SRC-AMS Meeting Minutes

Analytical Methods Subcommittee Teleconference

October 11, 2024, 10:30 AM – 1:00 PM CDT

Voting Members:
David Vock, PhD (Co-chair)
Joel Adler, MD, MPH
Syed Ali Husain, MD, MPH, MA, FASN
Erika Helgeson, PhD
William (Bill) Irish, PhD
Brent Logan, PhD
Megan Neely, PhD
William Parker, MD, MSCP, PhD

Not in Attendance:
Andrew Schaefer, PhD

Ex-Officio Members:
Jon Snyder, PhD (Co-chair)

HRSA:
Shannon Dunne, JD

SRTR Staff:
Ryutaro Hirose, MD
Larry Hunsicker, MD
Grace Lyden, PhD
Jon Miller, PhD
Cory Schaffhausen, PhD
Nicholas Wood, PhD
David Zaun, MS

Welcome and opening remarks

Dr. Jon Snyder and Dr. David Vock called the Analytical Methods Subcommittee (AMS) meeting to order. Dr. Snyder went over the agenda and conflict of interest management. The subcommittee proceeded with the first item.

SRC-AMS nominating process

Dr. Snyder said that in 2023, SRTR implemented a new process to institute a call for nominations to replace the members whose terms are ending in December 2024. These terms span across the SRTR Review Committee (SRC), the AMS, the Human Centered Design Subcommittee (HCDS), and the Patient and Family Affairs Subcommittee (PFAS). For the AMS, Dr. Vock, Dr. Brent Logan, and Dr. Andrew Schaefer are rolling off this term. Dr. Snyder thanked these members for their service.

There are three open seats on the AMS, including a Co-chair position. The call for nominations resulted in a few AMS applicants, and the SRTR Nominating Committee (SNC) reviewed and approved two AMS nominations on October 8, 2024. These results and a nomination for the AMS Co-Chair will be communicated at the SRC meeting on October 17, 2024.

Multiorgan transplants in pretransplant mortality metrics and the system monitoring application

Dr. Grace Lyden said this presentation would describe current methods used in the program-specific reports (PSRs) for evaluating multiorgan candidates on pretransplant metrics (pretransplant mortality, also known as waitlist mortality, and transplant rates). Then, the AMS would discuss if the SRTR should make any process changes to how SRTR evaluates waitlist outcomes for multiorgan candidates.

Dr. Lyden explained that within the Organ Procurement and Transplantation Network (OPTN) STAR files and the SRTR standard analysis files (SAFs), the only multiorgan combinations that exist as an organ type are kidney-pancreas transplants and heart-lung transplants. That is not the case for any other combination of organs that a candidate might need. If a patient needs both a kidney and pancreas, it appears as a kidney-pancreas listing in the data. However, the OPTN tracks simultaneous liver-kidney transplant candidates, for example, as two separate listings. SRTR figures out through patient-level identifiers if a candidate is listed for more than one organ. For kidney-pancreas candidates, the OPTN automatically generates separate kidney and pancreas listings, resulting in three separate listings all with the same patient identifiers. SRTR removes the kidney and pancreas listings from the SAF to just one listing event to reduce duplications. Dr. Lyden explained that the OPTN does not automatically generate two additional listings (neither a heart listing nor a lung listing) for heart-lung candidates; however, the OPTN advises programs to list heart-lung candidates on all three lists, resulting in three different listings, each with unique patient identifiers.

Dr. Lyden explained how these methods affect program evaluation. SRTR produces metrics (including waitlist outcomes, transplant rate and pretransplant mortality) for each individual solid organ, along with kidney-pancreas and heart-lung evaluations. The Membership and Professional Standards Committee (MPSC) evaluates pretransplant mortality for heart, liver, kidney, lung, and pancreas. However, it does not review for kidney-pancreas, heart-lung, or any other multiorgan combination.

For all other multiorgan candidates, they are evaluated at individual organ programs, corresponding to each listing for the candidates. This means that a pretransplant death counts toward each program, and, likewise, a multiorgan transplant counts as transplant for both. Dr. Lyden noted that SRTR excludes pancreas listings in which the pancreas is only needed for technical reasons.

Dr. Lyden overviewed heart-lung and kidney-pancreas evaluations, and how these differ from other multiorgan evaluations. SRTR provides specific reports for heart-lung programs. SRTR does not present any tiers for heart-lung programs. Heart-lung candidates are also included in pretransplant evaluations for heart programs and lung programs, which receive their own PSRs, tiers, and MPSC review. Part of this is technical, due to the downstream effects of having three distinct listings where a program has listed a candidate for heart, lung, and heart-lung.

