Briefing Paper

Ad Hoc Systems Performance Committee Report

OPTN Ad Hoc Systems Performance Committee

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Executive Summary

The Ad Hoc Systems Performance Committee (SPC) was established in the spring of 2018 by the OPTN Board President. The SPC was charged with seeking common standards for and understanding of transplant system performance. Comprised of 60 members of the OPTN, including representation from transplant programs, OPOs, patients and donor families, the Committee met between August 2018 and March 2019 to consider metrics and elements that could be universally accepted as performance standards – for OPOs, transplant programs, and the system as a whole – and identify ways the OPTN can support system performance. The SPC's work culminated in a March 2019 public meeting in which consensus was further developed and refined in advance of the Committee's report to the Board.

Background & Committee Structure

Established in the spring of 2018 by then-Board President Yolanda Becker, the OPTN Ad Hoc Systems Performance Committee (SPC) was charged with determining the key elements in a high performing and effective transplant system. The SPC sought to identify potential metrics, tools and strategic priorities for that foster improved alignment of transplant hospital and OPO efforts and recognize their interdependencies. The current state of both regulatory and non-regulatory performance monitoring is primarily focused on the components of the transplant system – transplant hospitals and OPOs. There is a clear community desire to enhance the way these components are measured such that their interdependencies are recognized. Understanding the key indicators of a high performing system is an important next step to developing future strategic actions, tools and technology to support it.

OPTN Board leadership developed an interdisciplinary sixty-member Committee with balanced representation of profession (transplant program or OPO staff), perspective (medical, surgical, patient/donor family, OPO executive, administrator, coordinator, etc.) and geographic region. Leadership of major stakeholder societies such as AOPO, AST, ASTS and others also served on the Committee. Broad representation and balance from the many stakeholders in the community – some of whom are actively involved in related efforts – was a key priority. The Committee was given a timeline for completion, culminating in a public consensus-building meeting in March 2019.
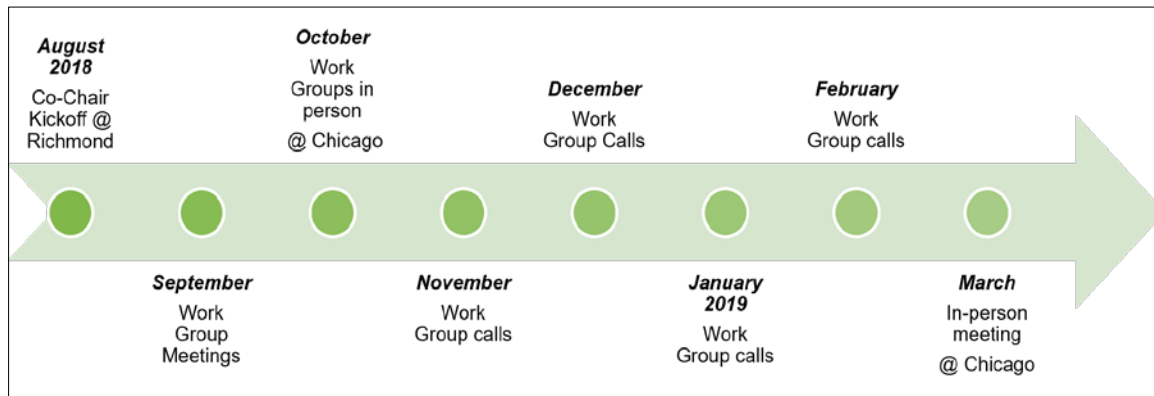
The SPC was stratified into three work groups: Transplant Program, OPO and Systems Dynamics, each with a pair of co-chairs from a transplant hospital and an OPO. Committee leadership – the two lead and six work group co-chairs – met in person to kick off discussions and establish a method for working towards the March meeting. A date was set for an October meeting of the full committee to allow for face-to-face collaboration and discussions.

