Delayed HCC MELD Exception Score Improves Disparity in Access to Liver Transplant

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SRTR
SCIENTIFIC REGISTRY OF TRANSPLANT RECIPIENTS

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Speaker Disclosure

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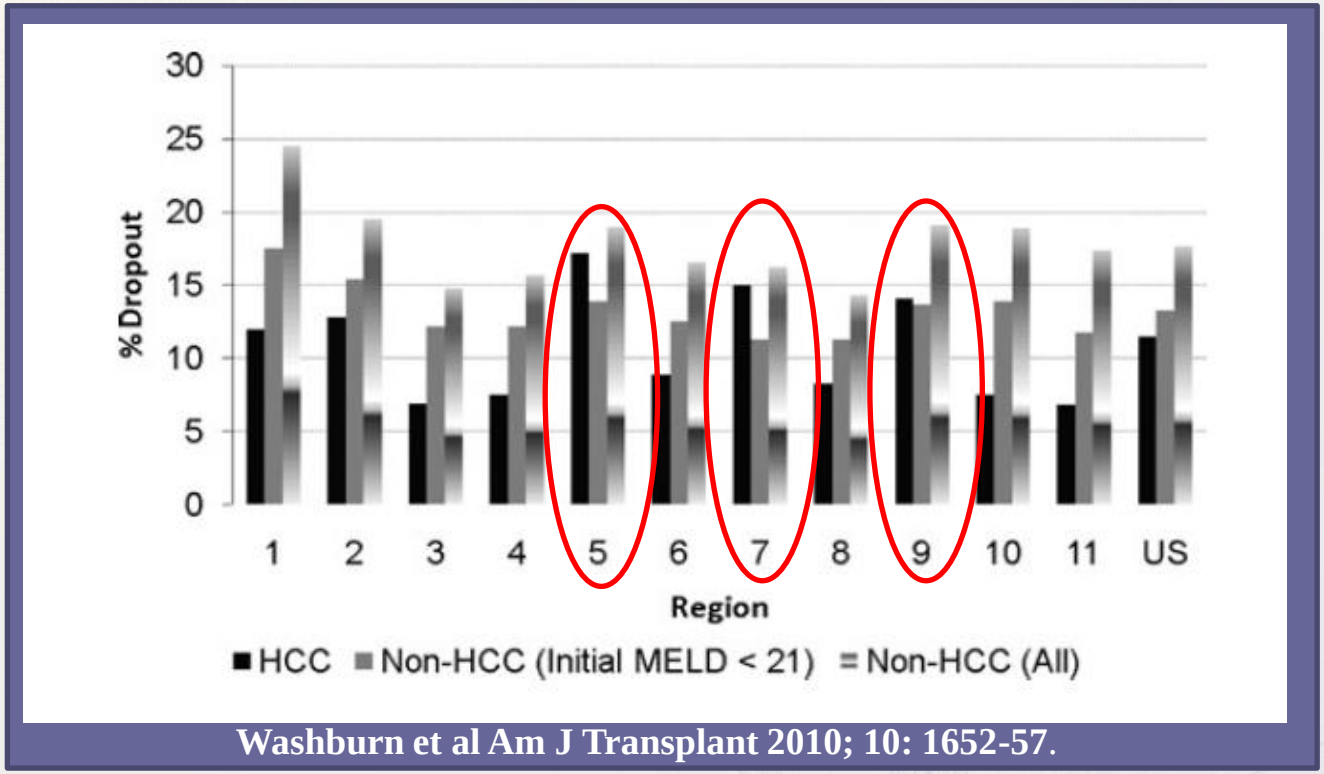
- I have no financial relationships to disclose within the past 12 months relevant to my presentation.
- My presentation does not include discussion of off-label or investigational use.
- I do not intend to reference unlabeled/unapproved uses of drugs or products in my presentation.

Background

In the US, LT candidates with HCC MELD exception scores are more likely to be transplanted and less likely to experience wait-list dropout compared to non-HCC candidates.



