OPTN/UNOS System Dynamics Work Group
OPTN/UNOS Ad Hoc System Performance Committee
System Dynamics Work Group
Meeting Minutes
November 13, 2018
Conference Call

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Introduction

The System Dynamics Work Group met via teleconference on 11/13/2018 to discuss the following agenda items:

1. Welcome
2. Overview of Work Since In-Person Meeting
3. Systems Dynamics Work Group Data Analysis
4. Next Steps

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

1. Welcome

One Work Group Co-Chair welcomed meeting attendees and thanked everyone for coming to the in-person meeting a month ago. Today's agenda was reviewed.

2. Overview of Work Since In-Person Meeting

Data summary:

UNOS staff presented a summary of what was discussed at the in-person meeting, as well as from the Work Groups. The goal is to come up with a new research tool, put together collaborative improvement projects, monitor enhancement for the MPSC, and make recommendations to external stakeholders. After the in-person meeting, they put together a list of what could be acted upon.

Summary of discussion:

Tools

- Balanced scorecard or dashboard. This is a benchmarking tool that would allow for self-monitoring. The Systems Dynamics Work Group recommended calling the tool Dashboard and calling the systems measures the Balance Scorecard. The tool would have allow for one to add data, track more than 1-year post-transplant, and have an approved donation rate metric for OPOs.
- Real-time data availability, visualization, and predictive analytics. These would be used for look at reasons for refusal, flight-aware information to know what potential organs are being accepted or considered for a single recipient, allow for sufficient access to data at the time of the organ offer for decision-making, tracking backups, and having a library for effective practices.
- Technology. Technology could be used to increase efficiency through image sharing and machine learning, as well as live streaming at the time of procurement for the center to view.

One Co-Chair clarified that the Dashboard tool would be more for internal use by the OPOs and transplant centers and would require access through UNet.

Previously there was discussion about having a library for effective practices, which is an inventory of the community on the spectrum of decision-making practices. This idea was somewhat unclear, so it will be discussed more in detail through Basecamp.

OPTN Collaborative Improvement Initiatives

There is a new OPTN contract requirement for collaborative improvement. It includes a requirement to be able to utilize the key learnings from the first COIIN project to continue to foster large-scale improvement, as well as an opportunity to look at member-focused improvement. The collection of effective practices really guides and accelerates improvement, so that is something that will continue. The methods used with PDSA and coaching also drive improvement.

The contract also allows for the addition of staffing to meet the needs of ongoing and large-scale collaborative improvement, as well as member-focused improvement that we will be working on within member quality. Coaching and performance improvement will also be a focus for member staff within member quality.

Over the next 2 years, several areas of improvement are planned.

- The COIIN project will expand into a Kidney Utilization Partnership starting Spring 2019, which will focus on organ offer acceptance and waitlist management and national participation rates.
- Discovery projects, which will be used to launch small-scale projects, test out changes with a small group, and then refine within 6-9 months. Then decisions on whether to continue or pause the project will be made.
- Other projects on the discovery slate include DCD utilization where organizations utilize high DCD and learn effective practices from those OPOS; IT imaging project; and IT donor referral project where IT will partner with the collaborative improvement team to identify effective practices.

One question was regarding the status of the OPO project in terms of systems improvement and metrics. This was one of the key discussions of the Work Group. One of the most important things to advance is the work underway right now in developing a donation rate metric discussed at the in-person meeting. It should be included in the discovery slate of projects and discussed further. There is an opportunity to test metrics in the discovery projects and a recommendation may come from the work of the OPO Work Group in the future.

One comment was that the OPO community would agree that the greatest opportunity is for increasing the donation rate. Anything that can be done to increase the number of donors should be part of the focus. There needs to be an objective, solid OPO performance metric that the community can believe in. Understanding improvement through a metric needs to get into the framework of the OPTN process in a significant way. There was agreement that the Work Group need to formally begin the work.

Measures of System Performance

These were noted to be balanced scorecard/dashboard, efficiency measures particularly around transportation, increased granularity in refusal reasons and 1-year post-transplant outcomes are not adequate.

Strategies

- Enhance the OPTN's role as an effective practice repository by becoming the go-to place for effective practices
- Systems dynamics modeling
- Allocation-based education or relationship building as opposed to the regional model so that relationships can be built within the allocation service areas and not based on regional assignment.
- Predictive analytics
- Recovery centers as a model for effective operation and effective practices for OPOs.
- Improving synergy between the multiple stakeholder groups.

3. System Dynamics Work Group Data Analysis

Data summary:

A data request was put submitted to SRTR with the goal of characterizing distribution networks of OPOs. All the information is available to Committee members in Basecamp. There are two dimensions to the data request. One is the distribution network that an OPO has, as well as a distance metric. The other is looking at the more traditional performance metrics such as utilization rates, organ transplanted per donor, and risk-adjusted organ utilization.

