A simple tool to predict liver transplant waitlist outcomes

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Presented May 4, 2015 at the American Transplant Congress conference held in Philadelphia, Pennsylvania.

SRTR
SCIENTIFIC REGISTRY OF TRANSPLANT RECIPIENTS

Disclosures

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This work was supported wholly or in part by HRSA contract 250201000018C. The content is the responsibility of the authors alone and does not necessarily reflect the views or policies of the Department of HHS, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

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Acknowledgements

- Jon Snyder, PhD
- David Schladt, MS
- Jessica Zeglin, MPH
- Nicholas Salkowski, PhD
- Susan Leppke, MPH
- Jack Lake, MD
- W. Ray Kim, MD
- Bertram L. Kasiske, MD
- Ajay K. Israni, MD, MS

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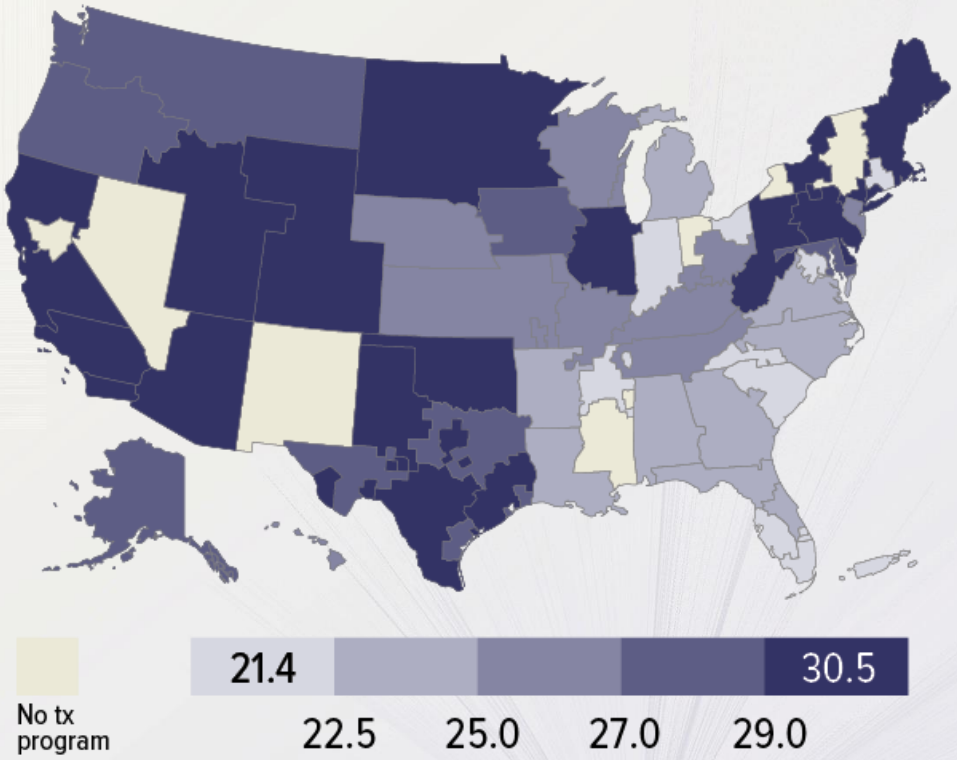
Outcomes on the liver transplant waiting list

- Mortality strongly correlated with disease severity, calculated by the MELD score.
- Since 2002, candidates on the liver transplant waiting list are prioritized by MELD score
- Livers offered to sickest local candidates first
- Probability of outcomes on the list varies by region

Counseling liver transplant candidates

- Currently no tools estimate a candidate's likely outcome on the list
- Regional differences in outcomes



SRTR Annual Data Report, 2012

Objective

- To create an online calculator to help liver transplant candidates and their providers estimate outcomes at different time points in the coming year

Calculator development

- Uses actual patient data from 2012 – 2014
- Includes adults age ≥ 18 years, excludes status 1A
- 8 snapshots of the list every 90 days:
  - September 26, 2012
  - December 30, 2013
  - March 29, 2013
  - June 29, 2013
  - September 29, 2013
  - December 30, 2013
  - April 1, 2014
  - July 2, 2014
- Candidates followed for 30, 60, 90, 180, or 365 days

Mutually exclusive outcomes on the liver transplant waiting list

- Deceased donor transplant
- Living donor transplant
- Death or removal from the list due to deteriorating medical condition
- Removal from the list due to other reasons
- Remaining on the list

Predictors of waiting list outcomes

- Allocation MELD score in 4 categories:
  - 6-14, 15-24, 25-29, 35-40
- Age
- Blood type
- Geographic location

Outcomes estimated in progressively larger geographic areas

- Geographic Area:
  - Transplant program
  - Donor service area (58 total)
  - OPTN Region (11 total)
  - National

