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Effects of Treatment History and Centralized Intake on Drug Treatment Outcomes†

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Abstract—This study assesses differences between first-time treatment clients (n=90) and repeat treatment clients (n=361), including whether entering treatment through a central intake unit affects outcomes differently for the two groups. Interview data were collected at baseline, one-month and 12-month follow-up. Study groups were similar in gender, race and age, but repeat treatment participants were more educated, more likely to primarily use heroin and more likely to have ever injected drugs. First-time treatment clients were more likely to have been required to enter treatment, but less likely to have applied to another program or to be in the program they desired. First-time treatment clients were also more likely to be in outpatient or day treatment, and less likely to be in residential treatment. Problem severity decreased for both groups over time, with no significant differences between groups. There was one significant interaction effect of study group and length of stay on social problem severity, such that longer stays in treatment led to a greater reduction in social problems for repeat treatment clients. Route of treatment entry (CIU/non-CIU) was not associated with problem severity nor change in problem severity over time for either study group.

Keywords—centralized intake, substance abuse treatment, treatment history, treatment outcomes

Over the past five years, several researchers have highlighted the importance of utilizing a "treatment career" perspective in substance abuse treatment research (Claus, Mannen & Schicht 1999; Hser et al. 1999a; Hser et al. 1999b; Anglin, Hser & Grella 1997; Hser et al. 1997). Recognizing the chronic, relapsing nature of drug addiction, the treatment career perspective conceptualizes substance abuse treatment as a potentially long-term, cyclical process that may extend across multiple episodes. This perspective suggests that relapse and treatment readmission are not necessarily indicative of "treatment failure," and hypothesizes that treatment effects may be cumulative across episodes. The treatment career approach challenges a tendency in treatment evaluation research to view treatment episodes as discrete events, and consequently raises new research questions and provides a mechanism for reframing old ones.

One set of questions to emerge from the treatment career perspective concerns the effect of treatment history

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on subsequent treatment experiences. Studies of out-of-treatment drug users have found that those with prior treatment experiences are more likely to subsequently enter treatment than those with no treatment experience (Bluthenthal et al. 2000; Schütz et al. 1994) particularly if the previous experience was positive (Hser et al. 1998). However, once in treatment, individuals with previous treatment experience have more severe problems at admission (Claus, Mannen & Schicht 1999; Grella & Joshi 1999; Hser et al 1999a, b), and poorer outcomes at follow-up (Hser et al. 1999a, b), than those entering treatment for the first time. Recognizing that clients experienced with treatment may be more difficult to treat than clients with no prior treatment experience, Hser and colleagues (1999a) called for an investigation of treatment processes that may interact with treatment history to improve outcomes.

Previous studies have found that longer stays in treatment (Simpson, Joe & Brown 1997; Hubbard et al. 1989) and more frequent service provision (Simpson et al 2000; Hser et al. 1999a; Ouimette et al 1998; Moos & King 1997; Simpson et al. 1997; Simpson et al. 1995) are associated with improved treatment outcomes. Moreover, treatment history appears to interact with these factors, such that longer stays in treatment (Hser et al. 1996b)and more frequent individual counseling sessions (Hser et al. 1999a) have a greater positive impact on repeat treatment clients than first-time treatment clients. Processes associated with treatment entry have also been expected to impact treatment outcomes. Particular attention has been focused on client-treatment matching (Project Match Research Group 1997; McLellan & Alterman 1991; Institute of Medicine 1990; Marlatt 1988 & Finney & Moos 1986) and the centralization of intake procedures (Guydish et al. In Press a; Guydish et al. 2001; Becnel et al. 1999; Rohrer et al. 1996; Center for Substance Abuse Treatment 1995; Wickizer et al. 1994).

Beginning in 1990, the Center for Substance Abuse Treatment (CSAT) granted funding for 19 US cities to introduce centralized intake units (CIUs) into their treatment systems. These units were part of the Target Cities Demonstration Project. The aim of Target Cities was to improve treatment effectiveness, as well as increase treatment access, improve coordination between treatment and other systems, and develop self-correcting mechanisms within treatment systems (Scott & Muck In press; Center for Substance Abuse Treatment 1995) . At the client level, the results of previous evaluation studies on centralized intake have been discouraging. Although one study reported higher rates of treatment completion among clients who entered treatment through a CIU (Wickizer et al. 1994), other studies found similar (Stephens & Favinger 1997) or poorer (Rohrer et al. 1996) treatment completion rates among CIU-referred clients. Moreover, when treatment outcomes were measured in terms of problem severity, the CIU had no observable effect (Guydish et al. In press a; Guydish et al. 2001).

