Completion Rates of Clients Discharged from Drug and Alcohol Treatment Programs in Washington State

ABSTRACT

Objectives. The primary goal of this study was to analyze completion rates of clients in drug and alcohol abuse treatment programs in Washington State and to assess the factors associated with treatment completion. A secondary goal was to examine the utility of a state information system as a source of evaluative data.

Methods. Analyses were conducted of 5827 client records contained in the Washington State Substance Abuse Monitoring System, representing a census of public clients discharged during the last quarter of 1990 from all state-funded alcohol and drug treatment programs in four treatment modalities. Logistic regression was performed to determine the independent predictors of treatment completion.

Results. Completion rates were highest for intensive inpatient alcohol treatment (75%) and lowest for intensive outpatient drug programs (18%). Factors associated with treatment completion included screening at a referral assessment center, education, age, ethnicity, and existence of a secondary drug problem.

Conclusions. The fit between clients and treatment programs may be an important factor explaining why some clients complete treatment and others drop out. State client information systems are an important source of data for analyzing treatment completion and other outcomes. (*Am J Public Health.* 1994;84:215–221)

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Introduction

Drug abuse and alcoholism represent significant public health problems that have generated increased concern in recent years. In 1989, an estimated $4 billion was spent to support drug and alcohol treatment programs in the United States,[1] almost half of which represented public expenditures. A sizable portion of these expenditures comes from states, which, in the face of federal cutbacks, have had to shoulder a greater burden to support needed treatment programs. Along with this burden has come a greater need for accountability and program monitoring.

These factors have prompted renewed interest in information systems that gather client and program data. Significant resources, at both the federal and state levels, have been devoted to the development of client-based data systems with mixed results. Many systems have had ongoing problems, including reporting delays, incomplete and inaccurate data input, and limited report-generating capabilities. To improve program and client monitoring for drug and alcohol treatment in Washington State, the State Division of Alcohol and Substance Abuse developed the Substance Abuse Monitoring System, a client-based statewide management information system.

In early 1991, the Division of Alcohol and Substance Abuse initiated a project to assess completion rates of state-funded drug and alcohol treatment programs in Washington based on analysis of data from the monitoring system. The project was conducted by researchers at the University of Washington School of Public Health during a 6-month period beginning in April 1991. The purpose of this paper is twofold: (1) to report the results of the analysis and (2) to demonstrate the potential of a state information system to provide data useful for evaluation and analysis. This study is notable because it is based on data representing a large and diverse client population that includes both youth and adult clients, as well as groups for whom treatment completion is rarely analyzed and reported in the literature, including Native Americans, Hispanics, and Asians.

Literature Review

Methodological Problems

Past studies have produced disparate results, probably as a result of differences in subject populations, methods and measures, and definitions of treatment completion. Definitions of completion vary widely. In their landmark paper, Baekeland and Lundwall[2] commented that "definitional inexplicitness has been the hallmark of most studies of dropping out of treatment."

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The lack of conceptual clarity as to who should be categorized as a dropout has fueled inconsistencies. For example, patients who make an appointment but do not keep it are sometimes, but not always, classified as dropouts. Similarly, patients leaving against medical advice but returning later to complete treatment can be classified as dropouts and then new entrants or as completers. Patients asked to leave treatment may be categorized as dropouts or simply excluded from the sample. As a result of these inconsistencies, studies have tended to define program completion in terms of criteria related to length of time in treatment[3] or achievement of treatment plan goals,[4,5] and some studies have simply left treatment completion undefined.[6]

Another problem affecting the reliability of findings reported in the literature is small sample size. Studies based on samples of fewer than 200 subjects,[7–13] or even fewer than 100 subjects[14–17] are not unusual. Even studies with large samples are often limited to a single treatment setting, prompting concern about external validity.[5,18] Many studies exhibit both problems.[19–21] Thus, considerable caution is in order when reviewing findings of studies conducted to assess completion rates.

