

Supplemental Table 1. Patient characteristics of those who attended vs. not attended alcohol rehabilitation

	Test cohort				Validation cohort			
	All patients (n=135)	Attended alcohol rehabilitation (n=27)	Did not attend alcohol rehabilitation (n=108)	P*	All patients** (n=119)	Attended alcohol rehabilitation (n=19)	Did not attend alcohol rehabilitation (n=100)	P***
Age, years (mean±SD)	48.0±10.2	47.6±12.1	48.1±9.7	0.84	50.0±11.0	44.7±11.3	51.7±11.3	0.02
Male (n, %)	90 (66.7%)	17 (63.0%)	73 (67.6%)	0.65	72 (60.5%)	10 (52.6%)	62 (62%)	0.44
Married or living with significant other (n, %)	42 (31.1%)	8 (29.6%)	19 (70.4%)	0.85	43 (39.5%)	9 (52.9%)	34 (37.0%)	0.22
College degree or above (n, %)	n/a	n/a	n/a		53 (48.6%)	14 (82.4%)	39 (42.4%)	0.003
Average number of drinks/day (median, IQR)	n/a	n/a	n/a		8 (5, 13)	8 (5, 20)	7 (5, 12)	0.46
Hepatic decompensation (n, %)	49 (36.3%)	39 (36.1%)	10 (37.0%)	0.93	76 (63.9%)	13 (68.4%)	63 (63.0%)	0.65
- Hepatic encephalopathy (n, %)	17 (12.6%)	3 (11.1%)	14 (13.6%)	1.00	25 (21.0%)	3 (15.8%)	22 (22.0%)	0.76
- Variceal bleeding (n, %)	3 (2.2%)	0 (0%)	3 (2.8%)	1.00	20 (16.8%)	4 (21.1%)	16 (16.0%)	0.52
- Ascites (n, %)	53 (39.3%)	12 (44.4%)	41 (38.0%)	0.54	65 (54.6%)	13 (68.4%)	52 (52%)	0.19
Severity scores								
MELD score (mean±SD)	20.5±7.2	22.6±8.9	20.0±6.6	0.17	21.8±7.2	21.8±5.8	21.6±7.2	0.88
CTP score (mean±SD)	8.9±1.5	8.9±1.7	8.9±1.5	0.87	9.5±1.8	9.5±1.9	9.4±1.7	0.84
mDF score (median, IQR)	30 (16, 50)	28 (19, 65)	31 (16, 49)	0.40	37 (15, 61)	41 (15, 69)	34 (15, 59)	0.46
mDF score≥32 (n, %)	64 (49.2%)	12 (46.2%)	52 (50.0%)	0.73	64 (54.2%)	11 (57.9%)	53 (53.5%)	0.73

Outcomes								
Hospital stay, days (median, IQR)	7 (4, 12)	7 (4, 14)	6 (4,10)	0.35	6 (3, 10)	6 (3, 13)	7 (3, 10)	0.56
Addiction medicine consult attempt	96 (71.1%)	22 (81.5%)	74 (68.5%)	0.18	n/a	n/a	n/a	
Addiction medicine consult completed	87 (64.4%)	22 (81.5%)	65 (60.2%)	0.04	n/a	n/a	n/a	

*P-value comparing those who readmitted vs. who did not readmit in test cohort

**Validation cohort in this table only include patients with available alcohol rehabilitation data

***P-value comparing those who readmitted vs. who did not readmit in validation cohort

n/a = data not available

Supplemental Table 2. Univariate logistic regression analysis for predictors of alcohol rehabilitation attendance

Variables	Test cohort		Validation cohort	
	Odds ratio	P	Odds ratio	P
Age (per 1 year)	0.99 (0.95-1.04)	0.81	0.95 (0.90-0.99)	0.01
Male	0.82 (0.34-1.96)	0.65	0.68 (0.45-0.25)	0.45
BMI	0.97 (0.91-1.03)	0.32	1.04 (0.97-1.12)	0.27
White	n/a*		0.80 (0.20-3.12)	0.75
Married or living with significant other	0.92 (0.37-2.30)	0.85	1.92 (0.68-5.44)	0.22
College degree or above	n/a		6.34 (1.70-23.6)	0.002
Average number of drinks/day	n/a		1.02 (0.96-1.08)	0.57
Hepatic decompensation	1.04 (0.43-2.95)	0.93	1.27 (0.45-3.63)	0.65
Hepatic encephalopathy	0.84 (0.22-3.16)	0.79	0.66 (0.18-2.49)	0.53
Variceal bleeding	n/a*		1.40 (0.41-4.77)	0.59
Ascites	1.31 (0.56-3.07)	0.54	2.0 (0.70-5.68)	0.18
Platelet	1.00 (0.99-1.00)	0.77	1.00 (0.99-1.01)	0.90
Albumin	1.41 (0.64-3.11)	0.39	1.86 (0.98-3.52)	0.05
Creatinine	1.63 (1.05-2.51)	0.02	0.59 (0.19-1.82)	0.25
Total bilirubin	1.11 (0.34-3.64)	0.86	1.01 (0.96-1.06)	0.68
INR	1.40 (0.71-2.78)	0.34	1.27 (0.53-3.05)	0.59
PT	1.01 (0.92-1.01)	0.86	1.03 (0.94-1.13)	0.52
MELD score	1.05 (0.99-1.08)	0.10	1.00 (0.94-1.08)	0.89
Child-Turcotte-Pugh Score	0.97 (0.73-1.30)	0.85	1.04 (0.77-1.39)	0.82
mDF score	1.01 (0.99-1.02)	0.47	1.01 (0.99-1.02)	0.49
mDF score ≥ 32	0.86 (0.36-2.03)	0.73	1.19 (0.44-3.22)	0.73
ABIC score	1.17 (0.88-1.55)	0.29	0.66 (0.43-1.01)	0.05
Addiction medicine consult completed	2.91 (1.02-8.27)	0.03	n/a	
Addiction medicine consult attempt	2.02 (0.71-5.79)	0.17	n/a	

