Published in final edited form as:

Am J Health Behav. 2010 ; 34(6): 737–749.

Does Screening Classification Predict Long-Term Outcomes of DWI Offenders?

Sandra Lapham, M.D., M.P.H.

Behavioral Health Research Center of the Southwest, A Center of the Pacific Institute for Research and Evaluation (PIRE), 612 Encino Place NE, Albuquerque, NM 87102

Abstract

Objectives—We interviewed 583 driving while intoxicated (DWI) first offenders with substance use disorders (SUDs) to determine the usefulness of a screening classification system in predicting treatment utilization, current SUD, and driving over the alcohol limit (DOL) at 15-year follow-ups.

Methods—Univariate and multivariate statistics were used to determine predictors of long-term outcomes.

Results—Screening classification defined groups with different treatment histories and 15-year outcomes. Current SUDs were reported by 21%, and DOL by 10%, of subjects.

Conclusions—Group differences suggest that screening data could be used more effectively to triage and treat DWI offenders.

Keywords

DWI/DUI treatment; DWI/DUI screening; driving under the influence; impaired driving

Introduction

Driving while impaired (DWI) by alcohol and other drugs is a serious public health problem in the United States. In 2006, 13,470 people died in alcohol-impaired driving crashes, accounting for nearly one-third (32%) of all traffic-related deaths.¹ Individuals with a first DWI conviction have high rates of recidivism. About 30% of those involved in alcohol-related crashes have a prior DWI arrest or conviction.^{2–4} These statistics provide impetus for the development of effective DWI offender interventions.

Most states have laws requiring offenders to be screened for substance use disorders (SUDs).⁵ However, the screening process, endorsed at the federal level,⁶ is less than perfect. DWI offenders undergoing screening complete self-report questionnaires, may or may not be interviewed by a trained staff person or counselor, and are typically classified in dichotomous categories, according to whether or not they have alcohol- or drug-related problems requiring treatment. Those who screen positive are court-mandated to undergo further evaluation or to complete a course of treatment.⁵ Offenders, though, are often motivated to underreport previous offenses⁷ and substance-related problems to avoid being labeled or coerced into treatment, which leads to underdiagnosis.^{8–10}

This study was conducted to determine whether offender classifications, or subtypes, assigned at screening could be used to foretell treatment utilization and 15-year drinking and driving outcomes among offenders with a SUD. This information could influence the development of more utilitarian methods to classify a given offender population. Researchers have explored the possibility that offenders could be divided into meaningful subgroups.¹¹⁻¹⁴ This research points to a need to provide a wider range of treatment options to offenders. However, these subgroups are difficult to define within the context of a brief screening process. As suggested by La Brie and his colleagues,¹⁵ it is time to revisit the utility of using typologies to stimulate the development of new policies and practices for dealing with DWI offenders. In a previous study of a DWI first offender population referred for screening in New Mexico, we identified groups of offenders at high risk of recidivism, 4 years following a first DWI offense.¹⁶ The present study followed offenders for 15 years after a court-mandated screening referral for a first DWI offense. Offenders selected for study reported a SUD at the age they were screened. All were court-ordered to complete the screening process, but some did not follow the mandate. Accordingly, offenders were classified into one of four categories, depending on whether or not they completed screening, were referred to treatment, and, if referred, completed the court-mandated treatment course.

This study had two objectives. The first was to determine whether information available at screening, including classification, age, gender, education, and ethnicity, is useful in predicting 15-year SUD and drinking and driving outcomes. Another objective was to evaluate whether the screening process itself may influence treatment seeking among offenders with a SUD.

Methods

Inclusion Criteria

The study population was selected from a database of convicted DWI offenders who were referred to the Lovelace Comprehensive Screening Program (Screening Program) between April 1989 and March 1992. To qualify for inclusion in the present analysis, participants must have completed both a 5- and 15-year follow-up interview and must have met Diagnostic and Statistical Manual of Mental Disorders–Fourth Edition (DSM-IV) criteria for an alcohol- or drug-use disorder, with an age of onset equal to or less than the age at the time of referral to the Screening Program.

