OPTN Membership and Professional Standards Committee
Performance Monitoring Enhancement Subcommittee
Meeting Summary
June 1, 2021
Conference Call

Richard Formica, M.D., Chair

Introduction

The Performance Monitoring Enhancement Subcommittee of the Membership and Professionals Standards Committee (MPSC) met via Citrix GoToTraining teleconference on 06/01/2021 to discuss the following agenda items:

1. Welcome and Agenda
2. SRTR Models and Risk Adjustment Discussion

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

1. Welcome and Agenda

A staff member provided the subcommittee with the meeting objective. She explained that the purpose of today's meeting would be for the Director of the Scientific Registry of Transplant Recipients (SRTR) to review the models and risk adjustment components. The meeting would also provide an opportunity for the subcommittee to ask questions.

The Performance Monitoring Enhancement Subcommittee Chair stated his appreciation for SRTRs assistance with creating and reviewing the metrics. He explained that today's meeting would help subcommittee members gain a better understanding of the metrics and improve their own practices. He encouraged the subcommittee members to ask questions during the SRTR presentation.

2. SRTR Models and Risk Adjustment Discussion

The SRTR Director provided an opening statement and thanked the subcommittee members for their engagement in the project. He then explained the major components of risk adjustment and why risk adjustment was an important concept in the transplant community. He stated that SRTR often hears pushback from the transplant community on the performance metrics because of the belief that the metrics would discourage use of higher risk organs and candidates. The Director stated a misconception commonly mentioned about the waitlist mortality metric: "if I want to make my waitlist mortality rate better, I will just list lower risk patients". He explained how this misconception is not accurate because the waitlist mortality metric is not looking at the unadjusted waitlist mortality experience. He stated that the risk adjustment model compares the number of waitlist deaths versus what is expected, and the expected is based on the types of risk that the candidates have. The Director explained that this is an important concept to communicate to the transplant community.

The Director presented slides that showed examples of why risk-adjustment is used. The slides showed two kidney programs (Program A and B). Program A has a survival outcome of 95% and Program B has a survival outcome of 85%. The Director explained that most patients would choose program A over B. He then explained that Program A's average recipient age is 40 and average KDPI is 25%, while programs B's

average recipient age is 60 with an average KDPI of 75%. He noted that based on each programs statistics, program B is transplanting older patients and accepting lower quality kidneys. The Director explained that because each program uses different organs, and candidates with different risk factors, the risk adjustment model would determine which program is better based on those individual factors.

The Director then explained how risk adjustment works. He stated that risk adjustment is trying to answer "How do program outcomes (graft failure, waitlist mortality, offer acceptance etc.) differ from national expectation?". He mentioned that this question could be confused by other factors because the risk factors from program to program are different. The Director also explained that a potential risk adjuster must meet 3 criteria:

- Criteria #1 - Must be different at different programs
- Criteria #2 – Must predict the outcome
- Criteria #3 – Cannot be a treatment by the program

The Director then provided an example of risk adjustment in two programs who used a DCD Donor in Liver Transplantation. The example showed Program A at 20% DCD, and Program B at 80% DCD. He also explained the current risk adjustment model for DCD which showed a hazard ratio of 1.6 for DCD vs. DBD (60% higher risk of failure for DCD Donors). He explained that the DCD Donor meets all of the criteria for an adjuster. He then provided a comparison of the unadjusted hazard ratio versus the adjusted hazard ratio for programs A and B. The Director explained that after the adjustment, both programs would have a hazard ratio of 1.0 (average). He also provided examples of more complex adjusters (ICU Status, Donor Age) and stated that they work the same way.

The Director also explained how well the models account for measured risk. He presented graphs from a study published in the AM J Transplant, *Effects of High-Risk Kidneys on Scientific Registry of Transplant Recipients Program Quality Reports* (Snyder at al., 2016). The graphs showed a comparison of unadjusted and adjusted hazard ratios for use of high risk kidneys (KDPI) on program evaluations.

The Director also demonstrated the risk adjustment tool and explained the different components of the risk adjustment model tool on the SRTR website:

- Model Elements Table - contains a list of all factors currently included in the risk adjustment model.
- Model Coefficients Table – contains the actual statistical model along with a downloadable CSV file if you would like to work with the model directly
- Model Element Plots – Allows you to visualize the relationship between the element and predicted risk of graft failure or death
- The Baseline Cumulative Hazard – Needed by a statistician if working with the actual model. The function is provided as a downloadable CSV file.
- Other Elements Tab – Provides a listing of other elements considered during model development but not found to add predictive value
- Additional Info Tab – Provides additional information about the model

The Director also noted that not all models are risk adjusted. He provided an example of the pediatric kidney deceased donor 1-year graft and patient survival models. He explained that these factors are not risk adjusted because no predictors were identified, and there are too few events. He also mentioned that the risk adjustment models often include more than one predictor, which can make interpretation complicated. He provided additional examples of this occurrence with Donor Age and KDRI. He explained that donor age may appear to have a minimal effect on kidney outcomes, but donor age is the main component of KDRI, which has a strong association.

