SRTR 5-Tier: Patient Focused Data Presentation

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Disclosures

I have no financial relationships to disclose within the past 12 months relevant to my presentation. The ACCME defines ‘relevant’ financial relationships as financial relationships in any amount occurring within the past 12 months that create a conflict of interest.

My presentation does/does not include discussion of off-label or investigational use, and I do/do not intend to reference unlabeled/unapproved uses of drugs or products in my presentation.
Disclosures – SRTR

The views expressed do not necessarily reflect the official policies of the U.S. Department of Health and Human Services nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.
The ideal outcome of public reporting:

Patients:
Use the data to make informed choices about where to seek care

Providers:
Use the data to improve quality of care

Adapted from Werner et al. The Unintended Consequences of Publicly Reporting Quality Information. JAMA. 2005;293:1239-1244
SRTR’s Contractual Obligation to Provide Public Evaluations of Transplant Program Performance

OPTN Final Rule 121.11(b)(iv)

• “Make available to the public timely and accurate program-specific information on the performance of transplant programs. This shall include free dissemination over the Internet, and shall be presented, explained, and organized as necessary to understand, interpret, and use the information accurately and efficiently."
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SRTR Task 3.9.1 The Contractor shall develop PSRs on the performance of transplant programs and Organ Procurement Organizations (OPOs).

- “The Contractor shall disseminate for free over the internet the timely and accurate program-specific information on the performance of transplant programs according to 121.11(b) of the OPTN Final Rule.”
- “The transplant program information shall include waitlist data, pre-transplant outcomes, acceptance and utilization of organs, and post-transplant outcomes.”
- “Transplant programs and OPOs with better or worse outcome shall be identified.”
Evolution of the SRTR Website
## Previous SRTR Website: 3-Tier Outcome Assessment

<table>
<thead>
<tr>
<th>State</th>
<th>Hospital</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Living Donor</td>
<td>Deceased Donor</td>
</tr>
<tr>
<td>AZ</td>
<td>Banner University Medical Center-Tucson, Tucson, AZ</td>
<td>175</td>
<td>15</td>
</tr>
<tr>
<td>AZ</td>
<td>Banner-University Medical Center Phoenix, Phoenix, AZ</td>
<td>863</td>
<td>111</td>
</tr>
<tr>
<td>AZ</td>
<td>Mayo Clinic Hospital, Phoenix, AZ</td>
<td>883</td>
<td>153</td>
</tr>
</tbody>
</table>

### Adult
- **Living Donor**: 175 cases, 15 transplants, Survival: As Expected (80 cases, 0 transplants), Survival: As Expected (0 cases, N/A transplants)
- **Deceased Donor**: 0 cases, N/A transplants

### Pediatric
- **Living Donor**: 863 cases, 111 transplants, Survival: As Expected (183 cases, 0 transplants), Survival: As Expected (1 cases, N/A transplants)
- **Deceased Donor**: 0 cases, N/A transplants
Survey feedback (survey respondents from the general public):

- “That chart is NOT user friendly”
- “As near as I can make out through the haze of unexplained acronyms and statistics...”
- “I didn’t really understand any of the chart.”
- “Patient survival saying ‘as expected’ was important, though almost all of them say that and the numbers seem to vary a lot.”
Program Differentiation Under the 3-Tier Rating System

<table>
<thead>
<tr>
<th>Organ</th>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney</td>
<td>7</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Liver</td>
<td>121</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Heart</td>
<td>121</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lung</td>
<td>65</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Limitations of the 3-Tier System

Never designed to summarize provider performance relative to other providers

Based on a statistical test that often lacks sufficient information to draw strong conclusions in all but the large transplant programs

The vast majority of programs were in the "As Expected" tier, while graft failure rates varied 4-fold within the "As Expected" tier
Recommendation: Program-Specific Reporting would benefit from tailoring and education targeted at stakeholders and end users, particularly patients

- Improve understandability of public data reporting
- Different analyses and presentations of the outcomes for different stakeholders

Recommendation: Program-Specific Reporting would benefit from tailoring and education targeted at stakeholders and end users, particularly patients.

• Use of different level flags for different stakeholders
  • Actual Storm (avoid)
  • Storm Warning
  • Storm Watch
  • Clear Day
Hibbard

“If consumers do not understand information, they are more likely to dismiss it as unimportant.”

