OPO Performance Improvement: Increasing Kidney Utilization

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UNOS Region 6 Forum
Seattle, WA
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Kidney Utilization From LCNW Donors

- National kidney discard rate near 20%
- LCNW rate lower than US, but increasing
- Opportunity for performance improvement
- Led by LCNW Surgical Recovery Coordinators
  - Assist with recovery process
  - Place kidneys
In Discarding of Kidneys, System Reveals Its Flaws

A moment of silence for a donor at Fairview Southdale Hospital in Edina, Minn.

By KEVIN SACK
Published: September 19, 2012
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Over 8000 Kidneys Discarded in Three Years, 2010 - 2012

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US and LCNW Discard Rates

Kidneys Discarded / Kidneys Recovered

Source: OPTN DSA Dashboard
Stepwise Process

1. Identify Opportunity for Improvement (data)
2. Engage Staff Directly Involved in Process
3. Establish Clear Directive and Goal
4. Allow Staff to Develop Solutions
5. Test and Monitor New Approaches (data)
6. Do More of What Works
7. Stop Doing Things That Don’t Work
8. Acknowledge and Celebrate Progress
Reducing Kidney Discards at LCNW

1. Analyze Data to Identify “At Risk” Kidneys
2. Include Transplant Program Staff in Process
3. Get a Head Start On At Risk Kidneys
4. Streamline Local Offer Process
5. Improve Work Flow with UNOS Organ Center
6. Have Knowledge of “Go To” Kidney Programs
7. Early Decision to Avoid Kidney Wastage
8. Expedite Placement of Exported Kidneys
Improving Distribution Efficiency of Hard-to-Place Deceased Donor Kidneys: Predicting Probability of Discard or Delay

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We recently showed that DonorNet 2007 has reduced the efficiency of kidney distribution in the United States, particularly for those with prolonged cold ischemia time (CIT), by requiring systematic allocation of all kidneys regardless of quality. Reliable early identification of those most likely to be discarded or significantly delayed would enable assigning them to alternate, more efficient distribution strategies. Based on 39,035 adult kidneys recovered for possible transplantation between 2005 and 2008, we created a regression model that reliably (AUC 0.83) quantified the probability that a given kidney was either discarded or delayed beyond implemented recently by the United Network for Organ Sharing (UNOS), has reduced efficiency in deceased donor kidney allocation, particularly by amplifying delays in cold ischemia time (CIT) for those kidneys with the longest CIT (over 36 h) (1). Deceased donor organs are currently offered to one center at a time, based on a model that does not take into account the willingness of a transplant center to accept organs. Discard rates differ widely by donation service area, and there is greater heterogeneity of discard rates among organs of marginal quality (2). These marginal organs are typically accepted by only a handful of centers, making these organs hard to place, and wasting time in systematically offering them to centers that are highly unlikely to accept them (1). The centers transplanting the most hard-to-place organs did not change under DN07, but discard rates did increase, likely because by the time a willing center has been contacted, the extra elapsed time caused by the organ distribution process has made the organ even more marginal.
Table 2: Details of a regression model for predicting the probability of discard or delayed cold ischemia time beyond 36 h (PODD). The formula for calculating the PODD is shown below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds ratio</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>1.20</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Age spline at 40 (decades)</td>
<td>2.09</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Blood type AB</td>
<td>1.21</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Donor BMI (kg/m²)</td>
<td>0.88</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BMI spline at 23</td>
<td>1.06</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Cancer</td>
<td>1.20</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Smoking</td>
<td>1.04</td>
<td>0.003</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.40</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>History of MI</td>
<td>1.05</td>
<td>0.007</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.22</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Diabetes &gt; 10 years</td>
<td>1.08</td>
<td>0.008</td>
</tr>
<tr>
<td>Diabetes requiring insulin</td>
<td>1.15</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Donation after cardiac death</td>
<td>2.43</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Death by CVA</td>
<td>0.95</td>
<td>0.324</td>
</tr>
<tr>
<td>Death by head trauma</td>
<td>0.74</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>HTLV positive</td>
<td>3.89</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>CMV positive</td>
<td>1.03</td>
<td>0.008</td>
</tr>
<tr>
<td>Hepatitis B core Ab</td>
<td>1.20</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hepatitis B core Ab and surface Ag</td>
<td>3.15</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hepatitis C antibody</td>
<td>5.97</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>CDC high-risk donor</td>
<td>1.13</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Pumped</td>
<td>0.55</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sclerosis &gt; 20%</td>
<td>3.44</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Serum creatinine (mg/dL)³</td>
<td>2.89</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Exported LCNW Kidneys in 2011

Figure E3.1 Programs transplanting kidneys procured by WALC from 1/1/2011 to 12/31/2011*

- Indicates the location of OPO headquarters
- Transplants within the local area of the OPO are not always visible on the map due to scale. See Table E3.2 for full details.
US and LCNW Discard Rates

Kidneys Discarded / Kidneys Recovered

Source: OPTN DSA Dashboard
US Discard Rates

Kidneys Discarded / Kidneys Recovered

Source: OPTN DSA Dashboard
LCNW Discard Rates

Kidneys Discarded / Kidneys Recovered

Source: OPTN DSA Dashboard
Summary

• LCNW Identified Opportunity for Improvement
• Followed a Systematic Approach
• Reinforced Practices That Worked
• Continue to Monitor This Closely
• LCNW Kidney Utilization is Second Best in US