Researchers have offered several explanations for the limited effect of CIUs on treatment outcomes. First, there is the possibility that CIU effects are obscured by the greater effectiveness of treatment. Second, there is the difficulty of conducting client-treatment matching in the context of insufficient treatment capacity and competing client preferences (Guydish et al. In press a; Guydish et al. 2001; Hser et al 1999c). However, researchers have also suggested that subgroup analyses might extend or clarify the relationship between CIU and treatment outcomes (Guydish et al. In press a). Grouping clients by treatment history is one potentially fruitful area of inquiry. CIU assessment and referral may be a contextually different experience for first-time treatment clients compared to treatment repeaters, and this different experience may translate into different outcomes.

This article examines the relationship between treatment history and treatment outcomes for drug users who entered treatment either through the CIU or through usual program procedures. There were three specific aims: (1) to compare first-time and repeat treatment clients at time of admission on sociodemographic characteristics, problem severity, and experiences entering treatment; (2) to compare first-time and repeat treatment clients on treatment outcomes, including length of stay in treatment and change over time in problem severity measures; and (3) to assess the effects of route of treatment entry (CIU or usual procedures) on treatment outcomes for first-time treatment clients and for repeat treatment clients.

METHODS

Procedures

The data analyzed in this report were originally collected as part of an evaluation study of San Francisco's Target Cities Project. Drug users entering one of seven selected substance abuse treatment programs in San Francisco were eligible for participation. Drug users who contacted one of these programs, but did not enter treatment, were ineligible for the study. The treatment programs selected as study venues included three residential programs, three outpatient programs, and one day treatment program. A total of 451 participants were recruited into the study from these programs in the period between March of 1995 and February of 1997. Data were collected from participants, in face-to-face interviews conducted by the research team, at three time points: baseline (within two weeks of admission), one-month post-admission, and 12-months post-admission. Eighty nine percent of all participants completed the one-month post-admission interview and 83% of living participants (n=443) completed the 12-month post-admission interview. Procedural details related to recruitment and follow-up have been reported previously (Guydish et al. 2001). All study procedures were

approved by the Institutional Review Board of the University of California, San Francisco.

Measures

Baseline data included demographic measures (age, gender, race, education), drug use characteristics (current drug of choice, lifetime history of injection) and history of incarceration. Baseline data were also collected on treatment entry experiences, including five dichotomous (yes/no) measures of whether the participant had applied to other programs in past 30 days, had entered their desired program, had been placed on a waiting list, had been required to enter treatment, and had entered treatment through the CIU. The required to enter treatment variable measured external pressure from any source, and was not restricted to legal coercion. CIU status was determined at time of recruitment by the research team in consultation with program and CIU staff, and was confirmed by participants at baseline interview (Guydish et al. 2001).

Outcome measures included length of stay in treatment and change in problem severity over time. Length of stay in treatment was defined as the number of days from admission date to discharge date. Data were derived from admissions and discharge records maintained by the county (80% of cases) or by the treatment program (20%). Where discharge dates could not be obtained (n=7), length of stay data were considered missing. Problem severity was assessed at each time point using a locally developed instrument measuring social support (Havassy, Hall & Wasserman 1991) and three standardized instruments: the Addiction Severity Index (ASI; McLellan et al. 1980), the Beck Depression Inventory (BDI; Beck 1972), and the Brief Symptom Inventory (BSI; Derogatis & Melisaratos 1983). The three standardized instruments produce composite or summary scores that indicate recent problem severity, with higher scores indicating greater severity. The ASI composite scores (0 to 1) measure the severity of alcohol, drug, medical, employment, legal, social and psychiatric problems in the past 30 days, the BDI summary score (0 to 63) measures depressive symptoms in the past seven days, and the BSI General Symptom Index (0 to 4) measures psychiatric symptoms in the past seven days. The locally developed social support instrument measures three dimensions of general social support in the past 30 days: self-esteem, emotional support and social interactions. Responses to 15 items, each rated on a five-point (1 to 5) scale, are summed to produce a total score, where higher scores indicate greater social support. This measure is adapted from an instrument developed to study the role of social support in providing protection from the pathogenic effects of stress (Cohen et al. 1985), and it has been used in previous substance abuse research (Guydish et al. 1998; Havassy, Hall & Wasserman 1991).

Treatment history was dichotomized as presence of any previous alcohol or drug treatment (repeat treatment clients, n=361) and absence of any previous alcohol or drug treatment (first-time treatment clients, n=90). Self-report data for this variable were taken from the Drug and Alcohol section of the ASI. Detoxification programs were included in this definition of treatment but, as specified in the ASI, self-help groups such as Alcoholics Anonymous and Narcotics Anonymous were excluded.