Key AHRQ Recommendations for Public Reporting

1Hibbard J, Sofaer S, AHRQ Publication No. 10-0082-EF, June 2010

- Make it easy for consumers to understand and use the comparative information.
- Reduce the cognitive burden by summarizing, interpreting, highlighting meaning, and narrowing options.
- Rank order by performance as opposed to alphabetical ordering.
- Use symbols instead of numbers.
- Provide an overall summary measure.
- Include fewer reporting categories (5 vs. 9).
Development Timeline

2012

• PSR Consensus Conference made recommendations to improve public reporting.
• Began discussions with the SRTR Visiting Committee (SVC, formerly STAC).

2013

• Developed new 5-tier methodology with SVC.
• Presented to The Alliance’s Transplant Center Task Force.
• Presented to OPTN Patient Affairs and MPSC committees.
Development Timeline

2014
• Presented to OPTN Transplant Administrators and Transplant Coordinators committees.
• Presented new website concept to senior leadership within HRSA.

2015
• Finalized new 5-tier methodology.
• Initiated new website build.
Development Timeline

2016
• Presented to OPTN COIIN leadership; COIIN used the methodology during site selection.
• Presented to Transplant Quality Institute.
• Presented to ACOT.
• Launched new website and 5-tier system.

2017
• 5-tier system moved to a “beta” site following feedback HRSA received from the community.
• Ongoing discussions with SVC.
• Further patient engagement through AHRQ initiative.
• Development of Beta version 2.
Development Timeline

2018

• Released Beta Version 2 for 60-day public comment.
• SVC considered public comment at July and September 2018 meetings, voting to make a few additional modifications and launch the website.

2019

• Continuing to evaluate
• Developing overall summary measure per AHRQ recommendations
Click column headers below to sort the results. Click here to learn about the information provided on this page.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Distance</th>
<th>Deceased Donor Transplants in a Year</th>
<th>Living Donor Transplants in a Year</th>
<th>Survival on the Waitlist</th>
<th>Getting a Deceased Donor Transplant Faster</th>
<th>1-Year Liver Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Hospital Medical Center</td>
<td>N/A</td>
<td>72 ADULTS</td>
<td>0 ADULTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orlando, FL</td>
<td>N/A</td>
<td>72 ADULTS</td>
<td>0 ADULTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View Summary Data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View Complete Report (PDF)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duke University Hospital</td>
<td>N/A</td>
<td>86 ADULTS</td>
<td>0 ADULTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durham, NC</td>
<td>N/A</td>
<td>86 ADULTS</td>
<td>0 ADULTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View Summary Data</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>View Complete Report (PDF)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indiana University Health</td>
<td>N/A</td>
<td>141 ADULTS</td>
<td>0 ADULTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indianapolis, IN</td>
<td>N/A</td>
<td>141 ADULTS</td>
<td>0 ADULTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View Summary Data</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For liver transplant candidates, this measure has the largest impact on survival after listing among these three measures. 1 year liver survival includes only candidates who received a transplant.
Program Differentiation — 3-Tier Versus 5-Tier Systems

### 3-Tiers

<table>
<thead>
<tr>
<th>Organ</th>
<th>Number of Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney</td>
<td>218</td>
</tr>
<tr>
<td>Liver</td>
<td>121</td>
</tr>
<tr>
<td>Heart</td>
<td>121</td>
</tr>
<tr>
<td>Lung</td>
<td>65</td>
</tr>
</tbody>
</table>

### 5-Tiers

<table>
<thead>
<tr>
<th>Organ</th>
<th>Number of Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney</td>
<td>78</td>
</tr>
<tr>
<td>Liver</td>
<td>61</td>
</tr>
<tr>
<td>Heart</td>
<td>30</td>
</tr>
<tr>
<td>Lung</td>
<td>52</td>
</tr>
</tbody>
</table>

TQI 2019: Patient Focused
Variation in Program HRs 3-Tiers Versus 5-Tiers

3 Tier System

Worse | As Expected | Better

5 Tier System


TQI 2019: Patient Focused
<table>
<thead>
<tr>
<th>Institution</th>
<th>Distance</th>
<th>Adult Volume</th>
<th>Adult Transplant Rate</th>
<th>Outcome Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rush University Medical Center Chicago, IL</td>
<td>2.5 miles</td>
<td>108</td>
<td>22.2</td>
<td>5</td>
</tr>
<tr>
<td>University of Chicago Medical Center Chicago, IL</td>
<td>5.9 miles</td>
<td>64</td>
<td>10.7</td>
<td>6</td>
</tr>
<tr>
<td>Advocate Christ Medical Center Oak Lawn, IL</td>
<td>10.5 miles</td>
<td>12</td>
<td>7.0</td>
<td>4</td>
</tr>
</tbody>
</table>
Beta Version 2

