

OPTN Kidney Transplantation Committee

Meeting Summary

June 10, 2024

Teleconference

Jim Kim, MD, Chair

Arpita Basu, MD, Vice Chair

Introduction

The Kidney Transplantation Committee (the Committee) met via teleconference on June 10, 2024 to discuss the following agenda items:

1. Committee Member Recognition
2. Review: “Hard to Place” Definition Approach
3. Discuss “Hard to Place” Cold Ischemic Time Definition
4. Discuss “Hard to Place” Allocation Indicators
5. Discuss “Hard to Place” Clinical Characteristics from Follow-up Data Request
6. Finalize “Hard to Place” Definition
7. Open Forum

The following is a summary of the Committee’s discussions.

1. Committee Member Recognition

Committee members were recognized for their service and appreciated for their time and commitment to advancing the field of kidney transplantation.

Summary of discussion:

There were no questions or comments.

2. Review: “Hard to Place” Definition Approach

The Committee reviewed their previously discussed framework for the hard to place definition, and the work to date to develop this preliminary definition.

Presentation Summary:

The Committee has focused on developing a preliminary, evidence-based definition of kidneys at risk of non-use. The goal of this initial definition will allow the Committee to modify it as needed for a variety of purposes that this definition will be used. Literature review, data, and subject matter expertise will be drawn upon to build a body of evidence.

The rationale for this effort is to provide a greater standard in defining “hard to place” and kidneys at increased risk of non-use. The Committee has previously received support in public comment for standardizing such a definition. This will help to efficiently identify which kidneys may become hard to place or may benefit from an expedited allocation pathway to help prevent nonuse. Such a definition will have implications for dual kidney, expedited placement, transitioning the kidney minimum acceptance criteria screening tool (and perhaps other elements).

Previously, the Committee has discussed a multi-pronged approach, including clinical indicators, cold ischemic time, and allocation indicators rather than just one set of criteria or one allocation threshold. There is a desire for the “hard to place” definition to be dynamic, allowing the donor to meet the definition in a number of ways. This is meant to help account for shifting organ and allocation scenarios, including information that may be challenging to capture such as transportation limitations. The Committee believes that such a dynamic approach that allows flexibility in its application will ultimately allow for increased capacity to accommodate inherent variation across regions, donor populations, transportations availability, etc.

To achieve this level of flexibility the clinical, allocation, and cold ischemic time characteristics are envisioned to be flexible. For example, a donor may meet at least two clinical criteria; and/or more than a certain number of programs have declined the kidney offer for all candidates; and/or cold ischemic time is greater than a specific number of hours. Committee discussions on the specifics of these criteria are ongoing and will continue today.

Summary of discussion:

There were no questions or comments.

Discussion: “Hard to Place” Definition - Cold Ischemic Time

The Committee reviewed previously discussed SRTR data regarding cold ischemic time and risk of non-use across KDPI groupings and discussed a potential cold ischemic time threshold to define hard to place.

Summary of discussion:

A member noted that while one cold ischemic time threshold may work well for a KDPI of 40, the same threshold may not be appropriate for a KDPI 85 percent kidney. The benefit of the multi-pronged definition was noted here, as that higher KDPI kidney may meet the hard to place definition via a different clinical criteria.

One member remarked that the data clearly shows an inflection at 5 hours cold ischemic time, but that often, programs won’t receive a primary offer until at least that point in time due to delays in post-clamp information gathering. The member expressed concern for a 5-hour cold ischemic time threshold, noting that this may be too early in allocation and won’t necessarily represent difficulty in placement. The Chair agreed, noting that it’s important the definition of hard to place doesn’t include those kidneys that could be successfully allocated via standard allocation. The Chair elaborated that depending on the OPO and donor hospital, the recovery team may just be leaving the OR and receiving post-clamp information. The Chair continued that some donor hospitals are slower than others and asked for OPO feedback on whether 4 hours of cold ischemic time is sufficient time for biopsy results to become available. One member responded that this depends on the resources available at the donor hospital. The member added that in some cases, the OPO will have to bring samples back to biopsy the organs. The member shared that their OPO will sometimes send an organ to an accepting center on biopsy waivers, to ensure the organ is able to be safely transported with increased likelihood of transplant. The member continued that their OPO will allow the program to biopsy the organs upon arrival as opposed to forcing the program to wait to begin transplanting the kidney.