Screening Program and Classification

The Screening Program, under contract with the Bernalillo County Metropolitan Court (New Mexico), provided screening services for first DWI offenders who completed several assessments to determine their use of substances and consequences. Assessments included the Alcohol Use Inventory¹⁷; the Michigan Alcoholism Screening Test¹⁸; the MacAndrews and validity scales of the Minnesota Multiphasic Personality Inventory-2^{19,20}; and the Drug Abuse Screening Test.²¹ Questions also included offenders' use of cannabis, cocaine, or amphetamines, and consequences. After offenders completed the assessments, they met with a master's degree level counselor, who reviewed the blood alcohol concentration at arrest and assessment results, discussed the circumstances of the DWI arrest with the offender, and reviewed diagnostic criteria for substance use disorders, as specified by the DSM-III-R,²² the current diagnostic criteria at that time. Using all this information counselors made a treatment recommendation. Those evaluated as needing treatment were referred to treatment programs available in the community. If referred to treatment, the treatment center was contacted to verify completion of the court-mandated treatment course. Details of the screening process have been published.^{23,24}

Offenders were classified into one of four categories: 1) court-mandated to complete screening but were noncompliant and did not complete the screening process (did not complete screening); 2) completed screening, determined by the screening counselor not to need treatment for a SUD, and not referred to treatment (not referred to treatment); 3) completed screening and were referred to, but did not complete, the court-mandated treatment course (noncompliant with treatment); and 4) completed screening, were referred to, and completed treatment (completed treatment).

Five- and 15-Year Follow-Up Interviews

Five years after the screening referral we conducted a follow-up study of offenders referred between 1989 and 1992. We selected 2615 subjects for the 5-year follow-up study (Figure 1 shows the Study Flow Diagram). Of these subjects, 56 were deceased and 1396 were interviewed. An analysis comparing groups by whether or not they were located, interviewed, or refused (direct versus indirect refusals) found that several factors including younger age, Mexican National ethnicity, screening compliance, and having an outstanding arrest warrant predicted both inability to locate and type of refusal.²⁵ Hispanic ethnicity and having a telephone predicted better success with locating subjects. Among those who refused to be interviewed, Non-Hispanic whites were more likely than other ethnic groups to refuse directly, and those with outstanding warrants were more likely to refuse indirectly. Noncompliance with the screening program was also associated with differential follow-up rates. Neither arrest breath alcohol levels nor alcohol diagnoses were associated with differential rates of follow-up. Therefore, alcohol diagnosis did not appear to influence successful follow-up in this criminal justice population. The 5-year follow-up interviews included demographic and self-report information regarding personal, social, drinking and driving histories, and treatment services received in the 5 years following screening.

Ten years later we attempted to locate and re-interview this cohort of 1396 offenders (15-year follow-up). An institutional review board approved the protocol. The primary data source for locating clients was Screening Program record data, but other databases were also used. Bilingual (English and Spanish) staff used a comprehensive location protocol, including a letter sequence, telephone calls, and home visits. Once located, willing participants provided written informed consent. Staff followed written procedures for persuading clients to participate, and the participants were paid \$100 to complete the interview process. Comprehensive baseline interviews were scheduled once informed consent was given. A list of identifiers for all subjects, who during the tracking process died or were not located was submitted to the Centers for Disease Control and Prevention in January 2008. This list was matched to the National Death Index, and 100 deaths of subjects originally interviewed at the time of the 5-year follow-up were identified. Three hundred ninety-one were not located, and 718 were interviewed (Figure 1). Of those interviewed, three subjects provided incomplete information, and 132 did not meet inclusion criteria for the present analysis, as they did not qualify for a SUD at the age of screening, leaving 583 subjects for this analysis. Comparisons between those followed at 15 years with those interviewed only at the 5-year follow-up revealed that males were underrepresented in the 15-year follow-up group. Fifty-two percent of interviewees were male at the 5-year follow-up compared with 40% at the 15-year follow-up (Chi-square $p < 0.001$). Other characteristics were similar between groups, including screening group, age at screening, education group, ethnicity, number of DWIs, and lifetime psychiatric disorders.