n/a* = not enough data for analysis (only 5 patients who were non-white and only 3 patients with variceal bleeding in test cohort)

n/a = data not available

Supplemental Table 3. Multivariate logistic regression analysis for predictors of alcohol rehabilitation attendance

Variables	Test cohort		Validation cohort	
	Odds ratio	P	Odds ratio	P
Age (per 1 year)	n/a		0.95 (0.90-1.00)	0.05
College degree or above	n/a		4.62 (1.19-17.9)	0.03
Creatinine	1.53 (0.99-2.37)	0.06	n/a	
Addiction medicine consult completed	2.55 (0.88-7.37)	0.08	n/a	

Supplemental Table 4. Univariate logistic regression analysis for predictors of 30-day readmission

Variables	Test cohort		Validation cohort	
	Odds ratio	P	Odds ratio	P
Age (per 1 year)	0.99 (0.95-1.03)	0.53	0.98 (0.95-1.01)	0.21
Male	1.31 (0.59-2.90)	0.51	1.08 (0.55-2.14)	0.82
BMI	1.00 (0.95-1.05)	0.85	0.98 (0.93-1.03)	0.36
White	0.64 (0.10-4.00)	0.64	0.75 (0.29-1.92)	0.55
Married or living with significant other	1.22 (0.56-2.67)	0.62	1.32 (0.65-2.66)	0.44
College degree or above	n/a		1.23 (0.61-2.47)	0.56
Average number of drinks/day	n/a		0.95 (0.85-1.07)	0.41
Hepatic decompensation	2.87 (1.34-6.14)	0.006	1.37 (0.66-2.86)	0.40
Hepatic encephalopathy	1.73 (0.61-4.92)	0.30	0.68 (0.30-1.54)	0.36
Variceal bleeding	4.77 (0.42-54.1)	0.21	1.15 (0.45-2.89)	0.77
Ascites	1.76 (0.84-3.71)	0.14	1.16 (0.59-2.31)	0.66
Platelet	1.01 (0.99-1.01)	0.08	1.00 (0.99-1.00)	0.73
Albumin	0.60 (0.30-1.19)	0.14	0.73 (0.43-1.23)	0.22
Creatinine	0.78 (0.47-1.30)	0.31	1.14 (0.79-1.64)	0.48
Total bilirubin	1.04 (1.01-1.08)	0.009	1.01 (0.98-1.04)	0.51
INR	1.52 (0.65-3.55)	0.34	1.27 (0.69-2.33)	0.45
PT	1.02 (0.94-1.10)	0.64	1.04 (0.98-1.11)	0.20
MELD score	1.03 (0.98-1.08)	0.23	1.04 (0.99-1.09)	0.09
Child-Turcotte-Pugh score	1.26 (0.97-1.62)	0.08	1.18 (0.96-1.44)	0.10
mDF score	1.01 (1.00-1.02)	0.14	1.01 (0.99-1.02)	0.29
mDF score ≥ 32	2.18 (1.02-4.68)	0.04	1.63 (0.81-3.29)	0.17
ABIC score	1.11 (0.86-1.43)	0.41	0.97 (0.75-1.26)	0.82
Attendance to alcohol rehabilitation	0.23 (0.07-0.81)	0.02	0.33 (0.10-0.99)	0.04

n/a = data not available in test cohort

Supplemental Table 5. Univariate logistic regression analysis for predictors of 30-day alcohol relapses

