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Substance Abuse Detoxification and Residential Treatment Among Medicaid Enrolled Adults: Rates and Duration of Subsequent Treatment

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Abstract

Background—Substance use disorders are chronic disorders with substantial public health significance, yet the treatment provided is often episodic despite ongoing need. Among the more severely ill individuals requiring detoxification or residential treatment, little empirical information is available about rates and predictors of subsequent engagement in necessary subsequent treatment.

Methods—Using administrative data from the largest Medicaid managed behavioral health organization in a large mid-Atlantic state, we used multivariate regression to examine rates and predictors of subsequent treatment engagement and retention following new episodes of detoxification or residential substance abuse treatment among 5670 Medicaid-enrolled adults during 2004–2006.

Results—Slightly less than half (49%) of the sample received follow-up care within 30 days of discharge. Rates of follow-up were significantly higher in individuals with a serious mental illness, and significantly lower in African-American individuals, males, individuals with disabilities, and those who received detoxification without residential treatment. The mean duration of follow-up treatment was 84 days, and was longer among individuals with a serious mental illness and Caucasians. Even after controlling for individuals' socio-demographic and clinical characteristics, there was substantial variation in follow-up rates among discharging providers.

Conclusion—The relatively low rates of follow-up care and relatively brief duration of treatment for many of those who received such follow-up care is concerning in a population receiving substance abuse detoxification or residential treatment. The markedly lower rates among those receiving detoxification alone without subsequent residential treatment and among those without a comorbid

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serious mental illness suggest that efforts specifically targeting those individuals may be of particular benefit.

Keywords

detoxification; residential treatment; follow-up care; Medicaid

1. Introduction

Drug and alcohol problems represent a significant public health challenge, with estimated annual costs of \$180.9 billion for drug-related problems (Office of National Drug Control Policy, 2004) and \$184.6 billion for alcohol-related problems (Harwood, 2000). According to recent national surveys, only 4 million out of an estimated 22.6 million individuals with substance use disorders (SUD) are currently receiving treatment (SAMHSA, 2006). For many of these individuals, the treatment received may be inadequate (Gerstein and Harwood, 1990; McLellan et al., 2003; Stein et al., 2000; Stein and Zhang, 2003).

Despite the chronic nature of substance abuse disorders, treatment is often provided in a manner more appropriate for acute disorders (McLellan et al., 2000). For example, episodic care and use of emergency departments typifies the care received by many individuals with substance abuse disorders (Raggio et al., 2006; Watkins et al., 2001). Others receive intensive substance use disorder interventions, such as detoxification or residential treatment, without receiving the necessary care subsequent to their discharge from that service (Fulco et al., 1995; Gerstein and Harwood, 1990; Moos et al., 1990; Stein et al., 2000; Weisner and Schmidt, 1993). Although treatment for substance use disorders can be as effective as treatment for other chronic disorders (McLellan et al., 2000), fragmented or insufficient care is likely to result in less than optimal outcomes (Gerstein and Harwood, 1990; McLellan et al., 2000).

Several studies have examined patterns of care in commercially insured or Veterans Affairs (VA) populations following detoxification or substance abuse treatment (Booth et al., 1992; Lash, 1998; Mark et al., 2003; Stein et al., 2000), often using the Washington Circle Group performance measures related to treatment after detoxification (McCorry et al., 2000). Fewer studies have examined patterns of care in publicly insured populations following such treatment (Garnick et al., 2008; Mark et al., 2006). However, continued engagement and retention in treatment is particularly important for publicly insured populations given the greater severity and complexity of mental health and substance abuse issues that are common (Adelmann, 2003). To inform efforts to improve the quality of care and outcomes for Medicaid-enrolled adults being discharged from these services, this manuscript provides empirical information to clinicians and policymakers by examining rates and predictors of treatment engagement and retention subsequent to detoxification and residential substance abuse treatment.

