HCFE Data Brief

HCFE DB# 2004-08

INTENSITY OF FOLLOW-UP CARE TO INPATIENT DETOXIFICATION: THE RELATIVE IMPACT OF DOMICILIARY CARE IN THE VETERANS' HEALTH ADMINISTRATION

Theodore Lotchin, MPH
John Gardner, Ph.D.
Ann Hendricks, Ph.D.
James Macdonald, MSW, Ph.D.

March 2004

Health Care Financing & Economics

VA Boston Health Care System Research & Development
150 South Huntington Avenue (Mail Stop 152H), Boston, MA 02130 • Phone: (617) 232-9500 Ext. 6058 • http://www.hcfe.org

This work was supported by grant #SDR 97001-1, the Veterans' Health Administration, Health Services Research and Development. The opinions are the authors' and do not reflect those of the Department of Veterans' Affairs, the Veterans Health Administration, or Health Services Research and Development.

The authors would like to thank Benjamin Weinstein and five anonymous reviewers for comments on earlier versions of this article.

ABSTRACT

OBJECTIVES: To quantify the impact of resource-intensive treatment programs on veterans' healthcare utilization following inpatient detoxification.

METHODS: All veterans receiving inpatient detoxification in a Veterans' Administration (VA) Medical Center during FY1998 were grouped based on the follow-up care they received. Healthcare utilization was characterized using administrative databases and a standard survival analysis.

RESULTS: Veterans discharged from the VA who received follow-up care through a domiciliary program were significantly less likely to be rehospitalized in the VA within 12 months of their domiciliary discharge than veterans receiving only outpatient follow-up care following their detoxification discharge. Almost two-thirds (63.7%) of veterans receiving outpatient follow-up had an inpatient admission in the 12 months following detoxification compared to 57.1% of veterans who received care in a domiciliary. Further, remaining in the domiciliary programs more than 3 to 4 months approximately doubled the likelihood that the patient would not be rehospitalized, controlling for population characteristics.

CONCLUSIONS: The VA's domiciliary follow-up program extends the period of time to an acute hospitalization not only for the time of the domiciliary stay itself but also following discharge. A longer follow-up period is needed to capture the pattern of hospitalizations for veterans receiving domiciliary care.

BACKGROUND

Since 1970, the deinstitutionalization of mental health and substance abuse services has reduced inpatient censuses at public and private treatment facilities nationwide.[1-4] Movement away from lengthy hospitalization ushered in diverse treatment models, including inpatient detoxification, community-based outpatient services and residential rehabilitation programs. The present study focuses on the impact of intensive rehabilitation on the time to rehospitalization for patients with substance abuse histories, using the Veterans Health Administration (VA) as an example.

The VA annually provides health care to over four million veterans, about 400,000 of whom are inpatients. In fiscal year (FY) 2000, almost one quarter of VA inpatients and a third of outpatients had a substance abuse/dependence diagnosis, making the VA the largest provider of substance abuse services in the world.[5] In the 1990s, the VA transformed its substance abuse treatment to emphasize a continuum of care with multiple treatment modalities.[6-7] This re-organization closed or converted 63% of the VA's inpatient programs, doubled the proportion of employees providing outpatient treatment, increased the number of outpatient programs from 131 to 176, and expanded residential treatment programs by almost 80%. As the number of residential rehabilitation beds grew almost 1,500 from 1993 to 1999, the number of mental health inpatient beds dropped by almost 10,000.[8]

VA's domiciliary program, which integrates various intermediate services into one program, has received attention as a model for residential rehabilitation treatment. Domiciliaries are "health maintenance centers for veterans who do not require hospital or nursing home care but are unable to live independently because of medical or psychiatric disabilities."[9] These highly structured, resource-intensive residential programs provide "bio-psychosocial treatment"

and rehabilitation services for medical, psychiatric, and substance abuse disorders.[10-11] Programmatic interventions include compensated work therapy, medical evaluations, daily group therapy, and individual therapy as needed. The goal is to return as many veterans as possible to independent functioning in their community.[9] In 1998, over 24,000 veterans received treatment in the Domiciliary Care Program (including post-discharge visits).[12]

