialysis and should be given an opportunity for transplant.*
- *I think children should come first if they are in good enough health to except a kidney, because most adults have lived life and children should have a chance to experience life too.*
- *The DPI<35 threshold for kidneys prioritized for children is reasonable. Unless they have very high PRA or long waiting times, children should only get kidneys that are expected to last a long time*
- *Although both of these candidates should be prioritized, there may be size issues for the pediatric candidate that may be a little harder to match.*

Equal

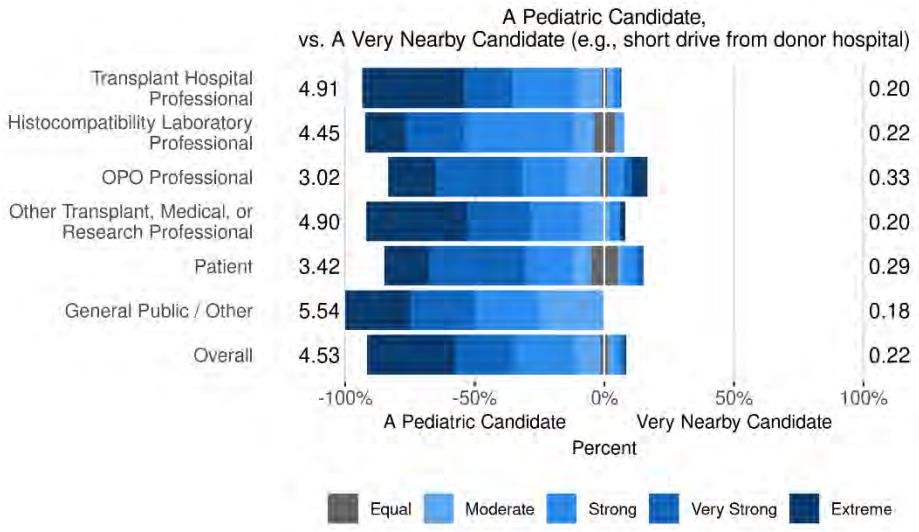
- *We should value our long waiting patients who can get back to work and off hemodialysis.*

Prioritize a candidate who has been waiting a long time (e.g., 10-15 years).

- *Assuming patients are otherwise equal (e.g., both on dialysis for similar timeframes), the candidate waiting a long time should receive some preference.*
- *someone that has been waiting such a long time already for transplant should be transplanted before a pediatric patient as we don't know how much longer said patient can stay on dialysis because if patient has been waiting 10-15 years, you already know that said patient has to be on dialysis*
- *pediatric candidates may have more potential for finding a living donor than someone who has been waiting a long time; assuming a person waiting a long time has exhausted their potential living donor options*
- *An adult candidate has a much higher mortality rate than a pediatric candidate does. Current allocation regulations give pediatric candidates priority over waiting time which means the peds candidate will be at the top of the list every time so I feel the adult candidate should receive this organ offer over the pediatric candidate.*

Increase Access for Patients Under the Age of 18 vs Improve Placement Efficiency

This pairwise comparison indicates an overall preference for a pediatric candidate over a very nearby candidate (e.g., short drive from donor hospital).



Comments:

Increase access for a pediatric candidate.

- *again would state when this offer is received. typically these would be lower KDPI donors which can tolerate long CIT that being said want to make sure we use kidneys in pediatric candidates that should last a long time and want to mitigate DGF*
- *In my belief we should give the pediatric patient the transplant because they should have a better chance of making positive changes to our world*
- *Proximity should be weighed more heavily for DCD or high KDPI kidneys*
- *Per my earlier comments, we need to improve our logistics to move donated kidneys to wherever the need is greatest.*
- *But you should always consider DCD and higher KDPI in these scenarios - they should be offered to an adult recipient since peds candidates have lower expected mortality and they need a better quality kidney.*
- *Again, pediatric transplant centers are more likely to be a further distance from a donor hospital. This could lead to reduced organ allocation to children.*
- *With the lower numbers of pediatric candidates for transplant annually, they should continue to have priority over nearby candidates since they will likely require multiple transplants in a lifetime and will need the best donors to allow for the potential longest lasting kidney grafts.*