Work groups began meeting in late August of 2018 to review the early results of the SPC co-chairs discussion and consider their charge through the following March. Each Work Group began its discussions with a "strawman" key driver analysis developed in a joint effort between committee co-chairs and staff. The analysis supported initial identification of areas of focus for each Work Group. With these early priorities in mind, the Committee met in Chicago in October to consider commonalities and identify potential projects or strategies for consideration. These ideas were compiled and grouped by theme for further consideration for the second half of the committee's effort, leading into March. Work Group calls between November and February focused on refining the committee's priorities as a whole in support of seeking broader input during the working meeting in March.

The final meeting of the SPC was held in Chicago on March 11-12, 2019 with 78 members of the committee and the general public in attendance. Participants engaged in concurrent, working breakout sessions designed to build consensus on a given topic. Session participation was balanced between transplant, OPO and patient/donor affairs to ensure representation in each discussion. A pair of

committee members led each breakout and sought to build upon and refine the work of the previous eight months. Participants were also asked to complete unique feedback cards in each session to capture additional input. Results of the breakout exercises and feedback cards were tabulated and incorporated into the Committee's final report.

In addition to the discrete information gathered through the Committee's process – top preferred metrics for monitoring performance, for example – leadership identified several key themes present throughout its collaboration process. These are themes that the committee agreed are foundational aspects of success for the transplant system as a whole, and may serve as a foundation for future work by the OPTN, other key stakeholders, regulatory bodies, or the private sector.

The OPTN Board of Directors will review the SPC's recommendations and engage in discussion on next steps at its June 2019 meeting in Richmond, VA. The Board will consider and prioritize future projects consistent with the OPTN's mission, vision and strategic goals.

Key Themes

Throughout the Committee's tenure, stewardship emerged as an overarching theme. As the transplant system is comprised of individual transplant centers and OPOs, it is critical for each organization to participate in and contribute to the health of the system. With the notion that each organization has an impact on the system, both favorable and unfavorable, the committee provided various recommendations that would allow for greater communication, transparency, and accountability to foster improved transplant community performance.

Data sharing was noted as a key area in which transparency and accountability can be leveraged. Offering more types of data, both at an individual and community level, provides opportunities for self-improvement and accountability. In addition, exchanging data in real time may increase efficiency and trust between organizations and the system.

Cultivating a community of partnerships, through enhanced relationships and collaboration was viewed as an integral component of a successful system. Working together to share best practices, increase communication, and provide feedback to one another allows for system-wide improvement. Not only are partnerships within the network essential to foster, but developing relationships with external stakeholders are required for advancing the system.

As the recommendations of the committee reflect a desire for a more cohesive and efficient transplant community, standardization of policies, protocols, and practices would contribute greatly to this effort. The need to trust fellow organizations, from an ethical and practice perspective, is necessary in order to promote change. Improving relationships and enhancing communication are fundamental in building trust. Having confidence that all organizations are performing procedures in a standardized fashion allows for process dependency, not person dependency, thereby affording more flexibility and system efficiency.

Results from Committee Work

The Committee's work through October revealed several core areas of focus for future discussion, generally falling within one or more of four total categories: tools and technology, collaborative improvement/relationship management practices, performance monitoring enhancements, and actions that would fall beyond the traditional scope of the OPTN.
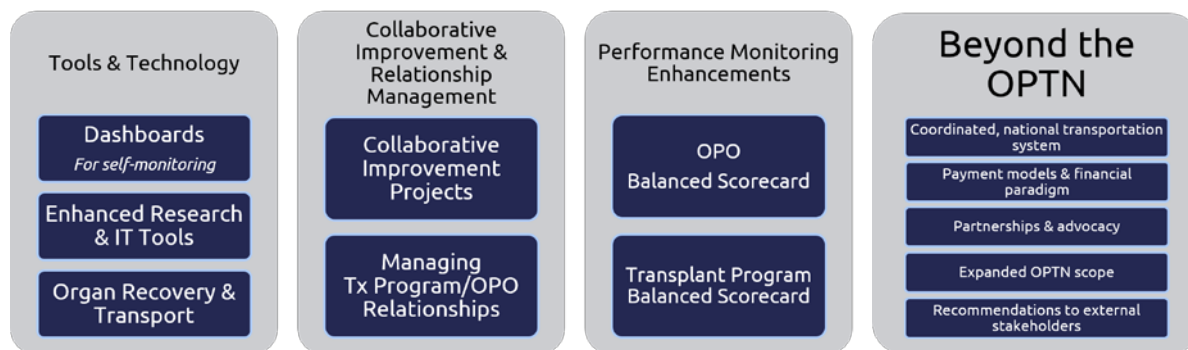
The SPC's identified key themes