The VA's domiciliary program is one step in the continuum of care for eligible veterans. Other steps include vocational training, day hospitalization, and psychosocial residential rehabilitation treatment programs.[9] Psychosocial residential rehabilitation treatment bed sections are sub-acute settings for veterans with substance use disorders and serious mental illness. Depending on the clinical indications and symptom severity, veterans are discharged from a detoxification or domiciliary bed section into the appropriate level of follow-up care. For example, discharge from a domiciliary bed section into a psychosocial residential rehabilitation treatment program is clinically indicated for veterans with post-traumatic stress disorder, homeless veterans with multiple and complex psychosocial deficits, or unstable psychotic patients.[13]

Studies indicate that treatment models with similarly integrated medical, psychiatric, and rehabilitation services reduced length of inpatient hospitalization, lowered recidivism rates, and increased patient satisfaction with the healthcare system.[14-18] Prior studies have evaluated clinical impacts of the VA's reorganization through proxy measures such as incarceration and use of non-VA care.[19-21] The present study expands on this work by characterizing the impact of the domiciliary program's resource-intensive follow-up care on the healthcare utilization patterns of veterans with substance abuse histories. The primary analysis tests whether patients who

receive domiciliary follow-up care, rather than outpatient follow-up care only, stay longer in the community following their discharge from inpatient detoxification.

METHODS:

Data: All data for the analyses came from national VA administrative treatment files. The study dataset includes records from outpatient and inpatient data files for FY1998 through FY2000.[22] The index detoxification episode was identified by an inpatient diagnosis related group (DRG) of 434 or 435 (Alcohol/Drug Abuse or Dependency, Detoxification or Other Treatment, with and without complications) in a patient's treatment history in FY1998.

Population: The initial study population included 32,591 unique inpatients receiving detoxification at a VA facility during FY1998 and discharged alive to the community. An additional 20,357 veterans who died or were transferred directly to another hospital or correctional facility were excluded.

Patients were grouped according to the type of mental health follow-up care received during the 12 months following the detoxification discharge. Follow-up care could include hospital care, adult day care, outpatient care, self-help groups, or residential treatment. These types of care smooth transition between detoxification and home, providing treatment continuity.[23] The study found three types of mental health follow-up care for VA detoxification patients: in a domiciliary program, in outpatient settings only, and no mental health follow-up care in the VA system. The study excluded those veterans receiving no VA follow-up care from most analyses because service utilization records outside of the VA system were unavailable.

Many patients are not discharged directly to a domiciliary, but are admitted after a sojourn in the community. Because of this possible time lag, this study included 2,361 patients admitted to a domiciliary program within 30 days of their detoxification discharge and an

additional 2,271 admitted to a domiciliary between 31-365 days after detoxification, but with no intervening VA acute admissions. The latter were included to reflect the nature of domiciliary admission protocols. All domiciliary bed section stays included in this analysis occurred separately from the original detoxification stay.

Evaluating Healthcare Utilization: To estimate the impact of VA follow-up care, the study tracked veterans' healthcare utilization before and after detoxification. For the 12-month period prior to detoxification, global measures of health services utilization included the total number of inpatient admissions, inpatient bed section days, and outpatient clinic encounters. The latter are direct contacts, either face-to-face or via telephone, between a patient and provider responsible for diagnosing and managing medical conditions. VA inpatient records are divided into stays on specific hospital units or wards, known as "bed sections." These global utilization measures are divided into medical and psychiatric categories.

For the 12-month period following detoxification, healthcare utilization was measured by the mean number of outpatient encounters per week from discharge until an inpatient admission or the end of the study period. To account for program differences, veterans receiving domiciliary follow-up care were followed from the detoxification discharge date until the next inpatient event that was not a domiciliary admission. Their post-detoxification interval was divided into three time periods: detoxification discharge to domiciliary admission, the domiciliary stay, and domiciliary discharge to an inpatient event or the end of the follow-up period.

