

Continuous Distribution of Kidneys and Pancreata Update

OPTN Kidney & Pancreas Transplantation Committees

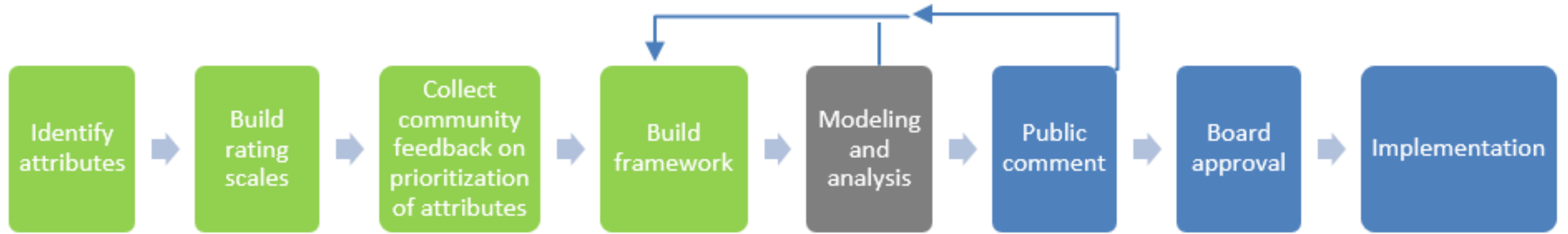
Committee Update

- Informs community on the progress to date on continuous distribution projects
- Paper highlights:
 - Further detail on proposed attributes and rating scales
 - Overview of AHP exercise results
 - Considerations for allocation components to outside of the composite allocation score
 - The Committee's first modeling request

Rationale

- Provide a more equitable approach to matching kidney and pancreas candidates and donors
- Remove hard boundaries between classifications that prevent kidney and pancreas candidates from being prioritized further on the match run
- Consider multiple patient attributes all at once through a composite allocation score instead of within categories by sequence
- Establish a system that is flexible enough to work for each organ type

