OPTN ORGAN PROCUREMENT
AND TRANSPLANTATION NETWORK

OPTN Pediatric Transplantation Committee
Meeting Summary
November 16, 2022
Conference Call

Emily Perito, MD, Chair
Rachel Engen, MD, Vice Chair

Introduction

The OPTN Pediatric Transplantation Committee (the Committee) met via Citrix GoToMeeting teleconference, on 11/16/2022 to discuss the following agenda items:

1. Welcome and Announcements
2. Scientific Registry of Transplant Recipients (SRTR) Organ Allocation Simulation (OASim) Kidney-Pancreas Continuous Distribution Modeling Results
3. Reminders and Closing Remarks

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

1. Welcome and Announcements

Committee leadership welcomed the Committee and gave a few announcements.

2. Scientific Registry of Transplant Recipients (SRTR) Organ Allocation Simulation (OASIM) Kidney-Pancreas Continuous Distribution Modeling Results

SRTR staff gave a presentation about the new OASIM Kidney-Pancreas continuous distribution modeling results to the Committee.

Presentation Summary:

The OPTN Kidney and Pancreas Continuous Distribution Workgroup requested simulation for 4 different continuous allocation scenarios which had different attribute weights and modifiers. The kidney and pancreas continuous distribution framework includes 5 components: medical urgency, post-transplant outcomes, candidate biology, patient access, and placement efficiency. The SRTR developed the OASIM as an updated version of prior SRTR modeling software known as the Kidney-Pancreas Simulated Allocation Model (KPSAM) to complete this request.

The modeling uses historical data to ask what would have happened to the historical cohort if allocation had occurred under different rules, but cannot predict future outcomes. The Continuous Allocation Score (CAS) is calculated by the rating scale multiplied by the attribute weight and donor modifier. SRTR staff explained the rating scale for each attribute, noting that for post-transplant outcomes, the OPTN Kidney Transplantation Committee chose to model a rating scale that makes it more likely that low Kidney Donor Profile Index (KDPI) kidneys are matched with low Estimated Post-Transplant Survival (EPTS) candidates than current policy.

The SRTR modeled 4 different scenarios for kidney, as follows:

1. Combined Analytic Hierarchy Process (AHP) Weights, which bases weights on results of the AHP survey
2. Increased Longevity Weights, which weights post-transplant outcomes more highly

3. All Donor Efficiency Weights, which weights proximity efficiency more highly
4. High KDPI Efficiency Weights, which has the same weights as the AHP scenario, except for kidneys KDPI greater than 85 percent, which are allocated with a higher weight on proximity efficiency using a donor modifier

Data Summary:

OASIM modeled a continuous distribution system that eliminated hard boundaries in previous systems.

In general, there was increased travel distance for all kidneys. Under all scenarios except for All Donor Efficiency, median travel distance increased for pediatric patients. This increase is due to the increased priority given to pediatric patients under continuous distribution but is mitigated by the increased weight on proximity efficiency in the All Donor Efficiency scenario.

Longevity matching of kidneys is more precise under all continuous distribution scenarios as compared to current policies. Higher KDPI kidneys go to older recipients, and this trend is seen most strongly in the Increased Longevity Matching scenario.

The All Donor Efficiency scenario has increased weight on placement efficiency and a lower weight on qualifying time, which may explain lower transplant rates for patients on dialysis for under 5 years. Also seen in this scenario were slightly lower transplant rates for Black candidates, who tend to be on dialysis for longer. These two trends may be controlled with a higher weight on qualifying time.

The scenarios modeled showed lower transplant rates in some regions, however, these regions had already high transplant rates and the modeling brought the rates in line with other OPTN regions.

Transplant rate for the pediatric age group increased under all modeled scenarios. The mean KDPI was unchanged for the pediatric group under all modeled scenarios. Ten-year death rate was unchanged for pediatric candidates under all scenarios.

Summary of Discussion:

The Chair asked if the model includes living donor transplants, and SRTR staff responded that OASIM only takes into account deceased donor transplants.

The Chair asked about next steps in the continuous distribution framework. SRTR staff responded that there will be a second round of modeling. The Kidney and Pancreas Committees and their various Workgroups are working to define a next modeling request, which will be informed by feedback from this Committee, other collaborating Committees, and public comment feedback.

A member described a concern regarding the increased travel distance seen in 3 modeled scenarios, noting unintended consequences of increased cost, cold ischemic time (CIT), delayed graph function, transportation errors, and complications in surgery. This member expressed a desire to follow these metrics in evaluating any of the continuous distribution proposed policies. The Vice Chair responded, noting that the model cannot account for changes in behavior. Transplant rates for pediatric candidates may be lower than the model suggests because centers will not realistically accept a kidney from very far distances. SRTR staff echoed this, noting that the model cannot predict changed acceptance practices. The Chair asked if the SRTR could incorporate an acceptance metric, such as no more than 5 percent of kidneys are accepted from more than 400 NM away. A member responded that the SRTR is unable to model that under the current OASIM.

A member from OPTN Region Six added that the concern for increased distance is valid, but for some regions including theirs, pediatric centers routinely accept kidneys from over 1200 NM away and do not

see a higher rate of graft dysfunction. This member noted that it is easy to get caught up in the details, but that actual metrics may not be worsened by increasing travel distance.

<u>Next Steps:</u>

If members have additional thoughts or feedback regarding the modeling or the next modeling request, they can email Committee leadership or staff.

3. Discussion of Future Projects

The Chair briefly introduced future Committee projects to discuss at a future meeting.

<u>Presentation Summary:</u>

The Chair explained that the projects members came up with at the in-person meeting were split into two "buckets," potential Committee projects and projects that align with the National Academies of Science, Engineering, and Medicine report recommendations.

The Committee will discuss project ideas in the next meeting.

<u>Next Steps:</u>

Members will review the slides and receive a survey by email for them to indicate projects of interest, to be completed by the next meeting.

4. Reminders and Closing Remarks

The Chair thanked Committee members and reminded them about the upcoming meeting on December 21st.

Upcoming Meeting

- December 21st, 2022

Attendance

- **Committee Members**
  - Abigail Martin
  - Brian Feingold
  - Neha Bansal
  - Caitlin Peterson
  - Caitlin Shearer
  - Daniel Carratturo
  - Danny Ranch
  - Douglas Mogul
  - Emily Perito
  - Evelyn Hsu
  - Geoffrey Kurland
  - Jennifer Lau
  - Johanna Mishra
  - Kara VenturaNamrata Jain
  - Rachel Engen
  - Shantavia Edmonds
  - Shellie Mason
- **HRSA Representatives**
  - Marilyn Levi
- **SRTR Staff**
  - Bryn Thompson
  - Jonathan Miller
  - Peter Stock
  - Raja Kandaswamy
  - Simon Horslen
  - Jodi Smith
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- **UNOS Staff**
  - Matt Cafarella
  - Betsy Gans
  - Kieran McMahon
  - Andy Belden
  - Dzhuliyana Handarova
  - Joann White
  - Julia Foutz
  - Keighly Bradbrook
  - Lindsay Larkin
  - Sarah Booker
  - Samantha Weiss
  - Susan Tlusty
  - Thomas Dolan
- **Other Attendees**
  - Melissa McQueen