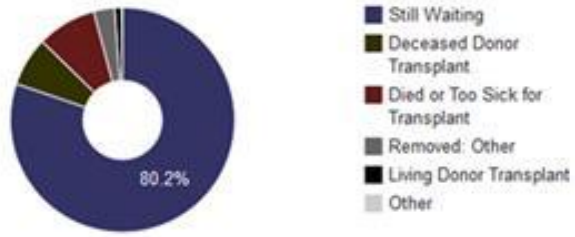
- Data suppressed if fewer than 5 candidates in any geographic area

Liver transplant calculator

Comparing outcomes for a candidate with allocation MELD 15-24, any age or blood type, at 180 days, in 2 DSAs

A. 180-Day Outcomes in the San Francisco, California Area

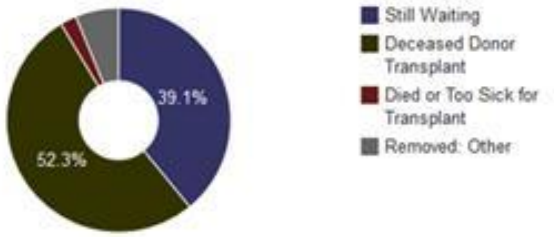
Outcomes within the program's local donation service area (889 listings):



Status	Listings	Percent
Deceased Donor Transplant	63	7%
Died or Too Sick for Transplant	76	9%
Living Donor Transplant	9	1%
Removed: Condition Improved	1	0%
Removed: Other	27	3%
Still Waiting	713	80%

B. 180-Day Outcomes in the Memphis, Tennessee Area

Outcomes within the program's local donation service area (128 listings):



Status	Listings	Percent
Deceased Donor Transplant	67	52%
Died or Too Sick for Transplant	3	2%
Living Donor Transplant	0	0%
Removed: Condition Improved	0	0%
Removed: Other	8	6%
Still Waiting	50	39%

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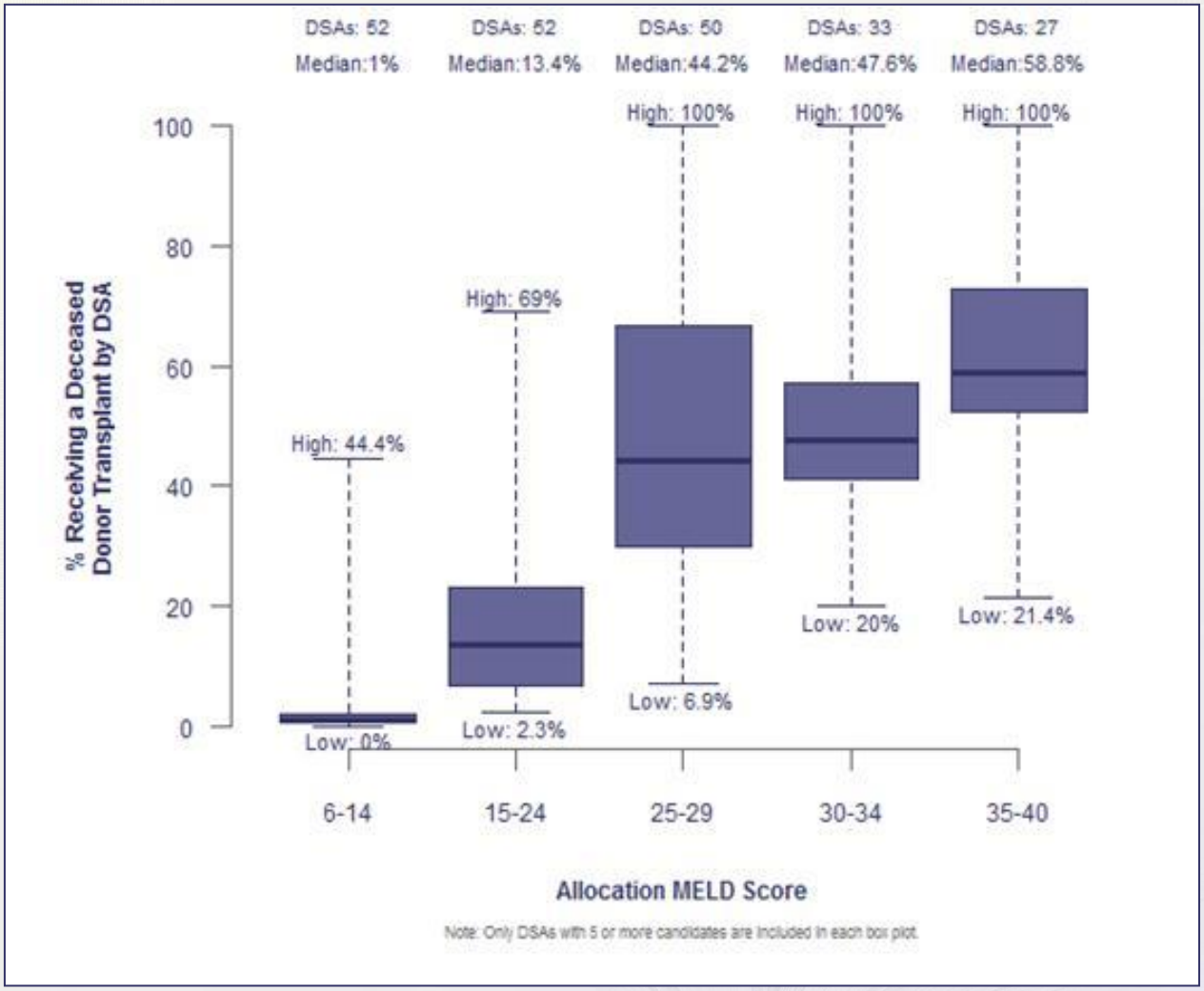
Variation in 90-day probability of receiving a deceased donor transplant