The diagnostic interview included basic demographic information, questions regarding treatment received for SUD or other mental health problems since the 5-year follow-up interview (Time 2), drinking any alcohol and driving “when you thought you might be over the legal blood alcohol limit for drunk driving” in the past 3 months, and lifetime and current (12-month) symptoms of alcohol or drug use disorders. The Composite International

Diagnostic Interview (CIDI)²⁶⁻²⁸ was used to obtain 12-month SUDs and age of onset. The CIDI estimates prevalence rates of specific psychiatric disorders and was designed to be easily understood and appropriate for use by nonclinician interviewers. The scripted and close-ended questions are appropriate for people with an 8th grade reading level. We used the 10th revision that provides the DSM-IV²⁹ diagnoses based on an individual's responses.

Statistical Methods

The analysis utilizes information available at screening to predict receipt of treatment services and 15-year SUD and driving over the alcohol limit (DOL) outcomes. We first compared screening groups by demographic descriptors. Then, we examined the utilization of treatment services in the follow-up period by screening classification and determined how these subgroups differed with respect to 15-year outcomes, using univariate and multivariate statistics.

Chi-square tests were used to test categorical variables by screening group, treatment services received, current SUD, and DOL. Since the distributions of treatment services reported were all highly skewed and few services were reported, we grouped services into discrete categories for analysis. The Bonferroni correction was used for pairwise comparisons. Univariate analyses were conducted to determine differences among the screening groups with respect to gender, age category at screening (<31 vs. 31+), education group (<12 years, 12 years, >12 years), and ethnicity (nonHispanic white, Hispanic, and other).

For the analysis of outpatient counseling for substance use or other mental health problems, we examined treatment episodes for Time 2 only (none, 1, 2+), because court-mandated treatment occurring in the first 5 years of follow-up is accounted for in the screening classification. We examined the number of times following screening subjects received detoxification services (none, 1, 2+), or were seen in an emergency department for problems related to mental health or substance abuse (none, 1, 2+). Finally, we examined the number of lifetime 12-step meetings attended (none, 1–10, 11–100, >100, or don't know).

Using logistic regression, screening classification, gender, age group, education group, and ethnicity were tested for associations with each type of treatment service received, whether the subject reported a current (12-month) alcohol or drug use disorder at the 15-year follow-up; and whether they reported DOL within the 3 months before the 15-year follow-up. The CIDI, which bases diagnoses on the DSM-IV criteria, was used to determine retrospectively which subjects met criteria for a SUD at screening and at the 15-year follow-up.

Results

Demographic and Psychiatric Differences Among Screening Groups

Fourteen percent of subjects were in the group that did not complete screening, 43% were not referred to treatment, 8% were noncompliant with treatment, and 35% were in the completed treatment group (Table 1). A higher percentage of women was in the 'not referred to treatment' group, compared with the 'completed treatment' group. Compared to the group that did not complete screening, individuals in the 'not referred to treatment' group had significantly more years of education than the group that did not complete screening.

Screening Group Differences in Use of Treatment Services

Among all offenders, only 20% reported that they had received at least 1 week of outpatient treatment services for mental health or substance abuse problems during the interval between screening and the 5-year follow-up interview; 26% reported treatment episodes

during Time 2. Fifteen percent of the entire population received detoxification services, 13% were seen in an emergency department for mental health or substance-related problems, and 50% had attended at least one 12-step meeting. About half of those who attended a 12-step meeting reported that a judge had ordered them to go.