2. Methodology

2.1 Sample and Data Source

Using administrative data from the largest Medicaid managed behavioral health organization (MBHO) in a large mid-Atlantic state, we identified all new episodes of detoxification (inpatient or outpatient) or residential substance abuse treatment during 2004–2006 for Medicaid-enrolled adults (age 18–64). New episodes were defined as the initiation of detoxification or residential substance abuse treatment with no detoxification or residential substance abuse treatment in the prior 90 days. Multiple detoxification or residential substance abuse treatment services with a seven day or less gap between admission and discharge were collapsed and considered a single episode. We used a subsequent new episode if an individual was readmitted to detoxification or residential substance abuse treatment within 90 days of

discharge from an episode. Substance abuse treatment episodes were categorized as detoxification only, residential treatment only, or detoxification and residential treatment. The study was conducted in compliance with the University of Pittsburgh Institutional Review Board.

2.2 Outcome and Predictor Variables

Timely follow-up care was defined as any Medicaid reimbursed ambulatory clinical behavioral health service received within 30 days of detoxification or residential treatment service discharge. These services included facility based treatment such as outpatient, intensive outpatient, methadone maintenance, partial hospital programs, as well as community based services such as assertive community treatment. Participation in support groups such as Alcoholics Anonymous (AA) or Narcotics Anonymous (NA) was not considered follow-up treatment, nor was non-clinical services such as case management. The episode of follow-up care continued until the individuals had a 30-day gap in services or 180 days had elapsed. Duration of follow-up care was defined as the number of days from the first day of follow-up care through the last day of follow-up care prior to a 30-day gap in services or until 180 days had elapsed. Ongoing follow-up care was censored at 180 days.

Sociodemographic variables such as age, gender, Medicaid eligibility category and race were obtained from the state's membership and eligibility files. Race/ethnicity was categorized as Caucasian, African-American, Latino, or other. Consistent with other analyses of Medicaid-enrolled populations (Zito et al., 2005), individuals were categorized into Medicaid eligibility categories according to whether their Medicaid eligibility resulted from medical or mental health disability (e.g. Supplemental Security Income (SSI) or Supplemental Security Income with Medicare (SSIM)), income (e.g. Temporary Assistance to Needy Families (TANF), or were eligible through the C ategorically Needy (CATN), category, which is used to enroll uninsured individuals in Medicaid at the time of admission to detoxification or residential treatment services. The discharging provider was identified using detoxification or residential treatment episode claims. The primary detoxification or residential treatment discharge diagnoses was categorized as alcohol, cocaine, opioid, and other drug. Individuals with a claim for a service in the year prior to their detoxification or residential treatment admission with a diagnosis of Schizophrenia or Schizoaffective disorder (ICD-9 codes 295.0–295.99), Bipolar I disorder (ICD-9 codes 296.0–296.19 and 296.40–296.70), or Major Depression (ICD-9 codes 296.2–296.39) were categorized as having a serious mental illness. Individuals were categorized as having had prior substance abuse treatment if they had received any substance abuse treatment in the year prior to their detoxification or residential treatment admission. Individuals were categorized as living in an urban area if their county of residence had a population density greater than 1,000 individuals/square-mile.

2.3 Analysis

Simple descriptive statistics were used to characterize the data. We conducted bivariate analysis to examine the relationship between receiving follow-up care within 30 days following discharge from detoxification and residential treatment and gender, age, race, Medicaid eligibility category, community characteristics, type of index service, index service diagnosis, comorbid mental health disorder, and discharging provider. All qualified detoxification and residential treatment service events were included in the analysis. To account for clustering of events by individual and discharging provider, generalized estimating equations were used to model presence of the utilization of outpatient behavioral health clinical services within 30 days of discharge. Odds ratios for sociodemographic, clinical, and provider covariates were generated by exponentiating the parameter estimates from these models. Cox proportional hazard models were used to examine clinical and sociodemographic predictors of duration in treatment for those individuals receiving follow-up care within 30 days of discharge. We

assessed the sensitivity of our analysis to the 30-day follow-up period by replicating our analysis using a 14-day follow-up period. We also assessed the sensitivity of our analysis to our definition of comorbid mental health disorder by replicating our analysis using an expanded definition of mental health disorder that incorporated individuals with diagnoses of Bipolar II, any depressive disorder, and anxiety disorders. There was no substantial change in any of the models in either of the sensitivity analyses. Analyses were conducted using SAS for Windows version 9.1.3. (SAS Institute, 2004).

