THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

The Impact of Proposed Changes in Liver Allocation Policy on Cold Ischemia Times and Organ Transportation Costs

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Brief Communication

The Impact of Proposed Changes in Liver Allocation Policy on Cold Ischemia Times and Organ Transportation Costs

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- Retrospective Review (2008-2012, n=481 donors/ recipients)
- 4 groups: local-drive, local-flight, regional <3hr, regional >3hr
- Outcomes: Distance traveled, CIT, transportation costs

CIT and Organ Transportation Costs

Table 1: Adult liver transplant recipients from 2008 to 2012 baseline characteristics

	Local-drive	Local-flight	Regional <3 h	Regional >3 h	Significance (p-value)
Population	262 (54%)	105 (22%)	61 (13%)	53 (11%)	na
Age[1]	57 (51–61)	57 (51–62)	58 (50–63)	56 (49–60)	0.67
Male	172 (66%)	66 (63%)	35 (57%)	29 (55%)	0.37
Race					0.64
White	219 (84%)	89 (85%)	53 (87%)	43 (81%)	
Black	32 (12%)	12 (11%)	8 (13%)	9(17%)	
HCC	79 (30%)	23 (22%)	12 (20%)	11 (21%)	0.15
BMI[1]	28 (25–33)	28 (25–32)	31 (26–36)	29 (25–34)	0.01
MELD[1]	22 (22–25)	22 (21–24)	26 (22–32)	24 (22–30)	0.0001
DRI[1]	1.5 (1.5–1.7)	1.4 (1.2–1.7)	1.6 (1.4–2.0)	2.2 (1.7–2.5)	<0.0001
Modified DRI[1,2]	1.4 (1.2–1.6)	1.3 (1.2–1.6)	1.4 (1.2–1.7)	1.8 (1.4–2.0)	<0.0001
Cost ($)[1]	101 (101–548)	1993 (1400–2738)	8324 (4689–10913)	27810 (26653–27943)	<0.0001
Distance (miles)[1]	0 (0–58)	196 (102–257)	384 (237–637)	1647 (1647–1647)	<0.0001
CIT (hours)[1]	5.0 (3.5–7.0)	5.5 (4.0–7.4)	6.0 (3.5–8.1)	10.0 (8.8–10.4)	<0.0001

BMI, body mass index; CIT, cold ischemia time; DRI, donor risk index; HCC, hepatocellular carcinoma; MELD, model for end-stage liver disease.

[1]Data presented as median (interquartile range).

[2]Modified DRI excludes the contributions of cold ischemia time and donor location (local/regional/national).

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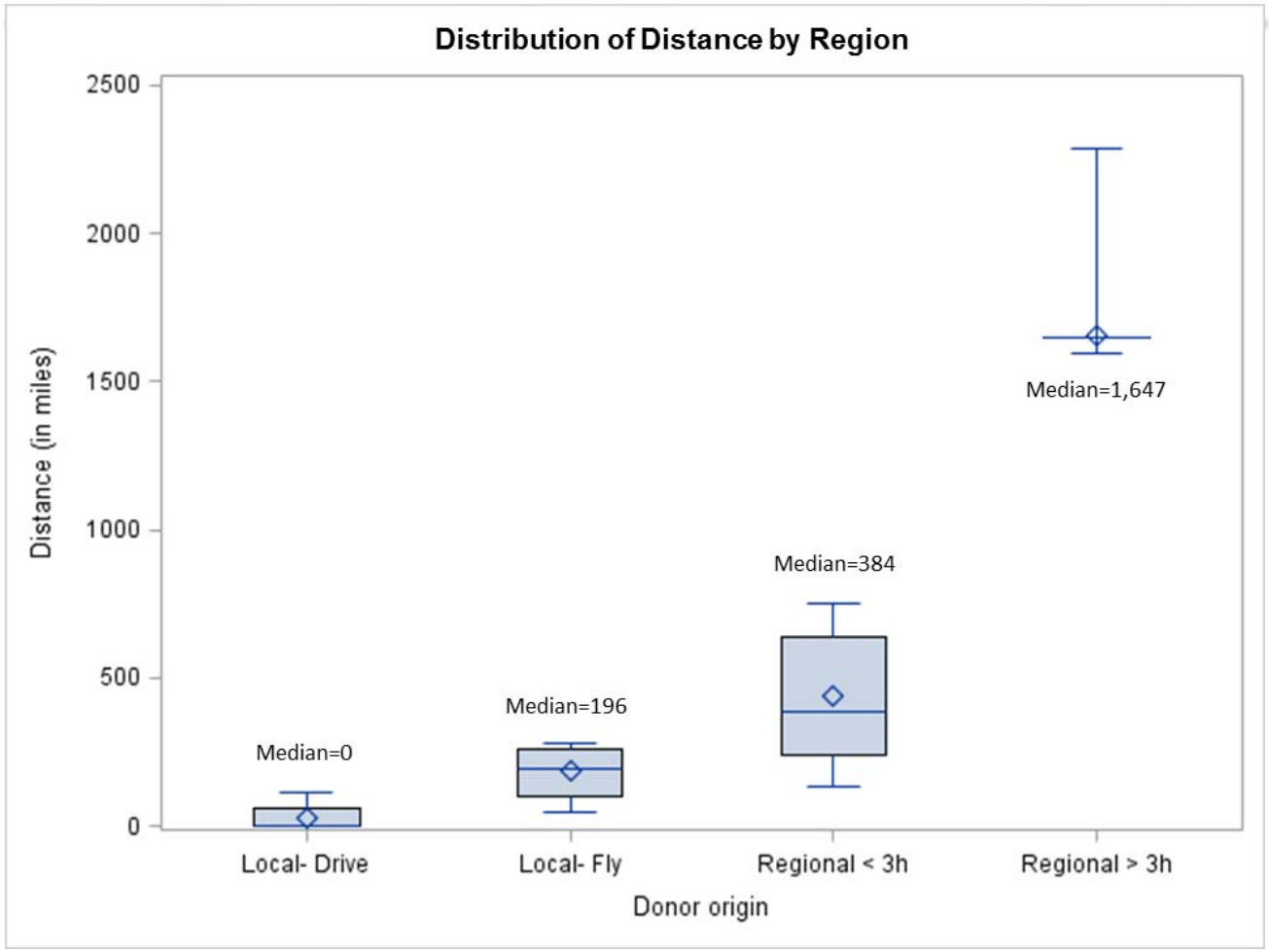
Distance Traveled by Donor Group