Evaluating Time in the Community: To characterize the impact of resource intensive follow-up care on healthcare utilization, the study determined the amount of time that veterans spent in their communities before they were readmitted to a VA medical or psychiatric bed section. For

veterans in the domiciliary follow-up group, this survival time began with the patient's discharge from a domiciliary or psychosocial residential rehabilitation bed section. In addition, four variables captured the observed variation in time elapsed before a veteran's entry to a domiciliary and the length of their domiciliary stay. Accordingly, the study compared veterans who spent less than 90 days (early discharge) in the domiciliary (divided by whether they had an early or late admission), veterans who spent between 90-130 days in the domiciliary (3-4 months for a standard program), and veterans who spent over 130 days in the domiciliary. For veterans receiving outpatient follow-up, survival time began with the patient's discharge from detoxification.

Differences in the time that veterans spent in the community post-discharge (survival) were evaluated using a Weibull log linear survival model corrected for gamma heterogeneity.[24] This standard survival analysis builds on prior applications in substance abuse research[17] by providing a common program outcome measure, while controlling for censored observations (i.e., patients for whom the follow-up period was cut short by the limit of follow-up data). The maximum likelihood estimates controlled for a number of patient-level characteristics, including prior utilization and diagnosis.

RESULTS:

Sample Characteristics: Unless otherwise indicated, the differences reported in patient characteristics and healthcare utilization were statistically significant at the $p<.01$ level (Table 1). Veterans in both follow-up groups tended to be younger than the VA population (which averaged 58 years in 1998), with those in domiciliaries about two years younger (Mean 45.9) than the outpatient only group (Mean 47.8). Both groups were overwhelmingly (~97%) male. Most patients were white (Domiciliary 58.7%, Outpatient 62.6%) and met eligibility requirements to

receive VA healthcare due to low incomes (Domiciliary 71.8%, Outpatient 64.1%). Significantly more domiciliary patients moved from one VA network to another during the year (33% compared to 23.8%). Of those who stayed in one network, domiciliary patients were far less likely to receive care in southeastern and western states.

Healthcare Utilization Prior to Detoxification: Veterans receiving inpatient detoxification in a VA facility have very high health service utilization (Table 1). Patients with outpatient follow-up stayed in detoxification an average of 7.3 days; those who entered domiciliaries, 8.8 days. During the 12 months prior to detoxification, both groups received an average of more than 110 days of inpatient care and 35 outpatient clinic encounters (including telephone contacts). Inpatient medical utilization was over three times as high as inpatient psychiatric utilization for both follow-up groups (over 110 days vs. 25 to 30 days), while outpatient psychiatric utilization was over twice as high as outpatient medical utilization (18 to 22 face-to-face clinic encounters vs. 8.1 to 8.2).

In general, the domiciliary patients received more care prior to detoxification, with more inpatient admissions on average (1.8 vs. 1.4) and more days of care, except for inpatient psychiatric care. A greater proportion of the domiciliary patients were diagnosed with a drug abuse problem at detoxification (61.1% vs. 54.5%) and more abused both drugs and alcohol compared to the outpatient group (45% vs. 38%, not shown).

Healthcare Utilization Following Detoxification: Veterans' utilization following detoxification demonstrated that the domiciliary programs make these patients available for more utilization than they would be likely to receive if they were only in the community. Prior to domiciliary admission, veterans received approximately 1 psychiatric encounter and 1 medical encounter per week (not shown). During their domiciliary stays, they received an average of 2.3

psychiatric encounters and 3.3 medical encounters a week (not shown). They stayed in the domiciliary an average of 64 days. After discharge from these programs, outpatient utilization dropped to an average of 0.76 psychiatric encounter every week, approximately the same level of healthcare utilization as veterans who did not participate in the domiciliary program following detoxification (0.68, $p<0.01$).