Data Analysis

To compare study groups (first-time treatment/repeat treatment) at baseline on demographic, treatment entry, and problem severity measures, the authors conducted bivariate analyses using chi-square tests for categorical variables, and t-tests for continuous variables. To evaluate study groups on length of stay, mean values were compared for each modality (residential, outpatient, and day treatment) using t-tests.

To compare study groups on change over time in problem severity measures, mixed effects regression analyses (Littell et al. 1996) were conducted, including factors for time (study wave: baseline, one month, 12 months), treatment history, length of stay in treatment, the interaction of treatment history with time, and the interaction of treatment history with length of stay. The treatment modality variable (residential/outpatient/day treatment) and demographic measures that predicted any of the outcome variables at $p<.10$ were included as control variables. Regressions were performed for each of the ten problem severity outcomes, using the same set of predictors.

To assess the effect of route of treatment entry on outcomes for clients with different treatment histories, the sample was first divided into the two study groups: first-time treatment clients and repeat treatment clients. The mixed effect regression analyses described above was then repeated for each of the study groups separately, removing the factors for treatment history (first-time treatment/repeat treatment) and its interactions and adding factors for treatment entry route (CIU/non-CIU) and the interaction between treatment entry route and time.

RESULTS

Characteristics at Admission

Table 1 shows demographic, drug use, and problem severity characteristics of the sample at time of admission. First-time treatment clients were similar to repeat treatment clients in terms of gender, race, and age, but educational level was higher in the repeat treatment group—12.4 years (sd=2.1) versus 11.8 years (sd=2.1), t (449)=-2.4, d=-0.28, p=0.02. Drug characteristics also differed between groups. First-time treatment clients were more likely to report cannabis as their current drug of choice [9% versus 2%;

TABLE 1
Baseline Demographic, Treatment Entry, and Problem Severity Characteristics of First-Time Treatment Clients and Repeat Treatment Clients

Variables	Total (n=451) %	First-Time Treatment Group (n=90) %	Repeat Treatment Group (n=361) %
Gender: female	34.2	27.9	35.8
Ethnicity:			
African-American	50.4	53.3	49.7
White	31.6	26.7	32.8
Latino/a	07.3	06.7	07.5
Asian	02.9	05.6	02.2
Other	07.8	07.8	07.8
Drug of choice*:			
Cocaine	38.1	37.8	38.2
Alcohol	23.3	22.2	23.6
Heroin	10.9	3.33	12.7
Amphetamine	09.1	10.0	08.9
Cannabis	03.6	08.9	02.2
Alcohol and drug	08.7	10.0	08.3
Other	06.4	07.8	06.1
Lifetime injection*	41.7	31.1	44.3
Lifetime incarceration	52.1	43.3	54.3
Treatment required*	47.0	57.8	44.3
Applied to other program*	17.9	10.1	19.8
In desired program*	71.2	57.8	74.6
Put on waiting list	34.8	26.1	37.0
Referred by CIU	43.8	46.1	43.2
Treatment modality*			
Day Treatment	31.3	17.8	12.2
Outpatient	28.4	37.8	26.0
Residential	58.3	44.4	61.9
	Mean (S.D)	**Mean (S.D)**	**Mean (S.D)**
Age	36.8 (8.8)	36.6 (9.2)	36.6 (8.7)
Education (years) *	12.3 (2.1)	11.8 (2.1)	12.4 (2.1)

*$p<0.05$.

χ^2 (6, n=451)=15.63, p=0.02], whereas repeat treatment clients were more likely to report heroin as their drug of choice [13% versus 3%; χ^2 (6, n=451)=15.63, p=0.02] and to have ever injected drugs [44% versus 31%; χ^2 (1, n=451)=5.17, p=0.02]. Problem severity as measured by the ASI, BDI, BSI and Social Support instruments did not differ between groups at admission.