Equal

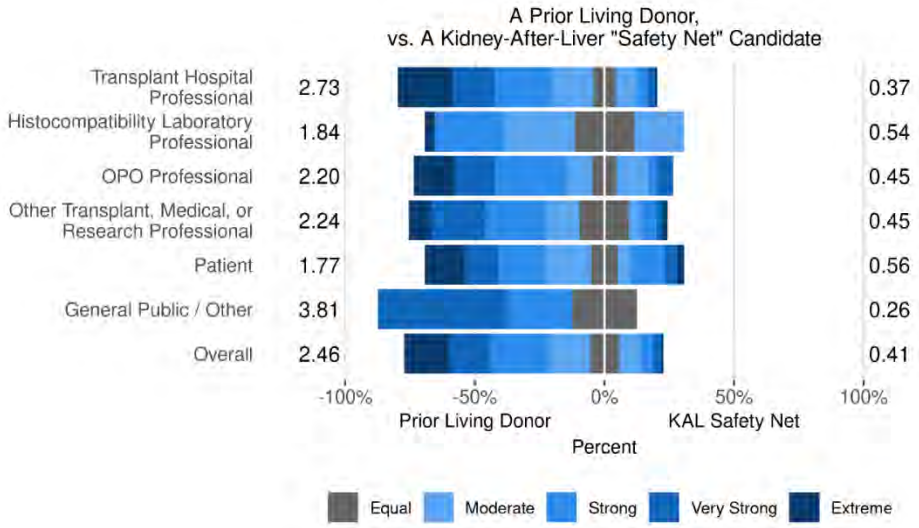
- *proximity should be weighed more heavily for certain types of kidneys, such as DCD or high KDPI kidneys,*

Prioritize a very nearby candidate (e.g., short drive from donor hospital).

- *"The nearby candidate should be first, because of two reasons;*
  1. they are closer and would be a better opportunity for success.
  2. The pediatric candidate is over the age of 18 now and should be move off the priority list.
  But if the pediatric candidate is in worse health then the nearby candidate, then that should be taken into consideration and the kidney should go to them.."
- *Priority should be given to patients that are closer to the transplant hospital. Studies have shown better outcomes for every organ the less cold time they have.*

Increase Access for Prior Living Donors vs Increase Access for Safety Net Candidates

This pairwise comparison indicates an overall preference for a prior living donor over a kidney-after-liver "Safety Net" candidate.



Comments:

Increase access for a prior living donor.

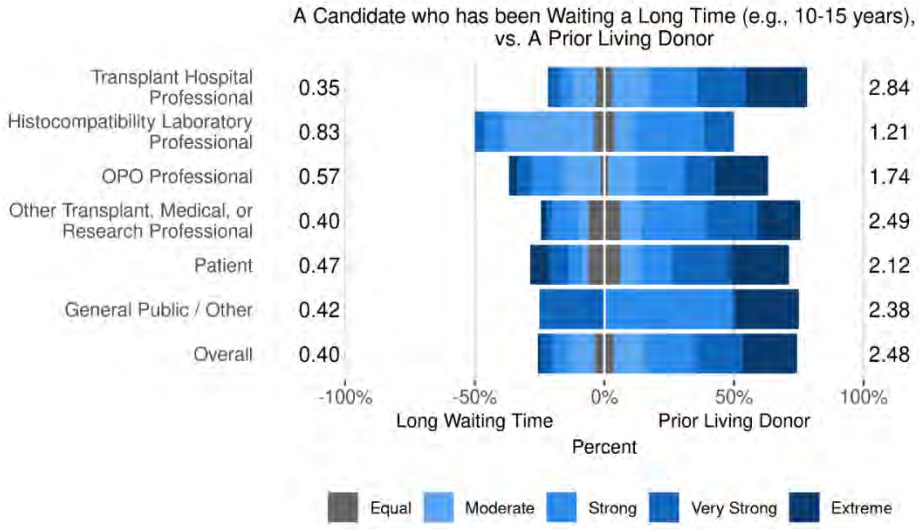
- *incentive to donate should be preserved, more than incentive to accept liver only*
- *should specify organ donated... kidney donor who needs a kidney should receive more priority. If other organ donors receive priority then kidney donors should also be prioritized the same if they need another organ transplant*
- *As before, Prior Living Donors need to be at the top of the waiting list.*

