The Future State of Organ Allocation

Continuous Distribution Overview
Agenda

1. Continuous distribution overview
2. Lung policy development update
3. Kidney and pancreas policy development update
In 2018, the Board of Directors approved a “continuous distribution” model as a framework for future policy development of organ allocation.

- **Current system**: places candidates into rank-ordered classifications reviewed in sequence
- **New framework**: ranks all candidates using a composite allocation score, without categorizing into classifications
  - The composite score is determined by multiple factors, called “attributes,” that are weighted against each other during the calculation
Overall score

Known as the Composite Allocation Score

Overall score includes attributes related to: medical urgency, placement efficiency, outcomes, and patient access.
# Example match run

<table>
<thead>
<tr>
<th>Order</th>
<th>Classification</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High urgency, high compatibility</td>
<td>250 nm</td>
</tr>
<tr>
<td>2</td>
<td>High urgency, medium compatibility</td>
<td>250 nm</td>
</tr>
<tr>
<td>3</td>
<td>Pediatric, high urgency, high compatibility</td>
<td>250 nm</td>
</tr>
<tr>
<td>4</td>
<td>Pediatric, high urgency, medium compatibility</td>
<td>250 nm</td>
</tr>
<tr>
<td>5</td>
<td>Medium urgency, high compatibility</td>
<td>500 nm</td>
</tr>
</tbody>
</table>

## Continuous distribution – future state

### Amount of points

- **1 year survival without transplant**
- **Blood type**
- **Pediatric age group**
- **Sensitization**
- **1 year survival after transplant**
- **Candidate size**
- **Prior living donor**
- **Placement efficiency**
Key characteristics of Continuous Distribution

- **Flexible**: The framework will apply to all organ types
- **More equitable**: No one factor will determine a candidate’s placement on the waiting list
- **Agile**: The framework will be more responsive and adaptable to future changes
Innovation, transparency, improvement

- Applies *advanced analytic techniques* to create an algorithm that makes every factor in the match run comparable
- *Community input* is being used in new ways to develop the framework
- As outcomes of the new system become visible, we can *adjust the system quicker*
- System programming will be *more efficient* because of the ability to repurpose design from organ to organ
Developing the framework

1. Identify attributes
2. Assign values
3. Prioritize attributes against each other
4. Convert attributes into points
5. Build framework
6. Modeling and analysis
7. Public comment on policy proposal
8. Board approval
9. Implementation
## Identified attributes

<table>
<thead>
<tr>
<th></th>
<th>Medical Urgency</th>
<th>Post-Transplant Survival</th>
<th>Candidate Biology</th>
<th>Patient Access</th>
<th>Placement Efficiency</th>
<th>Non-Utilization</th>
</tr>
</thead>
</table>
| **Lung** | Waitlist Survival (part of LAS) | Post-Transplant Survival (part of LAS) | • Blood type  
  • CPRA  
  • Height | • Prior Living Donors  
  • Pediatrics | | |
| **Kidney** | Medical Urgency Definition | • HLA Matching  
  • EPTS  
  • Ischemic time | • Blood type  
  • CPRA  
  • Single v Dual Kidney | • Prior Living Donors  
  • Pediatrics  
  • SLK Safety Net  
  • Waiting Time | • Travel (cost) efficiency  
  • Placement efficiency | |
| **Pancreas** | • KP v Pancreas v Islets | • HLA Matching  
  • Ischemic time | • Blood type  
  • CPRA | • Prior Living Donors  
  • Pediatrics  
  • PAK  
  • Waiting Time | • Travel (cost) efficiency  
  • Placement efficiency | • Islets  
  • Facilitated Pancreas |
Community input

Analytic Hierarchy Process (AHP)

AHP Prioritization Exercise

- Effective method for involving patients to inform clinical decisions
- Participants compare two attributes against each other and select level of importance
- Used to inform the weight of each attribute to the overall score
- Empowers methodical incorporation of value-based preferences
Interactive tool to inform decision-making

Interactive Tableau dashboard tool available to simulate comparisons and match runs

- Change weights to see match run ordering
- Compare current match run with composite allocation score
- Compare two candidates by selecting clinical criteria
- Calculate scores with different rating scales
- Display candidates equity and utility scores with different weights
Progress

- All organ systems will transition to this new framework; the lung community is first

**Work begins:**

- **January 2019**: Lung
- **June 2020**: Kidney, Pancreas
- **Mid-2021**: Liver, Intestine
- **2023**: Heart, Vascularized Composite Allograft
Resources

OPTN website

- **Graphics** explaining current system and future state

- **Video** explaining input exercise – Analytic Hierarchy Process

- **Key terms**

- **Schedule** of when each organ committee is expected to start work

- **Interactive dashboard tool** to stage your own match runs – specific to lung committee work

- Subpages for organ committees with reports and documentation of progress
Questions?