Incorporates 9 major improvements in response to feedback
1. Column headings more patient-friendly per patient feedback.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>City, State</th>
<th>Distance</th>
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<th>1-Year Kidney Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>N/A</td>
<td></td>
<td></td>
<td>144 ADULTS</td>
<td>11 ADULTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital B</td>
<td>N/A</td>
<td></td>
<td></td>
<td>104 ADULTS</td>
<td>17 ADULTS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For kidney transplant candidates, this measure has the largest impact on survival after listing. 1 year kidney survival includes only candidates who received a transplant.
2. Added 5-tier assessments for pretransplant metrics.
3. Condensed icons & removed interpretive text.

<table>
<thead>
<tr>
<th>Hospital A</th>
<th>N/A</th>
<th>144</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>City, State</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View Summary Data</td>
<td>View Complete Report (PDF)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospital B</th>
<th>N/A</th>
<th>104</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>City, State</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>

Note: For kidney transplant candidates, this measure has the largest impact on survival after listing. 1 year kidney survival includes only candidates who received a transplant.
4. Added description of icon meaning & actual expected numbers.

The table shows expected outcomes for an average patient at a typical program within the tier. Learn more.

<table>
<thead>
<tr>
<th></th>
<th>Worse</th>
<th>Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compare Each center to the National Rates.</td>
<td><img src="image" alt="Comparison" /></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Tier 4</th>
<th>Tier 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survival On the Waitlist (Deaths Per 100 years of waiting)</td>
<td>7.4</td>
<td>6.3</td>
<td>5.3</td>
<td>4.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Getting A Transplant Faster (Transplants Per 100 years of waiting)</td>
<td>5.2</td>
<td>8.7</td>
<td>12.7</td>
<td>18</td>
<td>30.4</td>
</tr>
<tr>
<td>1-Year kidney Survival (% with functioning transplant at 1 year)</td>
<td>93</td>
<td>94</td>
<td>95</td>
<td>96</td>
<td>97</td>
</tr>
</tbody>
</table>
5. Changed transplant rate to a deceased-donor-only rate.

For kidney transplant candidates, this measure has the largest impact on survival after listing. 1-year kidney survival includes only candidates who received a transplant.
6. Divided transplant volume into deceased and living donor.

<table>
<thead>
<tr>
<th>Hospital A</th>
<th>City, State</th>
<th>Distance to Donor (mi)</th>
<th>Year 1 Deceased Donor Transplants</th>
<th>Year 1 Living Donor Transplants</th>
<th>1-Year Kidney Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N/A</td>
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<td>11 ADULTS</td>
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<th>City, State</th>
<th>Distance to Donor (mi)</th>
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<td></td>
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<td>17 ADULTS</td>
<td></td>
</tr>
</tbody>
</table>
7. Indicated evaluation most important to patient survival after listing.

For kidney transplant candidates, this measure has the largest impact on survival after listing. 1 year kidney survival includes only candidates who received a transplant.

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<td>104 Adults</td>
<td>17 Adults</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

View Summary Data
View Complete Report (PDF)
8. Changed default sort order to column most importance to patient survival after listing.

For kidney transplant candidates, this measure has the largest impact on survival after listing. 1 year kidney survival includes only candidates who received a transplant.