Table 1 also shows the sample's treatment entry experiences. First-time treatment clients were more likely to have been required to enter treatment than repeat treatment clients [58% versus 44%; χ^2 (1, n=449)=5.26, p=0.02], less likely to have applied to another program in the past 30 days [10% versus 20%; χ^2 (1, n=447)=4.58, p=0.03], and less likely to be in a program they desired [58% versus 75%, χ^2 (2, n=448)=9.96, p=0.01]. Current treatment modality also differed by treatment history, with first-time treatment clients more likely to be in an outpatient program (38% versus 26%) or day treatment program (18%

TABLE 2

Problem Severity at Baseline, One-Month Follow-up and 12-Month Follow-up for Substance Abuse Treatment Clients With and Without Prior Treatment Experience in San Francisco, California

	Baseline		One Month		12 Months	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
First-Time Treatment Group						
ASI Scores						
Medical	0.315	(0.364)	0.283	(0.373)	0.288	(0.373)
Employment	0.845	(0.209)	0.849	(0.211)	0.718	(0.305)
Legal	0.125	(0.199)	0.044	(0.118)	0.082	(0.152)
Alcohol	0.220	(0.232)	0.130	(0.173)	0.159	(0.202)
Drugs	0.151	(0.121)	0.085	(0.090)	0.069	(0.087)
Social	0.203	(0.223)	0.194	(0.220)	0.145	(0.183)
Psychiatric	0.266	(0.243)	0.213	(0.240)	0.233	(0.235)
BDI	15.056	(9.357)	11.807	(9.281)	12.203	(10.029)
BSI	1.014	(0.735)	0.851	(0.725)	0.868	(0.607)
Social Support	36.730	(12.484)	42.157	(11.632)	40.743	(11.413)
Repeat Treatment Group						
ASI Scores:						
Medical	0.257	(0.352)	0.261	(0.352)	0.246	(0.359)
Employment	0.875	(0.189)	0.894	(0.171)	0.749	(0.280)
Legal	0.110	(0.183)	0.078	(0.159)	0.065	(0.142)
Alcohol	0.236	(0.272)	0.121	(0.180)	0.128	(0.202)
Drugs	0.157	(0.121)	0.090	(0.091)	0.079	(0.107)
Social	0.202	(0.219)	0.159	(0.195)	0.170	(0.190)
Psychiatric	0.224	(0.228)	0.222	(0.225)	0.215	(0.238)
BDI	15.155	(10.032)	11.481	(9.647)	11.658	(9.277)
BSI	0.979	(0.708)	0.824	(0.661)	0.811	(0.717)
Social Support	38.275	(11.732)	41.506	(11.428)	41.738	(12.487)

versus 12%), and repeat treatment clients more likely to be in a residential program [62% versus 44%; χ^2 (2, n=444)=8.96, p=0.01].

Treatment Outcomes

Length of stay. First-time treatment clients tended to stay in each of the treatment modalities longer than repeat treatment clients, although none of these differences were significant. In day treatment (n=59), first-time treatment clients stayed a mean of 115 days (sd=94) compared to 78 days (sd=78) for repeat treatment clients, t(57)=1.52, d=0.45, p=0.13. In outpatient treatment (n=126), first-time treatment clients stayed a mean of 149 days (sd=75), whereas repeat treatment clients stayed 126 days (sd=94), t(124)=1.23, d=0.25, p=0.22. In residential treatment (n=259), first-time treatment clients stayed a mean of 79 days (sd=72), compared to 65 days (sd=64) for repeat treatment clients, t(257)=1.22, d=0.21, p=0.22.

Problem severity. **Table** 2 shows mean problem severity scores for the sample at all three time points, and Table 3 shows significant relationships between predictor and outcome variables. Over time, study participants experienced significant decreases in the severity of employment, legal, alcohol, drug, and social problems (ASI composite scores), significant decreases in depression and psychiatric symptoms (BDI and BSI scores), and significant increases in social support (see Table 3). Longer length of stay in treatment was also associated with less severe alcohol and drug problems (ASI) and fewer depressive symptoms (BDI) at 12 months. Treatment history was not significantly related to any problem severity measure, nor was the interaction of treatment history and time. However, there was a significant interaction effect of treatment history and length of stay on social problem severity, such that longer stays in treatment led to a greater reduction in social problems for repeat treatment clients compared to first-time treatment clients.

Effect of Route of Treatment Entry on Treatment Outcomes

In mixed effects analyses, route of treatment entry (CIU/non-CIU) was not associated with problem severity nor change in problem severity over time for either the first-time treatment group or the repeat treatment group.

