OPTN Lung Transplantation Committee
Meeting Summary
October 23, 2020
Conference Call

Erika Lease, MD, Chair
Marie Budev, DO, Vice Chair

Introduction

The Lung Transplantation Committee met via Citrix GoTo teleconference on 10/23/2020 to discuss the following agenda items:

1. Pairwise Comparisons
2. Candidate Biology Rating Scales
3. SRTR Modeling Request
4. Other Committee Business

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

1. Pairwise Comparisons

The Committee continued their review of the pairwise comparisons from the Analytic Hierarchy Process (AHP) exercise completed by the community, and took informal polls to indicate their preferences.

Summary of discussion:

UNOS staff explained that age is used in the current post-transplant survival model for candidates over the age of 45. If the Committee chooses to give more weight to post-transplant survival, than older candidates would shift down further on the match run. The Chair asked why 45 years was used, since more recent data suggests that 55 might be a more appropriate age. SRTR staff explained that when they updated the calculation of the lung allocation score (LAS), they did not consider changing any of the variables currently in LAS, so they did not change the point at which age is incorporated into the model. Age is included in the model as a linear spline, so the impact on the model varies with age.

Post-Transplant Survival vs. Improve Placement Efficiency

A member generally favored placement efficiency because travel risk is a concern and he would prefer to transplant his recipients with a closer donor. However, the member said there are situations in which efficiency should not take priority. A member agreed that travel risk is a concern, as is cost to some extent, but surgeons do lung transplants to save lives. Efficiency should take lower priority because lungs are a national resource. The Vice Chair said placement efficiency may not be more important than post-transplant survival but placement efficiency plays an important role in improving allocation.

A member expressed concerned that the Committee is leaning towards broader geographic sharing, since there is always going to be a more urgent candidate. The member agreed philosophically that placement efficiency should not be as important as other attributes, but worried about the practical implications and whether it would result in a system that never transplants patients with a lower LAS. A member agreed, suggesting that it might be appropriate to have a threshold where people who are more medically urgent have access to broader sharing, but sharing is more restricted for people who are less medically urgent.

SRTR staff noted that the Committee is considering changes to how the LAS functions. LAS is based on estimates of medical urgency and post-transplant survival and currently gives a 2/3 weight to medical urgency and 1/3 weight to post-transplant survival. If the Committee changes the weights to place more emphasis on post-transplant survival, then it would change who is a "low LAS" patient and who gets priority in allocation. UNOS staff summarized that SRTR can evaluate different weights on medical urgency and post-transplant survival, and the Committee should keep in mind that the definition of LAS is potentially changing through this process.

A member expressed concern about making a lot of changes to allocation at the same time. Current policy highly values proximity to the donor hospital and using the weights from the AHP results would spin those priorities in a different direction. The member suggested that the Committee leave the weight on proximity as it is in current policy, add in the proposed changes to LAS, and build from there in future iterations. The member acknowledged that the Committee is shifting away from the 250 nautical mile (nm) circle for allocation but said it might be helpful to buffer the change so it is not so dramatic. UNOS staff said that current policy gives a weight of about 80% to proximity, based on the revealed preference analysis, so the Committee could choose to assign a weight of 80% to placement efficiency in the composite allocation score, rather than the 10% weight suggested by the results of the analytical hierarchy process (AHP) exercise. UNOS staff recommended modeling a few different options to see if they produce the desired outcomes for priority.

The member asked if it will be possible to model the effect on Midwest programs of drastically changing the weight on placement efficiency. SRTR staff said the Committee should take caution in evaluating the modeling results based on geography. There are some areas of the country with very few transplant centers. SRTR could make some predictions based on the national data and current geographic practices, but center practices are different and SRTR cannot model those differences. The member noted that Midwest programs fly out for 80-90% of their organs, and asked if SRTR could analyze import versus export organs. SRTR staff said they can look at accepted organs versus recipients by region, and they will continue to think about how to best evaluate these concerns in the modeling.