3. Results

3.1 Characteristics and Service Setting of those receiving treatment

We identified 5670 new episodes of detoxification or residential treatment services during 2004-6 among Medicaid-enrolled adults. Residential rehabilitation services alone comprised 50% (n=2851) of the new episodes. Twenty-nine percent (n=1663) of the new episodes were a combination of both detoxification and residential rehabilitation services and 20% (n=1156) were detoxification services alone. The majority of individuals receiving new episodes of detoxification or residential treatment services were female (51%; n=2871), Caucasian (55%; n=3143), and had opioid abuse or dependence as their primary discharge diagnosis (29%; n=1671). Table 1 provides additional socio-demographic and clinical information.

3.2 Follow-Up Care within 30 Days of Detoxification or Residential Treatment Services Discharge

Forty nine percent (n=2801) of discharges from detoxification or residential treatment services were followed by at least one ambulatory behavioral health service within 30 days. (Table 2) Only 32.8% (n=1156) of discharges from detoxification alone received follow-up care within 30 days, a significantly lower rate than discharges from a new episode involving both detoxification and residential treatment services (50.4%; OR 2.28; 95% CI 1.87 to 2.77) or residential treatment alone (55.6%; OR 2.98; 95% CI 2.43 to 3.66). (Table 2) We also found that individuals being discharged from an episode of detoxification or residential treatment services with a discharge diagnosis of opioid abuse or dependence (42.7%; OR 0.68; 95% CI 0.57 to 0.81) or other drug abuse or dependence (49.5%; OR 0.79; 95% CI 0.65 to 0.95) were significantly less likely to receive follow-up care within 30 days, than episodes with a discharge diagnosis of alcohol abuse or dependence. There was no difference, however, between episodes with a cocaine discharge diagnosis and an alcohol discharge diagnosis.

African-Americans were significantly less likely than Caucasian individuals to have timely follow-up care (47.4%; OR 0.76; 95% CI 0.66 to 0.87). Females were significantly more likely than males to receive timely follow-up care (52.9%; OR 1.25; 95% CI 1.10–1.41). Individuals Medicaid-eligible due to disability (46.3%; OR 0.74, 95% CI 1.03 to 1.38) were significantly less likely to receive timely follow-up care than individuals Medicaid-eligible for financial reasons. We also found that individuals with a serious mental illness were significantly more likely to receive follow-up care within 30 days (57.7%), than were individuals without a serious mental illness. (44.8%; OR 1.51, 95% CI 1.34 to 1.71)

We also found significant differences in rates of follow-up care among the discharging substance abuse provider organizations. (Figure 1) The rate of timely follow-up care at one of the best performing provider organizations, organization B (2.02 OR CI 1.48 to 2.75), was significantly better than that seen at the referent provider controlling for clinical and sociodemographic factors, while the rate at the lowest performing provider organization GG was substantially lower (0.38 OR CI 0.20 to 0.71).

3.3 Duration of Treatment Following Initiation of Aftercare Services Following Discharge from Intensive Substance Abuse Treatment

Among the 2801 detoxification or residential treatment services episodes in which an individual received follow-up care within 30 days of discharge, the mean duration of their subsequent treatment episode was 84.3 days ($sd=48.76$) (Table 3), with half of these individuals remaining in treatment over nine weeks (median 66 days) after discharge.

Individuals with a prior diagnosis of a serious mental illness were significantly more likely than individuals without a serious mental illness to have a longer post-discharge treatment episode (87 days vs. 82 days; $p<0.01$). Episodes with a primary discharge diagnosis from detoxification or residential treatment services of opioid abuse or dependence had significantly briefer post discharge treatment episodes than did episodes with a discharge diagnosis of an alcohol disorder (78 vs. 86 days; $p<0.05$).

Treatment duration was significantly longer for individuals from rural communities compared with urban communities (88 vs. 83 days; $p<0.01$), for individuals over 30 years old compared with individuals 18–29 years old, and after episodes for individuals who had received substance abuse treatment in the year prior to their detoxification or residential treatment admission. (Table 3) African-Americans and Latinos also had significantly shorter treatment episodes than did Caucasians.