The Chair remarked that, if the donor meets other criteria, 4 hours of cold ischemic time could be appropriate. The Chair continued that 6 hours post-cross-clamp may be more appropriate, with offers being made. The Chair added that receiving an offer with 6 hours of cold ischemic time feels like the offer was received late. The Chair expressed support for the inclusion of a cold ischemic time threshold but noted that it may be difficult for cold ischemic time to stand alone.

One member pointed out that it often turns out that OPOs have made several back up offers and have received provisional yes responses, but upon receipt of the primary offer and final information, programs code out and the OPO is forced to continue standard allocation, but with increased cold ischemic time. The member continued that this is a difficult position for OPOs, particularly if OPOs must wait 6 hours to begin expedited placement.

A member agreed, noting that 5 or 6 hours of cold time may seem like a lot of cold time, but there are non-aggressive centers that feel they are missing out on the offer by moving to expedited placement quickly. The member continued that potentially, cold ischemic time could be considered in context with other donor criteria. The member emphasized that the transplant program community may feel as though 6 hours of cold ischemic time is too early. Another member agreed, recommending a combination of cold ischemic time and time since initial offer, to account for delay between cross clamp and new active offers need to be made. The member provided an example, such that 5 hours of cold ischemic time has elapsed, with at least 2 hours since the first round of new organ offers have been sent out. If no programs have accepted the organs, then the OPO could activate expedited placement.

A member agreed, adding that the post-clamp information is important to placing kidneys, and that it is important for an expedited placement pathway to be completed by a process that ensures OPOs are able to provide post-recovery organ information in a timely fashion. The member continued that OPOs want to be able to provide this information but have limited resources or constraints in the donor hospital. The member continued that these points need to be highlighted to ensure effective change.

The Vice Chair recommended utilizing a multi-pronged definition that requires at least 2 pieces to be met – either both cold ischemic time and clinical criteria, or cold ischemic time in combination with significant declines. The Chair remarked that the data does support a cold ischemic time threshold, and that the starting point could be at least 6 hours. The Chair continued that 6 hours of cold ischemic time could be a lot for a more medically complex donor, and that it is important for expedited placement to be initiated adequately early. The Chair added that setting a cold ischemic time threshold means that an OPO could reach that threshold in other ways, such as logistic issues, and that this could result in a OPOs utilizing an expedited placement pathway for kidneys that could be placed via standard allocation.

One member pointed out that setting a cold ischemic time threshold could prevent OPOs in some circumstances from ensuring the kidney is able to be flown to a transplant program. The Chair agreed, noting that it is important to be able to trigger expedited placement through other criteria. The Vice Chair also agreed, noting that the Committee will be able to define these criteria. The Vice Chair offered an example, noting that high KDPI kidneys should not have to wait to hit 4 hours cold ischemic time to qualify for expedited placement, particularly since these organs have such high rates of non-use. A member agreed but added that KDPI should not be the only factor. The member expressed support for other criteria and thresholds.

One member expressed support for a simple, understandable definition. The member commented that defining hard to place pre-clamp may be necessarily more complex, with interacting donor factors. The member continued that post-clamp qualification for expedited placement should be simpler, to ensure consistency, understandability, and efficacy. The Vice Chair agreed but noted that high KDPI kidneys account for most of the non-used organs, and that addressing non-use will require consideration of these organs. The Vice Chair continued that 4-6 hours post-clamp is not necessarily ideal for ensuring placement of those organs.

A member remarked that KDPI is limited, and that there are increasing numbers of non-use for low KDPI kidneys, which may be due to anatomy and pump issues. The member continued that many programs

don't consider 6 hours to be a significant amount of cold time, especially for a standard, healthy kidney and an appropriately selected recipient.