Length of Time in the Community: During the 12 months after discharge, over half (54.6%) of the total study population had another inpatient admission to a VA medical or psychiatric bed section (not shown). Of these readmissions, half occurred within 60 days of leaving a VA facility. Over a full year, patients in the outpatient follow-up group consistently had a greater readmission rate to VA facilities. These readmission rates are not surprising based on our measures of previous utilization, but are higher than earlier studies.[25-26]

Table 2 presents maximum likelihood estimates of the impact of domiciliary stays on the readmission rates, controlling for patient characteristics, measures of their pre-detoxification utilization and the intensity of their outpatient follow-up visits (as a weekly rate). The reference group was non-black veterans who received VA healthcare services due to their low income and received outpatient follow-up care in northeastern VA networks. Among personal characteristics, age was significantly and positively correlated with a longer time to readmission, as was lower priority status for VA healthcare, a rough indication of financial stability, and the use of one VA network in either the Midwest or South. Receiving care in more than one VA network and receiving VA healthcare due to a service connected disability were correlated with readmission times that were a tenth to a third shorter than the reference group.

Longer index stays for detoxification had no impact on the subsequent time to an inpatient readmission, but the number of admissions prior to the index stay was negatively

associated with the length of time in the community following discharge. That is, patients with no prior admissions stayed out of the hospital more than twice as long as those with 1-4 prior admissions. Those with more than four prior admissions stayed out only half as long. Finally, the more intense the outpatient follow-up to either the detoxification or the domiciliary care, measured as outpatient visits per week, the sooner a veteran's subsequent readmission.

While all four variations on the domiciliary experience led to significantly longer periods before a readmission compared to the reference group, the impact grows with the length of time that veterans spend in the domiciliary. Among those who stayed less than 3 months, those admitted to the program more than a month after discharge from detoxification were the least successful in staying out of the hospital. Even so, they remained in the community for about a third longer than those with outpatient follow-up care on average.

Finally, Table 3 presents the predicted probabilities for patients' readmission to a VA acute hospital by the type of detoxification follow-up they received, controlling for the impact of the personal and utilization factors listed in Table 2. This summary of the regression results underscores the expectation that about two-thirds more of the domiciliary patients (37.5% compared to 22.2%) will remain in the community over one year post-detoxification.

CONCLUSIONS:

This survival analysis shows that veterans receiving higher intensity follow-up care through domiciliaries with or without residential rehabilitation experienced lower rehospitalization rates after this follow-up care than did veterans who were followed only on an outpatient basis. Further, the longer the patients stayed in the domiciliary, the longer the time before an inpatient readmission. As the time from detoxification extends, however, the readmission rate rises for patients in either follow-up group. This finding is consistent with

results from substance abuse program evaluations that find attenuation of treatment effects over time.[27-30]

The current study has several limitations that future research efforts should address. First, it is dependent on administrative databases. This information has been shown to be highly accurate in its content and coding, and has been used to create treatment variables in a number of substance abuse utilization studies.[31-32] However, administrative databases do not provide the depth of clinical or financial information available through retrospective chart reviews and treatment notes. This limitation restricts our ability to provide a complete picture of the treatment process, as well as our ability to conduct an in-depth cost-benefit analysis. Second, the study takes place over a relatively limited time period. Treatment effectiveness depends on a combination of follow-up visits, personal factors, and environmental stability that is difficult to quantify without extended longitudinal studies.[33] Finally, the current study is limited to treatment workload within the VA system. Without matching treatment records from private providers, we are potentially excluding substance abuse treatment episodes that could impact the final survival analysis.

Despite these limitations, our study presents several important themes for future investigation. First, this study highlights the need for comprehensive, longitudinal program evaluations of substance abuse treatment effectiveness and financial impacts. Second, any ongoing program evaluations must take a number of distinct treatment measures into account in order to determine a reasonable picture of effectiveness. The distinct differences in health services utilization and striking similarities in survival times underline this point. In addition, outcome studies relying on changes in VA utilization must recognize the greater prior service use by patients admitted to domiciliaries, even compared to those receiving other types of psychiatric

follow-up care. Finally, the VA must continue to evaluate its domiciliary admission protocols in order to determine whether the program is truly serving those veterans most in need of high-intensity rehabilitation services.