Treatment services received varied by screening group (Table 2). The group that did not complete screening was more likely than members of the other three groups to have undergone detoxification. The 'not referred to treatment' group had fewer emergency department visits than the 'not completed treatment' group. The group that was not referred to treatment also reported having attended significantly fewer 12-step meetings than members of the other three groups.

15-Year SUD and DOL Outcomes

Overall, 21% of the study population reported a current SUD at the 15-year follow-up, and 10% reported DOL at least once in the past 3 months. Univariate comparisons revealed that screening group and younger age were associated with current SUD (Table 3). Both males and females were equally likely to have current SUDs and current rates of DOL. Pairwise comparisons revealed that non-Hispanic whites had a lower rate of current SUDs compared with the other two ethnic groups. None of these characteristics was associated with current DOL (Table 3).

Treatment Services and 15-year Outcomes

The 'not referred to treatment' group had the lowest rate of current SUD. Those offenders with higher levels of outpatient treatment, more detoxification services, emergency department visits, and lifetime 12-step meeting attendance were more likely to report a current SUD at the 15-year follow-up (Table 3). Pairwise comparisons showed that those who received any outpatient treatment for mental health or substance use problems at Time 2 had higher levels of a current SUD than those who did not receive treatment (Table 3). Subjects who had two or more emergency department visits for mental health or substance use problems had higher current rates of SUD compared to those with no visits; those who attended no 12-step meetings had lower current rates. None of the treatment variables was associated with current DOL.

Screening Group as a Predictor of Treatment Services Utilization

Logistic regressions revealed that screening group was not associated with receipt of outpatient services in Time 2 (Table 4). However, women, those in the younger age group, and those with fewer than 12 years of education were more likely to receive outpatient treatment services in Time 2. Individuals in the screening group who did not complete screening were more likely than those not referred to treatment to have received detoxification and emergency department visits; they also were more likely to have ever attended 12-step meetings. Members of the group that was not referred to treatment were less likely than those of other groups to have ever attended a 12-step meeting. Those in the 'other' ethnic group, the majority of whom were Native Americans, were less likely than those in the Hispanic and non-Hispanic white group to have received detoxification services.

Screening Group as a Predictor of 15-year Outcomes

Members of the screening group who did not complete screening and those in the 'completed treatment' group were over twice as likely to have a current SUD, compared with the group that was not referred to treatment. Hispanics, and those in the 'other' ethnicity category were more likely than non-Hispanic whites to be experiencing a current

SUD, compared with non-Hispanic whites (Table 5). Neither screening group, nor any of the demographic characteristics, predicted current DOL at 15-year follow-up.

Discussion

The overall rate of current SUDs among these offenders was 21% 15 years following a screening referral. This rate, while substantial, is similar to those of other studies of the natural history of substance-related problems. A review of studies that followed people treated for alcohol dependence for 15 to 40 years finds that different samples recruited at different times and followed for different intervals show a wide range of outcomes.³⁰ Most of these longitudinal studies report that rates of SUDs decline steadily after age 40. This would explain the high recovery rate in the present study population. The youngest subjects in the present study were 18 years old at screening; hence, the youngest members of this population were at least 33 years old. In one study of 96 individuals, 27 died after 16 years of follow-up, 11 were lost to follow-up, and 48 of the remainder were still alcoholic.³¹ Another study of 207 alcoholics followed from 40 to 50 years, finds 23% were deceased and of 137 survivors who were followed, 48% were still alcoholic.³² Other studies find rates ranging from 26% to 68%.³⁰ It should be noted that these are studies of treated alcoholics. Only about one quarter of the present population received any treatment services for substance use or mental health problems. Another study using survey data from the National Epidemiologic Survey on Alcohol and Related Conditions examined recovery from DSM-IV alcohol dependence. Among U.S. adults 18 years of age or older with prior alcohol dependence, 14.5% were still dependent 10–19 years after onset.³³ Among those who were treated, 27.3% were still dependent after 10–19 years, and of those never treated 9.4% were still dependent. These statistics are not entirely comparable to our sample, that includes those with alcohol or drug abuse or dependence.

