

Supplementary 1 Characteristics of patients with delayed referral

	Not dead	Dead	p	No TXP	TXP	P value
Age	57 (10)	61 (9)	0.037	60 (9)	56 (12)	0.185
MELD score	27 (7)	28 (8)	0.386	27 (8)	29 (6)	0.258
Male	57.8%	63.6%	0.061	67.9%	40.9%	0.029
White	75.6%	84.8%	0.315	82.1%	72.7%	0.354
Non Hispanic	75.6%	87.9%	0.172	87.5%	63.6%	0.016
Referral to eval (days)	16 (27)	9 (14)	0.167	14 (12)	19 (18)	0.310
Transferred from OSH	40.0%	60.6%	0.072	50.0%	45.5%	0.718
Outside GI doc	91.1%	72.7%	0.031	78.6%	95.5%	0.072
Depression	40.0%	39.4%	0.957	35.7%	50.0%	0.245
Trauma	15.6%	0.0%	0.018	3.6%	22.7%	0.008
Work within 1 month	6.7%	9.1%	0.691	10.7%	0.0%	0.110
Work 1 year	28.9%	18.2%	0.276	23.2%	27.3%	0.707
ESL	26.7%	12.1%	0.116	14.3%	36.4%	0.030
Partner	62.2%	75.0%	0.238	67.3%	68.2%	0.939
Etiology			0.345			0.638
Alcohol	48.9%	36.4%		46.4%	36.4%	
NASH	22.2%	33.3%		28.6%	22.7%	
HCV	8.9%	15.2%		10.7%	13.6%	
Other	20.0%	15.1%		14.3%	27.3%	
Proximity			0.834			0.761
<50 m	64.4%	60.6%		62.5%	63.6%	
50 - 100m	24.4%	30.3%		28.6%	22.7%	
> 100m	11.1%	9.1%		8.9%	13.6%	
Blood Type			0.522			0.642
A	37.8%	36.4%		35.7%	40.9%	
B	20.0%	12.1%		14.3%	22.7%	

O	42.2%	48.5%		48.2%	36.4%	
AB	0.0%	3.0%		1.8%	0.0%	
Education			0.098			0.613
HS or Less	69.8%	53.2%		62.9%	61.9 %	
Some college	11.6%	37.5%		25.9%	14.3%	
College +	18.6%	9.4%		11.2%	23.8%	
LTE Data						
ICU stay	35.6%	72.7%	0.001	57.1%	36.4%	0.098
TIPS	15.6%	15.2%	0.975	17.9%	9.1%	0.515
HE	62.2%	81.8%	0.061	73.2%	63.6%	0.404
UGIB	15.6%	30.3%	0.119	21.4%	22.7%	0.901
Pressors	15.6%	60.6%	<0.001	39.3%	22.7%	0.167
			1			
SBP	13.3%	33.3%	0.035	23.2%	18.2%	0.628
HRS	55.6%	72.7%	0.121	62.5%	63.6%	0.926
Malnutrition	26.7%	18.2%	0.380	19.6%	31.8%	0.251

Characteristics of patients with Delayed Referral. Left hand side compared delayed referral patients who did not expire with delayed referral patients who expired. Right hand side compares delayed LTE patients who were not transplanted with delayed LTE patients who were transplanted.

Supplementary material 2 Transplant evaluation laboratory data

	Delayed=1	N	Mean	Std. Deviation	Std. Error
WBC	1.00	78	8.9438	4.90464	.55534
	.00	82	9.2817	5.61955	.62057
HCT	1.00	78	27.168	5.4564	.6178
	.00	82	27.011	6.5874	.7275
PLC	1.00	78	104.240	69.2951	7.8461
	.00	82	113.462	62.9731	6.9542
PMN	1.00	63	6.6292	4.21889	.53153
	.00	64	6.7280	5.55418	.69427
Lymph	1.00	62	.9242	.52750	.06699
	.00	64	1.0881	.61626	.07703
NLR	1.00	62	9.24	7.39	.94
	.00	64	7.35	5.41	8.67
Albumin	1.00	78	3.124	.7534	.0853
	.00	82	3.084	.6050	.0668
CEA	1.00	73	6.786	4.4594	.5219
	.00	79	7.216	7.3913	.8316
Ferritin	1.00	54	573.7	1107.1	150.7
	.00	56	694.5	1737.4	232.2
Iron	1.00	76	83.32	57.278	6.570
	.00	79	80.85	46.004	5.176
Vitamin	1.00	74	15.30	8.719	1.014
D	.00	78	17.56	10.779	1.221
BUN	1.00	78	40.87	28.437	3.220
	.00	82	39.96	24.453	2.700
ALT	1.00	78	38.01	37.791	4.279
	.00	82	37.21	48.920	5.402