A. Tools & Technology

The Committee identified a need to enhance tools and technology to provide more data sharing and transparency, as well as real time exchange of information in order to improve various transplant processes and foster center-specific improvement efforts; these processes included: stewardship, offer decision making, organ recovery and transport logistics.

1. OPO and Transplant Program Dashboards

In order to better review operational metrics to promote stewardship, foster improvement efforts, and increase system-wide efficiencies, the Committee recommended developing dashboards for transplant centers (TXC) and OPOs. These dashboards would ideally will be comprised of relevant OPTN balanced scorecard elements (see Section B), coupled with benchmark data. Dashboards could also be used to support joint QAPI activities among transplant centers and OPOs, displaying customer feedback statistics generated by surveys obtained at the time of donor cases.

The Committee identified numerous dashboard elements over the course of their tenure and an activity was conducted during the March meeting for prioritization. Tables 1 and 2 show the top five elements recommended for possible inclusion on transplant center and OPO dashboards (*Please see Appendix B for additional elements identified by the Committee as important but not prioritized as highly as the elements below*).

Table 1: TXC Dashboard Elements

Number of late turn down/late declines
Speed from offer to acceptance or decline (not provisional yes)
Transplant rate of accepting organs from OR (rescues)
Relative rate of organ acceptance (DCD, KDPI, PHS, HCV)
Frequency of host OPO recoveries

Table 2: OPO Dashboard Elements

Total referrals by vent status
Authorization rate and evaluation of practices
Conversion rates
Donor management goals prior to allocation
Transplant yield

The Committee members also identified the need for additional data collection.

- Late turn down/late decline – Committee members indicated the importance of collecting data on late declines; however, a definition is needed in order to begin this process. During the meeting, a facilitated discussion was conducted to begin to identify important elements of this definition. Below are some of the key elements that emerged:
    - A decline is considered late four hours post "*complete*" offer (*definition of "complete offer" needed*)
    - Data collection could be stratified with the following time points: 0-2hrs, 2-4hrs, intraoperative, post cross-clamp

- Refusal reasons – Throughout Committee discussions, members identified a need for more granular data regarding reasons for refusals. A survey was deployed at the meeting to gather additional information on this topic, including, but not limited to questions from who determines refusal reasons at your center to how more granular codes would benefit your program. Some of the most frequently selected responses are noted below:
    - Data will be used for quality improvement, retrospective reviews, and real-time decision making
    - Improved collection of refusal codes will provide better data to accept/refuse offers and provide better data to change practice
    - Recommend the ability for users to select all reasons/codes that apply
    - Recommend adding donor/candidate "matching" to the list of refusal reasons

2. Leveraging Research & Technology

The Committee members developed a prioritized list of technological tools and resources that may impact the offer review and decision making process, improve communications, and enhance system-wide performance.

Predictive Analytics
Predictive analytics offer the ability to customize decision-support tools based on center- and patient-specific criteria. They can also provide predictive placement data to OPOs, such as which transplant center is likely to accept or decline an organ or what testing a transplant center will ask for. Predictive analytics can also assist transplant centers in delivering patient education based on a specific organ for informed consent (e.g., DCD, HCV, PHS increased risk).

The Committee identified various needs for predictive analytics over the course of their tenure and an activity was conducted during the March meeting for prioritization. Table 3 lists five predictive analytics identified to be of highest benefit at the time of organ offer.