Screening programs collect a limited amount of information of dubious veracity.^{7,10} This study suggests that classifications based on program compliance and counselor recommendations, however, are useful in defining offender subgroups. Our findings demonstrate that the four screening classifications defined unique subsets of the DWI offender population. Screening groups differed not only in demographic characteristics, but had different treatment experiences and long-term rates of current SUD. The group that was determined to be at lowest risk, the ‘not referred to treatment’ group remained low risk over the next 15 years and had the lowest rate of current SUDs. While members of this group met diagnostic criteria for a SUD at screening and were less likely to report a current SUD diagnosis at follow-up, they were not less likely to report DOL at 15-year follow-up. The groups were similar with respect to DOL. This raises the question of whether interventions for impaired driving should be distinct from interventions directed solely at treating substance use problems.

Alcohol and other drug consumption and problem severity lie along a continuum. Using traditional dichotomies to categorize DWI offenders fails to account for their diversity in the level of alcohol and drug use disorders, driving practices, and risk for recidivism.^{15,34,35} Clearly, noncompliance is an important consideration. The noncompliant offenders who did not complete screening had the highest rates of SUD at follow-up and utilized more treatment resources over the ensuing years than other groups. This indicates a need for close monitoring of noncompliant offenders and raises the possibility that screening programs should develop special sanctions or treatment programs for these individuals. One study shows that incarcerated firsttime DWI offenders with antisocial personality benefitted more from a motivational interviewing-based treatment program than offenders without antisocial personality disorder.^{36,37} Most of the offenders were Native Americans. Participants with antisocial personality disorder reported heavier and more frequent drinking at baseline, but

had greater declines in drinking from intake to post-treatment assessments than control subjects.

A smaller than expected percentage of offenders, all of whom reported a SUD, received non-Court ordered treatment. About 26% of study participants reported having received any substance abuse or mental health treatment services in Time 2 of follow-up, encompassing 10 years. In comparison, among those surveyed in the National Comorbidity Survey, who reported a current alcohol use disorder, 14.5% (standard error 3.03) had received some form of services, including self-help groups, for their problems in the past year.³⁸ The National Comorbidity Survey is a nationally representative sample of adults living in the United States that used the same diagnostic instrument as our study. Among those with an alcohol use plus any other comorbid disorder such as other SUD, 32.2% had received such services in the past year. Data from the National Household Survey on Drug Abuse reveal that only 4% of those who report substance abuse problems received treatment service in the previous year.³⁹ We did not determine the total number of years subjects in this study continued to meet criteria for SUDs, nor did we ascertain how many 12-step meetings offenders attended each year. It seems apparent, though, that with such a high level of comorbidity, the DWI offenders did not receive enough services.

While little has been published regarding the usefulness of the screening process itself as an intervention tool,^{5,40} we hypothesized that those who completed screening might have better outcomes than other groups of offenders. Screening programs for DWI offenders, such as the one described here, often contain key elements of brief interventions. They are conducted in nontreatment settings; are performed by providers who do not specialize in addiction treatment; and include assessment, feedback, and advice.^{24,40,41} Practitioners have recognized for many years that simply asking people about their drinking and its consequences can lead to reduced drinking.⁴² Our results show that those who did not complete screening had the highest rates of current SUDs at follow-up. They also had the highest utilization of treatment services. This may indicate these offenders were initially at higher risk than the other groups, had higher SUD severity, or had worse outcomes for other reasons unrelated to the screening process. Another plausible explanation is that the screening process may have benefitted the groups of offenders who completed it. Screening may have, for example, predisposed the low-risk, 'not referred to treatment' group to seek treatment services. The 'not referred to treatment' group received similar levels of treatment compared with the other groups (except 12-step attendance), despite their screening counselors' determination that they had lower levels of alcohol and drug use problem severity. Perhaps the screening process helped them to realize a need for treatment, and motivated them to get help. There have been no randomized studies of the possible beneficial effects of screening. Such a study is greatly needed.