Based on this initial study, it is impossible to state with certainty whether the extremely high readmission rates of veterans receiving outpatient follow-up care indicates an effective channeling of at-risk veterans into the domiciliary program. If not, the VA should consider expanding the pool of veterans with access to these resource-intensive treatment programs. These ongoing efforts to tailor treatment programs to the underlying population will be crucial to the development and maintenance of an effective and appropriate system of care for veterans struggling with chronic substance abuse issues.

REFERENCES

1. Goldman W, McCulloch J, Sturm R. Costs and use of mental health services before and after managed care. Health Affairs. 1998; 17:40-52.
2. Ma C, McGuire T. Costs and incentives in a behavioral health care carve-out. Health Affairs. 1998; 17:53-69.
3. Rosenheck R, Druss B, Stolar M, et al. Effects of declining mental health service use on employees of a large-self-insured private corporation. Health Affairs. 1999; 18:193-203.
4. Leslie D, Rosenheck R. Shifting to outpatient care? Mental health utilization and costs in a privately insured population. American Journal of Psychiatry. 1999; 156:1250-1257.
5. Shuo C, Wagner TH, Barnett PG. Trends: The effect of reforms on spending for veterans substance abuse treatment, 1993-1999. Health Affairs. 2001; 20(4).
6. Veterans Health Care Eligibility Reform Act of 1996, P.L. 104-262, 104th Congress, 2nd Session, 98 U.S. Code §101, 9 October 1996.
7. Humphreys K, Huebsch PD, Moos RH, Suchinsky RT. The transformation of the Veterans' Affairs substance abuse treatment system. Psychiatric Services. 1999; 50(11): 1399-1401.
8. Humphreys K, Huebsch PD, Moos RF. The Department of Veterans' Affairs Substance Abuse Treatment System: Settings, Services, Staffing, and Management Policies. Palo Alto, CA: VA Palo Alto Healthcare System; 1998.
9. Department of Veterans' Affairs. VHA Program Guide 1103.3: Mental Health Program Guidelines for the New Veterans' Health Administration. Washington, DC: Veterans' Health Administration Office of Patient Care Services, Mental Health Strategic Healthcare Group (116); 1999.

10. Wenzel SL, et al. Dually diagnosed homeless veterans in residential treatment: Service needs and service use. Journal of Nervous and Mental Disease. 1996; 184(7): 441-444.
11. Rosenheck R, Leda CA, Gallup P. Program design and clinical operation of two national VA initiatives for homeless mentally ill veterans. New England Journal of Public Policy. 1992; Spring/Summer: 315-337.
12. Hendricks A, Gardner J, Pizer S, et al. VA Extended Care: January 2003 Report to Congress of VA's Experience Under the Millennium Act. Center for Health Quality, Outcomes and Economic Research. Revised October 2002.
13. Department of Veterans' Affairs. VHA Directive 2001-010: Psychosocial Residential Rehabilitation Treatment Programs (PRRTP). Washington, DC: Veterans' Health Administration; 2001.
14. Samet JH, Friedmann P, Saitz R. Benefits of linking primary medical care and substance abuse services: Patient, provider, and societal perspectives. Archives of Internal Medicine. 2001; 161(1): 85-91.
15. Morris JA. Alcohol and other drug dependency treatment: A proposal for integration with primary care. Alcohol Treatment Quarterly. 1995;13:45-56.
16. Ettner SL. The relationship between continuity of care and the health behaviors of patients: Does having a usual physician make a difference? Medical Care. 1999;37(6):547-555.
17. Levin SM, Trumble JG, Edmunds M, et al. Perspectives on linkage of primary healthcare and substance abuse treatment. Journal of Addictive Disorders. 1993; 12: 1-8.
18. Lambert MT. Linking mental health and addiction services: A continuity-of-care team model. Journal of Behavioral Health Services and Research. 2002; 29(4):433-444.