4. Discussion

In an examination of follow-up care in the 180 days after discharge from detoxification or residential treatment services among Medicaid-enrolled adults, we found that approximately 49% of individuals received follow-up care within 30 days of discharge, and that approximately half of those individuals were still in treatment after six weeks. The mean duration of the treatment episode for individuals who initiated follow-up care within 30 days of discharge was 12 weeks, while the median duration was approximately nine weeks. As neither detoxification nor residential treatment services can adequately address most individuals' substance use disorders without subsequent treatment, it is concerning that approximately half of the individuals receiving detoxification or residential treatment services received no follow-up care within 30 days of discharge. The follow-up rates we found after detoxification are substantially lower than that seen in privately insured populations (Mark et al., 2003; Stein et al., 2000), but comparable to those reported in other non-privately insured populations (Booth et al., 1992) and to those seen following psychiatric discharge in a comparable population (Stein et al., 2007). We found, however, that the lower rates of follow-up after detoxification were accounted for to a large part by individuals receiving detoxification without subsequent residential treatment, and that the rates of follow-up for individuals receiving residential treatment immediately following detoxification were comparable to those individuals who received residential treatment alone. Those individuals who do not receive treatment after detoxification are more likely to be quickly readmitted for subsequent detoxification (Mark et al., 2006). For those individuals who do receive timely follow-up care, a substantial number drop out of treatment relatively quickly, which is concerning since studies have shown that adequate treatment retention after initiating treatment for drug and alcohol problems (Moos and Moos, 2003; Simpson, 1979; Simpson et al., 2002; Walker et al., 1983) is associated with significantly better outcomes.

Adequate treatment following detoxification treatment is particularly important. The Institute of Medicine has observed that individuals who receive detoxification services without subsequent formal substance abuse care have no better outcomes than individuals who did not receive such detoxification (Gerstein and Harwood, 1990). In some cases lack of treatment following detoxification has the potential to be harmful, as the decrease in tolerance following

detoxification may place some individuals at increased risk of overdose in a subsequent relapse. As a result, such follow-up care after detoxification has been proposed as a performance measure for public sector substance abuse treatment systems (Garnick et al., 2008). So it is particularly concerning that those individuals who received detoxification alone had substantially lower rates of follow-up care than other individuals, including individuals who underwent detoxification but also participated in residential treatment. In addition, individuals who underwent detoxification (either alone or with residential treatment) had shorter episodes of subsequent treatment than did individuals with residential treatment alone. There are a number of reasons why an individual may not transition to residential treatment immediately after detoxification, including not requiring SUD treatment services of that intensity, patient preference, unavailability of timely and acceptable residential treatment options, and lack of insurance coverage in non-publicly insured populations. While further research is needed to better understand the causes, the much lower rates of follow-up care we observe among individuals undergoing detoxification without residential treatment suggests that the current system may not be adequately supporting a successful transition to subsequent care, thereby forgoing the opportunity to forestall relapse. A number of promising approaches to improving rates of follow-up following detoxification have been examined, including financial incentives for attending aftercare and staff escort to aftercare on the day of discharge (Chutuaape et al., 2001). Given the likelihood of relapse without successful engagement in aftercare, administrators of systems caring for individuals with substance use disorders may want to consider exploring the implementation of such approaches, as well as efforts specifically targeted at improving rates of timely follow-up care and retention in treatment for individuals undergoing detoxification.

We also found that individuals with a history of being treated for a serious mental illness had substantially higher follow-up rates than individuals not being treated for such disorders. This is consistent with other studies that have found that individuals with co-morbid mental health and substance use disorders receive more treatment than those without such disorders (Moos et al., 1994). Many individuals being treated for co-morbid mental health and substance use disorders may be receiving the majority of their treatment from mental health providers, potentially continuing to see clinicians who were providing care prior to detoxification or residential treatment. This highlights the importance of efforts to improve the care for individuals with substance abuse disorders being seen by mental health providers (Institute of Medicine Committee on Crossing the Quality Chasm, 2006; Watkins et al., 2005), as many of these providers may not have adequate training to provide quality care to individuals with serious SUD. The lower rates of follow-up care observed for individuals not receiving care for co-morbid mental health disorders may also reflect a lack of access to formal substance abuse care for individuals being discharged from detoxification and residential treatment facilities, consistent with concerns raised about the adequacy of a substance abuse treatment infrastructure robust enough to meet the demand for quality treatment (McLellan et al., 2003).