Factors Associated with Treatment Completion

Dropout rates reported by inpatient drug studies have ranged from 19%[7] to 63%[22]; outpatient drug studies usually report higher dropout rates, with proportions above 70% being the norm.[4,19] Alcohol studies have followed the same pattern, with inpatient dropout rates ranging from 17.4%[18] to 74%[14] and outpatient rates often exceeding 70%.[2,8,15,20]

In general, the drug and alcohol treatment literature has examined the impact on completion of one or more of three characteristics: psychological, demographic, and program related. Psychological studies have found differences between dropouts and completers in terms of several factors, including impulse control, interpersonal difficulties, authority conflicts, motivation to succeed in treatment, and self-concept.[3,6,10,14,21,23,24] However, researchers have questioned the effectiveness of examining psychological factors.[25]

Studies using demographic variables have found that completers tend to be older, married with dependents at home, and wealthier and tend to have health problems related to drinking (such as cir-

rhosis).[6,14,26,27] Men tend to have higher completion rates than women,[27] but this result is weakened both by the lack of women in most studies[18] and by the greater percentage of men coerced into treatment. Ethnicity has not had a consistent impact, but studies have shown that the ethnic group in the majority within the treatment setting tends to have higher completion rates.[28]

Program variables have also been examined with mixed results. Studies have shown that dropout rates can be reduced by changing the therapeutic atmosphere of the program.[6,29–31] For example, completion rates have been linked to treatment staff vacation schedules[5,32] and to therapy group size.[33] Despite these findings, the long-term impact of program factors on outcomes has been questioned.[11]

Methods

The Substance Abuse Monitoring System database contains detailed information on client characteristics and services provided to individuals whose treatment is supported by state funds. Given the size of this database (upwards of a million records), it was necessary to sample records selectively. The study population was limited to clients discharged during the last quarter of 1990 from the following adult treatment modalities: intensive inpatient treatment, long-term inpatient treatment, intensive outpatient treatment, standard outpatient treatment, and recovery house (a therapeutic setting that provides transitional care for clients moving from inpatient to outpatient treatment). Three types of youth programs were also included: intensive inpatient, intensive outpatient, and standard outpatient. Methadone maintenance and detoxification programs were excluded.

Initial data were obtained on 6682 client records, representing all discharges from the above modalities during the fourth quarter of 1990. These records were loaded into the Rbase database management system and examined for incomplete data as well as out-of-range numeric and alphabetic codes. Of the 6682 records, only 3 had to be discarded because of excessive missing data or nonsensical information. Discharge information indicated that 10 clients had died in treatment and that 110 clients had been inappropriately admitted to treatment. These 120 records were dropped, leaving 6559 records available for analysis. However, 90% (5827) of these records represented discharges in

three adult treatment modalities (intensive inpatient, intensive outpatient, and standard outpatient treatment) and one youth treatment modality (standard outpatient treatment). To simplify this study, it was decided to limit the analysis to the 5827 records representing clients discharged from these four modalities.

Program completion status was defined in terms of the discharge categories contained in the system database. These categories included (1) against advice, (2) rule violation, (3) client died, (4) inappropriate admit, (5) other, (6) transfer, (7) default, and (8) completed treatment. All clients with the completed treatment discharge code were defined as program completers. Clients transferred to other programs meeting certain time-in-treatment criteria were also considered to have completed treatment. Clients with the against advice, default, and rule violation discharge codes, as well as transferred clients not meeting the time-in-treatment criteria, were defined as noncompleters.

The judgment of whether a client completed treatment was based primarily on criteria related to length of treatment and secondarily on treatment plan factors. Clients in intensive inpatient programs were expected to remain in treatment from 21 to 28 days. Clients in intensive outpatient programs were expected to stay in treatment at least 1 month but could stay up to 3 months. Furthermore, these clients were to receive counseling and other treatment services at least three times per week for the first month. Standard outpatient treatment usually involved less frequent therapy; the only requirement was that the client be seen once per month unless he or she was under court supervision or some other binding order. No explicitly defined minimum target length of time or maximum time limit was established for standard outpatient treatment. Treatment completion for this modality was defined primarily in terms of progress toward meeting treatment plan objectives.

The Substance Abuse Monitoring System database contains mainly client-related variables. The major variables included in this analysis were age, gender, years of education, ethnic group, usual living arrangement (family vs other), marital status, number of children in household, employment status, referral source (courts, assessment center, other), primary substance abused, income, public assistance status, and existence of a secondary or tertiary substance abuse problem.