19. Rosenheck R, Banks S, Pandiani J. Does closing beds in one public mental health system result in increased use of hospital services in other systems? Mental Health Services Research. 2000; 2:183-189.
20. Rosenheck R, Banks, Pandiani J, et al. Bed closures and incarceration rates among users of Veterans Affairs mental health services. Psychiatric Services. 2000; 52: 1282-1287.
21. Rosenheck R, Frisman L, Essock S. Impact of VA bed closures on use of state mental health services. Journal of Behavioral Health Services Research. 2001; 28(1): 58-66.
22. Murphy PA, Cowper DC, Seppala G, et al. Veterans Health Administration inpatient and outpatient care data: an overview. Effective Clinical Practice. May-June 2002; 5(3 Suppl): E4.
23. Gilbert FS. The effect of type of aftercare follow-up on treatment outcome among alcoholics. Journal of Studies on Alcohol. 49(2): 149-159.
24. Greene WH, Econometric Analysis, 4th Edition, Section 20.5.2.f, Upper Saddle River, NJ: Prentice-Hall, Inc. 2000.
25. Moos RH, Pettit B, Gruber VA. Characteristics and outcomes of 3 models of community residential care for substance abuse patients. Journal of Substance Abuse. 1995;7:99-116.
26. Moos RH, Pettit B, Gruber VA. Longer episodes of community residential care reduce substance abuse patients' readmission rates. Journal of Studies on Alcohol. July 1995;433-443.
27. Rychtarik RG, Connors GJ, Whitney RB, et al. Treatment settings for persons with alcoholism: Evidence for matching clients to inpatient vs. outpatient care. Journal of Consulting and Clinical Psychology. 2000;68(2):277-289.

28. Finney JW, Hahn AC, Moos RH. The effectiveness of inpatient and outpatient treatment for alcohol abuse – the need to focus on mediators and moderators of setting effects. Addiction. 1996;91:1813-1820.
29. Mattick RP, Jarvis T. Inpatient setting and long duration for the treatment of alcohol dependence? Outpatient care is as good. Drug and Alcohol Review. 1996;13:127-135.
30. Project MATCH Research Group. Matching alcoholism treatment to client heterogeneity: Project MATCH post-treatment drinking outcomes. Journal of Studies on Alcohol. 1997; 58:7-29.
31. Humphreys K, Weingardt KR. Assessing readmission to substance abuse treatment as an indicator of outcome and program performance. Psychiatric Services. 2000;51(12):1568-9.
32. Rosenheck R, Leda C. Who is served by programs for the homeless? Admission to a Domiciliary Care program for homeless veterans. Hospital and Community Psychiatry. 1991;42(2):176-181.
33. Klinkenburg WD, Calsyn RJ. Predictors of the receipt of aftercare and recidivism among persons with severe mental illness: A review. Psychiatric Services. 1996;47:487-496.

TABLE 1: SAMPLE CHARACTERISTICS

	Outpatient Follow-Up	Domiciliary Follow-Up
Number of Veterans	21,776	4,632
Personal Characteristics		
Mean (SD) Age in Years [a]	47.8 (9.3)	45.9 (8.3)
Percent:	97.4%	96.5%
Male [a]		
Caucasian [a]	62.6	58.7
African American [a]	30.2	37.3
w/Service Connected Disabilities [a]	26.5	18.6
w/Low Incomes [a]	64.1	71.8
w/ Co-Pay for VA Health Services [c]	1.5	1.2
Northeast	20.3	19.5
Southeast [a]	17.0	9.3
Midwest [a]	14.6	20.1
South	12.1	11.7
West [a]	12.0	6.4
More than 1 VA Network [a]	23.8	33.0
Healthcare Utilization		
Mean (SD) Inpatient Detox LOS [a]	7.3 (17.1)	8.8 (19.7)
Mean (SD) # of Inpatient Admissions [a]	1.4 (2.0)	1.8 (2.1)
% with 0 Admissions [a]	40.9	25.2
% with 4+ Admissions [a]	11.0	14.8
Mean (SD) # of Inpatient Days [c]	110.7 (138.5)	114.7 (140.0)
Mean (SD) # of Medical Days [a]	80.4 (123.9)	90.0 (128.7)