The member suggested that the Committee think in terms of the patients they want to prioritize, rather than thinking about an aggressive transplant program "taking" organs. A member agreed with this concept but worried that there could be practical implications to a dramatic change like this and small programs may not have the manpower to fly long distances to get organs. The member agreed that it may be appropriate to give higher weight to placement efficiency to start. The Chair agreed that the Committee should consider the impact on smaller programs of increasing costs, since it could put some programs out of business and actually reduce the number of transplants. UNOS staff observed that the Committee is trying to find the sweet spot between prioritizing access and efficiency, and said that the Committee can walk through that on the sensitivity tool when finalizing the modeling request for SRTR.

A member said his understanding was that when the lung allocation system was shifting to circles, if a larger circle had been selected like 500 nm or 1,000 nm, then waitlist survival would have improved. The 250 nm circle was selected due to ischemic time concerns, but even with that change, the lung transplant community adjusted and started flying farther for organs. If sharing is expanded farther because of the Committee's values, then the Committee will see more change in the system.

Poll: 10 – post-transplant survival; 4 – equal; 1 – placement efficiency

Candidate Biology vs. Increase Access for Patients Under the Age of 18

The Vice Chair said she initially favored giving preference to those under the age of 18, but considering that the population of candidates who are very highly sensitized is very small, it might make more sense to weight these attributes equally. A member said she generally favors pediatric candidates due to the

fair innings principle, but would consider giving less weight to pediatric age group over candidate biology than she had previously. A member said that the fair innings argument is more compelling than giving priority to candidate biology, and would favor pediatric age group accordingly. For example, a child should have preference for an organ over a 55-year-old candidate who is sensitized.

A member said there is an access issue for sensitized candidates and would favor giving priority to patients who are medically harder to match, though it is hard to know how the details of specific situations would change preferences. A member acknowledged the ethical justification for giving priority to children based on the fair innings principle, but said that it might actually be harder to find an organ for someone who is medically hard to match. The candidate biology rating scale also gives a boost to small pediatric candidates through the height rating scale. It is hard to justify giving an organ to a kid just because of their age when they might more easily find an organ. A member agreed that this gets difficult when considering the pediatric threshold at age 18. For example, when comparing a 16-year-old, a 20-year-old, and a sensitized 75-year-old, the 16-year-old would get the organ if pediatric age is favored; the 75-year-old would get the organ if candidate biology is favored; and it doesn't seem quite right that the 20-year-old would be left out either way.

A member said that when her husband died, they requested that his heart be given to a patient under the age of 18, if possible, but there were no biological matches and the organ went unused. From that perspective, the Committee should consider that if candidate biology takes priority, then some of these kids might be left out. The member said that her family still wonders if her husband's heart could have been placed somewhere.

A member said that the candidate biology discussion has been focused on sensitization, but for someone with an 80% Calculated Panel Reactive Antibodies (CPRA), there are other options, since it is possible to desensitize patients. Sensitized patients do have less access, but there are options that can be explored, whereas there are no medical interventions that can be done to get a child more access. For this reason and the fair innings principle, the member favored pediatric age group.

A representative from the Histocompatibility Committee (Histo rep) said her concern was not really the candidates with an 80% CPRA, but those candidates with a 99.99% CPRA, as they have almost no opportunity for a match. Desensitization for these patients is generally not very successful. The Histo rep said there needs to be a way to give access to the extremely highly sensitized patients, and a nonlinear rating scale would help address that. Members agreed that desensitization has not been successful for this population. A member mentioned that candidate height can be addressed surgically, though blood type cannot. Post-transplant survival is affected for patients who are highly sensitized.

Poll: 3 – candidate biology; 1 – equal; 10 – pediatric age group

Candidate Biology vs. Increase Access for Prior Living Donor

Based on the Committee's previous discussion, UNOS staff suggested keeping priority for prior living donors in the composite allocation score, since it was not unanimous to remove prior living donor priority, but restrict the priority to prior living lung donors (rather than giving priority to all living donors). A member said prior living donor priority is not without value, but it depends on how much weight the Committee places on the attribute. An attendee said there have been virtually no living donor lung transplants in the US since LAS was implemented. It is a very small population.

A member asked where the Committee draws the line for incentivizing people to donate. A member asked how two patients should be prioritized if they have the same lung injury but one donated an organ previously. The Vice Chair reiterated concerns from prior living donors on the Patient Affairs Committee about being prioritized over other patients. A member suggested that this should be a

situation where a transplant program requests an exception, since it is so rare. UNOS staff suggested that the Committee come to a decision on prior living donor priority, rather than leaving the decision to the review board. The Vice Chair agreed, explaining that it is really hard for the review board to figure out on their own how to prioritize these patients, especially since review board members rotate.