Two primary methods of analysis were used to assess program completion rates: cross-tabulation analysis and stepwise logistic regression. Cross-tabulation analysis provided comparative information on program completion rates for client and program variables. Stepwise logistic regression analysis identified variables that were significantly and independently associated with treatment completion ($P < .05$) and provided odds ratios (ORs) and 95% confidence intervals (CIs) for these variables. Separate analyses were conducted for adult drug and adult alcohol treatment programs. Youth programs, which do not distinguish between drug and alcohol clients, were analyzed separately as a single category.

Results

Table 1 presents descriptive data on the characteristics of the adult study population. As shown, the modality with the greatest number of discharges (2082) was standard outpatient alcohol treatment, followed by intensive inpatient alcohol treatment (973). Overall, the three alcohol treatment modalities accounted for almost 70% of discharges of adult clients. Women accounted for approximately 30% of the discharges from alcohol treatment programs and for more than 40% of the discharges from drug treatment programs. Approximately 65% of the adult clients were between 20 and 40 years of age, and more than 70% were White. Blacks represented roughly 15% to 20% of the discharges from drug treatment programs. Native Americans accounted for 16% of the discharges from inpatient alcohol programs and 8% of the discharges from outpatient alcohol programs. Hispanic clients represented a smaller proportion of the study population, roughly 2% to 7% depending on the modality. Most of the adult clients discharged had at least some high school education, and about 15% had attended school beyond this level.

The nature of drug and alcohol problems varied across modalities. A small percentage of clients in adult alcohol programs abused substances other than alcohol, reflecting the mixed nature of addiction developed by some clients (nearly all of these clients had alcohol abuse as a secondary problem). Cocaine abuse was the primary problem for almost half of the clients in adult drug treatment programs, while marijuana abuse was the primary problem for roughly 20% to 25% of the clients. Clients in drug treatment programs appeared to abuse multiple substances more often than clients in alcohol treatment programs. For example, more than 85% of the clients in drug treatment programs had a secondary drug problem, and roughly 55% to 62% had a tertiary drug problem. In contrast, 47% to 66% of alcohol treatment clients had a secondary drug problem, and less than 40% had a tertiary drug problem. As Table 1 shows, clients came into treatment through different avenues. Roughly 90% of the clients in inpatient programs were referred through a central assessment center, while 44% and 62% of the clients entering standard outpatient and intensive outpatient alco-

	Alcohol Programs			Drug Programs		
	Intensive Inpatient (n = 973)	Standard Outpatient (n = 2082)	Intensive Outpatient (n = 832)	Intensive Inpatient (n = 376)	Standard Outpatient (n = 863)	Intensive Outpatient (n = 266)
Female	29	29	28	48	43	47
Age, y						
<20	6	7	5	4	17	11
20–29	38	33	37	57	42	45
30–39	37	34	36	31	33	34
40–49	14	17	14	7	8	10
≥50	5	9	8	1	1	<1
Ethnic group						
Asian	<1	1	<1	<1	1	1
Black	8	7	7	20	15	23
White	72	78	78	72	74	70
Hispanic	4	6	7	4	4	2
Native American	16	9	8	4	6	4
Education, y						
<9	8	8	8	7	9	8
9–12	78	74	72	80	73	74
13–16	14	17	20	13	17	17
>16	1	1	<1	1	<1	<1
Monthly income						
<$100	71	21	15	66	21	29
$100–$499	20	36	29	21	51	37
$500–$899	7	21	26	10	15	24
≥$900	2	23	30	3	14	9
Married	18	25	26	21	17	20
Living with family	45	49	50	42	50	46
One or more children	28	33	42	30	35	40
Employment status						
Full time	1	26	34	1	10	13
Part time/temporary	1	10	11	3	7	9
In school	1	5	3	1	15	8
None	97	59	52	96	67	70
Public assistance	23	27	22	30	38	37
First year of addiction						
Prior to 1950	2	4	3	...	<1	...
1950–1959	7	9	8	2	2	<1
1960–1969	24	23	24	6	10	14
1970–1979	25	24	22	36	32	34
1980 and later	25	24	22	56	56	52
Primary drug problem						
Alcohol	91	97	99	7	8	12
Heroin	<1	<1	<1	18	12	8
Amphetamines	<1	<1	...	10	8	11
Cocaine	4	1	1	45	40	46
Marijuana	3	1	<1	19	26	21
Other	<1	<1	...	2	7	2
Secondary drug problem	66	47	49	89	87	90
Tertiary drug problem	38	25	23	62	55	56
Referral type						
Assessment center	92	25	13	92	31	23
Courts	<1	44	62	<1	18	25
Other	7	31	25	7	51	52