The metric being used to look at distribution networks of OPOs is the Herfindahl-Hirschman Index (HHI), which calculates the market concentration and can be found in transplant literature. For example, one OPO distributes 95% of their kidneys to one local center and the 5% goes to one other center. That calculates to an HHI of 0.09, a relatively small distribution network. Another OPO in comparison distributes 10% of their kidneys to 1- different centers calculated to an HHI of 0.9, much broader distribution network.

Another example of the use of HHI is illustrated through data from SRTR. It showed that Wisconsin has HHI of 0.36, but one local transplant center gets the majority of their organs and a handful goes out to other centers across the country. In comparison, another OPO with an HHI of 0.95 has their organs going out to many different programs all across the country, not just concentrated to one center.

All OPOs will be evaluated to look at distance traveled versus HHI index and results were presented on a scatter plot. This revealed a few OPOs with high HHI, the most kidneys, and the median distance traveled is some of the highest compared to all the OPOs. When the utilization rate is overlaid, it looks at OPOs with unusually high utilization rates for the high KDPIs (greater than 85%). The cutoff for the utilization rate was 50% or more. Some OPOs are popping out with high utilization rates. Utilization rate for DCD kidneys are highlighted with excessively high utilization rates for DCD donors.

SRTR data was also pulled of the expected kidney yield. Several of those with unusually high kidney yield jump out. They're sending organs relatively far compared to other OPOs. There was no significant correlation between SRTR risk-adjusted yield and the 1-HHI.

Looking at the DCD liver utilization rate overlaid on top of the 1-HHI, distance traveled, OPOs are spread across the 1-HHI distribution network with some having a relatively small distribution network, but high utilization rate for DCD donors.

Liver utilization rates for donors age 60-plus were also evaluated, which identified a utilization rate over 90%. There are several OPOs with a smaller HHI, indicating smaller distribution

network, but a higher 1-HHI and high utilization rate for older donors. These are OPOs with a liver yield of about 1.05, statistically significant. There was no correlation seen between the liver yield and the HHI metric, similar to kidney.

For heart, STRR data shows OPOs with unusually high heat yield are clustered, but have a broader distribution network. Other OPOs travel much farther in comparison.

For lung, Tennessee stands out as a broad distribution network.

Summary of discussion:

One question was whether utilization rate was measured by kidneys transplanted. For clarification, it should be kidneys transplanted from all donors defined as having at least one organ recovered for the purpose of transplant. The utilization rate is different from the complement of the discard rate.

Also, there can be a significant selection bias, so DCD utilization rates need to be evaluated carefully. One center could be really aggressive with DCD, but are still doing it because they're transplanting more patients.

The purposes of looking at these data are different for the Systems Dynamics group from the OPO group. There are two sides to the OPO metric discussion. Though the metrics are recognized and converted donors from which donors are recovered, how are transplant centers and OPOs working together successfully to get them transplanted? This focuses more on OPO performance and relationships with their transplant hospitals.

When looking at all the organs together, SRTR yield shows Nevada stands out with a 1-HHI close to 1. Travel distance is relatively high compared to other OPOs.

Organs transplanted per donor greater than or equal to 3.4 shows 1-HHI of a little less than 0.8. Organs are traveling a relatively long distance compared to other OPOs. There is no correlation between risk-adjusted organ yield from SRTR.

Conclusions:

- Several OPOs stood out as having unusually high utilization success.
- Those OPOs stand out for different reasons such as overall yield, kidney yield, DCD livers, etc.
- Organ utilization was not associated with broad or concentrated distribution networks.

One comment was that it will be interesting to see what is going on in Nevada with broader sharing and such a high percentage of organs being shared very broadly, but yet their yield is very high. Perhaps they are doing something new and different. In addition, there were one or two OPOs where the yield was very high, but the scope of sharing was low, so they should be watched as well. One comment was that those OPOs might be cherry-picking so that their distribution network gets larger. An example is increased donation over the last 3 years, but the local kidney transplants has stayed the same.

The distribution network measures are largely driven by the cards the OPOs have been dealt in conjunction with the policies that are largely DSA and region differences, so not only due to building relationships with more distant centers. This should be further evaluated especially as everyone moves to broader sharing in the future. Regarding Nevada, a volunteer from the Systems Dynamics Work Group will reach out them to get more specifics on changes they have made.

The Systems Dynamics group also discussed doing surveys of high-performing OPOs. If they do that, they need to be cautious when identifying who fits in that category. The yield component can't be pulled apart from the absolute number of donors, but the composite measures need to be looked at. Variability won't be understood without a more objective measure of OPO performance.

One risk is the unknown aspects behind the given variables. Nevada of course has to send organs farther, but also their basically a one-organ, one-center area so it is almost meaningless to say that is a measure on its own. There are parts of the country with 20% higher liver disease rate than other, so means a larger percentage of the livers are not viable for transplant, for example.

4. Next Steps

Each Work Group had a preliminary report-out on key drivers at the in-person meeting and are now being asked to come back with two or three key priority areas, what measures that might be, and then come up with an action plan and timing for that. Then the three Work Groups will report out on that at the December meeting.

Upcoming Meetings

- December 14, 2018
- January 8, 2019
- March 11-12, 2019 in person @ Chicago