UNOS staff suggested that the Committee consider this attribute as giving priority to prior living lung donors, not all living donors, when they retake the AHP exercise later in the meeting.

Candidate Biology vs. Improve Placement Efficiency

A member favored placement efficiency initially, not being a clinician and not having a clear understanding of how candidate biology impacts allocation, but the member had a better appreciation for the candidate biology concerns after listing to the Committee's discussions on this attribute.

A member favored candidate biology because while placement efficiency is important, if there is someone who is really hard to match, then it is more important for that person to have opportunities for transplant.

Poll: 14 – candidate biology; 1 – equal; 0 – placement efficiency

Pediatric Age Group vs. Placement Efficiency

The Chair said that this question has been answered in current policy to some extent, since policy allocates organs to wider geographic areas due to the lack of access for pediatric patients. The Committee should be thoughtful about that when considering any changes. The Vice Chair noted that pediatric programs tend to fly farther for pediatric candidates. A member agreed and said his program usually looks out to 1,000 nm initially for pediatric candidates. A member agreed that it is important to give these candidates access by allowing broader sharing, and the AHP results reflect those values.

Poll: 18 – pediatric age group; 0 – equal; 0 – placement efficiency

Minimize other proximity-related inefficiencies vs. Minimizing organ transportation costs

A member said he might lean towards minimizing costs and tolerating some other inefficiencies, but as a pediatric surgeon, it is hard to choose one or the other since they fly so often for organs. A member expressed concern about the impact of other proximity-related inefficiencies on discard rate, particularly in terms of working with organ procurement organizations (OPOs) that do not have an established relationship with the transplant program. His transplant program has established protocols with the local OPO to procure lungs, particularly because lungs can take a couple of days to recover. However, it is harder to convince other OPOs that they do not work with as frequently to take the time to recover those organs. Sometimes families are eager to get the donor in the operating room sooner, which decreases the amount of time available for organ recovery. That raises concerns about prolonging the allocation process, for example, by placing a lot of people high on the match run who are unlikely to accept the offer. A member said it also depends on the mix of staff in each program and their capacity to fly out for organs, which varies a lot between programs.

A member was not sure how the allocation system can minimize organ transportation costs. Programs can try to minimize costs by using ground transportation or one-way flights, but the Committee weighted these criteria about equal and that is probably the right answer, since every program will do it differently. The Vice Chair said smaller programs, or programs located in areas where they have to fly more, will have trouble with organ costs. Larger programs are able to fly further and more often.

A member said that having a relationship with the OPO is really helpful and that has changed with broader distribution in a way that may actually reduce the number of transplants, since the OPOs are adjusting to a new system as well. A member said that only about 20% of their transplants come from

local organs. The member has worked with local OPOs to increase yield, but unfortunately, there remain a lot of underperforming OPOs in the country when it comes to lung utilization. A member agreed that it is hard to get OPOs to adjust their donor management strategies.

A member said it is hard to evaluate the other proximity-related inefficiencies because they all come back to cost, since time is money. A member explained there are other risks and inefficiencies, like travel risk; coordinating teams from farther away; and flight delays. All these factors matter, and while they could equate to cost, there are other tradeoffs, because transplant hospital staff have less time to do transplants, and OPOs have less time to manage other donors. The member leans towards these factors as being more important because these issues are more directly related to how many transplants are performed, though the cost concern for smaller programs is valid. A member agreed, saying donor death can also be a problem if the allocation process takes too long. UNOS staff noted that the cost in this rating scale is specifically related to travel costs and does not incorporate staff costs.

Poll: 5 – proximity-related inefficiencies; 10 – equal preference; 2 – organ transportation costs

2. Candidate Biology Rating Scales

UNOS staff facilitated discussion on outstanding questions regarding rating scales, including whether gender should be considered in the height rating scale, and whether the CPRA rating scale should be linear or nonlinear.