Increase access for a kidney-after-liver "safety net" candidate.

- No comments.

Increase Access for Prior Living Donors vs Waiting Time

This pairwise comparison indicates an overall preference for a prior living donor over a candidate who has been waiting a long time (e.g., 10-15 years).



Comments:

Increase access for a prior living donor.

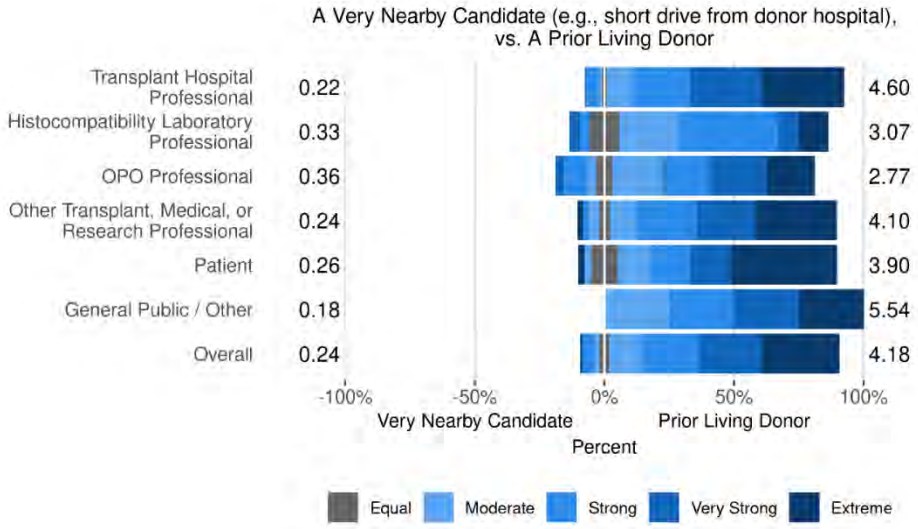
- *I understand how selfless it is for someone to donate an organ and agree that a prior living donor should receive some priority. However, I also strongly feel that a candidate who has been waiting should also have an opportunity to receive a transplant, especially if all other considerations are equal.*
- *The prior living donor should have the first opportunity to get a kidney, because they earned the right by being a living donor for someone earlier in their life.*
- *As a living donor, I was told that should I need transplant I would move to the top of the list- to lower than would be acting in bad faith to all of us who were living donors.*
- *Not giving priority to a living donor may deter people from considering to be a living donor.*
- *It is critical to prioritize prior living donors. It is one of the best incentives to anyone to make a donation. Such prioritization takes away some of the fears of donating, thus increasing the potential donor pool. Increasing the donor pool solves most of our other problems.*
- *I would add dual allocation of KDPI >85%. kidney's*

Prioritize a candidate who has been waiting a long time (e.g., 10-15 years).

- *Person waiting 10-15 years should be priority over any potential transplant as they have been waiting so long and who knows how much longer patient will live without transplant?*
- *A candidate with longer waiting time likely has higher mortality in this scenario. With current allocation regulations prior living donors are given priority over wait time so they will be offered this organ before the other recipient - I feel this is unfair since prior living donors will get priority on most offers they come up for.*

Increase Access for Prior Living Donor vs Improve Placement Efficiency

This pairwise comparison indicates an overall preference for a prior living donor over a very nearby candidate (e.g., short drive from donor hospital).



