

OPTN Pancreas Transplantation Committee

Meeting Summary

October 3 2022

Conference Call

Rachel Forbes, MD, Chair
Oyedolamu Olaitan, MD, Vice Chair

Introduction

The OPTN Pancreas Transplantation Committee (the Committee) met via Citrix GoToMeeting teleconference on 10/3/2022 to discuss the following agenda items:

1. Updates
2. Kidney-Pancreas Simulated Allocation Model (KPSAM) Modeling Primer
3. Massachusetts Institute of Technology (MIT) Modeling Primer

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

1. Updates

The Committee received the following update:

Pancreas Committee in person meeting

The Committee reviewed the results of the survey, which revealed 60% of the members responded in attending the meeting in person. The Committee's in person meeting date was confirmed for Tuesday, November 1st in Chicago, IL. The Committee was instructed that further meeting information would be coming soon.

Summary of discussion:

There was no discussion.

2. Kidney-Pancreas Simulated Allocation Model (KPSAM) Modeling Primer

The Committee received a presentation on Scientific Registry of Transplant Recipients (SRTR) KPSAM modeling in preparation for their review of modeling results.

Presentation summary:

The SRTR supports ongoing evaluation of the status of solid organ transplantation in the United States. The SRTR is currently administered by the Chronic Disease Research Group of the Hennepin Healthcare Research Institute and maintains an ever-expanding national database of transplantation statistics on the full spectrum of transplant activity – ranging from data on organ donation and waiting list candidates to transplant recipients and their outcomes.

The SRTR uses a software tool called Simulated Allocation Models (SAMs) to make predictions about how organ allocation rates and outcomes might change following the implementation of new allocation rules. SAMs take real candidate and donor information and use this to simulate allocation by applying new rules the Committee would like to explore. The software then outputs information on modeled results of new allocation rules, including the number of candidates transplanted, died waiting, and post-transplant deaths.

The models include some random components, reflecting uncertainty in acceptance decisions when an organ is offered to a potential recipient, and the unpredictable life expectancy that can result from undergoing or not undergoing transplant. To account for random variation, SRTR runs the models several times with the same set of allocation rules, organs, and candidates to determine average outcomes. SAMs rely on aggregate historical data and can't predict changes in organ acceptance behavior or identify trends over time. SAMs work best for modelling small allocation changes applied to large patient groups and are unlikely to give reliable predictions for small population subgroups, can't predict outcomes below an OPO level, and assume standardized behavior. Center- and OPO-level variation in policy or practice is not modeled, directed/expedited allocations are not modeled. Organ discard projections are unreliable as organs are discarded after a fixed number of declined offers, regardless of organ and donor characteristics. Overall, SAMs are good tools to estimate the overall magnitude and direction of possible effects of policy change. However, some policy changes may be justified even in the absence of clear simulation results.

Committees considering changes to organ allocation may request modeling of allocation changes from SRTR. The SRTR then presents key findings from the report to the Committee and the Committee weighs information from modeling results as well as medical, ethical, and practical considerations in making a decision on whether to pursue an allocation change.

Summary of discussion:

The Committee Chair described a concern about living donors not being included for priority in the new system. Staff will check the list of criteria to confirm.

The Committee Chair then asked when the report is expected. An SRTR representative explained that the SRTR is hard at work on the report and wants to present finalized and thorough data. The report is expected before the in-person meeting and SRTR representatives will attend the meeting to explain the results. Another SRTR representative cautioned that the results will prompt more questions from Committee members and asked members to keep in mind the limitations of the current modeling and any remodeling requests.

There was no further discussion.

Next Steps:

The Kidney and Pancreas Committees submitted the first KPSAM request in April 2022 and will review results once available.

3. Massachusetts Institute of Technology (MIT) Modeling Primer

The Committee received a presentation on the MIT modeling efforts in preparation for their review of modeling results.

Presentation summary:

MIT mathematical optimization will help the Committees hone in on a range of acceptable policy options. MIT is augmenting KPSAM with machine learning to quickly and accurately predict outcomes by identifying policies (attribute weights) that achieve any set of pre-specified outcomes in near real-time. This mathematical optimization helps narrow the window of options to those with an acceptable equity versus (vs) utility balance. MIT did similar work for the lung continuous distribution project and helped inform the OPTN Lung Transplantation Committee's selection of weight for various attributes. The goal of the MIT analysis is to allow the committees to feel more confident about their chosen allocation policy options before SRTR conducts the final, confirmatory modeling.

Initially, MIT will model three optimizations to include:

- Transplant rate for pediatrics by pediatric attribute weight
- Variance in transplant rate by donation service area (DSA) by proximity efficiency weight
- Variance in median time from listing to transplant by DSA by proximity efficiency weight

Summary of discussion:

The Committee Chair asked about the deadline for the MIT request. Staff responded that MIT plans to present at the in-person meeting in November. A member asked about the purpose of MIT's analysis, and staff responded that MIT has experience with mathematical optimization and tradeoff curves applicable to transplant policy. The OPTN Lung Transplantation Committee found MIT's analysis helpful in developing continuous distribution.

Next Steps:

The Kidney and Pancreas Committees will review MIT results along with the KPSAM modeling results once available. The Committee will continue to identify important metrics to include as part of MIT mathematical optimization.

There was no further discussion. The meeting was adjourned.

Upcoming Meetings

- November, 1, 2022 (In person, Chicago, IL)
- November 7, 2022 (Teleconference)

Attendance

- **Committee Members**
 - Rachel Forbes
 - Oyedolamu Olaitan
 - Antonio Di Carlo
 - Colleen Jay
 - Dean Kim
 - Diane Cibrik
 - Jessica Yokubeak
 - Maria Friday
 - Parul Patel
 - William Asch
- **HRSA Representatives**
 - Jim Bowman
 - Marilyn Levi
- **SRTR Staff**
 - Bryn Thompson
 - Jonathan Miller
 - Raja Kandaswamy
- **UNOS Staff**
 - Joann White
 - James Alcorn
 - Krissy Laurie
 - Lauren Mauk
 - Lauren Motley
 - Sarah Booker