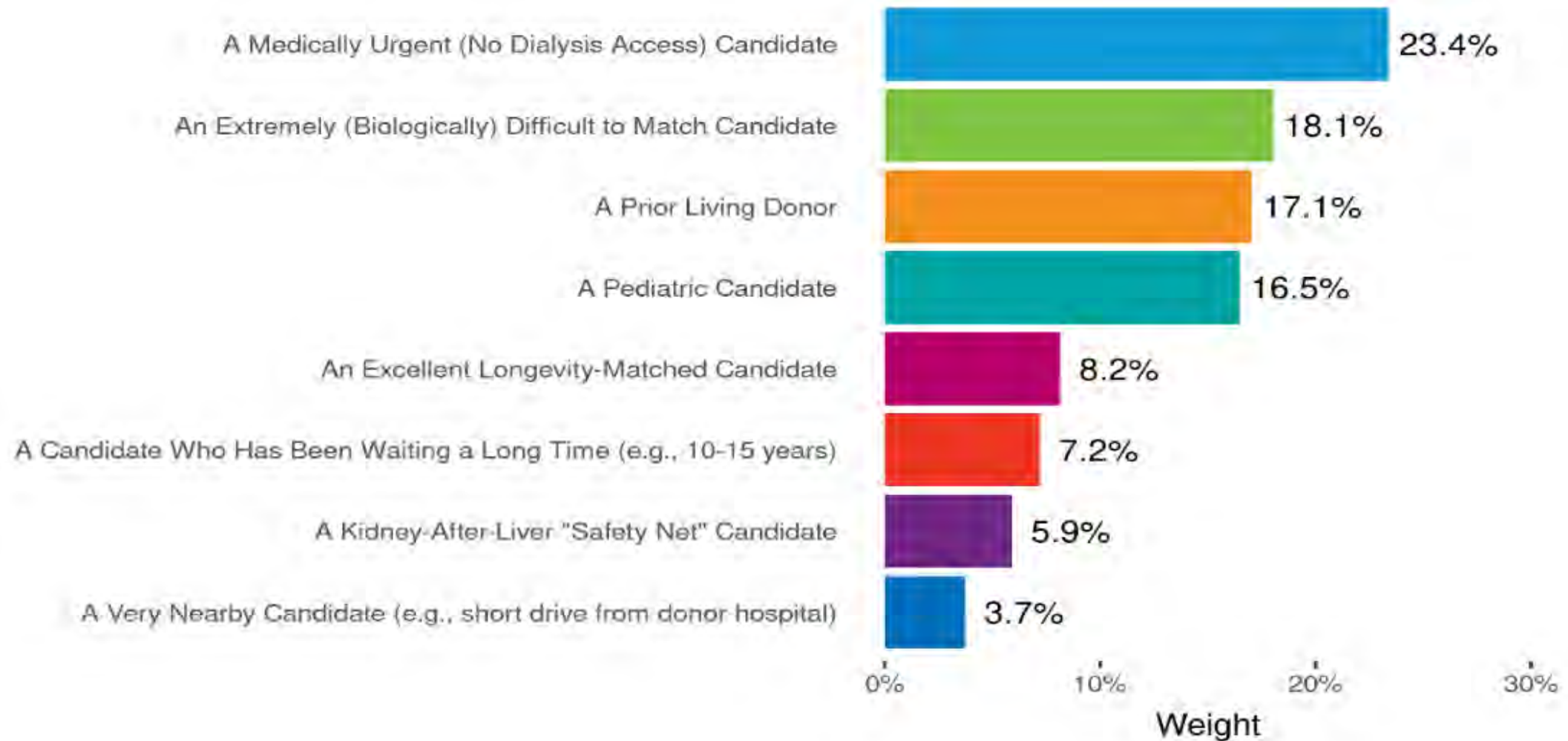
Progress to Date



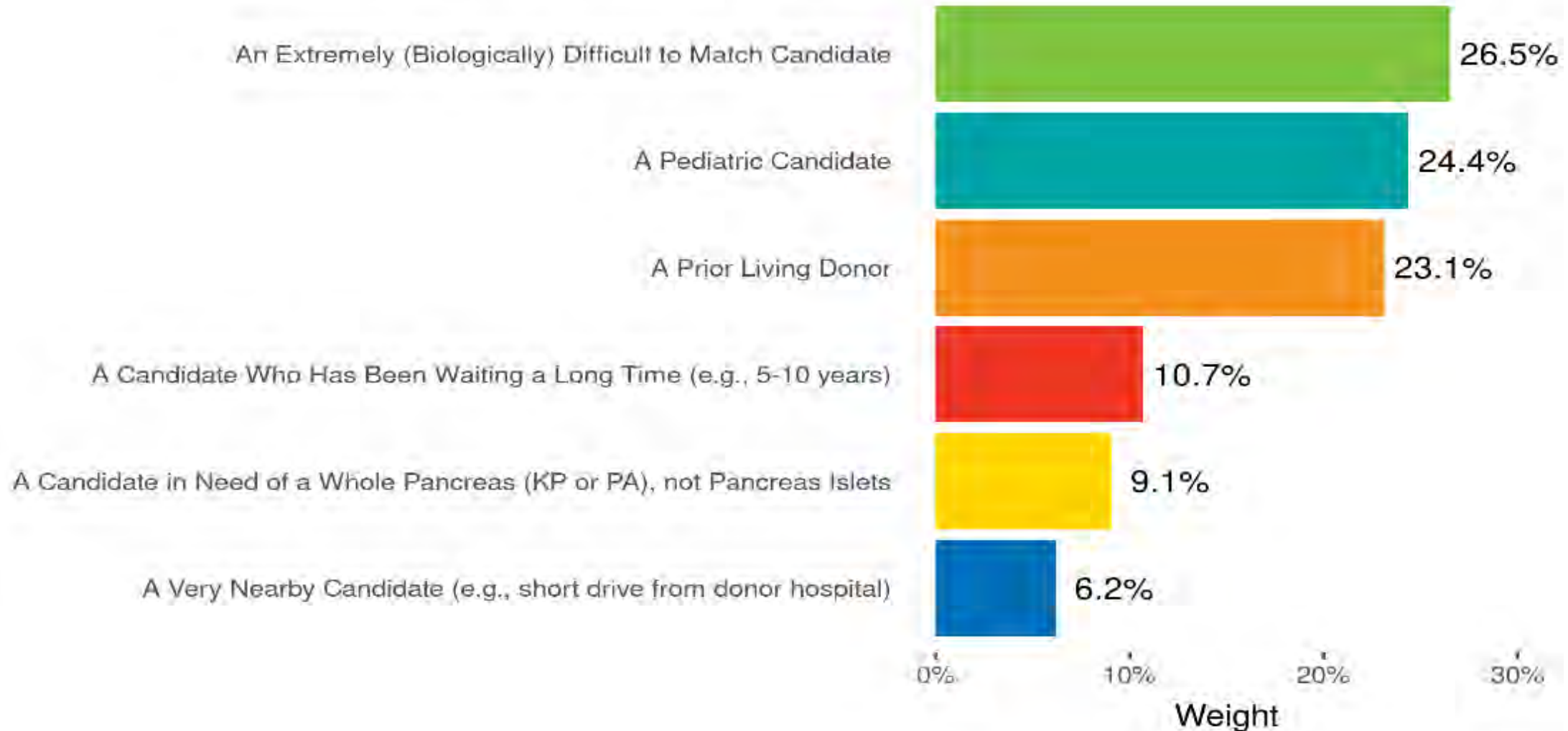
Analytic Hierarchy Process (AHP) Exercise Results