DISCUSSION

In this sample of substance abuse treatment clients, the majority (80%) had been in treatment before. This is a larger proportion than reported in previous studies, where repeat treatment clients constituted 40% to 63% of the

TABLE 3

Results of a Mixed Effects Analysis to Assess Effects of Time, Length of Stay, Treatment History, the Interaction of Treatment History with Time, and the Interaction of Treatment History with Length of Stay on Problem Severity Outcomes

	Time			Length of Stay			Treatment History			Treatment History By Time			Treatment History By Length of Stay		
	Regress.	SE	t-ratio	Regress.	SE	t-ratio	Regress.	SE	t-ratio	Regress.	SE	t-ratio	Regress.	SE	t-ratio
ASI Composite Scores															
Medical															
Employ.	-.0134*	.0011	-12.32												
Legal	-.0028***	.0009	-03.19	-.0001***	.0001	-1.94									
Alcohol	-.0068**	.0012	-5.81	-.0002***	.0001	-2.80									
Drugs	-.0047*	.0006	-8.20	-.0001***	.0001	-3.34									
Social	-.0016**	.0011	-1.36												
Psych.													.0004***	.0002	2.30
BDI				-.0075***	.0031	-2.42									
BSI	-.0105**	.0031	-3.36												
Social Support	.2205 *	.0535	4.12	.0112***	.0039	2.90									

*p<.0001.
**p<.01.
***p<.05.

Note: Statistics shown for significant relationships only. Analysis controls for age, gender, drug of choice, race, education, and treatment modality.

samples (Claus, Mannen & Schicht 1999; Hser et al. 1999a, b; Anglin, Hser & Grella 1997). One explanation is that repeat treatment groups are defined differently across studies. In the current study, as in a study by Anglin, Hser and Grella (1997), the repeat treatment group included participants with prior detoxification only, but at least two other studies (Claus, Mannen & Schicht 1999; Hser et al. 1999a) excluded these respondents from the repeat treatment group. This difference may reflect, in part, the relative newness of treatment history studies, but also a longer running ambivalence of whether detoxification "counts" as treatment (Mattick & Hall 1996; Institute of Medicine 1990). In future treatment history research, as proposed by Hser and colleagues (1999a), it may be useful to construct treatment history groups from several measures, such as total days in treatment and duration of treatment career, rather than solely from the presence or absence of any previous treatment. Additional research may also help to clarify the role of detoxification programs in treatment careers.

Another explanation for the high proportion of repeat treatment clients in this sample is that San Francisco's drug users may have more treatment experience than drug users in other regions. This could be due to the relative accessibility of short-term detoxification programs in San Francisco during the study period (over 14,000 detoxification or drop-in admissions in 1995-96; Guydish et al. 2000) , or to San Francisco having a comparatively more developed treatment system. Alternatively, repeat treatment clients may be overrepresented in this sample of in-treatment drug users, compared to their representation among San Francisco's drug using population. This would suggest that drug users seeking treatment for the first time in San Francisco experience more barriers to treatment than drug users further advanced in their treatment career, such as greater reluctance to seek help and greater difficulty accessing an unknown system. Finally, San Francisco's treatment system may be serving a higher proportion of first-time treatment clients than reported here, with first-time treatment clients beginning their treatment careers in other modalities. The present study found a relationship between treatment history and current treatment modality, with first-time treatment clients overrepresented in outpatient and day treatment programs. If this relationship extends to modalities excluded from this study, particularly residential detoxification and methadone detoxification, the small number of first-time treatment clients in this study may be an artifact of the study design, rather than a reflection of their overall representation in San Francisco's treatment system.

Study findings suggest that treatment entry experiences differ by treatment history. In particular, first-time treatment clients are more likely than repeat treatment clients to be required to be in treatment, indicating that external pressure may be a key factor in the initiation of some treatment careers. Data is not available concerning what individuals or institutions required study participants to enter treatment, but previous research has found that men are more likely to be pressured by employers, family, and the criminal justice system, and women are more likely to be pressured by family service agencies (Grella & Joshi 1999). Recent legislation in California (California Substance Abuse and Crime Prevention Act of 2000) mandates substance abuse treatment for persons convicted of nonviolent drug possession offenses, and this is likely to increase the proportion of treatment clients who are entering treatment under duress and for the first time. The effects of this policy on treatment careers and outcomes need to be closely monitored.

In this study, the relationship between previous treatment experience and severity of drug problems at admission is unclear. When problem severity was indicated by history of injection drug use and current heroin preference, repeat treatment clients had more severe problems than first-time treatment clients, corroborating the findings of previous studies (Grella & Joshi 1999; Hser et al. 1999a, b). However, when problem severity was indicated by the ASI drug composite score and by current cocaine preference, there were no differences between groups. This could be because behavioral indicators and the ASI drug score are measuring different dimensions of severity, or because the ASI has limited ability to detect between-group differences if the composite score data are non-normally distributed (Guydish et al. In press b). Furthermore, it is not immediately apparent whether similar problem severity levels at admission indicate that the repeat treatment group is doing relatively well (i.e. presenting for treatment with relatively few problems), or that the first-time treatment group is doing relatively poorly (i.e. presenting for treatment with comparatively severe problems).