Variables	Test cohort		Validation cohort	
	Odds ratio	P	Odds ratio	P
Age (per 1 year)	1.00 (0.97-1.04)	0.91	1.01 (0.98-1.04)	0.47
Male	0.54 (0.26-1.13)	0.10	0.95 (0.89-0.47)	0.89
BMI	0.99 (0.95-1.04)	0.82	0.99 (0.95-1.04)	0.82
White	n/a*		0.54 (0.19-1.49)	0.24
Married or living with significant other	1.07 (0.50-2.7)	0.86	0.62 (0.29-1.33)	0.22
College degree or above	n/a**		0.45 (0.21-0.95)	0.04
Average number of drinks/day	n/a**		0.99 (0.95-1.03)	0.54
Hepatic decompensation	0.64 (0.31-1.35)	0.24	1.20 (0.64-0.56)	0.64
Hepatic encephalopathy	0.48 (0.15-1.57)	0.20	0.48 (0.15-1.57)	0.20
Variceal bleeding	n/a*		1.78 (0.71-4.47)	0.22
Ascites	0.61 (0.29-1.27)	0.18	0.75 (0.37-1.51)	0.42
Platelet	1.00 (0.99-1.00)	0.83	0.99 (0.99-1.00)	0.41
Albumin	2.51 (1.24-5.08)	0.01	1.20 (0.74-1.96)	0.46
Creatinine	0.52 (0.27-0.98)	0.02	1.01 (0.66-1.53)	0.97
Total bilirubin	0.97 (0.93-1.00)	0.05	0.95 (0.91-0.99)	0.004
INR	0.33 (0.12-0.91)	0.02	0.43 (0.20-0.91)	0.02
PT	0.89 (0.81-0.98)	0.01	0.91 (0.84-0.98)	0.007
MELD score	0.93 (0.87-0.99)	0.01	0.92 (0.87-0.98)	0.005
Child-Turcotte-Pugh Score	0.76 (0.359-0.97)	0.03	0.78 (0.63-0.97)	0.02
mDF score	0.98 (0.97-0.99)	0.02	0.98 (0.97-0.99)	0.003
mDF score ≥ 32	0.80 (0.39-1.65)	0.55	0.36 (0.17-0.73)	0.005
ABIC score	0.80 (0.62-1.02)	0.07	0.82 (0.62-1.09)	0.16
Attendance to alcohol rehabilitation	0.10 (0.02-0.44)	0.002	0.07 (0.08-0.51)	0.009

n/a* = not enough data for analysis (only 5 patients who were non-white and only 3 patients with variceal bleeding in test cohort)

n/a** = data not available in test cohort

Supplemental Table 6. Univariate Cox regression analysis for predictors of mortality

Variables	Test cohort		Validation cohort	
	Hazard ratio	P	Hazard ratio	P
Age (per 1 year)	1.01 (0.98-1.04)	0.44	1.06 (1.03-1.09)	<0.001
Male	0.88 (0.51-1.55)	0.66	0.87 (0.45-1.75)	0.69
BMI	1.00 (0.97-1.04)	0.80	0.98 (0.94-1.03)	0.46
White	0.79 (0.24-4.84)	0.74	2.17 (0.79-8.97)	0.20
Married or living with significant other	0.60 (0.29-1.23)	0.13	1.37 (0.71-2.62)	0.34
College degree or above	n/a		0.81 (0.41-1.55)	0.52
Average number of drinks/day	n/a		0.99 (0.95-1.03)	0.60
Hepatic decompensation	1.16 (0.66-2.00)	0.59	2.05 (1.02-4.56)	0.04
Hepatic encephalopathy	0.87 (0.36-1.81)	0.72	1.39 (0.68-2.65)	0.35
Variceal bleeding	12.32 (2.92-35.44)	0.002	1.25 (0.56-2.51)	0.56
Ascites	0.90 (0.51-1.56)	0.72	1.51 (0.81-2.90)	0.20
Platelet	0.99 (0.99-1.00)	0.25	0.99 (0.99-1.00)	0.37
Albumin	0.82 (0.48-1.39)	0.47	0.88 (0.55-1.34)	0.57
Creatinine	0.75 (0.45-1.12)	0.22	0.93 (0.56-1.25)	0.69
Total bilirubin	1.00 (0.97-1.02)	0.99	0.98 (0.95-1.02)	0.36
INR	1.59 (0.84-2.81)	0.13	1.41 (0.80-2.36)	0.21
PT	1.05 (0.99-1.10)	0.05	1.02 (0.97-1.08)	0.40
MELD score	1.00 (0.96-1.04)	0.93	1.00 (0.96-1.04)	0.93
Child-Turcotte-Pugh Score	1.09 (0.91-1.32)	0.34	1.16 (0.96-1.40)	0.12
mDF score	1.01 (1.00-1.01)	0.23	1.00 (0.99-1.01)	0.66
mDF score \geq 32	1.47 (0.85-2.57)	0.17	1.21 (0.66-2.26)	0.53
ABIC score	1.02 (0.85-1.22)	0.82	1.42 (1.13-1.78)	0.002
Attendance to alcohol rehabilitation	0.20 (0.05-0.55)	0.001	0.15 (0.01-0.68)	0.009

n/a = data not available in test cohort