Comments:

Increase access for a prior living donor.

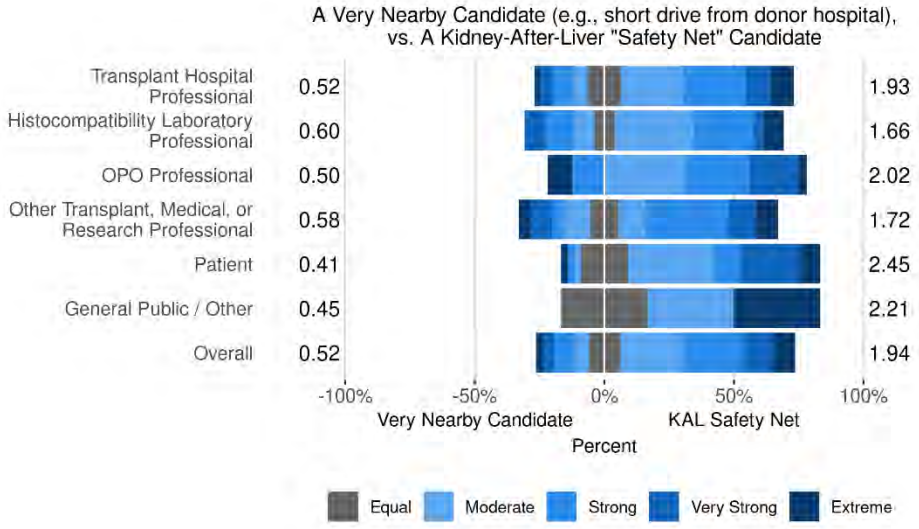
- *prior living donor should have transplant first as their donation could be why they now need transplant*
- *Living donor should have first choice to receive the kidney. But if the other candidate needs the kidney more, then ask the living donor if they will defer for the next kidney.*
- *Per my earlier comments, Living Donors are our most valuable resource and, therefore, we must encourage living donations. One of the best ways to encourage living donors is to assure them that they will be at the top of the waiting list if they ever need a new kidney.*

Prioritize a very nearby candidate (e.g., short drive from donor hospital).

- No comments.

Improve Placement Efficiency vs Increase Access for Safety Net Candidates

This pairwise comparison indicates an overall preference for a kidney-after-liver "Safety Net" candidate over a very nearby candidate (e.g., short drive from donor hospital).



Comments:

Prioritize a very nearby candidate (e.g., short drive from donor hospital).

- No comments.

Equal

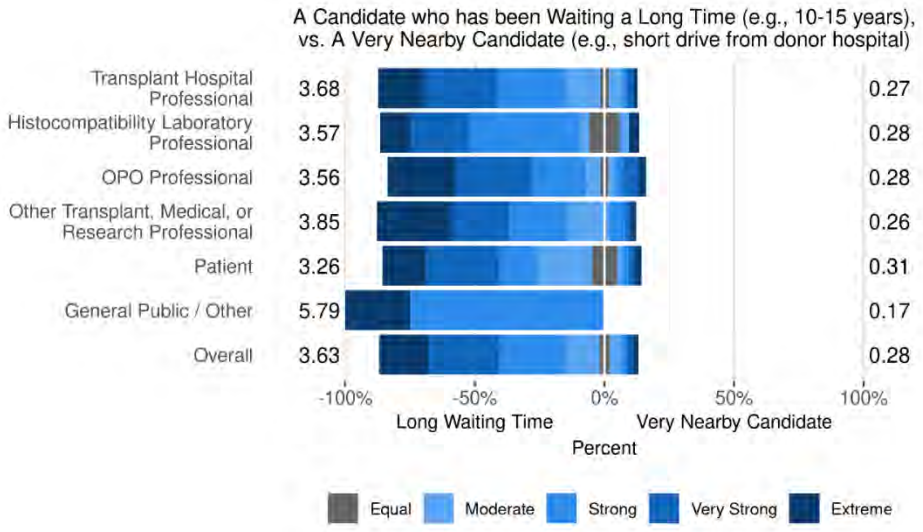
- *Should be looked at equally.*

Increase access for a kidney-after-liver "safety net" candidate.