- Values prioritization exercise that asked participants to weigh attributes against each other
- Two values prioritization exercises were available during Winter 2022 public comment
 - Kidney
 - Pancreas/Kidney-Pancreas (KP)
- The full reports for both the kidney and pancreas AHP exercises can be found on the OPTN website
 - <https://optn.transplant.hrsa.gov/policies-bylaws/a-closer-look/continuous-distribution/continuous-distribution-kidney-and-pancreas/>

AHP Results – Overall Ratings (Kidney)



AHP Results – Overall Ratings (Pancreas)



Kidney-Pancreas Simulation Allocation Model (KPSAM)

- Data, public comment, and AHP results were considered in order to:
 - Finalize rating scale recommendations for outstanding attributes
 - Develop draft frameworks for modeling
- First round of modeling was submitted
 - First round: Test effects of what would happen in extreme cases
 - Next round: More detailed/granular
- These decisions are **not** final

Kidney Rating Scales



Attribute	Rating Scale
Medical Urgency	Binary
HLA Matching	0, 1, or 2 DR mm
EPTS/KDPI	Continuous longevity matching
Blood Type	Current screening + blood type points
CPRA	Steep non-linear curve
Prior Living Donor	Binary
Pediatrics	Binary
KAL Safety Net	Binary
Qualifying Time	Linear, exceeds 100% beyond 10 years, no cap
Proximity Efficiency	Piecewise linear, 50 NM inner plateau, 85% at 250 NM, 25% at 500 NM, 0% at 5181 NM

Pancreas Rating Scales



Attribute	Rating Scale
Blood Type Identical	Relax KP screening + Identical before compatible
CPRA	Steep non-linear curve
Prior Living Donor	Binary
Pediatrics	Binary
Qualifying Time	Linear to curve. Inflection point: 90% at 5 years, shallower line beyond 5 years to max
Proximity Efficiency	Piecewise linear, 50 NM inner plateau, 25% at 250 NM, 0% at 5181 NM
Whole Pancreas (KP/PA), Not Pancreas Islets	Binary

Kidney Weight Modifiers



Attribute	KDPI 0-20%	KDPI 21-34%	KDPI 35-85%	KDPI 86-100%
Medical Urgency	1	1	1	1
HLA Matching	1	1	1	1
EPTS/KDPI	1	1	1	1
Blood Type	1	1	1	1
CPRA	1	1	1	1
Prior Living Donor	1	1	1	0
Pediatrics	1	1	1	0
KAL Safety Net	0	1	1	1
Qualifying Time	1	1	1	1
Proximity Efficiency	1	1	1	1

*Includes pediatric priority for KDPI 35-85% for pediatric donors

KP/PA/PI Weight Modifiers



Attribute	Donor Age \leq 40 & Donor BMI \leq 30	Donor Age $>$ 45 or Donor BMI $>$ 30
Blood Type Identical	1	1
CPRA	1	1
Prior Living Donor	1	1
Pediatrics	1	1
Waiting Time	1	1
Proximity Efficiency	1	1
Whole Pancreas (KP/PA), Not Pancreas Islets*	1	-1

Note: This would prioritize islet candidates for certain donor organs.