In terms of transplant rate, if a candidate who needs both a heart and lung gets a heart and lung, that counts as a transplant on both heart and lung evaluations. For pretransplant mortality, pretransplant deaths counts as a death on heart-lung, heart, and lung evaluations.

SRTR publishes kidney-pancreas PSRs every 6 months, with about 1,600 candidates listed per year. Kidney-pancreas candidates are not included in SRTR kidney and pancreas program evaluations, which is an effect of kidney-pancreas candidates having automatically generated kidney and pancreas listings removed by SRTR as previously described. A consequence of this is kidney-pancreas candidates being excluded from the pretransplant mortality metrics evaluated by the MPSC for kidney-alone and pancreas-alone evaluations.

Dr. Lyden said the reason for this discussion today was because SRTR received a request from a heart-lung transplant program to remove heart-lung candidate deaths from evaluations of its individual heart and lung programs. Dr. Lyden asked the subcommittee to consider the following options.

The first option is to exclude heart-lung candidates from SRTR's heart evaluations and lung evaluations specifically on the pretransplant side. Advantages of this are consistency with kidney-pancreas candidates who are excluded from kidney evaluations and pancreas evaluations. However, this choice is inconsistent with all other multiorgan candidates, and heart and lung evaluation removal results in a complete removal of these candidates from MPSC oversight.

The second option is to include kidney-pancreas candidates in kidney evaluations, aligning these two multiorgan combinations (kidney-pancreas and heart-lung). This decision would lead to overall consistency across multiorgan combinations; however, it may be unpopular among programs as these deaths would count in three places.

Dr. Ryutaro Hirose agreed that heart-lung programs should not have to count heart-lung candidate deaths separately, given that risk adjustment does not currently capture how different these patients are. He added that the MPSC should consider looking at all kidney-pancreas programs since it has the tools to do so. Whether these should be counted in the kidney-alone or pancreas-alone may not be the best idea, since pancreas is a very small group of patients. Dr. Joel Adler favored treating heart-lung like kidney-pancreas in the big picture. He said it would be useful to know how heart-lung appears on the match run, and whether that is in alignment with how kidney-pancreas appears on the match run. He also asked how often the heart-lung candidate transplanted off of the heart list or the lung list rather than the heart-lung list.

Dr. Syed Ali Husain favored segregating multiorgan transplants out, as patients who are multiorgan transplant are inherently different from either of the single organs. Dr. Lyden said this would be difficult to do for multiorgan combinations other than heart-lung and kidney-pancreas. Dr. Wood suggested a third option, which explicitly recognizes that heart-lung and kidney-pancreas are different because the OPTN has special designations for them, and handling heart-lung the way kidney-pancreas is handled. Dr. Vock said it was important to recognize that a lot of the variable selection techniques used as part of these metrics are about predictive performance and will not always include relevant factors. He said to consider moving toward variable selection methods meant to reduce confounding as opposed to increase predictive performance. He also was hesitant about allowing centers to control their denominators by excluding candidates from certain models, since it may lead to unintended consequences.

Dr. Larry Hunsicker said this discussion was mostly a policy issue, not a technical issue. He added that there are biological and health differences with these multiorgan combinations, and so such decisions should be made by a medical group, not a technical group. Dr. Hirose agreed but suggested being cautious of assuming which organ in a multiorgan combination is driving the need for transplant. Dr. Hunsicker suggested only counting the death or the transplant for one organ, and letting the transplant center choose which organ is believed to credit the death or transplant. However, Dr. Vock pointed out this may incentivize centers to get follow-up time under an organ that does not have a risk of counting as a death.

Voting members took to voting on the main two proposed options. There were three votes for option 2, and two votes for option 1. SRTR will move forward with reviewing options with the MPSC and will bring this issue to the full SRC for consideration.

Multiorgan in the Donation and Transplant System Explorer

Dr. Wood reviewed the Donation and Transplant System Explorer tool available on srtr.org. The tool shows different metric trends and gives a high-level view of the United States transplant system. The tool does not identify individual persons, but aggregates based on individual listings. It is also aimed at single organs, with the exception of kidney-pancreas and heart-lung given these have special OPTN designations. Therefore, multiorgan information shows up in both of the individual organ trends in the tool, again a consequence of how the OPTN designates heart-lung and kidney-pancreas as special organ types.