Table 3: Prioritized Predictive Analytics (at time of organ offer)

Predicted graft survival (median years of graft life) for this candidate with this organ
Net benefit of transplant (survival with vs. without transplant) for this candidate/organ
Predicted patient survival if declining this offer but remaining open to another offer
Predicted impact (best and worst case) on your program's 1 year graft and patient survival observed-to-expected ratio (O/E) of performing this transplant
Predicted difference in likelihood of having a functioning graft in 3 years by accepting this organ vs. waiting for another

Image Sharing/Virtual Operating Room (OR) Tools

The Committee members engaged in a facilitated discussion regarding the desire for various image sharing and virtual OR tools to assist in real-time decision making. They acknowledged the need to address HIPAA and networking technology (i.e., firewalls, bandwidth) barriers first, and identified a list of desired tools shown in Table 4 below.

Table 4: Prioritized Image-Sharing and OR Tools

Radiology	Pathology	Video
Images available seamlessly through electronic offer system/mobile device	Full slide images available seamlessly through electronic offer system	Video clips available both through electronic offer system and in real time
Size mismatch/centralized reading	Easy access to skilled sub-specialty pathology	Video images available both through electronic offer system and in real time
Full access to all images, not just reports	High quality, centralized reading	

Electronic offer system enhancements

The Committee members developed a list of recommended electronic offer system enhancements shown in Tables 5 and 6 below, addressing both offer transparency and dynamic changes during the match run process.

Table 5: Offer Transparency

Ability of OPO to see what other offers a candidate has and has accepted
Ability to see other donor activity
Track organ
Chat feature
Surgeon/physician name entered on declines (accountability)

Table 6: Dynamic Changes in Match Run

Match run updated as clinical data changes
Allow a center to accept with "conditions" and have match run updated as these become known
Create more robust donor and candidate screening
Ability for a center to see what donor info changes/new updates
Screening using predictive analytics

The Committee members also identified several other desired features:
- Electronic offer system mobile view upgrade
- Culture reporting module (sputum cultures, urine cultures, etc.)
- Utilizing analytics to screen candidates off list

3. Organ Recovery & Transport Coordination

The logistics of recovering and transporting organs timely was cited early and often in discussions as one of the most significant barriers to improving system effectiveness. Recovery and transportation practices vary widely, in part due to the options currently available as a function of their physical location (e.g. availability of flights). Committee members expressed a strong desire to see coordinated action on this topic, and indicated an openness to expertise and partnership from the private sector. Partnership with private enterprise is more fully discussed in the *Beyond the OPTN* section; however, the Committee recognized the first critical

step in improvement is coming to consensus on the indicators of a highly effective recovery and transportation system.

As such, Committee members discussed effective practices that maximize efficient and timely organ recovery and transport, focusing on three key areas: recovery, transportation, and decision-making/system dynamics. These processes should be efficient, reliable, and timely, with mechanisms for better collaboration to build trust. Variation in processes could be reduced by standardizing and measuring cycle times.

The Committee identified the following strategic recommendations for enhanced recovery processes, transportation and system efficiencies.

Table 7: Recovery and Transportation Efficiency Recommendations

Recovery Timing, Teams, Transparency	Transportation Arrangements, Flight, Ground	System Efficiencies Transparency, Predictive Analytics, Electronic Offer System
Prioritize strategies to support local procurement and garner trust	Develop common nomenclature	Set organ acceptance filters based on prior acceptance practices
Reduce donor hospital ICU time (e.g., development of dedicated recovery sites)	Establish business rules that drive mode of transportation	Provide feedback to centers to help them change acceptance behavior (e.g., review ROOT report)
Increase use of pumping/ex-vivo technology	Institute use of tracking systems/gather data about transportation efficiency	Increase refusal reason granularity to provide more details during donor evaluation re: why centers ahead are turning organs down
Develop strategies to optimize setting recovery time	Utilize pilot projects prior to global policy changes	Reduce OPO operational overhead by creating enhanced matching functionality for organs to manage the initial phase of organ offers