One member recommended alternate cold ischemic time thresholds for kidneys that require post clamp information gathering, such as pump. The member explained that it takes a good deal of time for reliable pump numbers to become available. The member asked if there is any data to show that certain programs immediately decline high KDPI donors prior to final anatomy and biopsy information. If so, it may make sense to activate expedited placement earlier for those kidneys. The member noted that other organs requiring post-clamp information for programs to make final acceptance or decline decisions may require a different threshold. Staff offered that the Committee could consider different cold ischemic time thresholds based on clinical criteria, or in context with a number of programs having declined the organ offer. The Chair expressed support for different cold ischemic time thresholds, noting that OPOs are required to biopsy donors that meet biopsy requirements. The Chair added that kidneys need to remain on pump for a few hours to ensure accurate data. The Chair continued that those kidneys that do not meet biopsy criteria but is becoming hard to place, there is likely an anatomical or donor history concern. The Chair offered that the cold ischemic time threshold could include consideration for time waiting for post-clamp information gathering. The Chair continued that, if no additional post-clamp information is being gathered, and the 4 to 6 hours of cold ischemic time has elapsed, then the organ should be allocated via an expedited placement pathway.

One member pointed out that there are no requirements for pumps, and that not every OPO is currently able to pump kidneys. The member recommended not including a specific cold ischemic time threshold for pumped kidneys. Another member commented that different pumps have different parameters, and that this variation makes pump criteria somewhat unreliable and inconsistent. The member also noted that acute kidney injury kidneys may have alternate appropriate pump thresholds. The member expressed support for simple criteria, with cold time acting as a surrogate for multiple indicators. The member continued that biopsy and anatomy data are important.

A member pointed out that not every kidney is safe for transplant, and that the appropriate non-use rate will not realistically be 0%. The member continued that there needs to be a pathway for OPOs to determine that an organ should not be allocated, particularly as this contributes to unnecessary offer volume. One member shared that OPOs do not currently stop allocation of any kidneys, due to performance metrics. The member shared that OPOs are responsible for exhausting the match run if the organ is not used. Another member agreed. One member pointed out that OPOs have to hand off allocation to the OPTN Organ Center, and asked if there is data regarding this. A member responded that the OPTN is also required to exhaust the match run in an attempt to place the organ. One member pointed out that Organ Center data could be utilized to determine when an organ has become hard to place. Staff shared that the requirement for OPOs to hand off allocation to the OPTN Organ Center is based on a specific point in the match run, and not directly related to cold ischemic time.

The Chair redirected conversation, noting that the focus is to determine which donors and organs should be removed from standard allocation pathways in order to be allocated via an expedited pathway. The Chair remarked that there is wide variation in pump use, but there are standard requirements for biopsy performance, resulting in necessary allocation delays. The Chair continued that a cold ischemic time threshold may not be appropriate for biopsied donors, but that donors that do not meet biopsy criteria could utilize a cold ischemic time threshold. The Chair offered that 6 hours may be appropriate for organs in the latter group. Another member agreed.

One member suggested utilizing a time threshold from final post-clamp data availability, with at least two hours of pump numbers. The member continued that once two-hour pump numbers have been published, if the OPO does not have an acceptance, the OPO may initiate expedited placement. The

member continued that two hours should be sufficient to ensure meaningful data is available to centers evaluating the offer. Staff asked the Committee how many hours should be utilized there. The member explained that there is variation in post-recovery information gathering timeframes, and that it will be important to set an appropriate threshold. Another member remarked that pump manufacturers recommend that pump numbers should not be considered until well after 2 hours. The member also noted that not all OPOs pump, and that including language around pumping may result in confusion regarding whether pumping is required. A member responded that it would be important to ensure the language was clear for OPOs that pumping is not a requirement. The member continued that this may actually disincentivize pumping by delaying eligibility of an organ for the expedited placement pathway.