Dr. Wood went over examples in the explorer tool that demonstrate this, such as pancreas candidate listings including kidney-pancreas which drives the shape of the trend. He demonstrated how this applies to transplant rates as well. A first option to address this is keeping the current behavior, which means needing to be more precise with transplant trend and transplant rate interpretation. The other option would be removing the extra pancreas and kidney listings that come along with kidney-pancreas listings. The third option would be removing the kidney-pancreas and heart-lung multiorgan combinations as an organ selector within the tool.

Dr. Hunsicker said Dr. Wood needed to clarify the goal of the decision—figuring out how to deal with organ access or patients discerning competition among single centers. Dr. Vock suggested adding a stratification that specifies a single or multiorgan, but Dr. Wood said this was not a feasible option. Dr. William Parker said option 1 may be the best for practical reasons. Dr. Wood noted that trends in the tool can be interpreted different ways, and that the intentions behind the tool are also a factor. He said it may be worthwhile adding to the tool a disclaimer stating that individual listings are counted separately.

SRTR agreed to continue to explore options around this issue, and in conjunction with the issue previously discussed by Dr. Lyden, bring this to the full SRC for consideration.

Organ utilization in simulation

Dr. Wood gave an update on modeling organ nonutilization in the simulation work. He gave a bit of background on simulation. One component in simulation is the simulator, software meant to mimic a complex system. The other component is the simulation, concrete execution of the simulator that

needs models or data on candidates and donors. Historically, SRTR has run these simulations for proposed allocation systems in order to guide policy-making decisions.

Simulation studies involve simulating a historic era of transplantation, and comparing simulations with the current policy to simulations from different policies. The policy changes while every other aspect is constant. These studies start with research questions, then submodels are created to represent all the simulated aspects of the transplant system (eg, offer acceptance model). All submodels are independently evaluated, and together in the operational validation. Fine tuning is also done with the models to answer research questions.

He gave an example of how simulation played a role when donation service area (DSA)–based allocation moved to circular allocation, and how kidney nonuse has gone up tremendously following the policy change. SRTR has written a paper on how the policy itself is likely having a negative impact on kidney utilization. There are also other changing factors that, over time, impact utilization beyond policy, such as increased donation after circulatory death (DCD) kidneys and average age of donors increasing. Dr. Wood said the simulation aims to answer how proposed policies impact utilization.

Dr. Wood discussed the two different ways SRTR captures nonuse in the simulation. One is the peri-placement utilization mechanism, where, in the process of determining who is accepting the organ, there is a mechanism built in for the organ to go down the not-transplanted path after a certain number of offers. Policy impacts this through order of match runs, which impacts probability of acceptance. The other mechanism is the pre-placement utilization mechanism, where an organ is offered until accepted, exhausting the match run.

These simulations are meant to address how policy impacts allocation. Dr. Snyder said the kidney committee is making assessments on the modeling, and SRTR will bring back results to the subcommittee the next meeting.

Program metric icon survey update

Dr. Cory Schaffhausen said the SRC has done numerous surveys over the years looking at ways to design icons, and understanding how different designs influence comprehension and decision-making. The most recent study was in an online survey Dr. Schaffhausen conducted under an institutional review board (IRB)–approved study presenting six different designs (A-F) on an SRTR mock-up page with a series of transplant centers. He noted that the icon design changed from the bar to a dial style with varying color palettes for C, D, and E. Mock-up F contains a new column called estimated average survival.

There were 96 survey respondents consisting of patients and family members. Respondents mostly chose style F after seeing all six designs together. In terms of layout preference, a majority preferred a simpler version with the option to click into a detail page. For one part of the survey, participants were shown one mock-up and asked to choose a center based off of interpreting outcomes and survival after listing. A high percentage of patients chose Meadow Hospital (1-year survival) even though this was not the hospital with the fastest time to transplant. The most misinterpreted mock-up was style A (bars), and the label deceased donor transplants in a year was often misunderstood amongst nonkidney patients. Dr. Schaffhausen briefly went over mock-ups that included confidence intervals and possibly adding numbers with an easy-to-interpret meaning. He also added that the

key for the icons will be updated to incorporate more descriptive and plain language, and pop-ups will be available too.

Dr. Snyder said that in next steps, SRTR will work on the methodology for creating the standardized survival estimate for the right-most column and have the AMS review it. Dr. Parker added it may be a good idea to provide both the relative performance and absolute performance numbers for patients.

Closing business

With no other business being heard, the meeting concluded. The next meeting date is to be determined after the new membership is settled following the SRC meeting on October 17, 2024.