In addition, the Committee identified the following key metrics **to support assessment of system efficiencies in recovery and transportation:**
- Offer acceptance rates
- Time from first offer to final organ acceptance
- Time from acceptance to decline (as a potential proxy for number of late declines)
- Time from organ allocation to OR entrance
- Transportation time

B. Performance Monitoring Enhancements

The Committee agreed that a more holistic approach to evaluation of transplant center and OPO performance would be beneficial. This goal could be achieved by developing a balanced scorecard that transplant centers, OPOs, and the OPTN can utilize to monitor performance and identify members with opportunity for improvement. Below are some of the elements that rose to the top for possible inclusion on an OPO and/or Transplant Center balanced scorecard. The Committee acknowledged the need for more input and work to identify and define the appropriate metrics for scorecards.

1. OPO Balanced Scorecard

The Committee members discussed developing additional measures of OPO Performance, which included creation of a balanced scorecard and collection and utilization of data regarding donor potential, OPO referral activity, and rule-outs. Focus should be on maximizing utilization of potential donors rather than simply maximizing utilization of recovered organs (current O vs. E OPO yield metric). Through facilitated discussion, Committee members identified additional metrics for possible inclusion on a balanced scorecard, shown in Table 9 below.

Table 9: OPO Metrics Beyond Organ Yield

Defining the Denominator	Elements of Numerators	Additional Variables
Mandate via legislation/CMS such that hospitals must report all deaths that were ever ventilated during the last hospital stay aged 70 and under	Referral management (e.g., missed referrals, total referrals, auto rule-outs) Authorizations (rate, stratification) Placement (organs allocated, organs discarded)	Authorization (Overall, BD vs DCD, by ethnicity) Potential, not just eligible donors (BD, DCD, older donors) Better understanding of OPO practices (referrals, response to referrals, auto rule outs)

Most of these metrics will require collecting more granular data that most if not all OPOs have but which are not centrally collected; therefore, the Committee members recommend development of a central repository representing a cross-section of various data elements.

2. Transplant Balanced Scorecard

The Committee members discussed defining appropriate metrics beyond one-year patient and graft survival. Data sources and availability need to be considered. A transplant center balanced scorecard may include metrics already captured (e.g., short/long term survival, waitlist mortality rate, survival from listing, offer acceptance rate, transplant rate). Through facilitated discussion, Committee members identified additional metrics for possible inclusion on a balanced scorecard, listed in Table 10 below (*Please see Appendix C for additional elements identified by the Committee as important but not prioritized as highly as the elements below*).

Table 10: TXC Balanced Scorecard Metrics

Pre-Transplant	Post-Transplant
Intent-to-treat analysis	CUSUM curves
Offer acceptance rate (risk-stratified, DRI, KDPI, etc.)	Quality of life post-transplant
Active vs. inactive status	Transplant rate/volume
Survival from listing	Length of stay (risk adjusted)
Waitlist mortality rate	Time to transplant
	Patient/graft survival at multiple time points

C. Collaborative Improvement and Relationship Management

The Committee recognized the importance of collaboration and relationships within the transplant community. Committee members were specifically tasked with identifying potential collaborative improvement projects, as well as methods to increase effective communication and assess relationships among transplant centers and OPOs.

1. Collaborative Improvement

The Committee members discussed offering more collaborative improvement projects that may support system-wide enhancements. Additionally, they recommended creating local recovery solutions, such as shared recovery surgeon groups and recovery centers. They also suggested scheduling collaborative educational events that combine OPO, surgeons and transplant centers. Given recent increases in broader distribution, Committee members stressed the importance of a forward-focused approach in developing solutions within a changing environment.

The Committee identified numerous collaborative improvement project ideas over the course of their tenure and an activity was conducted during the March meeting for prioritization. Table 11 below lists the seven collaborative improvement projects believed to have the greatest impact on the system.