Summary of discussion:

Gender and the Height Rating Scale

The height rating scale gives more points to candidates who are very short or very tall, and assigns a different number of points based on the diagnosis group of the candidate, since these factors impact access to transplant. UNOS staff presented their analysis showing that gender does not have a significant impact on donor availability based on height. The Chair recommended that the Committee avoid adding more complexity to this rating scale unless it is necessary. A member agreed that having the height scale broken down by diagnosis group is adequate, and it is not necessary to add the complexity of incorporating gender.

A member asked if the analysis was based on one height. The Chair affirmed that UNOS staff had to look at a height where there was overlap between male and female patients. A member said that the Committee needs to see the impact across a range of heights. The Chair explained that the rating scale already covers different height ranges, and the question is whether the gender of the donor also needs to be considered. A member said that surgeons must consider the age and the gender of the donor. A member explained that the question is whether the Committee needs to add further nuance to the existing rating scales, which already gives a boost to people of short stature. A member agreed that all these variables, including diagnosis group, age, gender, are clinical considerations, but a lot of that probably washes out in the data because of recipient heterogeneity, as demonstrated by the analysis presented by UNOS. The member agreed with keeping the rating scale simple.

A member said that the Committee should make decisions based on data. UNOS staff noted that height is not incorporated into the current allocation system so this is a good step forward, and it can continue to be refined in the future. Currently, the data does not show a lot of difference by gender, so it is okay to keep the rating scale simple for now and update it as needed. The Committee agreed to keep the three rating scales for height by diagnosis group, and not to include additional rating scales for gender.

CPRA Rating Scale - Definition

A member asked how CPRA would be defined. The Chair explained transplant programs would be able to indicate which antigens should be avoided. For all unacceptable antigens, a program can indicate whether the patient should be excluded from the match run for a donor with that antigen. The Histo rep asked if programs would enter antigens that would not be used for screening donors. The Chair affirmed that was the plan, because there is not enough data regarding sensitization for thoracic organs because there is so much heterogeneity in program practices. The Histo rep said that this could be confusing and the Committee should be clear about what is considered data collection and what information would be used for allocation. The Chair said the goal is to use the information for both allocation and for data collection that can inform allocation policies.

The Vice Chair said the next step would be offering some sort of allocation advantage for entering unacceptable antigens that screen off donors. The Chair said that a candidate would only get points for donors screened off due to unacceptable antigens. A member said that this will need to be defined really clearly. The member had a patient who was 100% sensitized but the transplant program did not list many of the patient's antigens so that the program would see more organ offers. A member said that it is a tradeoff. Each program gets to decide whether they want to see more organ offers or get a boost for the patient's allocation score. The Vice Chair noted that all antigens do not carry the same weight, so maybe patients should get more of a boost if they cannot accept common antigens. The Histo rep explained that CPRA takes frequency into account, as CPRA is meant to be a predictive tool about the percentage of donors who are not compatible.

A member said that 30% of the candidates on her program's waiting list are highly sensitized, but the program only enters a certain amount of information. The Histo rep suggested that this information be collected via a separate data field for antigens not involved in screening, since they would not be used to award points in allocation. Otherwise, histocompatibility laboratory staff generally understand the unacceptable antigens field in UNet^{SM} to indicate what a program is willing or not willing to accept at a given time for a given candidate. If some programs do enter all antigens, the histocompatibility lab can help manage that with the transplant program based on what they are willing to accept, but entering all of the antigens is probably not going to be uniformly accepted.

The Chair said that the Committee can talk more about data collection later, but the idea is that the CPRA points would be based on the antigens that are used for donor screening. A member agreed, noting that the reason for giving candidates an advantage is because they are accepting less access to donors. If the candidates are not accepting less access for donors, they do not need an advantage, which is consistent with how kidney incorporates sensitization in allocation.

The Histo rep recommended not listing antigens that the program would consider cross-matching, rather than listing them as unacceptable antigens, so that the transplant program sees those offers and can review them with the assistance of their histocompatibility lab. A member said this is a difficult discussion because there is huge variability between centers in terms of how they handle sensitization in organ offers, but the Committee's plan is a reasonable approach. The Histo rep said it will be really important to explain the impact of entering unacceptable antigens on the donor pool.