Numerous studies have documented disparities in the access to and quality of behavioral health care received by African-Americans (Alegria et al., 2002; Daley, 2005; Moos et al., 2001; Wang et al., 2002; Wells et al., 2001; Young et al., 2001). Despite increased attention to racial and ethnic disparities in behavioral health care, and efforts to reduce these disparities in recent years (U.S. Public Health Service. Office of the Surgeon General. et al., 2001), we found that African-Americans were significantly less likely to receive timely follow-up care following detoxification and residential treatment discharge, and that those individuals who received such follow-up care had significantly shorter treatment episodes. Efforts to enhance engagement and retention of African-Americans following detoxification and residential treatment might consider addressing the cultural competency of providers (Anderson et al., 2003; New Freedom Commission on Mental Health, 2003; Taylor and Lurie, 2004), as well as other factors, such

as perceived clinician empathy, which appear to influence whether individuals seek and stay in follow-up care (Gillispie et al., 2005).

We also found substantial differences in the follow-up rates among discharging providers, even after controlling for individual level sociodemographic and clinical characteristics (Figure 1). This may be the most useful finding with respect to taking action to improve care, as interventions at the provider level to improve the care of individuals with substance use disorders may be more feasible to implement than interventions targeted at the individual level. In fact, provider level variation has been used to identify opportunities to improve the quality of health care services in other areas of health care (O'Connor et al., 1999; Wennberg et al., 2004). States, payors, consumers, and others have used such information previously to improve care by providing feedback to providers about performance on a variety of metrics (Hermann and Palmer, 2002; Hermann and Provost, 2003; Kiefe et al., 2001), as well as to help identify top performing providers or organizations who have developed novel and successful processes to improve care (Gawande, 2004). Such approaches may also be useful in improving care received by individuals undergoing detoxification and residential treatment, although the greatest impact will likely require efforts beyond simple publication of the data (Marshall et al., 2000). Specifically, the approach to and quality of a facility's discharge planning may be critically important to achieving improvements in the rates of follow-up care (Boyer et al., 2000; Swanson et al., 1999), and may involve additional reinforcement through thoughtful pay-for-performance efforts (Botticelli, 2008). Similarly, more widespread use of a range of empirically supported and promising approaches by aftercare providers to improve engagement and retention in care of individuals with substance use disorders, such as those being implemented by the NIATx partner organizations (NIATx, 2009), can help to improve rates of follow-up care and retention in treatment (Capoccia et al., 2007; Ford et al., 2007; Hoffman et al., 2008; McCarty et al., 2007). Creative and aggressive approaches to such planning may be particularly critical for individuals at greatest risk for inadequate follow-up care, such as individuals undergoing detoxification.

We found that individuals living in rural communities were more likely to receive follow-up care and to have a longer post detoxification or residential treatment episode than individuals living in urban communities. This finding is unexpected given that studies of behavioral health services in rural areas have repeatedly documented an insufficient mental health workforce and difficulty in accessing behavioral health services (Borders and Booth, 2007; Hauenstein et al., 2006; Johnson et al., 2006; Rost et al., 2002). Such a discrepancy in results may arise from the fact that our entire sample had already successfully accessed intensive services for their drug or alcohol disorder. Further research is needed to better understand and improve patterns of access and quality of care for individuals in rural areas with substance use disorders.