Table 11: Collaborative Improvement Project Ideas

Transportation efficiencies
DCD utilization
Effective DCD procurement practices to include automatic triggers with EMR for DCD referrals
OPO process standardization set of user requirements and preferences about transplant centers and OPOs ("Fact Pact")
Utilization of existing technology for more efficient organ procurement and utilization (e.g., OUT Tool, ROO)
Effective procurement strategies
Increasing living donation (efficiencies)

2. Relationship Management

The Committee members discussed ways to enhance system-wide communication and transparency between OPOs and transplant centers. A recommendation to develop an "Uber-like" feedback survey was presented to the Committee for further discussion. Some programs are currently using a survey tool for feedback to and from OPOs and transplant centers. Feedback surveys offer an opportunity to rate one another, support joint accountability, encourage effective communication, and identify opportunities for improvement. If surveys become a standard practice, more consideration will need to be given to the following:
- Who would complete?
- How will it be used?
- Who will see it?
- Will it be mandatory?
- What event is being evaluated?
- What type of survey: episodic or longitudinal?

The Committee members suggested the following survey questions during a facilitated discussion, shown in Tables 12 and 13 below.

Table 12: OPO Survey Questions Re: TXC

Timeliness in response to organ offer
Commitment to organ acceptance
Flexibility and availability for organ procurement
Transparency and rationale for a late decline
Ability to accommodate OR requests
Professionalism in process and procurement
Quality of recovery (lack of errors)

Table 13: TXC Survey Questions Re: OPO

Completeness and accuracy of clinical information at time of offer
Timeliness of organ offer
Completeness and timeliness of updates and overall communication after organ acceptance
Flexibility in OR scheduling
Logistical efficiency of organ procurement and transport
Proficiency of OPO staff in OR

The Committee members also suggested development of profiles for each transplant program and OPO including information specific to their own standard practices, staffing and protocols (e.g., DCD process, flush solution used, pumping parameters, etc.).

D. Beyond the OPTN

Because this was an exercise about future improvements, participants were not asked to consider whether activities were covered by the current scope of the OPTN contract. Some of the recommendations may be incorporated into future OPTN work, or may become recommendations from the Systems Performance Committee to other organizations.

Suggestions developed by the Committee that fall outside the current OPTN scope included:

- Expanding scope of OPTN to support system performance (keeping in mind legal framework/OPTN final rule)
- Recommendations and asks of other external stakeholders and/or private sector (e.g., payment models and financial paradigm)
- Partnership opportunities between OPTN and external stakeholders (e.g., coordinated, national transportation system), listed in Table 14 below.

Table 14: External Stakeholders and Influencers

HRSA	CMS
Payers	Legislature
Dialysis Centers	Societies
Patients	Living Donors
Donor Families	

Across the three categories listed above, several recurrent themes emerged; the top five themes are listed in Table 15 below.

Table 15: Recommendations to External Stakeholders

Theme	Example Recommendations
CMS/External/Regulatory	Donor hospital data requirements; inclusive stakeholder meetings
Transportation/Logistics	Centralized transportation system; consult with logistics experts
Metrics	Revise OPO metrics; review existing metrics with focus of improvement, not penalization (e.g., high risk donors)
Performance/Collaborative Improvement	Share best practices; national QAPI projects
Technology	Real-time image sharing/communication; develop outside IT partnerships

Appendix A: Committee Membership

Committee Leadership

NAME	TRANSPLANT ROLE	LOCATION	REGION
Matthew Cooper, MD	Professor of Surgery	Georgetown University Hospital	2
Diane Brockmeier, BSN, MA	CEO	Mid-America Transplant	8