Washburn et al Am J Transplant 2010; 10: 1652-57.

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Background

1-Year outcome	Odds ratio (exception MELD/calculated MELD) Removal or death	Transplantation
HCC exception, 22 ≤ UNOS score ≤ 25	$_{0.62}0.71_{0.82}$	$_{2.14}2.38_{2.65}$
Non-HCC exception, 15 ≤ UNOS score ≤ 25	$_{0.53}0.64_{0.77}$	$_{1.68}1.91_{2.19}$

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3-year outcome	Odds ratio (exception MELD/calculated MELD) Removal from waiting list	Transplantation
HCC exception, 22 ≤ UNOS score ≤ 25	$_{0.55}0.63_{0.73}$	$_{1.90}2.13_{2.39}$
Non-HCC exception, 15 ≤ UNOS score ≤ 25	$_{0.47}0.58_{0.71}$	$_{1.61}1.88_{2.19}$

Massie et al, Am J Transplant 2011; 11: 2362-2371

Background

In 2012, 28.9% LT recipients had an HCC MELD exception, therefore the impact on access to transplant for all candidates is significant.

Year of transplant	Calculated MELD	HCC exception
2010	62.7% (3457)	25.2% (1390)
2011	61.4% (3452)	27.4% (1559)
2012	59.9% (1654)	28.9% (307)

Background

- A survey of US transplant centers was performed by OPTN/UNOS Liver Committee in 2012 to determine opinions regarding HCC allocation policy (n=115):
  - Priority for HCC patients is: too high=53%, appropriate 44%, too low 2.6%
  - Initial scores should be lowered: yes=42%, no=57%
  - Scores should be capped: yes=41%, no=58%
  - Tumor progression should be demonstrated: yes=42%. no=55%
  - Waiting following listing before eligible for HCC MELD exception: yes=27%, no=71%

Aim

- Model the impact of changes to HCC MELD exception to determine impact on waitlist dropout and transplant rates for HCC versus non-HCC patients.

Methods

- Based on observation that in regions with **prolonged waiting times**, wait list dropout rates for HCC and non-HCC patients were similar, LSAM was used to predict impact of a mandatory waiting time before being eligible for offers.

- This proposal would be expected to impact only regions with relatively short wait times.

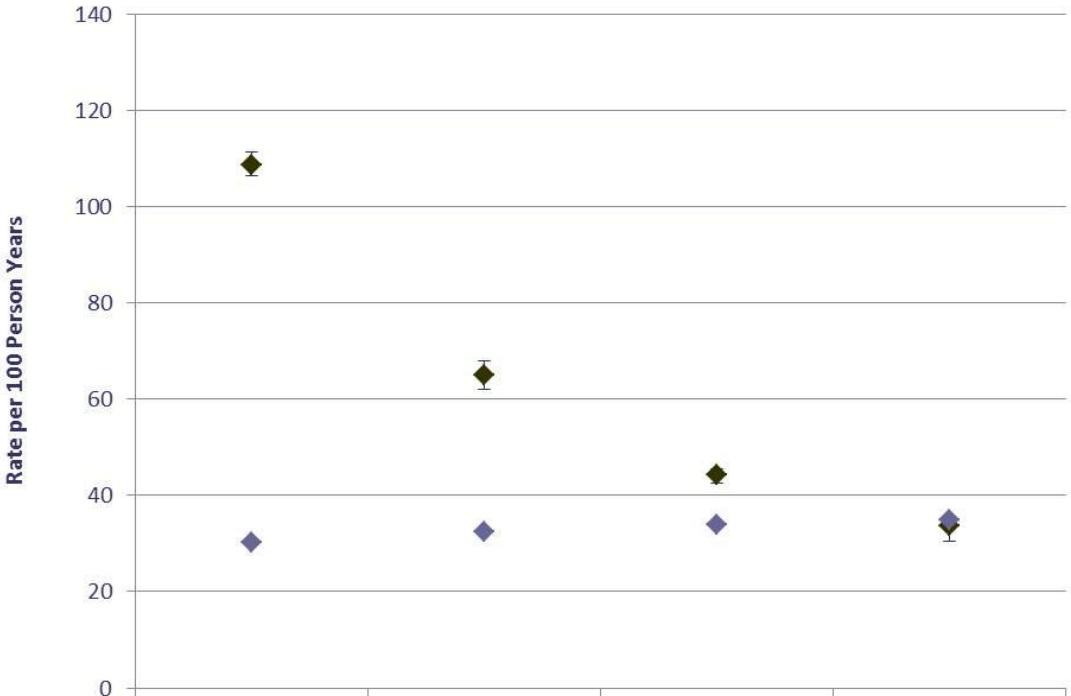
- Current policy: at time of exception MELD=22
- Option 1: after 3 months with approved exception, MELD=25
- Option 2: after 6 months with approved exception, MELD =28
- Option 3: after 9 months with approved exception, MELD=29