The offenders in this study had a much higher prevalence of impaired driving at follow-up, compared with a general population sample of drivers. Ten percent of offenders admitted to DOL in the past 3 months. For comparison, only 2.3% of civilian adults over age 18 responded positively to the 2002 Behavioral Risk Factor Surveillance System question, "During the past month, how many times have you driven when you've had perhaps too much to drink?"⁴³ The questions are not comparable, due to different wording and the different time interval covered in the two questions, but the questions similarly require the respondent to make a subjective judgment about their level of intoxication. In the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions,⁴⁴ subjects were asked, "In your entire life, did you ever more than once drive a car or other vehicle while you were drinking?" If yes, they were asked if this happened in the past 12 months. In that survey, the 12-month prevalence was 4.5%. The overall male to female ratio was around 3.0,

in stark contrast to our findings of similar rates between genders, 12% of males and 9% of females having reported DOL in the past 3 months.

This study has several limitations. This population may not be representative of all DWI offenders. Since data are self reported, the information is subject to errors in memory, underreporting, and misjudgment. The SUD diagnosis was not confirmed by clinicians, another limitation. With respect to DOL, the low percentage of subjects reporting this behavior limits the power to detect risk factors associated with this outcome. Finally our models did not measure the many other intervening factors over the 15 years of follow-up that may have influenced outcomes.

In summary, this study found that screening classification defined groups of individuals with different risk profiles and different 15-year rates of current SUDs. These findings support previous research suggesting that information from screening may be useful in triaging offenders to specialized services appropriate for their risk profiles.^{3,15,16,36} Offenders referred to treatment may benefit from more intensive treatment services and long-term follow-up. We suggest that screening programs create a third referral category for noncompliant offenders, who might benefit from incarceration treatment or other more rigorous interventions. Given the persistent and recurrent nature of SUDs and DOL, investing more resources in providing optimal treatment services to offenders and monitoring noncompliant individuals over an extended time period may be a good use of limited resources.

Acknowledgments

This study was funded by grant # R01AA014750 from the National Institute on Alcohol Abuse and Alcoholism to funded longitudinal study examining a cohort of convicted alcohol-impaired drivers.

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Figure 1.
Study Flow Design

Table 1

Characteristics of screening groups

Characteristic	<i>a</i> _{NCS}	<i>b</i> _{NRT}	<i>c</i> _{NCT}	<i>d</i> _{CT}	Chi-square p-value
	N (%)	N (%)	N (%)	N (%)	
All	84 (14)	252 (43)	46 (8)	201 (35)	
Gender					
Male	36 (43)	88 (35)	19 (41)	97 (48)	0.04
Female	48 (57)	164 (65)	27 (59)	104 (52)	
Age group					
< 31	58 (69)	156 (62)	34 (74)	124 (62)	0.28
31+	26 (31)	96 (38)	12 (26)	77 (38)	
Education group					
< 12 yr	29 (35)	52 (21)	12 (26)	36 (18)	0.08
12 yr	22 (26)	70 (28)	10 (22)	62 (31)	
> 12 yr	33 (39)	130 (52)	24 (52)	102 (51)	
Ethnicity					
<i>e</i> _{NHW}	26 (31)	92 (37)	21 (46)	81 (40)	0.01
Hispanic	38 (45)	134 (53)	15 (33)	86 (43)	
Other	20 (24)	26 (10)	10 (22)	34 (17)	

*a*_{NCS} = Did not complete screening

*b*_{NRT} = Not referred to court-mandated treatment

*c*_{NCT} = Did not complete treatment

*d*_{CT} = Completed treatment

*e*_{NHW} = Non-Hispanic white

Category totals may vary due to missing data.