One member agreed that pump should not be considered, noting that in some cases, the organ may need to pump for 6 hours. The member noted that if initial pump numbers are not great, programs may request additional time before making final acceptance or decline decisions. The member continued that these requests may extend allocation time without ultimately resulting in acceptance. Another member agreed but noted that the OPO would have the discretion at a certain cold ischemic time to transition to expedited placement. Another member responded that even aggressive centers will sometimes engage in this way, choosing to wait for additional pump information before finalizing offer decisions. There was agreement here.

Staff asked if Committee members were comfortable with a cold ischemic time threshold of 6 hours for kidneys that are not biopsied. Several members agreed. Staff reminded the Committee that a multipronged definition allows an organ to meet the definition of hard to place in multiple ways, which can reduce concerns that an OPO will not be able to initiate expedited placement early enough to ensure the kidney may be flown to an accepting center.

Next steps:

Continue to finalize cold ischemic time thresholds on the Committee's next call.

3. Discussion: "Hard to Place" – Allocation Indicators

Committee members continued discussion related to defining hard to place utilizing indicators within the allocation process.

Presentation Summary:

The Committee has explored several options for how to define "center decline," noting critical mass:

- Range refusal – center enters decline simultaneously for multiple candidates; can be one or more range refusals for a center on a match run
- Center declines for more than 50% of its candidates
- Center declines for more than 75% of its candidates
- Full center decline (for 100% of its candidates)

Committee members had noted that there is a critical point where programs have opted out for multiple candidates that may not require full center declines as a threshold. Additional matching data was reviewed that indicated, on average, that three to four centers enter a full center decline on match runs where organs are placed.

Additionally, data shows that kidneys with a higher KDPI were associated with a higher number of center declines across the four decline/refusal categories above. In the KDPI 86-100% group, there are a very high number of centers declining for all of their candidates, or at least a large majority of them. Additionally, match runs generated after cross clamp also reflect a higher number of center declines. As

might be expected, when there is more challenges in allocating an organ, a higher number of center declines is associated.

Committee members were asked to consider how many center declines might indicate that an organ will be hard to place.

Summary of discussion:

The Chair asked how center decline was defined, and staff explained that “center decline 100%” means that the center has declined for 100% of their candidate son that match run. Staff continued that this indicates that the center has declined for all of their candidates. One member remarked that center decline may be more likely for less aggressive centers. The member also noted that it is difficult to gauge what percentage of patients are being declined by center. The member recommended utilizing a sequence number threshold instead of utilizing a certain number of center declines. The member continued that the sequence number at which a kidney becomes hard to place may be a more understandable logic. The member continued that center decline will vary based on the centers that receive the initial offers.

One member noted that some programs have protocols where they decline for all candidates based on specific organ criteria, while other centers may consider the offer for some patients up until a specific time threshold. The member continued that OPOs may not see multiple center declines for more aggressive centers until late in the allocation process.

The Chair remarked that it is okay if centers decline – if certain number of centers are declining for all of their patients, depending on where in the country they are and how many centers there are within 250 nautical miles, this may indicate a hard to place organ. The Chair continued that the number of centers declining can provide an indication, but that if the first 150 sequences is represented by only 2 centers, that may not be adequate to indicate difficulty in placement. The Chair noted that most programs will decline for their top of the list candidates due to patient concerns. The Chair continued that it depends on how many other centers are on the match run, and how these centers are organized. The Chair continued that their program may decline for the first hundred candidates but would be willing to consider the offer for their 101st candidate at sequence 500. The Chair noted that if the organ enters expedited placement ahead of that candidate, it is possible that the candidate is bypassed, and a lower-ranking candidate is offered the organ. The Chair noted that center decline is a hard threshold to determine. Staff asked if this tension is resolved by utilizing a definition of center decline based on the center declining for 100% of their eligible candidates on the match run, noting that this indicates the program is not interested in transplanting the organ at all. Staff asked if multiple centers declining for all of their candidates would indicate difficulty in placement and an organ that may require expedited placement. The Chair agreed.

The Vice Chair asked if this data looks at a specific refusal code. Staff remarked that this does not look at specific codes, but that a center declining for all of its candidates is not likely declining for patient issues for all of their candidates. Another member agreed.