Methods

- LSAM for all candidates January 1, 2010 to December 31, 2010.
- N=28,053 candidates, of which 2773 (9.9%) had a MELD exception score before or during 2010.
- 40 iterations of LSAM were performed, 10 for each run.

Results

Transplant Rates by HCC Status



	Current Policy	3 Month Delay	6 Month Delay	9 Month Delay
HCC	108.7	64.99	44.22	33.6
Non-HCC	30.11	32.5	33.91	34.81

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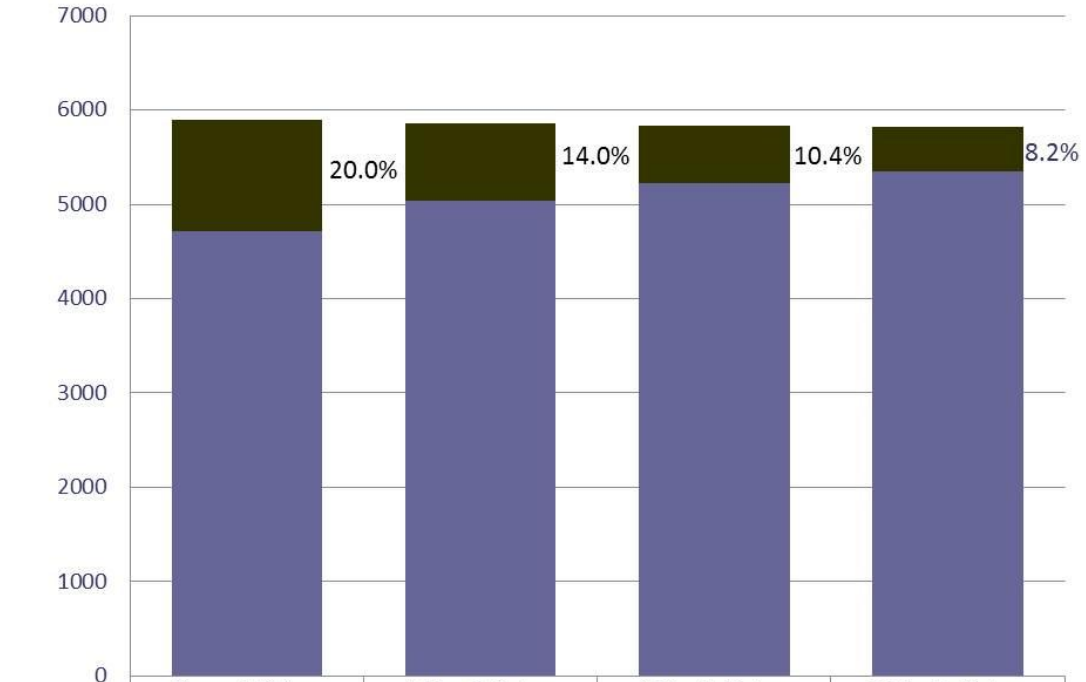
Results