Mean (SD) # of Psychiatric Days [a]	30.3 (85.7)	24.6 (77.7)
Mean (SD) Clinic Encounters [a]	37.1 (59.8)	42.4 (67.1)
Medical Encounters [d]	8.2 (10.4)	8.1 (10.4)
Psychiatric Encounters [d]	18.5 (44.1)	22.3 (45.8)
% of Highest Quartile [a]	29.9	33.7
% of Lowest Quartile	29.8	30.2
% with a Drug Diagnosis [a]	54.5	61.1
% with an Alcohol Diagnosis	82.8	85.1
Mean (SD) # of Weekly Visits Post-Detoxification [a]	.68 (.929)	.76 (1.09)
Time in Domiciliary Program		
Stayed < 90 Days		
Admitted > 1 month post-detox		34.8
Admitted < 1 month post-detox		38.2
Stayed 90 – 130 Days		14.3
Stayed 130+ Days		12.7

[a] Difference between outpatient and domiciliary treatment groups statistically significant at $p < 0.01$

[c]. Difference between outpatient and domiciliary treatment groups statistically significant at $p < 0.10$

[d] Excludes phone consultations, lab visits, x-ray visits, or local encounter codes.

TABLE 2: ESTIMATION OF THE IMPACT OF DOMICILIARY STAYS ON THE TIME TO INPATIENT READMISSION

Independent Variables	Coefficient	Std Error
Constant	5.185 [a]	0.120
ú Heterogeneity correction	0.232 [a]	0.045
õ Scale	1.780 [a]	0.027
Personal Characteristics		
African-American	0.012	0.036
Age	0.006 [a]	0.002
Eligibility Category		
Service Connected Disabilities (1 – 3)	-0.106 [a]	0.037
Service Connected Disabilities (4, 6)	-0.377 [a]	0.052
Co-pay for VA Healthcare (7)	0.323 [a]	0.092
Unknown	0.116	0.105
Region:		
Southeast	0.123 [b]	0.053
Midwest	0.216 [a]	0.053
South	0.440 [a]	0.059
West	-0.034	0.056
Multiple Networks	-0.169 [a]	0.045
Utilization Factors		
Detoxification LOS	*	*
Detoxification LOS>90	-0.413	0.260
Drug Dependency	0.163a	0.037
Alcohol Dependency	-0.071	0.045
Prior VA Admissions		
0	1.123 [a]	0.037
4+	-1.034 [a]	0.049

Prior VA Psychiatric Outpatient Use		
Highest Quartile	0.123 [a]	0.038
Lowest Quartile	-0.099 [b]	0.039
Weekly Visits Post-Detoxification	-0.361 [a]	0.016
Domiciliary Program:		
Stayed <90 Days		
Admitted > 1 month post-detox	0.302 [a]	0.066
Admitted < 1 month post-detox	0.827 [a]	0.066
Stayed 90 – 130 Days	1.003 [a]	0.106
Stayed 130+ Days	1.286 [a]	0.117

* Less than 0.005.

a. Significant at the p< .01 level.

b. Significant at the p< .05 level.

TABLE 3: PREDICTED TIME TO READMISSION BY TYPE OF DETOXIFICATION FOLLOW-UP CARE [a]

	Outpatient Follow-Up (n=21,776) %	Domiciliary Follow-Up (n=4,632) %
< 1 Week	*	0
Up to 1 Month	2.4	1.2
1 – 3 Months	17.1	12.2
3 – 6 Months	36.3	18.3
6 – 9 Months	10.7	15.4
9 – 12 Months	11.3	15.4
1 – 2 Years	21.8	24.2
Over 2 Years	0.4	13.3

* Less than 0.5%

[a] Predicted % based on coefficients in Table 3.