TABLE 1—Descriptive Information (%) on Clients in Adult Treatment Programs

TABLE 2—Descriptive Information on Clients in Outpatient Youth Treatment Programs (n = 435)	
	%
Female	44
Age, y	
10–14	28
15–19	72
Ethnic group	
Asian	1
Black	5
White	85
Hispanic	5
Native American	4
Education, y	
≤8	37
9–12	62
Employment status	
Full time	1
None	18
Part time/temporary	4
In school	76
First year of addiction	
1970–1979	5
1980 and later	95
Primary drug problem	
Alcohol	60
Cocaine	2
Marijuana	28
Other/unknown	9
Secondary drug problem	66
Tertiary drug problem	26
Referral type	
Courts	23
Other	77

hol treatment programs, respectively, were referred through the courts.

Table 2 presents descriptive information on the 435 clients discharged from youth outpatient treatment programs during the study period. As shown, 44% of these clients were female, 28% were under 15 years of age, 85% were White, and 76% were attending school. Sixty percent of the youth clients received treatment for alcohol abuse problems; 30% received treatment for marijuana abuse. Sixty-six percent had a secondary drug problem, 26% had a tertiary drug problem, and 23% entered treatment as a result of a court order.

Table 3 presents information on treatment completion for adult clients and shows the results of the cross-tabulation analysis for selected variables. The first noteworthy items are the overall completion rates. As shown, treatment modality was associated with program completion ($P < .001$). Completion rates for intensive inpatient, intensive outpatient, and stan-dard outpatient adult alcohol treatment programs were 75%, 23%, and 40%, respectively. For adult drug treatment programs, completion rates for these same three modalities were 71%, 19%, and 33%, respectively.

Variables found to be associated with completion of adult alcohol or drug treatment programs included age, education, ethnic group, year of addiction, public assistance, and referral source. In general, older clients and clients with more years of education had higher completion rates, but the differences were not always statistically significant. Eighty percent of White clients completed intensive inpatient alcohol treatment; this rate was higher than that for Blacks (71%), Hispanics (73%), and Native Americans (60%). However, the opposite was true for intensive inpatient drug treatment programs, in which 67% of White clients completed treatment as compared with 83% of Black clients, 93% of Hispanic clients, and 77% of Native American clients. Hispanic clients in outpatient drug programs had higher completion rates than clients of other ethnic groups. In almost all cases, clients whose addictions started earlier were more likely to complete treatment.

Finally, completion rates varied by referral source. In particular, adult clients entering treatment through an assessment center that provided centralized diagnostic, treatment planning, and referral services were more likely to complete treatment than clients entering treatment through other avenues, such as court referral. For example, 77% of clients in intensive inpatient alcohol treatment programs referred through an assessment center completed treatment, as compared with 58% of clients referred by the courts ($P = .003$). These results must be considered with some caution, because the many comparisons increase the likelihood of detecting a significant association.

Although analyzed, completion rates for youth clients are not shown in Table 3 to simplify the presentation of results. The overall completion rate for clients discharged from youth outpatient programs was 27%. While there were differences in completion rate among variables, in only one case did these differences achieve statistical significance. Youth clients whose primary drug problem was alcohol or marijuana abuse had higher completion rates than did other clients ($P = .09$).

Finally, stepwise logistic regression was used to identify the variables independently associated with treatment completion (Table 4). The variables most consistently related to treatment completion were age, education, and referral source. Older clients and clients with more years of education were more likely to complete inpatient as well as outpatient treatment. Assessment center screening was a strong independent predictor of treatment completion. Clients discharged from intensive outpatient drug treatment programs screened through an assessment center were almost five times as likely to complete treatment as were other clients.