Run #1: Current Policy, KAS 250

Goal	Kidney alone	KP/PA/PI
Medical Urgency	n/a	n/a
Transplant Outcomes	n/a	n/a
Candidate Biology	n/a	n/a
Patient Access	n/a	n/a
Placement Efficiency	n/a	n/a

Notes

- Uses current classifications to produce a baseline.

Run #2: Combined Community Feedback Results

Goal	Kidney alone	KP/PA/PI
Medical Urgency	Medical Urgency 15%	0%
Transplant Outcomes	DR Matching 5% Longevity 5%	0%
Candidate Biology	Blood Type 5% CPRA 15%	Blood Type Identical 15% CPRA 15%
Patient Access	Pediatrics 15% Prior Living Donors 15% Waiting Time 10% KAL Safety Net 5%	Pediatrics 20% Prior Living Donors 20% Waiting Time 10%
Placement Efficiency	Proximity Efficiency 10%	Organ Registration 10% Proximity Efficiency 10%

Notes

- This run is the CD option closest to the community AHP results.
- Includes expanded longevity matching, steeper CPRA curve, and pediatric priority pediatric priority for KDPI 35-85% pediatric donors kidneys

Run #3: Increased Longevity

Goal	Kidney alone	KP/PA/PI
Medical Urgency	Medical Urgency 10%	0%
Transplant Outcomes	DR Matching 20% Longevity 20%	0%
Candidate Biology	Blood Type 3.3% CPRA 10%	Blood Type Identical 15% CPRA 15%
Patient Access	Pediatrics 10% Prior Living Donors 10% Waiting Time 6.7% KAL Safety Net 3.3%	Pediatrics 20% Prior Living Donors 20% Waiting Time 10%
Placement Efficiency	Proximity Efficiency 6.7%	Organ Registration 10% Proximity Efficiency 10%

Notes

- This run increases the weight/importance of transplant outcomes from 10% to 40%

Run #4: Increased Placement Efficiency

Goal	Kidney alone	KP/PA/PI
Medical Urgency	Medical Urgency 11.67%	0%
Transplant Outcomes	DR Matching 3.89% Longevity 3.89%	0%
Candidate Biology	Blood Type 3.89% CPRA 11.67%	Blood Type Identical 11.67% CPRA 11.67%
Patient Access	Pediatrics 11.67% Prior Living Donors 11.67% Waiting Time 7.78% KAL Safety Net 3.89%	Pediatrics 15.56% Prior Living Donors 15.56% Waiting Time 7.78%
Placement Efficiency	Proximity Efficiency 30%	Organ Registration 7.78% Proximity Efficiency 30%

Notes

- This run increases the importance of proximity efficiency from 10% to 30%

Run #5: Harder to Place Kidneys



Attribute	KDPI 0-20%	KDPI 21-34%	KDPI 35-85%	KDPI 86-100%
Medical Urgency	1	1	1	1
HLA Matching	1	1	1	1
EPTS/KDPI	1	1	1	1
Blood Type	1	1	1	1
CPRA	1	1	1	1
Prior Living Donor	1	1	1	0
Pediatrics	1	1	1	0
KAL Safety Net	0	1	1	1
Qualifying Time	1	1	1	1
Proximity Efficiency	1	1	1	3

Notes

- Uses weights from Run #2: Combined AHP Results

Other Considerations

- The paper also includes an overview of allocation components to consider that could fall outside of the composite allocation score, to include:
 - Dual Kidney
 - En Bloc
 - Facilitated Pancreas
 - Mandatory KP Offers
 - National Offers
 - Screening and Filters
 - Released Organs
 - Review Boards

Next Steps

- KPSAM results
- Committees will review and make adjustments as needed; re-submit for additional modeling
- Committees will continue to update community on progress of project
 - Public comment received will be reviewed and considered in development of framework and eventual proposal

Questions?