Problem severity decreased on most measures over the course of the study, and in relation to length of stay in treatment. These findings confirm results of other treatment outcome studies (Simpson & Sells 1990; Hubbard et al. 1989; Miller & Hester 1986) and previous analyses of these data (Guydish et al. 2001). Time had a greater effect on treatment outcomes than other variables, including length of stay, suggesting that some of the decrease in problem severity may be due to a general effect rather than a treatment effect. However, research can only separate general effects and treatment effects by randomizing drug users to treatment and no-treatment conditions, and ethical concerns prohibit such studies (Manski, Pepper & Petrie 2001).

Another finding was that problem severity decreased over time at a similar rate for first-time treatment and repeat treatment clients. This finding contrasts with two previous studies that reported poorer outcomes among repeat treatment clients (Hser et al. 1999a, b). The unusually high proportion of this sample that were repeat treatment clients, and the similar baseline problem severity scores between groups, may explain this contrasting finding. Importantly, the authors found that longer stays in treatment

benefited repeat treatment clients more than first-time treatment clients in terms of decreasing social problems. This finding corresponds with that of Hser and colleagues (1999b), and additional research may clarify any differential effect of length of stay on first-time and repeat treatment clients.

Finally, this study found that entering treatment through the CIU had no effect on treatment outcomes for first-time or repeat treatment clients. This is consistent with previous studies that report no relationship between treatment entry route and treatment outcomes (Guydish et al. In press a; Guydish, Stephens & Muck In press; Rohrer et al. 1996). As discussed in these previous studies, it may be unrealistic to expect CIUs to impact long-term treatment outcomes, particularly if client-treatment matching is not fully implemented, as was the case during the study period.

There are several limitations to this study. First, the dichotomous measure of treatment history (first-time or repeat treatment client) does not capture the complexity of a treatment career. The measure is similar to those used in previous studies, but it is a crude variable that does not reflect the type or duration of treatments that make up treatment history (Hser et al. 1999a). The inclusion of detoxification as a prior treatment also limits our ability to compare findings with some prior studies. A second limitation is the reliance on self-report data. Previous research has found such data to be valid, but it is possible that first-time treatment clients may be less experienced in disclosing personal information in a clinical or research context and therefore differential reporting of problem severity could have occurred. Finally, the results of this study are limited in their generalizability. The findings on differences between first-time and repeat treatment clients are not generalizable to treatment populations in other areas, out-of-treatment drug users in San Francisco, or to treatment clients in San Francisco who enter different programs, particularly in residential detoxification, methadone detoxification, and methadone maintenance modalities. Additionally, the findings on route of treatment entry are not generalizable to CIUs in other locales or to drug users who attempted to enter treatment in San Francisco, but were unsuccessful.

Despite these limitations, this study describes key characteristics of first-time and repeat treatment clients in San Francisco. First-time treatment clients constituted a small proportion of this sample compared to previous studies, and they reported high rates of entering treatment under some requirement. Treatment outcomes were similar between study groups, although repeat treatment clients experienced more gains in social support from longer stays in treatment than did first-time treatment clients. Entering treatment through the CIU did not improve treatment outcomes for either group. The treatment history findings are encouraging because they suggest that repeat treatment clients may not always fare worse than first-time treatment clients in treatment outcomes, as suggested in previous studies. However, first-time treatment clients in San Francisco may have elevated problem severity levels, thus artificially inflating the success of repeat treatment clients.

REFERENCES

Anglin, M.D.; Hser, Y.I. & Grella, C. 1997. Drug addiction and treatment careers among clients in the Drug Abuse Treatment Outcome Study (DATOS). *Psychology of Addictive Behaviors* 11 (4): 308-23.

Beck, A. 1972. *Depression: Causes and Treatment.* Philadelphia, Pennsylvania: University of Pennsylvania Press.

Becnel, J.M.; Ray, S.; Wolf, T.M.; Detiege, J.J.; Dollar, S. & Gable Jr., W. 1999. Target Cities as an effective solution to the special problems of treatment and recovery in the city of Laisser Le Bon Temps Roulle. *Journal of Psychoactive Drugs* 31(3): 225-31.

Bluthenthal, R.; Gee, L.; Gleghorn, A.; Iguchi, M. & Eldin, B. 2000. Factors associated with treatment entry under conditions of "treatment on demand": 1 year follow-up data. Paper presented at the Sixty-Second College on Problems of Drug Dependence. San Juan, Puerto Rico, June 17-22.

Center for Substance Abuse Treatment. 1995. *The Target Cities Program: Partnerships to Increase Availability of and Access to Alcohol and Other Drug Treatment.* Rockville, Maryland: Substance Abuse and Mental Health Services Administration.