<table>
<thead>
<tr>
<th>Hospital A</th>
<th>Hospital B</th>
</tr>
</thead>
<tbody>
<tr>
<td>City, State</td>
<td>N/A</td>
</tr>
<tr>
<td>View Summary Data</td>
<td>View Summary Data</td>
</tr>
<tr>
<td>View Complete Report (PDF)</td>
<td>View Complete Report (PDF)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>DISTANCE</th>
<th>DECEASED DONOR TRANSPLANTS IN A YEAR</th>
<th>LIVING DONOR TRANSPLANTS IN A YEAR</th>
<th>SURVIVAL ON THE WAITLIST</th>
<th>GETTING A DECEASED DONOR TRANSPLANT FASTER</th>
<th>1-YEAR KIDNEY SURVIVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>N/A</td>
<td>144</td>
<td>11</td>
<td></td>
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<td>104</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Future outcomes may be different from past outcomes. Groups (numbers of bars) do not represent the outcome for each individual.
What we learned through focus groups and website trials
Dr. Israni and Schaffhausen’s AHRQ-Funded Work

Co-investigators:

- Cory Schaffhausen
- Jon Snyder
- Ajay Israni
- Arthur Matas
- Sauman Chu
- Jack Lack
- Marilyn Bruin
- Ray Kim
- Judith Hibbard
- Scott Biggins

**Qualitative**
- Patient Focus Groups
  - 23 focus groups
  - 127 patients

**Quantitative**
- Randomized Trial of Different Web Presentations
  - 975 participants
3 Main Themes From Qualitative Focus Groups

1) Outcome metrics have uncertainty relative to individual experiences.
2) Patients, in particular candidates, describe a focus on post-transplant outcomes.
3) Individual circumstances factor into decisions.

The impact statement graphical element resulted in a 50% higher probability of selecting Lake Hospital, depicted as the highest transplant rate, compared to Meadow Hospital, depicted as the highest 1 year organ survival (RR, $1.16 \leq 1.50 \leq 1.95$).

- 37% of Controls chose Lake
- 51% chose Lake with the Impact Statement
Testing Numeric vs. Tiered Transplant Rate

26% choose Lake with numerical rate vs. 45% with tiers (p < .001)


Controversy of Public Reporting
Low-rated US hospitals are deadlier due to mistakes, botched surgery, infections

Jayne O’Donnell • Updated 1:42 p.m. ET May 16, 2019
<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Address</th>
<th>Grade</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hennepin Healthcare</td>
<td>701 Park Avenue, Minneapolis, MN 55415-1829</td>
<td>D</td>
<td>SPRING 2019</td>
</tr>
<tr>
<td>Abbott Northwestern Hospital</td>
<td>800 E. 28th Street, Minneapolis, MN 55407-3799</td>
<td>C</td>
<td>SPRING 2019</td>
</tr>
<tr>
<td>University of Minnesota Medical Center, Fairview - West Bank Campus</td>
<td>2450 Riverside Avenue, Minneapolis, MN 55454-1400</td>
<td>C</td>
<td>SPRING 2019</td>
</tr>
</tbody>
</table>

www.hospitalsafetygrade.org
“Hospitals that scored poorly also have claimed that the rankings are skewed because they treat sicker patients, whereas higher-graded hospitals have a healthier, more affluent clientele and are therefore less likely to have complications.

But Leapfrog, which has been grading hospitals since 2012, counters that some of their measurements, such as hospital infections, are risk adjusted to reflect sickness levels of patients.”
Patients should have access to the most accurate and current data on hospital safety and quality when making important decisions on where they and their loved ones should receive care," says Peter Pronovost, M.D., Ph.D., senior vice president of quality and safety at Johns Hopkins Medicine.

https://www.hopkinsmedicine.org/news/media/releases/johns_hopkins_armstrong_institute_to_aid_the_leapfrog_group_in_grading_the_safety_and_quality_of_us_hospitals
4 Steps Necessary For Patients to Benefit

- Report cards must exist
- Patients must know about them and be able to access them
- Patients must be able to understand the quality rankings and believe them
- Patients must act upon the information

Adapted from Werner et al. The Unintended Consequences of Publicly Reporting Quality Information. JAMA. 2005;293:1239-1244
Almost 20,000 transplants have been performed so far this year.

Upcoming PSR/OSR Changes and Model Previews
Almost 20,000 transplants have been performed each year.

Upcoming PSR/OSR Changes and Model Previews

• 4,500 Users Per Week
• Top 5 pages
  • Liver waitlist calculator
  • Liver search
  • Kidney search
  • PSRs
  • OPTN/SRTR Annual Data Report
Some Patient Feedback...

“Just a word of thanks for compiling and presenting this data. My [son] recently had a successful kidney transplant at [program X]. We chose [Program X] over [Program Y] with confidence based on the data. And we know, definitively, that my son got a better outcome as a result.”
Some Patient Feedback...