AST	1.00	78	66.14	60.157	6.811
	.00	82	70.39	100.116	11.056
TSH	1.00	76	1.91558	2.999062	.344016
	.00	77	2.25952	2.055288	.234222
T4	1.00	18	1.06500	.566364	.133493
	.00	26	1.04835	.426528	.083649
Cr	1.00	78	1.9577	1.23442	.13977
	.00	82	2.0900	1.29816	.14336
Na	1.00	78	131.17	7.873	.891
	.00	82	132.85	8.334	.920
Bili	1.00	78	8.764	10.4351	1.1815
	.00	82	9.872	9.9034	1.0937
INR	1.00	78	1.842	.9949	.1126
	.00	82	1.815	.7094	.0783

LTE laboratory data obtained as a part of LTE in Delayed (1.00) and Early Cohorts (0.00). Column N denotes the number of patients with the available laboratory data from the day 1 of LTE.

Supplemental Table 3 Risk factors for delayed referrals

		B	Wald	df	Sig.	Exp(B)	95%CI	
Step	Depression	1.043	2.580	1	.108	2.839	.795	10.142
1	Trauma history	2.258	3.435	1	.064	9.563	.878	104.132
	Biologic Sex	2.083	8.330	1	.004	8.032	1.951	33.060
	Time since dx	.003	.403	1	.526	1.003	.995	1.011
	Prior hospitalizations	-.015	.014	1	.906	.985	.774	1.255
	Last drink	-.079	.555	1	.456	.924	.750	1.138
	Lives with family	.598	.659	1	.417	1.819	.429	7.709
	Married/stable partner	-.465	.536	1	.464	.628	.181	2.183
	Stable housing	1.055	1.031	1	.310	2.873	.375	22.030
	Worked within 1 year	-1.263	3.796	1	.051	.283	.079	1.008
	English as 2 nd language	-.388	.170	1	.680	.679	.108	4.276
	Education	-.327	1.584	1	.208	.721	.433	1.200
	Age	.022	.464	1	.496	1.022	.960	1.088
	Proximity to center	.148	.146	1	.703	1.159	.543	2.476
	Smoking history	-.936	5.991	1	.014	.392	.185	.830
	Outpatient GI doc	.890	2.006	1	.157	2.435	.711	8.340
	Military history	.643	.358	1	.550	1.903	.231	15.662
	Regular labs	.033	.006	1	.940	1.034	.438	2.442
	Race	-.275	.561	1	.454	.759	.369	1.561
	Malnutrition	-1.249	4.715	1	.030	.287	.093	.885
	Constant	-1.587	.198	1	.656	.204		
	Trauma history	2.015	4.137	1	.042	7.504	1.076	52.329

Step	Biologic Sex		1.393	7.216	1	.007	4.027	1.457	11.128
16	Worked within	1	-1.307	7.295	1	.007	.271	.105	.699
	year								
	Smoking history		-.628	3.893	1	.048	.534	.286	.996
	Malnutrition		-1.150	5.564	1	.018	.317	.122	.823
	Constant		.870	1.146	1	.284	2.388		

Reference value is delayed referral. Positive B values are associated with increased risk of delayed referral. Negative B values are associated with decreased risk of delayed referral.

Supplemental Table 4 Effect of early referral on transplant odds

	B	Wald	df	Sig.	Exp(B)	95%CI for EXP(B)	
						Lower	Upper
Early referral	.768	4.030	1	.045	2.156	1.018	4.564
Age	-.037	3.267	1	.071	.964	.927	1.003
Sex	.325	.396	1	.529	1.384	.503	3.807
Race	-.508	1.098	1	.295	.602	.233	1.555
MELD	.031	1.363	1	.243	1.032	.979	1.087
Albumin	.540	3.855	1	.050	1.717	1.001	2.945
Malnutrition	.101	.065	1	.799	1.106	.509	2.405
Cardiac Dx	-1.006	3.549	1	.060	.366	.128	1.042
Height	-.036	2.122	1	.145	.964	.918	1.013
Refer to eval (d)	-.006	.451	1	.502	.994	.978	1.011
Decompensation#	-.084	.568	1	.451	.919	.738	1.145
Etiology	.004	.001	1	.971	1.004	.817	1.234
Blood type	-.159	.657	1	.418	.853	.581	1.253
TIPS	-.079	.062	1	.803	.924	.495	1.722
Constant	6.067	1.832	1	.176	431.357		

Multivariable logistic model assessing the impact of early referral on odds of receiving a transplant. Model was made using single entry logistic regression, all variables are displayed in table. Negative values associated with reduced odds. Positive values associated with increased odds. Model results: Early referral is associate with 2.2 OR of receiving LT. A trend exists between age, serum albumin level, and presence of a cardiac diagnosis. (Goodness of fit =0.77).