A member suggested following this approach for height as well, so that a transplant program can enter the heights they are willing to accept for a candidate, who would get screened off the match run for donors of other heights. The Chair said the difference between height and CPRA is that the OPTN has data that shows that if a candidate is shorter, then the candidate has fewer donors available to them. The OPTN does not have good data on how many points should be assigned to lung candidates based on their CPRA because there is so much variability in the data entered into the system.

Poll: Should CPRA points only be awarded for antigens that screen donors off? 13 – yes; 3 – no

CPRA Rating Scale - Shape

UNOS staff asked the Committee to consider whether the CPRA rating scale should be linear or nonlinear. The linear approach is a direct mapping of the CPRA percentage. A nonlinear approach would give more priority to the very sensitized patients. Since the CPRA rating scale is combined with the blood type rating scale, using an exponential function for CPRA would wipe out some of the priority for blood type B and O patients, but that could be balanced by placing more weight on this attribute.

SRTR staff said that CPRA data has not been incorporated into Thoracic Simulation Allocation Modeling (TSAM) yet, and it is not expected to be incorporated into TSAM for the initial modeling request. Generally, the population of candidates who are highly sensitized is small, but this is a limitation to understanding the impact of a continuous distribution allocation system on this population.

A member asked how kidney incorporates CPRA into allocation. UNOS staff shared that kidney uses a nonlinear curve to take into account the restrictions at the high end of the spectrum. Lung would be taking a step beyond kidney by incorporating CPRA into the composite allocation score in that the rating scale will be more granular, whereas CPRA is part of the Kidney Donor Profile Index (KDPI).

A member suggested using a steep nonlinear curve since the goal is to get access for those people whose options are really restricted. If a donor comes up that is a match, they need to get access to that donor, no matter where they are. The Histo rep said the steep nonlinear curve makes the most sense because the patients with CPRA of 40-80% do not need a boost as much as those people who are 99.99% sensitized. At 80%, that still means that one in five donors will be acceptable, versus one in 1,000 donors for the 99.99% candidate. The Chair said that even for the person with a one in five chance based on sensitization, it does not necessarily mean that all those other organs are acceptable because of the other considerations for matching lungs that do not apply to kidneys, like height.

UNOS staff noted that if the Committee selects a nonlinear scale, then the Committee might want to give more weight to the candidate biology attribute because it waters down the effect of the rating scale as a whole. The Vice Chair supported the shallow nonlinear approach to give some additional access for less sensitized candidates, who still face a more restricted donor pool.

A member asked why the candidate biology rating scales are grouped together. UNOS staff explained that these traits, based on the data, are aligned on the same scale in terms of biologic compatibility. The member said it would be helpful to see more data on this to compare access for CPRA versus blood type or height. UNOS staff said that it is hard to look at blood type because the proposed approach for continuous distribution is different from current policy. A member said it would be helpful to look at different models that do not tie these three scales together. UNOS staff said that it is possible to evaluate that in the sensitivity tool by placing more weight on the blood type scale relative to the others. A member suggested using a shallow nonlinear curve while giving an additional boost to the blood type rating scale.

Poll on shape of CPRA rating scale: 0 – linear; 9 – shallow nonlinear; 4 – steep nonlinear

Poll on whether blood type should be on a different scale from CPRA: 13 separate, 1 combined

<u>Next steps:</u>

UNOS staff suggested looking at both a shallow nonlinear and steep nonlinear curve for the CPRA rating scale in the SRTR modeling. The Committee took the AHP exercise again during the meeting.

3. SRTR Modeling Request

The Committee reviewed the results of the AHP exercise and discussed the attribute weights that should be included in the initial modeling request to SRTR.

Summary of discussion:

Relative to the Committee's previous AHP results, the weight on pediatric age increased. The weights on medical urgency relative to post-transplant survival were similar to the current LAS.

Medical Urgency vs. Post-Transplant Survival

Members said that they tried to weight medical urgency and post-transplant survival equally, but in the results, medical urgency was weighted more highly than post-transplant survival. Other members were aiming for a 1.5:1 ratio. UNOS staff explained that the AHP calculations consider all of the pairwise comparisons at once, but the Committee can continue to adjust those weights to get the desired outcome. The Chair did not think that anyone would argue for keeping LAS as it exists. Based on the community AHP results, it seemed like most people would advocate for planning more equal weights on medical urgency and post-transplant survival.

