

Treatment Outcomes and Program Transition Rates Across Substance Use Treatment Programs

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Background

Patients with substance use disorder (SUD) represent a diverse group of individuals with unique histories, demographics, substance use patterns, and treatment-related behaviors. As a result, several levels of treatment programs exist, including inpatient, residential, partial hospitalization (PHP), intensive outpatient (IOP), and outpatient. Program level is based on current clinical needs,^{1,2} and best practice is to successfully complete a program and transition to the next in a step-down manner. In contrast, patients who discharge against medical advice,³ have lower lengths of stay, or fail to transition are thought to have worse outcomes. However, actual patient behaviors and their outcomes within and across substance use treatment programs are not well understood.

Objective

To describe the outcomes and transition rates of patients across substance use treatment programs.

Methods

Medical records were used to collect data from SUD treatment programs at a midwestern psychiatric hospital between 1/1/17-12/31/19. Data included treatment history, reason for discharge, admissions, latency to program transitions, and location. Basic descriptive and comparative statistics were conducted.

Results

Programs differed in rates of discharge against medical advice (AMA) (Table 1). PHP had the highest rate of discharge AMA, whereas residential treatment had the lowest. Whereas lower acuity treatment programs (residential, PHP, IOP) had decreased inpatient readmissions following program discharge, inpatients had higher inpatient admission rates in the 6 months post-discharge compared to before admission. Consistent with this, programs had unique transition patterns (Figure 1), where inpatients were most likely to readmit as inpatients, residential patients were most likely to step down to PHP, PHP patients typically stepped down to IOP, and IOP discharges transitioned across several programs. However, a large subset of patients did not successfully transition to any program. Factors correlated with decreased transitions within 28 days included younger age, race, insurance, specific mental health and substance use disorders, smoking status, and discharge status (Table 2).

Conclusions

Treatment-related behaviors and outcomes of patients were unique across programs, potentially reflecting differences in treatment intensities and patient acuities. Results highlight opportunities for reducing readmissions and increasing successful transitions.

Variable	Inpatient		Residential		PHP		IOP		Outpatient		p value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Program Admission Count	1.6 ± 1.3		1.4 ± .8		1.5 ± 1.0		1.4 ± .7		-	-	<.001
Length of Stay (encounters)	-	-	-	-	8.9 ± 5.6		7.9 ± 4.9		13.0 ± 23.3		<.001
Length of Stay (duration, days)	4.1 ± 3.0		14.6 ± 7.4		10.2 ± 6.3		18.4 ± 12.4				<.001
Discharged AMA	n = 2,155	% = 33%	n = 178	% = 22%	n = 1,089	% = 40%	n = 1,147	% = 38%			<.01
Inpatient Admissions	n	%	n	%	n	%	n	%			
Patients with Admission (6 Months Pre)	1,988	31%	251	31%	726	26%	640	21%			<.001
Patients With Admission (6 Months Post)	2,205	34%	131	16%	507	18%	326	11%			<.001
Δ in Patients with Admissions	217	11%	(120)	-48%	(219)	-30%	(314)	-49%			
Total Inpatient Admissions (6 Months Pre)	3320		334		1,006		828				<.001
Total Inpatient Admissions (6 Months Post)	3,835		178		783		473				<.001
Δ in Inpatient Admissions	515	16%	(165)	-48%	(223)	-22%	(355)	-43%			

Table 1. Program-related patient behaviors including duration of stay, completion of treatment, and inpatient relapse. AMA = against medical advice.