The results of this study must be viewed in the context of its limitations. Our study relied on administrative data that lacks rich clinical and social information, such as information about homelessness, other socioeconomic and environmental factors, patient motivation, or severity of illness that are likely to explain a significant amount of the variation in time to follow-up and duration of treatment. We also do not know to what extent SUD or serious mental illness may be under detected and/or under reported in the period prior to admission or in the follow-up period. We have no information on the quality or clinical appropriateness of services, factors that will be related to individuals' clinical outcomes. In particular, much of the follow-up care that is occurring may be with mental health providers, who may not be adequately trained to appropriately address the clinical needs of individuals with serious SUD. To the extent that this occurs, our estimates of follow-up care occurring for SUD will be overstated. We do not know how our findings generalize to different regions with different policies regarding substance abuse treatment, or for which the numbers of substance abuse and mental health providers are either greater or fewer than exist in the area we examined. Services provided

under block grants are not observed in Medicaid claims data, and while those services are quite limited in the regions in which this sample resides, to the extent those services are provided we are undercounting follow-up care.

Despite these limitations, our findings provide important empirical information regarding the treatment received by Medicaid enrolled individuals discharged from detoxification and residential treatment. The substantially lower rates of follow-up care and briefer duration of treatment seen in individuals receiving detoxification alone was striking, particularly in contrast to the follow-up rates observed in individuals whose detoxification treatment was associated with residential treatment. While it is unrealistic to expect every individual undergoing detoxification to participate in residential treatment, both due to individual preferences as well as treatment system issues, our findings highlight the importance of targeting treatment retention efforts to individuals being discharged to the community from detoxification programs.

The ability to use existing information to identify the populations and providers having the most difficulty in successfully transitioning patients from detoxification and residential treatment settings to subsequent care will allow states and other oversight entities to work with clinicians in developing and implementing interventions designed to increase the rate and duration of follow-up care to those individuals most in need of such programs. Successful efforts will likely require an integrated effort with multiple strategies and different approaches to implement effective practices across a range of individuals and organizations, all of whom can make an important contribution to improving the care of individuals with serious substance use disorders.

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Figure 1.

Variation in follow-up care across discharging substance abuse treatment providers. Figure 1 illustrates the variation in follow-up rates for 33 substance abuse treatment providers (indicated by letters A through GG on the Y axis). Numbers after each letter/pair of letters indicate the provider's unadjusted 30 day follow-up rate. The figure provides the odds ratio for follow-up for each provider, controlling for individuals' socio-demographic and clinical characteristics, and the confidence interval around the odds ratio. Significant differences from the referent organization are indicated by * ($p < 0.05$)

Table 1

Sociodemographic and Clinical Characteristics of Individuals Discharged from Detoxification or Residential Treatment

		N	%
Total		5670	
Gender			
	Male	2799	49
	Female	2871	51
Race			
	African-American	2160	38
	Latino	139	2
	Caucasian	3143	55
	Other	228	4
Age			
	18–29	1384	24
	30–39	1497	26
	40–49	2044	36
	50–64	745	13
Community			
	Urban	4133	73
	Rural	1537	27
Category of Medicaid Eligibility			
	Categorically Needy	1058	19
	Disability	2360	42
	Income	2252	40
Serious Mental Illness [^]			
	Yes	2026	36
	No	3644	64
Detoxification or Residential Treatment Discharge Diagnosis			
	Alcohol	1355	24
	Cocaine	1193	21
	Opioid	1671	29
	Other	1451	26
Category of Substance Abuse Treatment			
	Detox and Rehab	1663	29
	Detox Only	1156	20
	Rehab Only	2851	50
Drug Abuse Treatment in Prior			

	N	%
Year ^{^^}		
Yes	3523	62
No	2147	38

[^] Serious Mental Illness was defined as an individual with a service for Schizophrenia, Schizoaffective disorder, Bipolar I disorder, or Major Depression in the year prior to their detoxification or residential treatment episode admission.

^{^^} Drug Abuse Treatment in Prior Year was defined as having had prior substance abuse treatment in the year prior to their detoxification or residential treatment episode admission.