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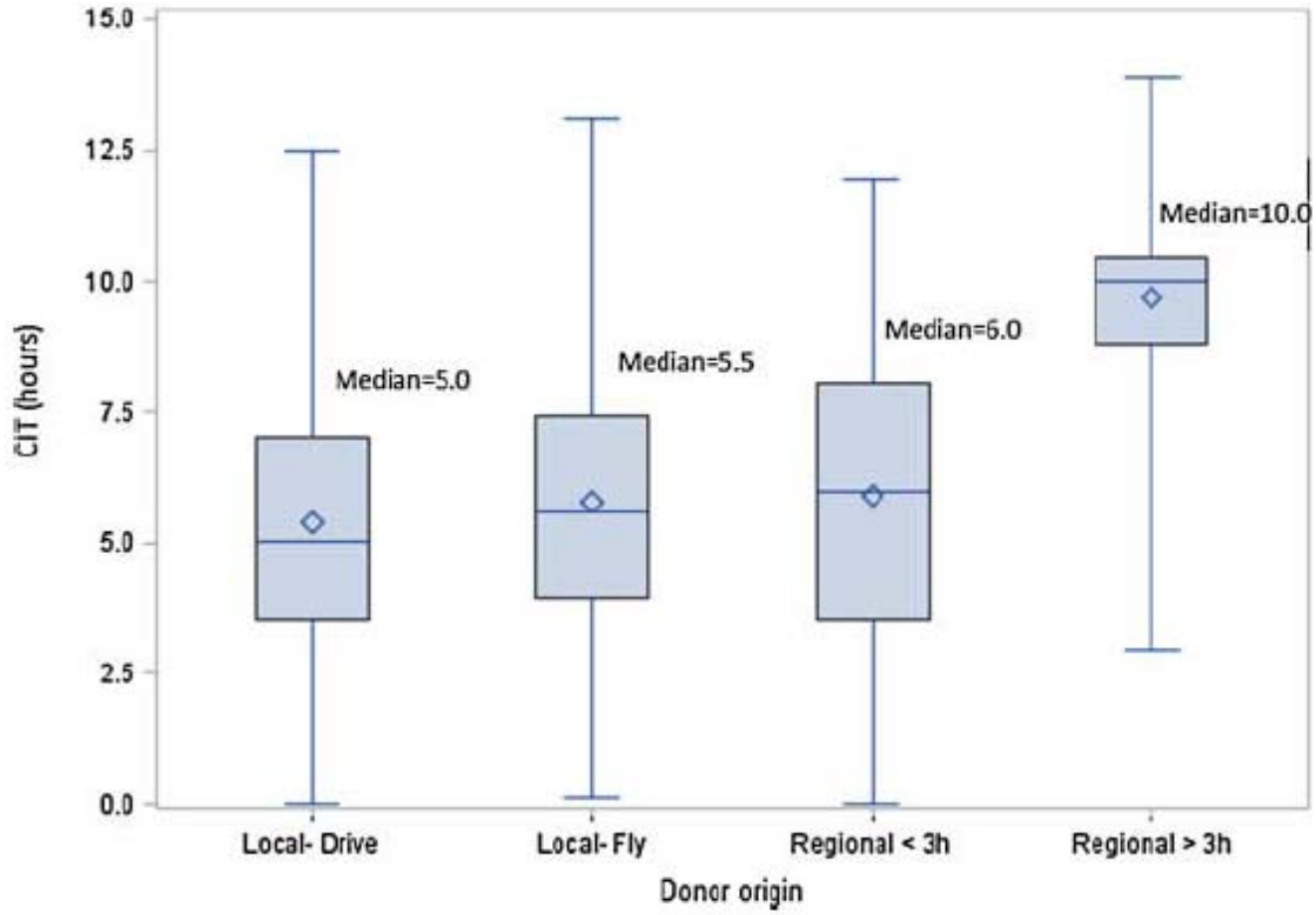
Cold Ischemia Time by Donor Group