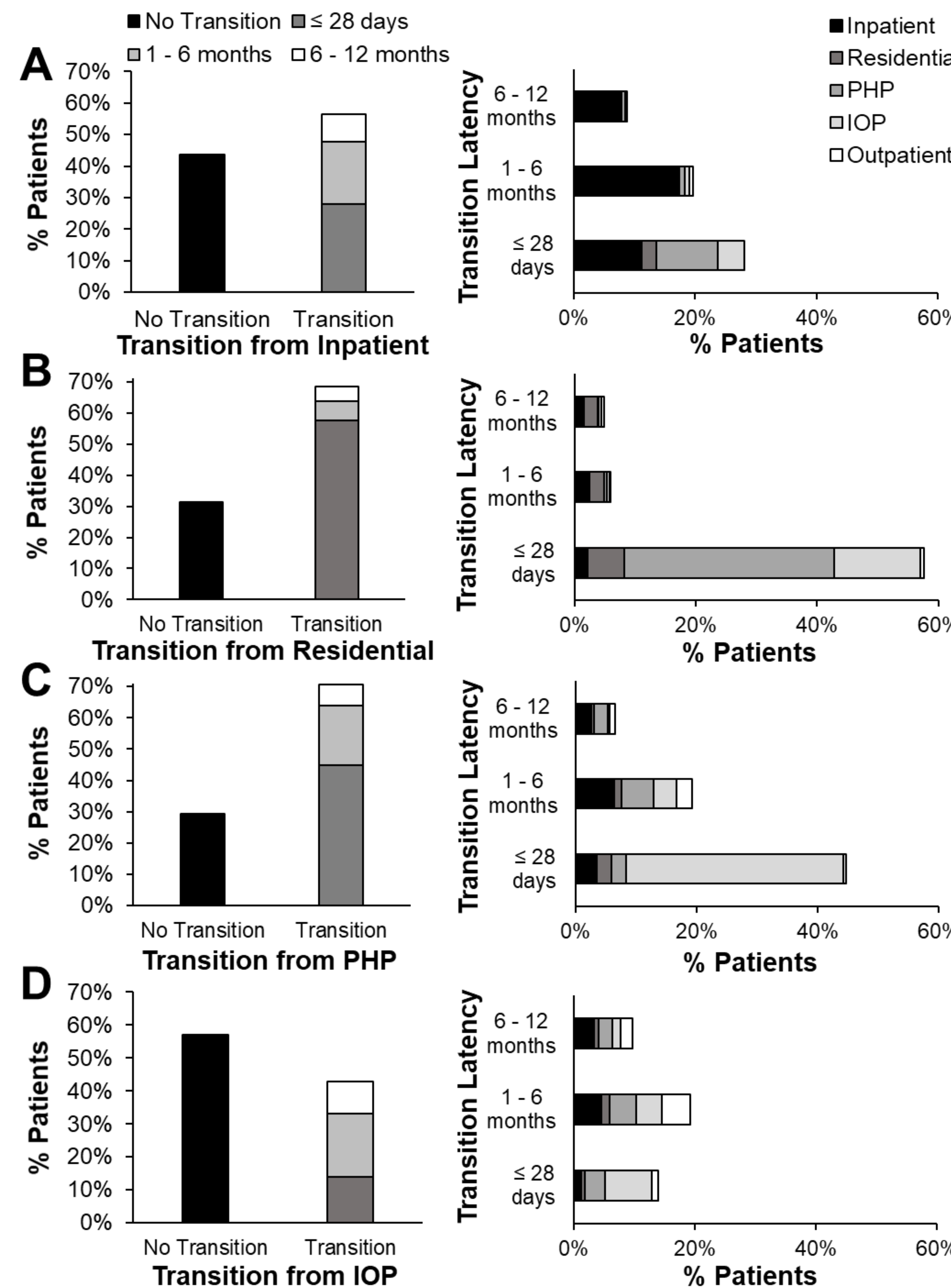


Figure 1. Patient transitions across programs. Graphs indicated whether, where, and when patients transitioned after discharging from inpatient (A), residential (B), PHP (C), or IOP (D).

Odds Ratio Estimates

Effect	Transition in 28 Days	Point Estimate	95% Wald Confidence Limits
IOP vs Inpatient	1	0.007	0.003 0.020
PHP vs Inpatient	1	1.541	1.249 1.901
Residential vs. Inpatient	1	1.931	1.267 2.943
Age	1	1.012	1.005 1.019
Male vs. Female	1	1.172	0.995 1.382
Black vs White	1	0.554	0.433 0.709
BIPOC vs White	1	0.885	0.563 1.392
Hispanic vs White, Non-Hispanic	1	0.895	0.673 1.190
Exchange vs Commercial	1	1.053	0.746 1.485
Medicaid vs Commercial	1	0.745	0.625 0.890
Medicare vs Commercial	1	0.186	0.113 0.306
Other vs Commercial	1	0.313	0.067 1.473
Depression vs. No Depression	1	0.733	0.570 0.943
Anxiety vs No Anxiety	1	1.119	0.883 1.418
Bipolar vs No Bipolar	1	0.627	0.513 0.765
Psychotic Disorder (PD) vs No PD	1	0.312	0.230 0.424
Current Smoker vs Never	1	0.982	0.783 1.233
Past Smoker vs Never	1	3.408	2.518 4.611
History of Smoking vs Never	1	1.275	0.693 2.345
Length of Stay	1	0.990	0.963 1.018
AMA vs No AMA	1	0.278	0.229 0.338
Alcohol SUD vs No	1	2.027	1.674 2.453
Opioid SUD vs No	1	1.808	1.485 2.202
Cocaine SUD vs No	1	1.183	0.983 1.424
Cannabis SUD vs No	1	1.023	0.860 1.217
Unspecified SUD vs No	1	1.394	1.164 1.670
Sedative, Hypnotic, Anxiolytic SUD vs No	1	1.217	0.990 1.496

Table 2. Odds ratio estimates for transitions within 28 days post-discharge to step-down substance use treatment programs. Analyses used a multinomial logistic regression. Bolded items were statistically significant. Shading indicates items within similar categories.

References

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