Ethnicity showed a mixed pattern of relationships. For Native American clients in inpatient alcohol programs, the odds of completion were only about half as great as for other clients. Similarly, White clients were less likely to complete inpatient drug treatment but more likely to complete standard outpatient drug treatment. The odds of Blacks completing intensive outpatient drug treatment were only 15% as great as for other clients. Finally, clients with a secondary drug problem were less likely to complete inpatient alcohol treatment than clients without a secondary problem.

Regression analysis was also performed on data for youth clients. Although not shown in Table 4, two variables were found to be related to the odds of youth clients completing treatment: monthly household income (OR = 1.03 per $100 increase, 95% CI = 1.01, 1.05) and number of children in household (OR = 1.17, 95% CI = 1.03, 1.31).

Discussion

Completion rates were found to be associated with a number of client variables and with treatment modality. The notable finding in regard to treatment modality was the substantially higher completion rates observed for inpatient programs relative to outpatient programs, a finding that has been widely reported* but not well understood. The limited data captured by the Substance Abuse Monitoring System precluded a thorough examination of the many possible reasons for these differences. As Table 1 shows, there were few meaningful differences in client characteristics between the inpatient and outpatient groups studied.

The differences may be related to unmeasured factors associated with programs' therapeutic milieu or treatment setting. Strong clinical norms and peer expectations exist in inpatient substance abuse programs

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*References 2, 4, 7, 8, 14, 15, 17, 18–20, 31.

TABLE 3—Completion Rates for Adult Clients in Alcohol and Drug Abuse Treatment Programs, by Selected Variables

	Alcohol Treatment Programs						Drug Treatment Programs					
	Intensive Inpatient Treatment (n = 973), %	P	Intensive Outpatient Treatment (n = 832), %	P	Standard Outpatient Treatment (n = 2082), %	P	Intensive Inpatient Treatment (n = 376), %	P	Intensive Outpatient Treatment (n = 266), %	P	Standard Outpatient Treatment (n = 863), %	P
Overall completion rate	75		23		40	<.001	71		19		33	<.001
Gender		NS		NS		NS		NS		.020		NS
Female	75		20		35		69		13		34	
Male	76		24		34		74		24		32	
Age, y		.051		NS		<.001		.011		NS		NS
<20	66		21		18		62		7		38	
20–29	72		20		31		66		19		29	
30–39	79		24		37		78		21		37	
40–49	80		25		36		88		27		30	
≥50	77		23		41		100				36	
Ethnic group		<.001		NS		NS		.008		.001		.031
Asian	67		33		27		100				33	
Black	71		26		30		83		3		29	
White	80		23		35		67		24		35	
Hispanic	73		12		34		93		40		36	
Native American	60		23		31		77		9		15	
Education, y		.020		NS		NS		NS		NS		NS
<9	62		15		31		72		5		25	
9–12	76		22		32		71		19		34	
13–16	80		25		41		74		25		32	
>16	90		67		42		100		50		50	
Employment status		.121		NS		.005		NS		NS		NS
Full time	77		25		39		60		27		25	
Part time/temporary	80		18		26		90		21		32	
In school	33		13		30		100		9		39	
None	76		22		33		71		18		39	
Public assistance		NS		NS		NS		NS		NS		NS
Yes	74		18		31		75		13		28	
No	76		24		35		70		22		36	
First year of addiction		.086		.024		.012		NS		NS		NS
Prior to 1950	78		36		47						50	
1950–1959	76		18		35		83				31	
1960–1969	80		27		36		73		32		32	
1970–1979	77		23		34		72		25		32	
1980 and later	70		16		29		70		11		34	
Primary drug problem								NS		NS		NS
Alcohol							84		29		24	
Heroin							75		21		36	
Amphetamines							58		14		45	
Cocaine							70		14		30	
Marijuana							73		25		26	
Others							100		50		72	
Referral type		.003		NS		<.001		.090		<.001		<.001
Assessment center	77		26		44		73		38		45	
Courts	60		23		35		33		22		31	
Other	58		21		25		57		9		26	

that may make it more difficult for clients to abandon treatment prior to completion. Also, not completing treatment involves two very different actions depending on whether the individual is an inpatient or outpatient client. A client receiving inpatient treatment must physically leave the treatment setting in order not to complete treatment, while a client receiving outpatient treatment merely has to fail to show up for his or her scheduled therapy.