Table 2

Use of substance abuse or mental health services over the 15-year follow-up period, by screening group

	^a NCS N (%)	^b NRT N (%)	^c NCT N (%)	^d CT N (%)	Chi-square p-value
^e OP treatment- ^f Time 2 (episodes)					
None	55 (67)	184 (75)	30 (68)	151 (76)	0.25
1	15 (18)	43 (17)	6 (14)	30 (15)	
2+	12 (15)	19 (8)	8 (18)	18 (9)	
Detoxification episodes					
None	55 (68)	218 (90)	37 (90)	161 (85)	<0.001
1+	26 (32)	24 (10)	4 (10)	28 (15)	
Emergency dept. visits					
None	61 (75)	225 (91)	37 (82)	176 (89)	0.01
1	10 (12)	14 (6)	4 (9)	9 (5)	
2+	10 (12)	9 (4)	4 (9)	13 (7)	
Lifetime 12-Step variables (# meetings lifetime)					
None	28 (33)	166 (66)	18 (39)	85 (42)	<0.001
1-10	18 (21)	27 (11)	12 (26)	37 (18)	
11-100	14 (17)	19 (8)	7 (15)	40 (20)	
>100	12 (14)	17 (7)	3 (7)	18 (9)	
Don't know	12 (14)	23 (9)	6 (13)	21 (10)	

^aNCS = Did not complete screening

^bNRT = Not referred to court-mandated treatment

^cNCT = Did not complete treatment

^dCT = Completed treatment

^eOP = Outpatient

^fTime 2 = 5-yr to 15-yr follow-up interview

Category totals may vary due to missing data.

Table 3

Variables associated with current (12-month) SUDs and DOL

Characteristic	Current ^a SUD		^b DOL	
	%	Chi-square p-value	%	Chi-square p-value
Screening group				
^c NCS	33	<0.001	9	0.39
^d NRT	14		10	
^e NCT	22		4	
^f CT	24		13	
Gender				
Male	23	0.31	12	0.36
Female	19		9	
Age at Screening				
< 31	24	0.04	11	0.68
31+	16		10	
Education group				
< 12 yr	25	0.45	9	0.58
12 yr	19		9	
> 12 yr	20		12	
Ethnicity				
^g NHW	15	0.01	11	0.75
Hispanic	23		10	
Other	29		12	
^h OP treatment ⁱ Time 2				
None	17	0.002	11	0.84
1	32		10	
2+	26		9	
Detoxification				
None	18	<0.001	11	0.31
1+	35		7	
Emergency dept. visits				
None	18	<0.001	11	0.67
1	24		5	
2	50		11	
3+	50		6	
Lifetime 12-Step variables (# meetings lifetime)				
None	14	<0.001	12	0.39
1–10	35		7	
11–100	28		11	
>100	22		4	
Don't know	23		12	

^aSUD = Substance use disorder

^bDOL = Driving over the alcohol limit

^cNCS = Did not complete screening

^dNRT = Not referred to court-mandated treatment

^eNCT = Did not complete treatment

^fCT = Completed treatment

^gNHW = NonHispanic white

^hOP = Out-patient

ⁱTime 2 = 5-yr to 15-yr follow-up

Table 4

Logistic regression for predicting use of treatment services at the 15-year follow-up