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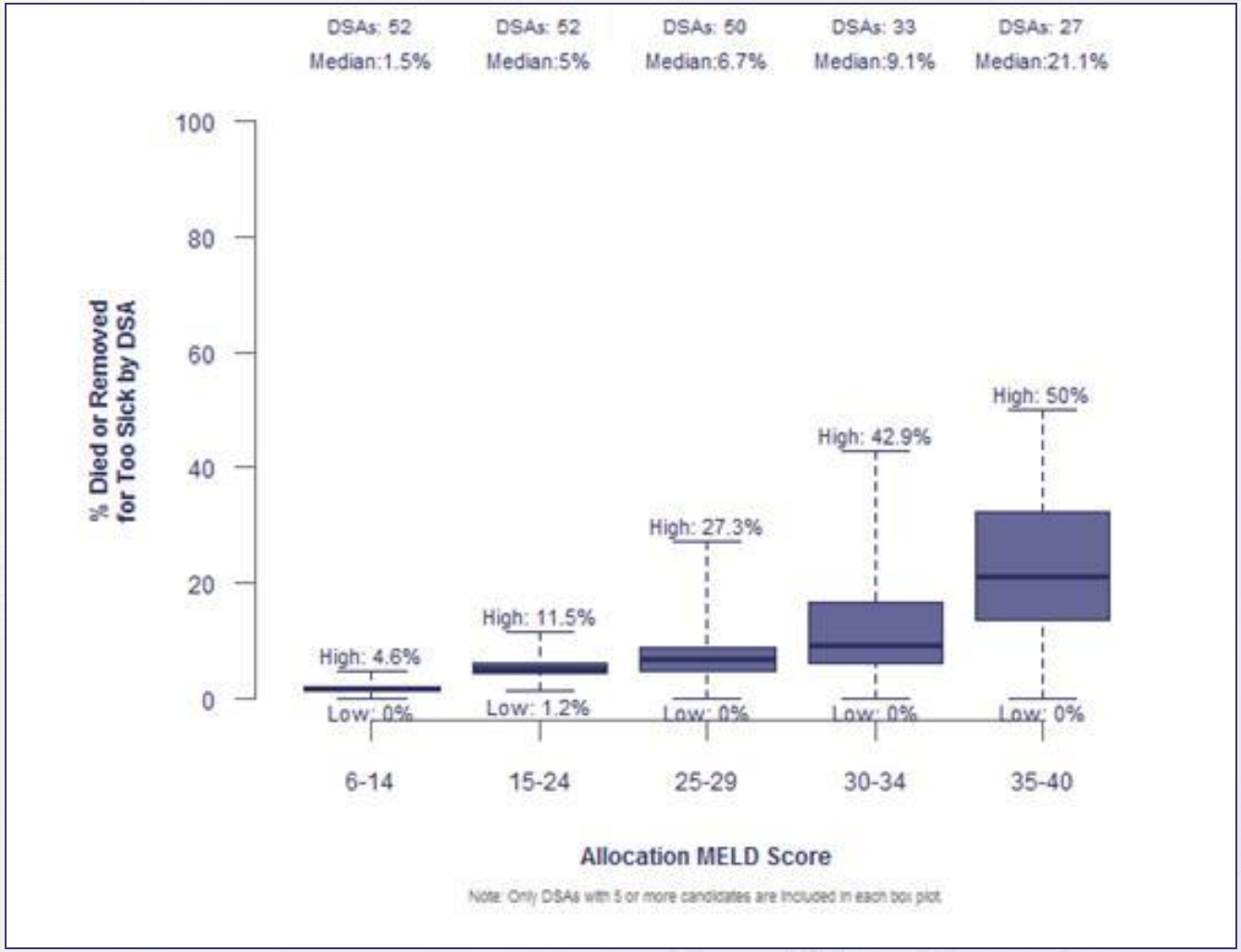
Variation in 90-day probability of dying or being removed for deteriorating medical condition



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Calculator benefits

- Relevant to candidates across the US
- Publicly available
- Can be frequently updated

Limitations

- Parsimonious tool with fewer variables decreases likelihood that data will be applicable to an individual
- Output from regions with too little data suppressed
- Actual patient data, not modeling
- How best to communicate probabilities and risk to patients unknown

Conclusions

- Liver transplant candidate waiting list outcomes vary substantially by geographic area
- A liver transplant waiting list outcome calculator provides information that may be valuable in assisting candidates and their providers in making informed decisions.

Thank you