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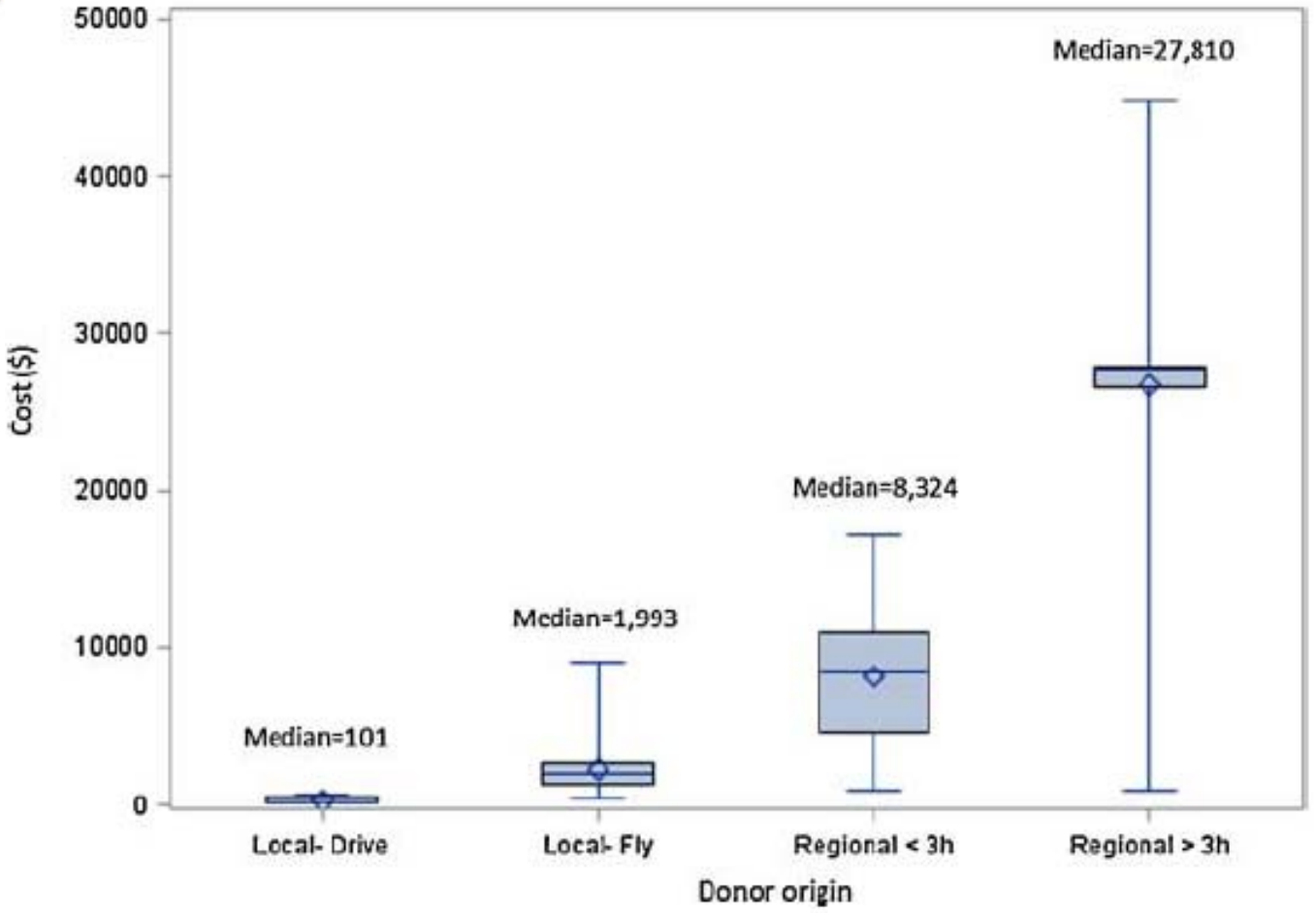
Transportation Cost by Donor Group