- *High KDPI kidneys (>85) should be prioritized to nearby candidates to reduce risk of discard.*

Improve Placement Efficiency vs Waiting Time

This pairwise comparison indicates an overall preference for a candidate who has been waiting a long time (e.g., 10-15 years) over a very nearby candidate (e.g., short drive from donor hospital).



Comments:

Prioritize a very nearby candidate (e.g., short drive from donor hospital).

- No comments.

Prioritize a candidate who has been waiting a long time (e.g., 10-15 years).

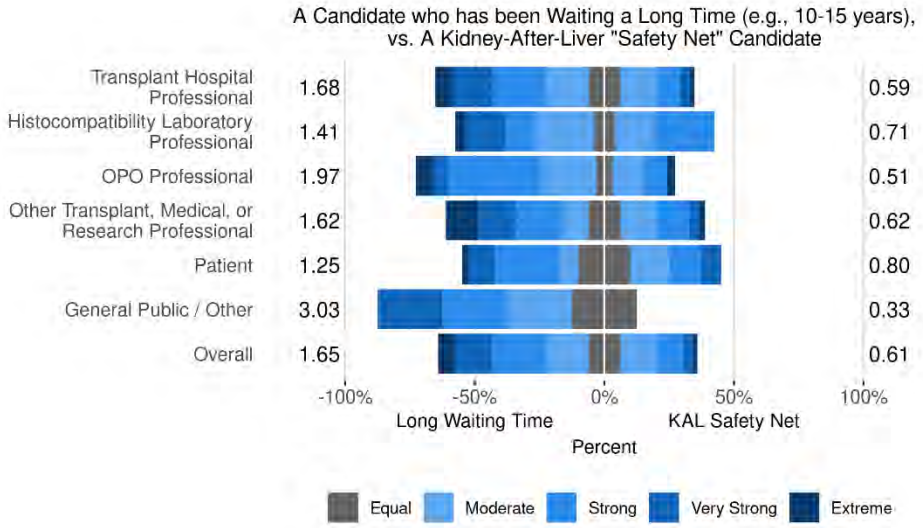
- *High KDPI kidneys (85+) should be prioritized to nearby candidates. They are not typically accepted for long wait time candidates and it lengthens CIT to have to get through the match run to the close centers who will accept*
- *A candidate with longer waiting time likely has a higher mortality rate. BUT if you consider DCD and high KDPI into this scenario it may not be worth the time/expense/effort it takes to send a*

suboptimal kidney to a recipient who will hopefully come up for another offer soon if you bypass this offer and then offer to the recipient who is closer.

- *Pediatric hospitals are less common and should be discriminated against for distance to the donor - some states only have a single pediatric transplant center.*
- *If the individual who is closer to the donor kidney and has a higher chance of failing, then does the candidate who has been wait 10-15 years, I would say let them have the kidney, but if they have not started dialysis and are in good health then they can wait.*
- *need to consider diminishing viability of long-distance candidate. Should have some sort of "break-even" distance even though I know it's not exact.*
- *DCD and High KDPI kidneys should be allocated with proximity in mind much more so then other offers.*
- *A patient that has been waiting so long will probably already have ways set up to get to transplant hospital.*
- *really depends on cold time and overall ability to utilize resource. if patient has been waiting 10-15 years lives far away and will be difficult to get in with a kidney with significant CIT and marginal status would prefer closer candidate*
- *I believe that we have the planes and other logistical assets in place to deliver a kidney in in a timely manner for good results to almost anywhere in the US. If this is true, the longer waiting candidate should have significant preference. if this is not true, we need to work on the logistics to make it true.*

Increase Access for Safety Net Candidates vs Waiting Time

This pairwise comparison indicates an overall preference for a candidate who has been waiting a long time (e.g., 10-15 years) over a kidney-after-liver "Safety Net" candidate.