UNOS staff showed the updated exchange rates. The updated AHP results showed a 2.2 exchange rate between medical urgency and post-transplant survival, whereas current policy has a 2.0 exchange rate. A member said the Committee should decide whether the components should be equally weighted or if the goal is to keep the model similar to the current system. The member suggested weighting the two components more equally since more weight should be placed on post-transplant survival to avoid futile transplants. A member said that since the model would only include post-transplant survival at one-year, and most candidates are expected to survive one year, it is hard to compare it one-to-one with medical urgency. UNOS staff said that mathematically, this would mean that days of waitlist survival are valued equally to days of post-transplant survival, so this would be a true net-benefit score. UNOS staff reminded the Committee that the one-year tool can be replaced with something better in the future, and asked if there is some correlation between one-year survival and longer-term outcomes that would justify placing more emphasis on one-year post-transplant survival than is currently used in LAS.

SRTR staff said that the Committee could consider asking SRTR to model multiple options. SRTR could develop a model that would allow the effect of age to be different before and after transplant, though the predictive performance of such a model may not be as good. There is one year of recipients with five years of data that is viable for analysis, and that cohort could be used to estimate different impacts for age. A member said this would be helpful. A member said it seems problematic to put more weight on post-transplant survival when the OPTN does not have good data on it. A member said it is a balance between being forward-thinking and data-driven. A member said the Committee should think about what is defensible and aligned with the general theme, which is that most of the Committee wants to move closer to a 1:1 ratio, and that is also what the community said. If the Committee uses the 1:1 ratio and notifies the community that the Committee is working on improving the estimates for post-transplant survival, that may be acceptable to the community.

UNOS staff said most patients do have a high estimated post-transplant survival, but it is generally between 300-365 days. Accordingly, there is some dispersion of the candidates within that range, but it is not as high as the variation for medical urgency. A member suggested that SRTR model 3:1 and 1:1 ratios to see how the results compare. UNOS staff suggested modeling the current 2:1 balance of LAS as well as a 1:1 balance. A member said that medical urgency should have more weight, and a 1.5:1 ratio would be better than 1:1. The Committee agreed to ask SRTR to model 2:1, 1.5:1, and 1:1 ratios of

medical urgency and post-transplant survival. SRTR staff offered to look at longer term outcomes concurrently with the TSAM runs.

Placement Efficiency

The Committee reviewed the exchange rate for distance and medical urgency. UNOS staff noted that based on the committee's previous discussion on philosophy versus practicality, the Committee's updated AHP results were a bit surprising because the Committee placed even less priority on placement efficiency.

The Committee reviewed the exchange rates for distance versus post-transplant survival and distance versus LAS. UNOS staff recommended that SRTR evaluate a few different ways to rank placement efficiency, since going from the current weight of 81% to a weight of 6% as indicated by the AHP results is a dramatic change. The question is whether the Committee can achieve the desired priorities for medical urgency, candidate biology, and the other attributes without sending organs across the country. A member said there was a very similar change to heart allocation in 2018 and asked if there was anything the Committee can learn from that policy change in terms of unintended consequences, like smaller transplant programs shutting down. UNOS staff noted that travel distance did increase but the broader distribution was only for higher status heart candidates. The median ischemic time increased by a small amount. The median distance did not increase that much, but the number of donors within 60 miles or so decreased by a lot, so there was a shift in terms of efficiency and cost, but there was not a clear impact on outcomes related to ischemic time. Median distance went up to 216 miles from 83 miles, but the effect was not uniform across program size.

SRTR staff suggested that the Committee choose to evaluate the extremes in the modeling, including giving a much higher priority to placement efficiency than is reflected by the AHP results to see what that looks like. A member asked if the models in TSAM for offer acceptance include distance. SRTR staff said that past models have included distance. Historically, very long-distance offers were for candidates much lower on the match run, reflecting an offer that has been rejected over and over again. Accordingly, SRTR staff would have to be careful about how to incorporate offer acceptance by distance.