The Director shared a commonly asked question and provided an answer: Don't programs with high transplant rates have low waitlist mortality rates? The Director explained that waitlist mortality rate does not measure the probability of dying on the waiting list, but instead measures the probability of waitlist mortality on a single day given a candidate was alive at the beginning of the day. There is no mathematical reason for a program with a high transplant rate to have a low waitlist mortality rate.

Subcommittee Questions and Feedback:

A subcommittee member asked how the MPSC could obtain a risk model comparison to aide in reviewing member performance. She also stated that this information could also be help programs understand how their baseline data is captured in comparison to regional and national standards. The SRTR Director stated that this is something that could be discussed with the MPSC. He also stated that programs could independently do a subgroup analysis to see what causes poorer outcomes.

Another subcommittee member asked what kidney programs could do if they were to be flagged for waitlist mortality. The SRTR Director stated that kidney programs could not transplant their way out of a poor waitlist mortality rate evaluation, but could transplant their way out of deaths on the waitlist. He also stated that programs could seek the rationale for why candidates are dying on the waitlist and make plans to address those problems. A staff member mentioned that there was a suggestion from subcommittee members to conduct outreach and education to dialysis centers and nephrologists managing patients that are on the waitlists. Another subcommittee member also mentioned that there is a problem with listing too liberally, as this would waste resources on a patient that would clearly die and could affect a programs waitlist mortality. An SRTR representative reminded the subcommittee about the chosen threshold and explained that what matters is the fraction of candidates that are high risk on the waitlist.

Another subcommittee member asked about the pre-emptive timing of listing. He asked if there would be a penalty to list early and then set them as inactive. The SRTR Director stated that the model does not take into account if the patient is active or inactive. He also stated that listing them inactive could result in missed offers and transplants. The subcommittee chair stated that the point of the risk adjustment is for programs to do the work as they see fit.

One subcommittee member stated that dialysis centers are overburdened and programs often don't find out about a patient death for a long period of time. She asked how the waitlist model adjusts for this. The SRTR Director responded that the model is updated every 6 months, and there are a number of sources to look for deaths. She also asked about Congestive Heart Failure (CHF) in the kidney population, and if it could be added as a potential risk adjuster. SRTR stated that CHF is not currently captured in kidney but could be explored. A staff member stated that the implementation plan for the project will request that reviewers take note on potential adjusters that are not currently being captured.

The SRTR Director ended the presentation and stated that the subcommittee could review webinars on the models on the SRTR website. Staff concluded the meeting, and there were no other questions or comments at this time.

Upcoming Meetings

- Performance Monitoring Enhancement Subcommittee call – June 11, 2 – 4:00 pm ET
- MPSC conference call – June 24, 1 – 3:00 pm ET

Attendance

- **Committee Members**

  - Richard N. Formica Jr (Subcommittee Chair)
  - Sanjeev K. Akkina
  - Matthew Cooper
  - Michael Gautreaux
  - Ian R. Jamieson
  - Christy M. Keahey
  - Jon A. Kobashigawa
  - Jules Lin
  - Didier Mandelbrot
  - Virginia(Ginny) T. McBride
  - Jennifer Prinz

- **Other MPSC Members**
  - Maryjane A. Farr
  - Jonathan A. Fridell
  - PJ Geraghty
  - Edward F. Hollinger
  - Anne M. Krueger
  - Clifford D. Miles
  - Nicole A. Pilch
- **HRSA Representatives**

  - Marilyn Levi
  - Arjun Naik
  - Raelene Skerda

- **SRTR Staff**

  - Ryo Hirose
  - Nicholas Salkowski
  - Jon J. Snyder
  - Bryn Thompson
  - Andrew Wey

- **UNOS Staff**

  - Sally Aungier
  - Matt Belton
  - Nicole Benjamin
  - Tameka Bland
  - Robyn DiSalvo
  - Nadine Drumn
  - Carly Engelberger
  - Amanda Gurin
  - Danielle Hawkins
  - Melissa Koch
  - Ann-Marie Leary
  - Amy Minkler

- o Sara Moriarty
- o Jacqui O'Keefe
- o Liz Robbins-Callahan
- o Sharon Shepherd
- o Leah Slife
- o Stephon Thelwell
- o Gabe Vece
- o Betsy Warnick

- **Other Attendees**
  - o N/A