Transplant Program Work Group

Work Group Co-Chair*

NAME	TRANSPLANT ROLE	LOCATION	REGION
Lisa Stocks, RN, MSN, FNP*	Executive Director	Lifesharing	5
David Foley, MD*	Professor of Surgery	Univ. of Wisconsin	7
George Loss, Jr., MD, PhD	Chief, Ochsner Transplant Institute	Ochsner Foundation Hospital	3
Beth Rubinstein	Liver recipient	Commerce Township, MI	10
Ken Murphy, JD	Liver recipient	Franklin, NC	11
Jennifer Prinz, RN, BSN, MPH, CPTC	COO	Donor Alliance	8
David Mulligan, MD, FACS	Professor and Chief, Section of Transplantation and Immunology/Director	Yale New Haven Hospital	1
Rolf Barth, MD	Professor of Surgery; Transplant Surgery	Univ. of Maryland Medical System	2
Susan Orloff, MD	Director & Chief, Division of Abdominal Organ Transplantation/Hepatobiliary Surgery	Oregon Health & Science Univ.	6
Ryan Davies, MD	Surgical Director of Pediatric Heart Transplantation and Mechanical Circulatory Support	Children's Medical Center of Dallas	4
Shelley Hall, MD	Chief of Transplant Cardiology	Baylor University	4
Deborah Maurer, RN, MBA	Assoc. VP, Transplant & artificial Heart Serv.; Program Administrator	Banner Univ. Medical Center Tucson	5
Susan Stuart, RN, MPM	President & CEO	Center for Organ Recovery & Education	2
Nicole Turgeon, MD, FACS	Professor of Surgery	Emory University Hospital	3

OPO Work Group

Work Group Co-Chair*

NAME	TRANSPLANT ROLE	LOCATION	REGION
Susan Gunderson, MHA*	CEO	LifeSource Organ & Tissue Donation	7
Thomas Pearson, MD, D.Phil.*	Executive Director, Emory Transplant Center	Emory Univ. Hospital	3
Ken Washburn, MD	Executive Dir., Comprehensive Transplant Center	The Ohio State Univ.	10
Richard Hasz, Jr., MFS	Vice President, Clinical Services	Gift of Life Donor Program	2
Alexandra Glazier, JD, MPH	President & CEO	New England Donor Services	1
Charlie Alexander, RN, MSN, MBA, CPTC	CEO; OPO	The Living Legacy Foundation of MD	2
Thomas Mone, MS	CEO	OneLegacy	5
Bryan Whitson, MD, PhD	Surgical Dir., Lung Transplantation; Cardiothoracic Surgeon	Ohio State Univ. Medical Center	10
Tim Taber, MD	Medical Dir., Kidney & Pancreas Transplant Programs; Nephrologist	Indiana Univ. School of Medicine	10
William Chapman, MD	Chief, Section of Transplantation (Liver)	Barnes-Jewish Hospital	8
Carl Berg, MD	Professor of Medicine	Duke Univ. Hospital	11
Tim Stevens, RN,BSN,CCTC	Interim Transplant Administrator	UC San Diego	6
Lew Teperman, MD, FACS	Vice Chair of Surgery, Director Of Organ Transplantation	Northwell Health, Zucker School of Medicine at Hofstra/Northwell	9
Sean Pinney, MD	Director, Heart Failure & Transplantation	Mount Sinai Medical Center	9
Kelly Ranum, BS, MBA	CEO	Louisiana Organ Procurement Agency	3
Jill Grandas	CEO	DCI Donor Services	11
Lori Brigham, BS, MBA	CEO	Washington Regional Transplant Community	2
Kevin Myer, MSHA	CEO	LifeGift	4