Claus, R.E.; Mannen, R.K. & Schicht, W.W. 1999. Treatment career snapshots: Profiles of first treatment and previous treatment clients. *Addictive Behaviors* 24 (4): 471-79.

Cohen, S.; Mermelstein, R.; Kamarck, T. & Haberman, H. 1985. Measuring the functional components of social support. In: I. Sarason & B. Sarason (Eds.) *Social Support: Theory, Research, and Applications.* Dordrecht, The Netherlands: Martinus Nijhoff.

Derogatis, L.R. & Melisaratos, N. 1983. The Brief Symptom Inventory: An introductory report. *Psychological Medicine* 13 (3): 595-605.

Finney, J.W. & Moos, R.H. 1986. Matching patients with treatments: Conceptual and methodological issues. *Journal of Studies on Alcohol* 47 (2): 122-34.

Grella, C.E. & Joshi, V. 1999. Gender differences in drug treatment careers among clients in the national Drug Abuse Treatment Outcome Study. *American Journal of Drug and Alcohol Abuse* 25 (3): 385-406.

Guydish, J.; Stephens, R. & Muck, R. In press. Lessons learned from the national Target Cities initiative to improve publicly funded substance abuse treatment systems. In: R.C. Stephens; C. Scott & R.D. Muck (Eds.) *Central Evaluation and Referral for Alcohol and Drug Clients: The Target Cities Experience.* Albany, New York: State University of New York Press.

Guydish, J.; Foss, M.; Barron, N.; Klingemann, S.; Scott, C. & Bostrom, A. In press a. Does centralized intake improve substance abuse outcomes: A multisite analysis. In: R.C. Stephens; C. Scott & R.D. Muck (Eds.) *Central Evaluation and Referral for Alcohol and Drug Clients: The Target Cities Experience.* Albany, New York: State University of New York Press.

Guydish, J.; Ponath, C.; Bostrom, A.; Campbell, K. & Barron, N. In press b. Effects of losing SSI benefits on standard drug and alcohol outcome measures. *Contemporary Drug Problems.*

Guydish, J.; Woods, W.J.; Davis, T.; Bostrom, A. & Frazier, Y. 2001. Does centralized intake improve drug abuse treatment outcomes? *Journal of Substance Abuse Treatment* 20: 1-9.

Guydish, J.; Moore, L. Gleghorn, A.; Davis, T.; Sears, C. & Harcourt, J. 2000. Drug abuse treatment on demand in San Francisco: Preliminary findings. *Journal of Psychoactive Drugs* 32 (4): 363-70.

Guydish, J.; Werdegar, D.; Sorensen, J.L.; Clark, W. & Acampora, A. 1998. Drug abuse day treatment: A randomized client trial comparing day and residential treatment programs. *Journal of Consulting and Clinical Psychology* 66 (2): 280-89.

Havassy, B.E.; Hall, S.M & Wasserman, D.A. 1991. Social support and relapse: Commonalties among alcoholics, opiate users, and cigarette smokers. *Addictive Behaviors*16 (5): 235-46.

Hser, Y.I.; Grella, C.E.; Hsieh, S.C.; Anglin, M.D. & Brown, B.S. 1999a. Prior treatment experience related to process and outcomes in DATOS. *Drug and Alcohol Dependence* 57 (2): 137-50.

Hser, Y.I.; Joshi, V.; Anglin, M.D. & Fletcher, B. 1999b. Predicting posttreatment cocaine abstinence for first-time admissions and treatment repeaters. *American Journal of Public Health* 89 (5): 666-71.

Hser, Y.I.; Polinsky, M.L.; Maglione, M. & Anglin, M.D. 1999c. Matching clients' needs with drug treatment services. *Journal of Substance Abuse Treatment* 16 (4): 299-305.

Hser, Y.I.; Maglione, M.; Polinsky, M.L. & Anglin, M.D. 1998. Predicting drug treatment entry among treatment-seeking individuals. *Journal of Substance Abuse Treatment* 15 (3): 213-20.

Hser, Y.I.; Anglin, M.D.; Grella, C.; Longshore, D. & Prendergast, M.L. 1997. Drug treatment careers: A conceptual framework and existing research findings. *Journal of Substance Abuse Treatment* 14 (6): 543-58.

Hubbard, R.; Marsden, M.; Rachal, J.; Harwood, H.; Cavanaugh, E. & Ginsburg, H. 1989. *Drug Abuse Treatment: A National Study of Effectiveness.* Chapel Hill, North Carolina: University of North Carolina Press.