Comments:

Increase access for a kidney-after-liver “safety net” candidate.

- No comments.

Equal

- *Working in the field as long as I have, I've seen patients who receive liver only have improvement in kidney function after transplant. I feel that these two should be equal when prioritization is given.*
- *They are both equally important, but it should come done to the urgency of which candidate needs it the most at the time of transplant.*

Prioritize a candidate who has been waiting a long time (e.g., 10-15 years).

- *Been waiting 10-15 years for transplant? Need to get transplant first*
- *Transplant is an alternative to dialysis and dialysis significantly lowers a person's life expectancy. The pt who has longer waiting time likely has been on dialysis for some of this time and should be given priority in this scenario.*

Appendix A: Comparison Matrixes

Figures 11-12 show the aggregate results for each of the pairwise comparisons and by demographic groups. Items less than one are shaded red and indicate that the column header is the preferred attribute. Items greater than one are shaded blue and indicate that the row header is the preferred attribute in the pairwise comparison. (For example, many of the values underneath the "Very Nearby Candidate" column are blue which indicates the row header is the preferred attribute in those situations).

Figure 11: Aggregate Results

	Long Waiting Time	Pediatric Candidate	Very Nearby Candidate	Longevity Matched Candidate	Prior Living Donor	Medically Urgent Candidate	Candidate Biology
Pediatric Candidate	2.26						
Very Nearby Candidate	0.28	0.22					
Longevity Matched Candidate	1.31	0.44	3.38				
Prior Living Donor	2.48	0.91	4.18	2.20			
Medically Urgent Candidate	3.66	1.68	4.64	2.85	1.60		
Candidate Biology	3.03	1.31	4.78	2.79	1.34	0.59	
KAL Safety Net	0.61	0.31	1.94	0.70	0.41	0.27	0.29

Figure 12: Aggregate Results by Demographic Group

Transplant Hospital Professional

	Long Waiting Time	Pediatric Candidate	Very Nearby Candidate	Longevity Matched Candidate	Prior Living Donor	Medically Urgent Candidate	Candidate Biology
Pediatric Candidate	2.55						
Very Nearby Candidate	0.27	0.20					
Longevity Matched Candidate	1.28	0.40	3.53				
Prior Living Donor	2.84	0.89	4.60	2.45			
Medically Urgent Candidate	3.87	1.61	4.78	3.15	1.56		
Candidate Biology	3.21	1.26	5.09	2.93	1.32	0.57	
KAL Safety Net	0.59	0.26	1.93	0.69	0.37	0.25	0.27

Histocompatibility Laboratory Professional

	Long Waiting Time	Pediatric Candidate	Very Nearby Candidate	Longevity Matched Candidate	Prior Living Donor	Medically Urgent Candidate	Candidate Biology
Pediatric Candidate	2.54						
Very Nearby Candidate	0.28	0.22					
Longevity Matched Candidate	1.78	0.62	3.37				
Prior Living Donor	1.21	0.70	3.07	0.84			
Medically Urgent Candidate	3.83	2.71	5.15	3.42	3.60		
Candidate Biology	3.53	1.69	4.95	2.42	2.97	0.65	
KAL Safety Net	0.71	0.43	1.66	0.59	0.54	0.23	0.27

OPO Professional

	Long Waiting Time	Pediatric Candidate	Very Nearby Candidate	Longevity Matched Candidate	Prior Living Donor	Medically Urgent Candidate	Candidate Biology
Pediatric Candidate	1.34						
Very Nearby Candidate	0.28	0.33					
Longevity Matched Candidate	1.60	0.62	2.73				
Prior Living Donor	1.74	1.44	2.77	1.92			
Medically Urgent Candidate	3.20	2.31	3.67	2.68	1.95		
Candidate Biology	2.70	1.91	3.76	3.00	1.30	0.55	
KAL Safety Net	0.51	0.54	2.02	0.74	0.45	0.32	0.35