Systems Dynamics Work Group

Work Group Co-Chair*

Jeffrey Orlowski, MS, CPTC*	CEO/Work Group Co-Chair	LifeShare Transplant Donor Services of OK	4
Stuart Sweet, MD, PhD*	Medical Dir., Pediatric Lung Transplant Program	St. Louis Children's Hospital	8
Lloyd Ratner, MD	Director, Renal and Pancreatic Transplantation, Department of Surgery	Columbia Univ/NY-Presbyterian Hospital	9
David Axelrod, MD, MBA, FACS	Clinical Professor, Kidney, Pancreas, and Living Donor Transplantation Surgical Director	U. of Iowa	8
Peter Abt, MD	Associate Professor of Surgery	Hospital of the University of Pennsylvania and the Children's Hospital of Philadelphia (CHOP)	2
Michael Volk, MD, MS	Medical Director of Liver Transplantation and Chief of Gastroenterology	Loma Linda University Medical Center	5
Mike Seely, RN, MS, CPTC	Executive Director, Pacific Northwest Transplant Bank	Oregon Health & Science University	6
Katie Evers, RN, BSN, MBA	Executive Director, Services Line; Transplant Center Administrator, Pediatrics	Children's Hospital Colorado	8
Betsy Walsh, J.D., M.P.H.	Living Donor	Deputy General Counsel, Novant Health	11
Mike Borkon, MD	Surgical Director, Heart Transplant Program	Saint Luke's Hospital of Kansas City	8
Kevin Cmunt, BS, MS	President/CEO	Gift of Hope	7
Jesse Schold, PhD, M.Stat, M.Ed	Research Director, Department of Quantitative Health Sciences in the Health Outcomes Research and Clinical Epidemiology Section; Director of Outcomes Research in Kidney Transplantation	Cleveland Clinic Foundation	10
Ryo Hirose, MD	Director of Transplant	UCSF Medical Center	5

Sean Van Slyck, MPA/HSA	Interim CEO	Donor Network West	5
Marlon Levy MD	Professor and Chair, Division of Transplant Surgery; Director, Hume-Lee Transplant Center	VCU	11
Jennifer Milton, BSN, CCTC, MBA	Executive Director	University Hospital	4

Ex-Officio Government Members

Christopher McLaughlin	Chief, Organ Transplantation Division	HRSA (HHS)
Joyce Hager	Analyst	HRSA (HHS)

Appendix B: Additional Dashboard Elements

Additional TXC Dashboard Elements

Offer response time
Listing rate for referral patients
Survival rates among ESOF patients
Transplant rates among ESOF patients
Whether TXC sends perfusion staff
Cross reference data from OUT/RUM data
Feedback survey rating

Additional OPO Dashboard Elements

Non-donor cases (authorized not recovered)
Auto rule-outs
Demographic distribution of donors/type (%DCD, BDD, % donors >85 KDPI, % donors >65)
Percent of donors OPO does extended pre-recovery donor evaluations (liver biopsies, CT, repeat echos)
Median time for organ packaged to leaving donor site
Does OPO pump kidneys? (can expand to EVLP)
Does OPO have perfusion staff? (intraoperative support staff)
Donor case length
DCD conversion rate

Appendix C: Additional Balanced Scorecard Elements

Pre-Listing	Pre-Transplant	Post-Transplant
Intent-to-treat analysis	Late declines	Post-transplant vs. no transplant
Referrals to Listing	Consider living donation	CPM
Time from referral to decision	Patient satisfaction	Dialysis at one month post-TX
Referral/evaluation to outcome (WL, death, further evaluation, transplant, etc.)	Time to transplant	Transplant acceptance rate
Pre-evaluation/listing recipient candidacy following selection criteria	Percent of at-risk population on list	Quality outcomes
Percent referral/waitlisted	CPM	Intent-to-treat analysis
Waitlist characteristics + public / private insurance	Organ stewardship	eGFR/conditional metrics
Percent of waitlist candidates defined as "high risk"	Increased risk donor acceptance	Overall survival from time of listing (including post-TX, risk adjusted)
Underserved populations	Delisting rate	Measure of working organ
Listings/disease-specific deaths/population	Reasons for waitlist removal	Survival from listing to 1yr post-TX
Access measures (i.e., who is being considered for listing)		Patient satisfaction
Listing percentage compared to listing percentage of other centers with same patient criteria		Post-TX infection rate
Patient satisfaction		Post-TX rejection rate
		Readmission rate
		Complication rate
		Patient quality of life at 1,6,12 months post-TX
		O/E graft survival at 3yrs post-TX