Characteristic at Screening	<i>a</i> OP treatment		Detox		Emergency department visits		12-step meetings	
	<i>b</i> OR (95% <i>c</i> CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
Screening Classification								
<i>d</i> NCS	1.7 (1.0, 3.0)	0.07	4.7 (2.4, 8.9)	<0.001	3.1 (1.6, 6.0)	0.001	3.7 (2.2, 6.3)	<0.001
<i>e</i> NRT	1.0		1.0		1.0		1.0	
<i>f</i> NCT	1.4 (0.7, 2.8)	0.41	1.0 (0.3, 3.0)	0.98	2.1 (0.8, 5.0)	0.11	2.8 (1.5, 5.5)	0.002
<i>g</i> CT	1.0 (0.6, 1.6)	0.95	1.6 (0.9, 2.9)	0.11	1.3 (0.7, 2.4)	0.46	2.5 (1.7, 3.7)	<0.001
Gender								
Male	1.0		1.0		1.0		1.0	
Female	1.7 (1.1, 2.5)	0.01	0.8 (0.5, 1.3)	0.34	1.2 (0.7, 2.0)	0.49	0.8 (0.6, 1.1)	0.21
Age								
< 31	1.6 (1.0, 2.4)	0.03	1.3 (0.8, 2.2)	0.30	1.4 (0.8, 2.4)	0.26	1.1 (0.8, 1.6)	0.61
31+	1.0		1.0		1.0		1.0	
Education group								
< 12 yr	0.4 (0.2, 0.7)	0.002	1.1 (0.6, 2.1)	0.67	1.7 (0.9, 3.2)	0.09	1.0 (0.7, 1.6)	0.84
12 yr	0.7 (0.4, 1.0)	0.08	1.0 (0.6, 1.8)	0.99	1.4 (0.8, 2.6)	0.24	1.5 (1.0, 2.3)	0.05
> 12 yr	1.0		1.0		1.0		1.0	
Ethnicity								
<i>h</i> NHW	1.0		1.0		1.0		1.0	
Hispanic	0.9 (0.6, 1.3)	0.49	0.9 (0.5, 1.5)	0.58	0.9 (0.5, 1.6)	0.69	0.8 (0.5, 1.2)	0.26
Other	0.8 (0.4, 1.4)	0.36	0.4 (0.2, 0.9)	0.03	0.8 (0.4, 1.8)	0.60	1.3 (0.8, 2.1)	0.37

*a*OP = outpatient

*b*OR = Odds ratio

*c*CI = 95% confidence interval

*d*NCS = Did not complete screening

*e*NRT = Not referred to court-mandated treatment

f_{NCT} = Did not complete treatment

g_{CT} = Completed treatment

h_{NHW} = Non Hispanic white

Table 5

Logistic regression for predicting current (12-month) SUDs and DOL at 15-year follow-up

Characteristic	Current ^a SUD		^b DOL	
	^c OR (95% ^d CI)	p-value	OR (95% CI)	p-value
Screening group				
^e NCS	2.9 (1.6, 5.4)	<0.001	0.8 (0.3, 1.9)	0.56
^f NRT	1.0		1.0	
^g NCT	1.7 (0.8, 3.9)	0.18	0.4 (0.1, 1.6)	0.19
^h CT	2.1 (1.3, 3.5)	0.003	1.2 (0.6, 2.1)	0.59
Gender				
Male	1.0		1.0	
Female	0.9 (0.6, 1.3)	0.51	0.8 (0.5, 1.4)	0.42
Age				
< 31	1.5 (1.0, 2.4)	0.07	1.2 (0.7, 2.1)	0.57
31+	1.0		1.0	
Education group				
< 12 yr	1.1 (0.7, 1.9)	0.70	0.8 (0.4, 1.6)	0.46
12 yr	0.8 (0.5, 1.3)	0.41	0.8 (0.4, 1.5)	0.41
> 12 yr	1.0		1.0	
Ethnicity				
ⁱ NHW	1.0		1.0	
Hispanic	1.7 (1.1, 2.8)	0.03	0.9 (0.5, 1.7)	0.83
Other	1.9 (1.1, 3.6)	0.03	1.2 (0.6, 2.7)	0.62

^aSUD = Substance use disorder^bDOL = Driving over the alcohol limit^cOR = Odds ratio^dCI = 95% confidence interval^eNCS = Did not complete screening^fNRT = Not referred to court-mandated treatment^gNCT = Did not complete treatment^hCT = Completed treatmentⁱNHW = Non-Hispanic white

Category totals may vary due to missing data.