Other Transplant, Medical, or Research Professional

	Long Waiting Time	Pediatric Candidate	Very Nearby Candidate	Longevity Matched Candidate	Prior Living Donor	Medically Urgent Candidate	Candidate Biology
Pediatric Candidate	2.73						
Very Nearby Candidate	0.26	0.20					
Longevity Matched Candidate	1.21	0.36	3.48				
Prior Living Donor	2.49	0.68	4.10	1.92			
Medically Urgent Candidate	2.85	1.17	4.41	1.75	1.51		
Candidate Biology	3.22	0.97	5.12	2.58	1.27	0.83	
KAL Safety Net	0.62	0.27	1.72	0.62	0.45	0.32	0.32

Patient

	Long Waiting Time	Pediatric Candidate	Very Nearby Candidate	Longevity Matched Candidate	Prior Living Donor	Medically Urgent Candidate	Candidate Biology
Pediatric Candidate	1.25						
Very Nearby Candidate	0.31	0.29					
Longevity Matched Candidate	1.42	0.76	3.29				
Prior Living Donor	2.12	1.23	3.90	2.33			
Medically Urgent Candidate	4.06	2.55	4.94	2.89	1.29		
Candidate Biology	2.22	1.71	3.70	2.32	1.25	0.42	
KAL Safety Net	0.80	0.62	2.45	0.87	0.56	0.32	0.39

General Public / Other

	Long Waiting Time	Pediatric Candidate	Very Nearby Candidate	Longevity Matched Candidate	Prior Living Donor	Medically Urgent Candidate	Candidate Biology
Pediatric Candidate	1.39						
Very Nearby Candidate	0.17	0.18					
Longevity Matched Candidate	0.59	0.28	2.28				
Prior Living Donor	2.38	1.88	5.54	5.92			
Medically Urgent Candidate	4.05	0.44	4.49	1.05	0.61		
Candidate Biology	1.21	0.95	4.61	3.34	0.54	1.19	
KAL Safety Net	0.33	0.35	2.21	1.00	0.26	0.41	0.38

Appendix B: Public Comments[9]

In addition to the comments expressed in the AHP exercise, the transplant community was able to provide comments through Public Comment. 66 comments were submitted through regional meetings, committee meetings, and the online public comment system.

Staff first read all of the comments to identify key statements and organized excerpts of each comment so that recurrent themes could be further analyzed. As with all public comment feedback, the small sample size and participation limit the generalization of these results. They, however, do suggest what other members of the transplant community might say. These comments lend insights into the opinions of the public comment participants.

Commenters covered many different topics, including the following themes:

- Candidate Biology
- Disadvantaged Populations
- Equity in Access
- Ethical Principles
- Geography
- High CPRA
- High KDPI and Medically Complex Donors
- HLA Matching
- Medical Urgency
- Modeling Metrics and Monitoring
- Multi-Organ
- Pediatric Access
- Placement Efficiency
- Post-Transplant Survival
- Waiting Time

Public comment responses indicated general support for priority assigned to the following attributes:

1. Medical Urgency (high weight)
2. Pediatric Priority (high weight)
3. Living Donor Priority (high weight)
4. CPRA (high weight)
5. DR Matching in HLA

Additionally, public comments suggest the following areas should be highlighted in modeling:

1. Disadvantaged populations, particularly re: HLA matching
    - Race and living donors, socioeconomic, pediatric, rural vs urban
2. Pediatrics and access to transplant, waiting time to transplant
3. Model longer term outcomes, particularly for pediatrics

[9] All of the comments in their original form are available at: https://optn.transplant.hrsa.gov/policies-bylaws/public-comment/continuous-distribution-of-kidneys-pancreata-request-for-feedback/