The Chair said the Committee discussed allowing broader distribution for people who are more medically urgent. UNOS staff said that it is determined in part by the shape of the rating scale for waiting list mortality (medical urgency), which is currently linear. If the Committee changed the shape of the curve, then the Committee could give more weight to people who are very urgent. The Chair asked if SRTR could model that effect. SRTR staff noted that an LAS of 1 is not clinically meaningful, and it is probably true that meaningful changes in medical urgency are not linear. SRTR staff said a journal article found that the difference between an LAS of 50 and 51 is not clinically meaningful, but it was an old article and it is not clear if that holds true across the spectrum. The Committee needs to figure out what that threshold is before determining when it is appropriate for people to fly across the country.

UNOS staff said that the Committee could make an equity argument for choosing a nonlinear scale for medical urgency to make sure the sickest people receive a transplant before they die, because for those people, each day really matters. For people on the lower end of the rating scale, the chances are good that they will get another offer. A member said the Committee probably does not really want a weight of only 6% on placement efficiency, since there is some point at which the distance is too far. A member said that the nonlinear rating scale for medical urgency seems to solve some of those issues.

A member asked the Committee whether medical urgency or placement efficiency should drive the composite allocation score, as that could provide an intermediate position between current policy and where the Committee wants policy to go. A member said that the answers would vary if the Committee asked people the importance of efficiency across various situations and LAS. UNOS staff noted that the

exchange rates can help conceptualize this tradeoff, for example, if it is worth traveling 800 nm for five LAS points. A member said they would prefer to change the shape of the placement efficiency rating scale, since changing the shape of the medical urgency rating scale would have bigger implications.

Members asked about the possibility of having some sort of interaction between placement efficiency and medical urgency. UNOS staff explained that if the Committee selects a nonlinear curve for medical urgency and a mostly linear scale for placement efficiency, then the system will send lungs further for more urgent candidates. UNOS staff suggested avoiding interactions, if possible, because it makes the system more confusing and less transparent.

Members expressed concern that changing the shape of the medical urgency rating scale will also impact the balance between medical urgency and post-transplant survival. A member said that people do not think of the distance between 1700-2000 miles in the same way as the distance between 50-350 miles, and maybe the Committee underestimated that previously. Members do not want to have to travel unless it is really important, but the question that the Committee has to answer is how to determine what "really important" means. UNOS staff said that the exchange rate for a 6% weight on placement efficiency says that members would travel across the country for 15 LAS points, and it is not clear that is what the Committee wants. HRSA staff said it sounds like the Committee may want to have different exchange rates at various distances. A member said the point is to get an organ to highly urgent candidates before they die. The Committee wants to give those candidates enough distance that they can get that offer, but there is probably not good data on what that distance should be.

Next steps

The Committee will continue working on finalizing a modeling request for SRTR on subsequent calls.

4. Other Committee Business

UNOS staff shared a quarterly report of Lung Review Board metrics with the Committee, which is available to the Committee members on Sharepoint.

Upcoming Meetings

- November 12, 2020
- November 19, 2020

Attendance

- **Committee Members**
  - Erika Lease, Committee Chair
  - Marie Budev, Committee Vice Chair
  - Alan Betensley
  - Whitney Brown
  - Staci Carter
  - Ryan Davies
  - June Delisle
  - Mindy Dison, Visiting Board Member
  - Cynthia Gries
  - Julia Klesney-Tait
  - Jasleen Kukreja
  - Dennis Lyu
  - Dan McCarthy
  - Kenneth McCurry
  - Michael Mulligan
  - John Reynolds
  - Marc Schecter
  - Nirmal Sharma
  - Kelly Willenberg
- **HRSA Representatives**
  - Jim Bowman
- **SRTR Staff**
  - Katie Audette
  - Melissa Skeans
  - Maryam Valapour
  - Andrew Wey
- **UNOS Staff**
  - James Alcorn
  - Julia Chipko
  - Craig Connors
  - Shannon Edwards
  - Rebecca Goff
  - Nang Thu Thu Kyaw
  - Elizabeth Miller
  - Liz Robbins Callahan
  - Amanda Robinson
  - Janis Rosenberg
  - Neelam Singh
  - Leah Slife
  - Darren Stewart
  - Kaitlin Swanner
  - Susan Tlusty
  - Sara Rose Wells
  - Karen Williams
- **Other Attendees**

- Masina Scavuzzo
- Jennifer Schiller
- Stuart Sweet