One member expressed support for defining center decline as 100% of candidates having been declined for. The member shared that their program will sometimes decline for individual candidates on the match run but remain interested in the offer for a minority of their candidates. The member continued that in these instances, a program with interest for 25% or 40% of their candidates does not necessarily indicate the need for expedited placement. The member added utilizing a smaller threshold for center decline means that programs adequately evaluating their list to determine appropriate matches could inadvertently trigger expedited placement. The member expressed concern that this could potentially result in bypassing candidates that would accept the offer.

Staff asked the Committee how many centers opting to completely decline the offer for all of their candidates would indicate concern for likelihood of placement. One member pointed out that, within 250 NM, there are variable numbers of centers. The member offered that a certain percentage of centers within 250 submitting complete center declines could trigger expedited placement. Another member agreed, noting that percentage of programs with total declines within the 250 nautical mile radius could make more sense than an absolute number. The Chair recommended potentially evaluating the average number of centers within 250 nautical miles per donor hospital or OPO and establishing a threshold this way. The Chair emphasized that variation would persist depending on where the organ is and transplant program density in that area. Another member remarked that this could be potentially overcomplicated.

Another member agreed, expressing support for a threshold based on sequence number. The member offered that once allocation reached a certain sequence number, the OPO could begin expedited placement. The Chair remarked that sequence number could be a separate criterion as well.

One member remarked that the expedited placement pathway could still be triggered by a certain point of allocation while still giving allocation priority to those candidates that still have provisional yeses entered into the system. The Chair agreed, noting that how the expedited placement pathway functions will also be important. Another member remarked that this must be written in. The Chair pointed out that transparency is important to expedited placement. The Chair shared that current OPO aggressive and rescue allocation processes are not transparent.

The Vice Chair asked if 8% of the match run had been considered as a potential cut off. Staff explained that the Committee considered a percentage of the match run to determine where the KiMAC should begin applying bypasses, and that 8% was generated based on analysis of what percentage of the match run the KiMAC is currently applied at. Staff noted that this data was not based on non-use.

Considering the percentage of center declines in the 250 nautical mile radius was suggested as being a practical approach to setting this threshold. Members did acknowledge that this would add complexity to the definition.

Ultimately, the Committee was supportive of a center decline for 100% of its candidates as the definition of center decline. No decision regarding a threshold definition was reached on this call. The importance of transparency and not bypassing individuals who were initially marked as a provisional yes on initial offer was noted as important to the expedited pathway to legitimately move allocation along faster.

Next steps:

Continue to finalize threshold for allocation indicators on the Committee's next call.

4. Discussion "Hard to Place" – Clinical Characteristics and Follow Up Data Request

The Committee briefly reviewed the wide range of clinical criteria previously evaluated with respect to patterns in non-use, and discussed a follow-up data request, utilizing an adjusted model, to understand how each characteristic impacts and is associated with non-use.

Presentation Summary:

Previously, the Committee identified the following clinical characteristics as having high rates of non-use:

Compare to National Non-Use Rates (NUR):

- 2022 NUR – 26.65%

- 2023 NUR – 27.18%

Pre-Clamp Clinical Indicators:

- KDPI >80% (non-use rate >50%)
 - KDPI 70-70% (NUR 38.52%)
 - KDPI 60-69% (NUR 27.53%)
- Donor age 65+ (NUR 70.03%)
 - Donor age 50-64 (NUR 43.89%)
 - Donor age 35-49 (NUR 18.53%)
 - Median age of organs not used: 56
- Donor history of cancer (NUR 47.43%)
 - No history of cancer (NUR 25.76%)
- Donor history of cigarette use (NUR 38.17%)
 - No history of cigarette use (NUR 22.79%)
- Donor history of hypertension (NUR 45.24%)
 - No history of hypertension (NUR 15.85%)
- Donor history of diabetes (NUR 53.94%)
 - No diabetes (NUR 22.56%)
 - Diabetes > 5 years (NUR 61.15%)
 - Diabetes > 10 years (NUR 62.92%)
 - Duration unknown (NUR 56.01%)
 - Insulin dependent (NUR 45.24%)
- Donation after cardiac death (DCD) donor (NUR 33.87%)
 - Donation after brain death (DBD) donor (NUR 23.06%)
- CVA as cause of death (NUR 40.74%)
 - Other (34.3%), Anoxia (24.52%); CNS tumor (28.72%)
- Unknown presence of clinical infection
 - Less than 1.36% of donors (NUR 95.14%)