Table 2

Rates of Treatment within 30 days of Discharge from Detoxification or Residential Treatment

	N	% Attending Any Aftercare	Odds Ratio	95% Confidence Interval	P-value
Total	5670	49.4			
Gender					
Male	2799	45.8			
Female	2871	52.9	1.25	1.10–1.41	<0.001
Race					
African-American	2160	47.4	0.76	0.66–0.87	<0.001
Latino	139	63.3	1.68	1.15–2.45	<0.05
Caucasian	3143	50.1			
Other	228	50.9	0.88	0.64–1.21	ns
Age					
18–29	1384	47.5			
30–39	1497	52.4	1.18	1.01–1.40	<0.05
40–49	2044	50.4	1.16	0.99–1.36	ns
50–64	745	44.0	1.06	0.85–1.30	ns
Community					
Urban	4133	47.1	0.62	0.47–0.82	<0.001
Rural	1537	55.7			
Category of Medicaid Eligibility					
Categorically Needy	1058	53.0	1.19	0.61–0.89	<0.05
Disability	2360	46.3	0.74	1.03–1.38	<0.01
Income	2252	50.9			
Serious Mental Illness [^]					
Yes	2026	57.7	1.51	1.34–1.71	<0.001
No	3644	44.8			

	N	% Attending Any Aftercare	Odds Ratio	95% Confidence Interval	P-value
Detoxification or Residential Treatment Discharge Diagnosis					
Alcohol	1355	52.9			
Cocaine	1193	54.7	0.86	0.72–1.04	ns
Opioid	1671	42.7	0.68	0.57–0.81	<0.001
Other	1451	49.5	0.79	0.65–0.95	<0.05
Category of Substance Abuse Treatment					
Detox and Rehab	1663	50.4	2.28	1.87–2.77	<0.001
Detox Only	1156	32.8			
Rehab Only	2851	55.6	2.98	2.43–3.66	<0.001
Drug Abuse Treatment in Prior Year ^{^^}					
Yes	3523	52.9	1.39	1.24–1.56	<0.001
No	2147	43.7			

[^] Serious Mental Illness was defined as an individual with a service for Schizophrenia, Schizoaffective disorder, Bipolar I disorder, or Major Depression in the year prior to their detoxification or residential treatment episode admission.

^{^^} Drug Abuse Treatment in Prior Year was defined as having had prior substance abuse treatment in the year prior to their detoxification or residential treatment episode admission.

Table 3

Duration of Behavioral Health Treatment Episode after Initiation of Aftercare Following Discharge from Detoxification or Residential Treatment

	N ^a	Mean Days	SD	Hazard Ratio	P Value
Total	2801	84.3	48.76		
Gender					
Male	1283	82.3	47.92		
Female	1518	86.0	49.42	0.93	ns
Race					
African-American	1024	82.7	47.96	1.19	<0.001
Hispanic	88	69.1	42.77	1.70	<0.001
Caucasian	1573	85.9	49.26		
Other	116	87.3	51.34	1.09	ns
Age					
18–29	658	80.9	46.67		
30–39	784	83.6	48.36	0.94	ns
40–49	1031	86.4	49.65	0.84	<0.01
50–64	328	86.1	50.78	0.77	<0.01
Community					
Urban	1945	82.5	48.03	1.18	<0.01
Rural	856	88.3	50.19		
Category of Medicaid Eligibility					
Categorically Needy	561	84.7	48.21	1.00	ns
Disability	1093	83.8	49.36	1.03	ns
Income	1147	84.5	48.50		
Serious Mental Illness [^]					
Yes	1169	86.8	49.47	0.89	<0.01
No	1632	82.4	48.18		
Detoxification or Residential Treatment Discharge Diagnosis					
Alcohol	717	86.4	49.60		
Cocaine	652	85.6	48.24	1.07	ns

	N [^]	Mean Days	SD	Hazard Ratio	P Value
Opioid	714	78.2	46.58	1.17	<0.05
Other	718	87.0	50.08	0.91	ns
Category of Substance Abuse Treatment					
Detox and Rehab	838	80.5	47.64	1.06	ns
Detox Only	379	80.2	48.74		
Rehab Only	1584	87.3	49.17	0.92	ns
Drug Abuse Treatment in Prior Year ^{^^}					
Yes	1863	85.9	49.40		
No	938	80.9	47.32	0.83	<0.001

[^] Serious Mental Illness was defined as an individual with a service for Schizophrenia, Schizoaffective disorder, Bipolar I disorder, or Major Depression in the year prior to their detoxification or residential treatment episode admission.

^{^^} Drug Abuse Treatment in Prior Year was defined as having had prior substance abuse treatment in the year prior to their detoxification or residential treatment episode admission.