“I just explored the Beta Site Changes and I had to write to say thank you and bravo. When I learned of my sister's need for a transplant, I wanted data about centers because I knew nothing. I spent a lot of time getting there. And when I did my confidence level increased significantly. At the same time I remember feeling guilty thinking about how many patients probably couldn't do the same. So thank you from a patient on behalf of other patients.”
Some Patient Feedback...

“Families are so thankful for the amazing reporting you provide.”
Pros and Cons of Public Reporting

**Pros**
- Transparency
- Informed Consumers
- Drives improvement
- Focuses Attention

**Cons**
- Unintended Consequences!
- Reduce patient access to care
- Potential for gaming
Goodhart’s Law

“Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes.”

“When a measure becomes a target, it ceases to be a good measure.”

The conundrum

“Luis Garicano at the London School of Economics calls it the Heisenberg Principle of incentive design, after the defining uncertainty of quantum physics:

*A performance metric is only useful as a performance metric as long as it isn’t used as a performance metric.*”

Quotes from our field?

Better-ranked [programs] got better [patients].

Other studies found [programs’] scores jump around a lot from year to year, putting their value into question.

[Programs] argue there is no way they could isolate the impact of [the program] itself from other factors affecting [outcomes], particularly such things as the family background of the [patients], the impact of poverty, [race], even [local healthcare systems].
Not from our field... Quotes are from a debate about performance metrics for teachers.

“Better-ranked teachers got better students.”

“Other studies found teachers’ scores jump around a lot from year to year, putting their value into question.”

“Teachers argue there is no way they could isolate the impact of teaching itself from other factors affecting children’s learning, particularly such things as the family background of the students, the impact of poverty, racial segregation, even class size.”

The conundrum continued...

“Anytime you perform an evaluation you must worry about unintended side effects,” said Joel Klein, former chancellor of New York City schools, who famously battled the teachers’ union. “But the absence of evaluation is totally unacceptable.”

Unintended Consequences Raised

1. Too many centers identified as underperforming
2. Not a clinically meaningful difference in outcomes vs. expected.
3. Adverse effects on growth and innovation
4. Unadjusted confounding
5. Data are often above the health literacy / numeracy level of most patients
6. Tiers are not associated with prospective candidate survival
7. Pretransplant metrics are also subject to unintended consequences of not wanting to list patients
8. Discards have increased and flagged centers have higher turndown rates

## Tiers Predict Risk of Death after Listing

<table>
<thead>
<tr>
<th></th>
<th>% Reduction in Prospective Risk of Death Following Listing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-Tier Difference</td>
</tr>
<tr>
<td>Kidney (Tx Rate Tier)</td>
<td>5%</td>
</tr>
<tr>
<td>Liver (Tx Rate Tier)</td>
<td>10%</td>
</tr>
<tr>
<td>Lung (Post-Tx Graft Survival Tier)</td>
<td>5%</td>
</tr>
<tr>
<td>Heart (Tx Rate Tier)</td>
<td>4%</td>
</tr>
</tbody>
</table>
Mitigating Unintended Consequences

“With outcomes-based report cards, the incentive to avoid patients at high risk for adverse outcomes is best addressed through detailed and credible risk adjustment.”

“However, detailed risk adjustment does little to mitigate physicians’ incentive to migrate toward healthy patients for whom treatment may provide fewer benefits. One way to decrease this unintended consequence of public reporting is to include measures of the appropriateness of care.”

Measured Donor Risk is Not Associated with Worse Kidney Program Evaluations

Survival From Listing Metric

What is the overall survival experience of patients at program X from the time of listing?

Listing Date

Transplanted

Not Transplanted
Why survival from listing?

Most similar to an intent-to-treat analysis for the candidate experience after listing

Integrates the pretransplant and posttransplant patient experience

SRTR contract and the OPTN Final Rule state that the PSRs shall include survival from listing
To make public reporting work

Measures must be promoted widely, understandably, and credibly.

Should decrease incentives for providers to select patients to improve rankings.

Participation must be mandatory and quality measurement and reporting must be universally adopted.

The Bottom Line...

“Keeping quality information private may appear conspiratorial, reduce patient trust, damage the profession's credibility, and hinder future efforts at quality improvement. The Institute of Medicine has suggested that what is really needed to improve quality is a culture that encourages sharing rather than hiding errors.”

Transplantation

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