Institute of Medicine 1990. *Broadening the Base of Treatment for Alcohol Problems.* Washington, D.C.: National Academy Press.

Littell, R.; Milliken, G.; Stroup, W. & Wolfinger, R. 1996. *SAS Systems for Mixed Models.* Cary, South Carolina: SAS Institute.

Manski, C.F.; Pepper, J. & Petrie, C. 2001. *Informing America's Policy on Illegal Drugs: What We Don't Know Keeps Hurting Us.* Washington, D.C.: National Academy Press.

Marlatt, G. 1988. Matching clients to treatment: Treatment models and stages of change. In: D. Donovan & G. Marlatt (Eds.) *Assessment of Addictive Behaviors: The Guilford Behavioral Assessment Series.* New York: Guilford Press.

Mattick, R.P. & Hall, W. 1996. Are detoxification programmes effective? *Lancet* 347 (8994): 97-100.

McLellan, A.T. & Alterman, A. 1991. Patient treatment matching: A conceptual and methodological review with suggestions for future research: In: R. Pickens; C. Leukefeld & C. Schuster (Eds.) *Improving Drug Abuse Treatment.* NIDA Research Monograph No. 106. Rockville, Maryland: National Institute on Drug Abuse.

McLellan, A.T.; Luborsky, L.; Woody, G.E. & O'Brien, C.P. 1980. An improved diagnostic evaluation instrument for substance abuse patients: The Addiction Severity Index. *Journal of Nervous and Mental Disease* 168 (1): 26-33.

Miller, W.R. & Hester, R.K. 1986. Inpatient alcoholism treatment. Who benefits? *American Psychologist* 41 (7): 794-805.

Moos, R.H. & King, M.J. 1997. Participation in community residential treatment and substance abuse patients' outcomes at discharge. *Journal of Substance Abuse Treatment* 14 (1): 71-80.

Ouimette, P.C.; Ahrens, C.; Moos, R.H. & Finney, J.W. 1998. During treatment changes in substance abuse patients with posttraumatic stress disorder. The influence of specific interventions and program environments. *Journal of Substance Abuse Treatment* 15 (6): 555-64.

Project Match Research Group. 1997. Matching alcoholism treatments to client heterogeneity: Project MATCH posttreatment drinking outcomes. *Journal of Studies on Alcohol* 58 (1): 7-29.

Rohrer, J.E.; Vaughan, M.S.; Cadoret, R.J.; Carswell, C.; Patterson, A. & Zwick, J. 1996. Effect of centralized intake on outcomes of substance abuse treatment. *Psychiatric Services* 47 (11): 1233-8.

Schütz, C.G.; Rapiti, E.; Vlahov, D. & Anthony, J.C. 1994. Suspected determinants of enrollment into detoxification and methadone maintenance treatment among injecting drug users. *Drug and Alcohol Dependence* 36 (2): 129-38.

Scott, C. & Muck, R. In press. Background and overview of the Target Cities Demonstration Project. In: R.C. Stephens; C. Scott & R.D. Muck (Eds.) *Central Evaluation and Referral for Alcohol and Drug Clients: The Target Cities Experience.* Albany, New York: State University of New York Press.

Simpson, D.D.; Joe, G.W. & Brown, B.S. 1997. Treatment retention and follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). *Psychology of Addictive Behaviors* 11 (4): 294-307.

Simpson, D.D.; Joe, G.W.; Greener, J.M. & Rowan-Szal, GA. 2000. Modeling year 1 outcomes with treatment process and post-treatment social influences. *Substance Use and Misuse* 35 (12-14): 1911-30.

Simpson, D.D.; Joe, G.W.; Rowan-Szal, G.A. & Greener, J.M. 1997. Drug abuse treatment process components that improve retention. *Journal of Substance Abuse Treatment* 14 (6): 565-72.

Simpson, D.D.; Joe, G.W.; Rowan-Szal, G.A. & Greener, J. 1995. Client engagement and change during drug abuse treatment. *Journal of Substance Abuse* 7 (1): 117-34.

Simpson, D.D. & Sells, S.B. 1990. *Opioid Addiction and Treatment: A 12-year Follow-up.* Malabar, Florida: Robert E. Krieger Publishing Company.

Stephens, R. & Favinger, J. 1997. Mini-Study 2: CIU versus non-CIU analysis. Unpublished report.

Wickizer, T.; Maynard, C.; Atherly, A.; Frederick, M.; Koepsell, T.; Krupski, A. & Stark, K. 1994. Completion rates of clients discharged from drug and alcohol treatment programs in Washington state. *American Journal of Public Health* 84 (2): 215-21.