Post-Clamp Clinical Indicators

- Donor Organ Pump Status (31.23%)
 - Not pumped (22.71%)
- Donor organs biopsied (40.17%)
 - Not biopsied (7.54%)
 - In 2022, 59.09% were biopsied
- Glomerulosclerosis >11% (NUR >50%)
 - Glomerulosclerosis >20% (NUR 89.55%)
 - Glomerulosclerosis 16-20% (NUR 71.56%)
 - Glomerulosclerosis 11-15% (NUR 59.63%)
 - Glomerulosclerosis 6-10% (NUR 44.5%)
 - Glomerulosclerosis 0-5% (26.02%)

Discussions with the Committee and Leadership noted that it may be difficult to choose clinical criteria without knowing how these criteria work together to impact non-use. To support these discussions, the Committee may consider a follow up data request using an adjusted model to understand the impacts of donor characteristics on non-use. The model could consider the following variables, with one overall model and one model stratified by KDPI group:

- Age (years)
- History of cancer
- History of cigarette use
- History of cocaine use
- History of drug use
- History of hypertension
- History of diabetes
- Duration of diabetes
- Insulin dependent diabetes
- Hepatitis C
- DCD
- Serum creatinine
- Height
- Weight
- Body mass index (BMI)
- Cause of death
- Mechanism of death
- Blood type
- Birth sex
- Region, donor service area, and state
- COVID-19 status
- Pump status
- Biopsy status
- Public Health Service (PHS) increased risk
- Cytomegalovirus (CMV) status
- Clinical infection
- Kidney donor risk index (KDRI)

Summary of discussion:

A member noted the inclusion of biopsy status on the list and questioned whether “if met biopsy criteria” could also be included. Staff noted that determining whether the kidney met minimum criteria for biopsy or other related components could be included.

Another member asked if there were any elements included specific to anatomy. Staff acknowledged that he would have to look at what anatomy factors are actually collected. A Committee member listed a number of anatomical items that often lead to nonuse (ecchymosis, cysts, anatomical damage, etc.), and noted that these characteristics are not collected as data within the OPTN Donor Data and Matching System. Staff acknowledged that this will be challenging to provide due to data limitations, but he will review the deceased donor registration (DDR) form to determine if there is anything that might be helpful to pull into this request.

A Committee member questioned the inclusion of Hepatitis C here, as this is being removed from KDPI. Members acknowledged that from an infectious disease perspective this may still influence decision-making, as some centers are accepting these organs for hepatitis naïve patients, and some are not doing so.

Next steps:

The Committee will review this updated data report when it is finalized.

5. Open Forum

The Committee did not receive any external requests for open forum discussion.

Upcoming Meetings

- July 15, 2024

Attendance

- **Committee Members**
 - Jim Kim
 - Arpita Basu
 - Leigh Ann Burgess
 - Marian Charlton
 - Jesse Cox
 - Patrick Gee
 - Tania Houle
 - Caroline Jadlowiec
 - John Lunz
 - Martha Pavlakis
 - Jason Rolls
 - Eloise Salmon
 - Chandrasekar Santhanakrishnan
 - Curtis Warfield
 - George Surratt
- **HRSA Representatives**
 - James Bowman
 - Marilyn Levi
- **SRTR Staff**
 - Grace Lyden
 - Jonathan Miller
 - Bryn Thompson
- **UNOS Staff**
 - Kayla Temple
 - Shandie Covington
 - Kaitlin Swanner
 - Thomas Dolan
 - Lauren Motley
- **Other**
 - Prince Anand
 - Toni Bowling