Program-Specific Offer Acceptance Behavior for Kidney Programs Across the Spectrum of KDPI

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Introduction

- Little is known about the offer acceptance behavior of kidney transplant programs, which may affect rates of discard and access to transplant.

- A kidney offer acceptance model was developed to evaluate the variability in offer acceptance behavior across the spectrum of donor quality as measured by KDPI.

Offer Acceptance Model

- The offer acceptance model was estimated with offers from match runs that ended in acceptance from July 1, 2015, to June 30, 2016. The model adjusts for candidate and donor factors and candidate-donor interactions, including the number of previous offers.

- The model is stratified by pediatric and adult candidates and, for adult candidates, donor KDRI.

- The model evaluates only offers to candidates on the kidney-alone or kidney-pancreas waiting list.

- Accepted kidneys must be transplanted; otherwise, they are considered declined offers.

- Completed transplants not identified by match runs, e.g., local backup, were inserted into the data set.

Program-Specific Offer Acceptance Ratios

- Generalized linear mixed models with a logit link estimated the program-specific offer acceptance ratios through a program random effect.

- An offset equal to the linear predictor from the offer acceptance model accounted for potential donor-candidate effects.

Data Analysis

- Summary statistics (i.e., quartiles) and estimated densities characterize the distribution of program-specific offer acceptance ratios.

- The analysis was performed for the overall offer acceptance ratio and for offer acceptance ratios across the spectrum of donor KDPI:

  - Low-KDPI: < 35%
  - Medium-KDPI: 35-85%
  - High-KDPI: > 85%

- The relationship of the offer acceptance ratios across donor KDPI was investigated with Pearson correlation coefficients.

Results

Figure 1. The density for overall program-specific offer acceptance ratios.

Overall Offer Acceptance

Minimum = 0.11
1st Quartile = 0.59
Median = 0.94
3rd Quartile = 1.58
Maximum = 76.47

Figure 2. The density for medium-KDPI program-specific offer acceptance ratios (KDPI: 35-85%).

Medium-KDPI Offer Acceptance

Minimum = 0.12
1st Quartile = 0.60
Median = 0.94
3rd Quartile = 1.49
Maximum = 44.19
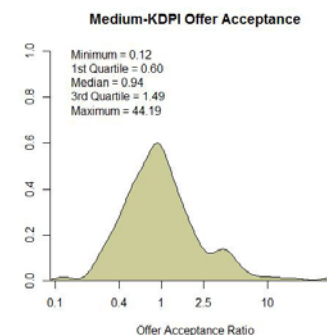
Figure 2. The density for low-KDPI program-specific offer acceptance ratios (KDPI < 35%).

Low-KDPI Offer Acceptance

Minimum = 0.14
1st Quartile = 0.68
Median = 0.97
3rd Quartile = 1.49
Maximum = 13.23
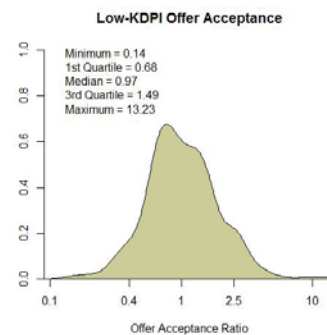
Figure 4. The density for high-KDPI program-specific offer acceptance ratios (KDPI: > 85%).

High-KDPI Offer Acceptance

Minimum = 0.07
1st Quartile = 0.44
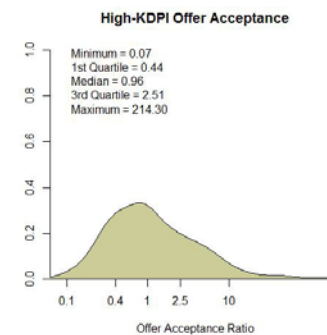Median = 0.96
3rd Quartile = 2.51
Maximum = 214.30

Table 1. Mean and standard deviation for program-specific offer acceptance ratios across the spectrum of donor KDPI; Pearson correlations between the overall program-specific offer acceptance ratios and across donor quality.

KDPI	Mean	SD	Pearson Correlation		
			Overall	Low-KDPI	Medium-KDPI
Overall	1.87	5.57	--	0.87	0.94
Low	1.28	1.23	0.87	--	0.72
Medium	1.81	4.21	0.94	0.72	--
High	4.17	17.34	0.79	0.57	0.76

Conclusions

- Due to the substantial variability in program-specific offer acceptance practices, strategies should be considered to improve offer acceptance across the entire spectrum of donor KDPI, e.g., by providing programs with offer acceptance information across the spectrum of donor quality.

- Effective strategies for improving offer acceptance may vary across KDPI, especially for high- versus low-KDPI kidneys, since there is a relatively mild association between the offer acceptance of high- and low-KDPI kidneys.

Authors have no conflicts of interest to report.