Average Number of Transplants by HCC Status



	Current Policy	3 Month Delay	6 Month Delay	9 Month Delay
HCC	1178.7	820.2	603.4	478.6
Non-HCC	4712.3	5034.7	5226.2	5344.6

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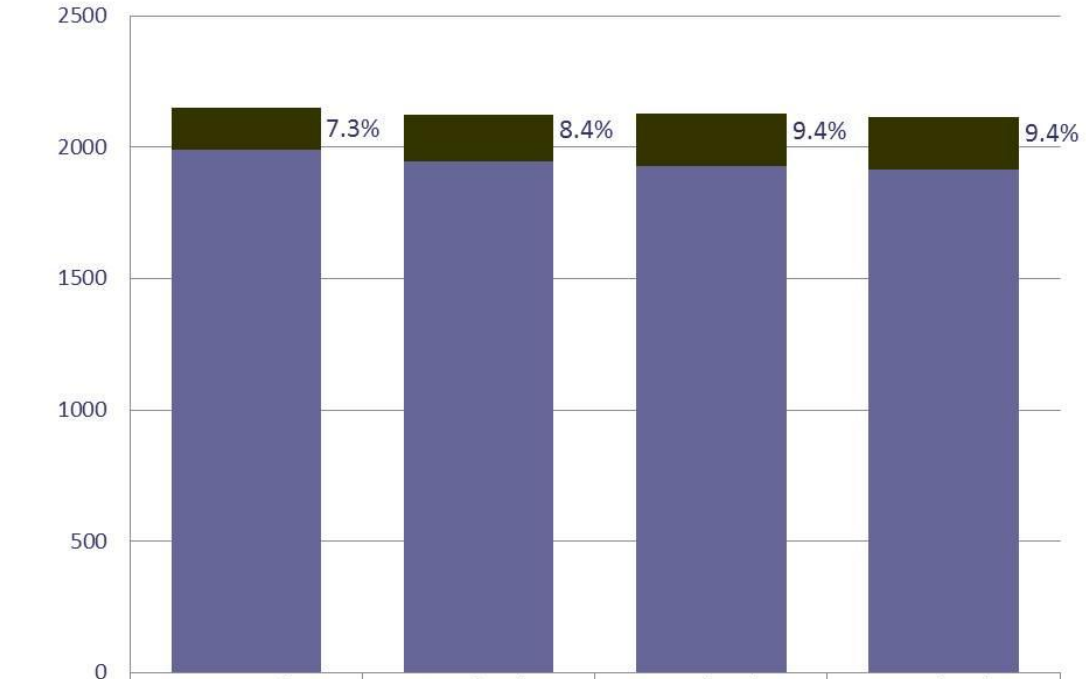
Results

Average Number of Waitlist and 90-Day Post Removal Deaths by HCC Status



	Current Policy	3 Month Delay	6 Month Delay	9 Month Delay
HCC	157.5	177.9	201	198.3
Non-HCC	1990.6	1947.4	1926.6	1915.1

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Limitations

- LSAM uses actual patient histories to create the models. Many patients with HCC undergo transplant quickly after receiving exception, which limits the ability of LSAM to accurately predict what may happen to HCC candidates who would wait longer to receive transplant.

- The current LSAM modeling is for 1 year. Outcomes for patients waiting >1 year cannot be accurately predicted.

Summary

- Under current policy:
  - Transplant rates are much higher for HCC
- With delay of HCC MELD exception:
  - Transplant rates decrease for HCC and increase for non-HCC so that they become more similar (6-9 months)
  - Death rates do not increase (abstract 51)
  - Overall number of transplants do not change (policy proposal does not improve organ shortage)

Conclusion

- A delayed HCC score exception may allow for more equal access to liver transplantation for patients with and without HCC MELD exception.