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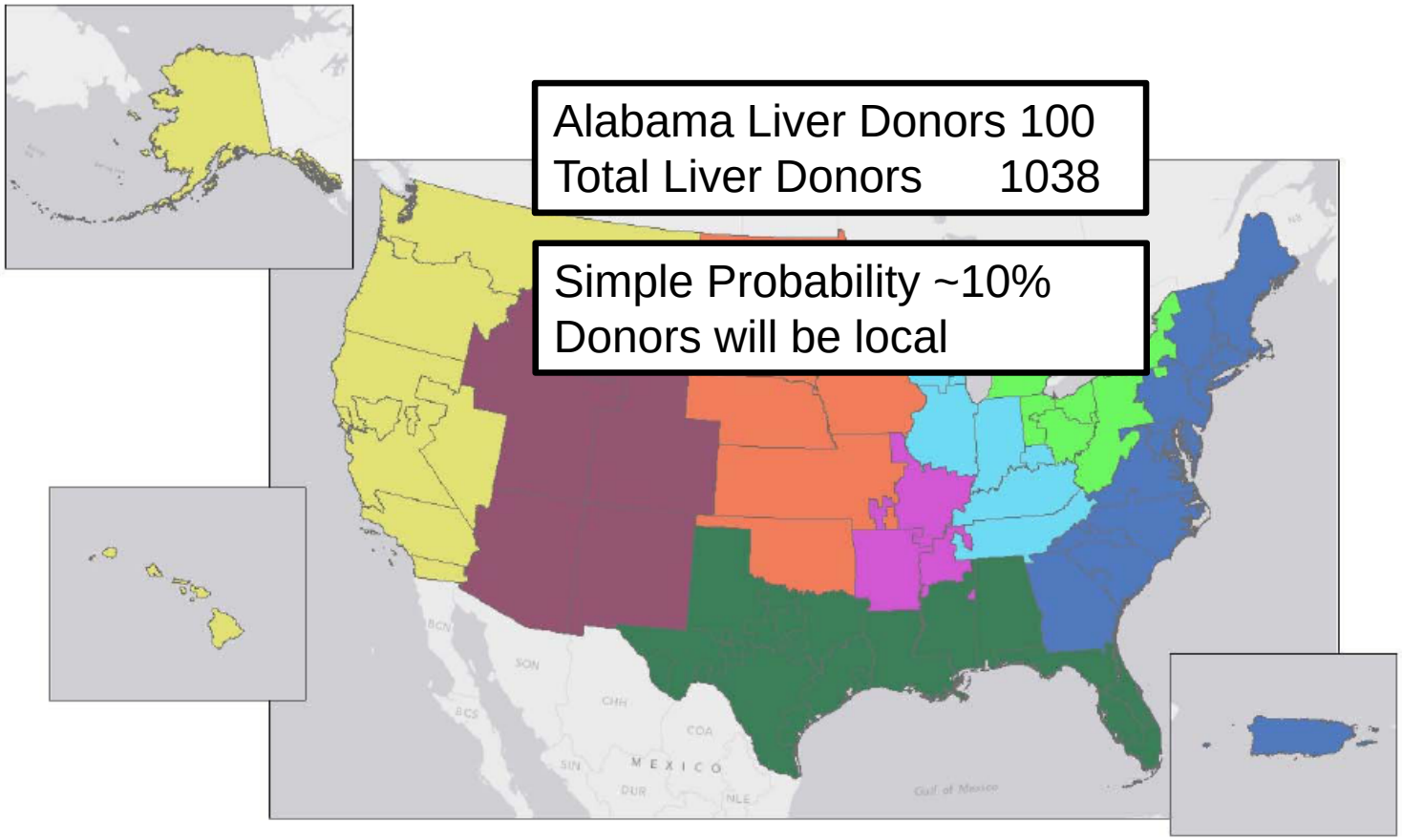

OPTN/ UNOS Concept Paper, 2014

Transportation Cost

Table 2: Distance and cost estimates based upon local and district distribution of liver donors

Distribution		Estimates	
Local (%)	District (%)	Mean distance per donor (miles)	Mean cost per donor ($)
76	24	136	2415
10	90	351	7547
20	80	319	6769
30	70	286	5991
40	60	254	5213
50	50	221	4436
60	40	188	3659
70	30	156	2881

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Practical Estimates

	Present	Predicted	% Change
Distance	136 Miles	351 Miles	258%
Cost	$2415	$7547	313%

- Liver procurement costs for UAB would increase$513,000/ yr
- Transportation costs increase from 8% to 24% of the organ acquisition fees for Alabama Organ Center.
- Assuming 62 lives saved per year (out of ~6500 liver transplants), increased transportation costs/ per live saved is $538,000.

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