Unmeasured factors related to source of payment or cost sharing may account for some of the differences in completion rates between the inpatient and outpatient study groups. The treatment of nearly all inpatient clients was supported directly by state funding. However, support for outpatient clients was provided indirectly through the counties, and some income-related copayment may have been required. If so, this requirement may have

posed a financial barrier to completion and may explain why fewer outpatient clients completed treatment.

A limited number of variables were found to be significantly predictive of treatment completion in multivariate analyses. In general, older clients, clients with more education, clients with a longer history of substance abuse, and clients referred to treatment through a central referral and assessment center were more

TABLE 4—Stepwise Logistic Regression Models Showing Predictors of Treatment Completion, by Modality

	Adjusted Odds Ratio	95% Confidence Interval	P
Adult alcohol programs			
Intensive inpatient treatment (n = 969)			
Primary substance of abuse other than alcohol	0.47	0.29, 0.75	.002
Years of education	1.18	1.09, 1.28	<.001
Secondary drug use	0.52	0.38, 0.76	<.001
Native American	0.45	0.31, 0.66	<.001
Intensive outpatient treatment (n = 814)			
Years of education	1.11	1.03, 1.20	.010
Later first year of addiction	0.84	0.71, 0.99	.040
Standard outpatient treatment (n = 2026)			
Screened by assessment center	2.61	2.00, 3.39	.001
Court referral	1.53	1.20, 1.94	<.001
Age (per 10-year increase)	1.02	1.01, 1.03	<.001
Income	1.16	1.05, 1.29	.004
Adult drug programs			
Intensive inpatient treatment (n = 374)			
Age (per 10-year increase)	1.96	1.34, 2.86	.001
White	0.42	0.23, 0.75	.005
Intensive outpatient treatment (n = 261)			
Screened by assessment center	4.84	2.14, 10.91	<.001
Court referral	2.63	1.10, 6.27	.029
Later first year of addiction	0.55	0.35, 0.85	.008
Black	0.15	0.03, 0.66	.012
Standard outpatient treatment (n = 837)			
Primary drug other than alcohol, marijuana, cocaine, heroin	3.15	2.09, 4.75	<.001
Screened by assessment center	2.43	1.76, 3.36	<.001
White	1.55	1.07, 2.24	.005
Years of education	1.09	1.01, 1.18	.041

Note. The following independent variables were included in the logistic regression analysis: age, gender, disability, marital status, employment status, receiving public assistance, eligible for health insurance, White ethnic group, Black ethnic group, Hispanic, Native American, pregnant, Alcohol and Drug Addiction Treatment and Support Act (ADATSA) as funding source, screened by assessment center, fee status, heroin as primary drug, alcohol as primary drug, cocaine as primary drug, marijuana as primary drug, secondary drug use, tertiary drug use, veteran, monthly income, education, number of children in household, first year of addiction, number in household, and living with family. A few records contained missing information and were therefore excluded from the regression analyses. The figures shown represent the numbers of observations used for the regressions.

likely to complete treatment, other things equal.

The findings regarding ethnic group and referral mode merit discussion. Whites were more likely to complete outpatient drug treatment than were members of other ethnic groups, but they were less likely to complete inpatient drug treatment. Native Americans were less likely to complete inpatient alcohol treatment than were clients of other ethnic groups, and Blacks were less likely to complete intensive outpatient drug treatment. These findings may suggest the importance of cultural fit between clients and treatment programs.[28] Ethnicity per se may not be as important as the fit between one's ethnic group and the norms and culture of the program.

This notion of client–program fit may extend to other areas as well, particularly the fit between the client's substance abuse problem and the treatment focus. The regression analysis indicated that clients in intensive inpatient alcohol programs whose primary problem involved abuse of a substance other than alcohol were only about half as likely to complete treatment as were clients whose primary problem involved alcohol abuse.

The fit between client and program has important clinical implications and may explain why referral mode, particularly referral through a centralized assessment center, was found to be an important independent predictor of treatment completion. Assessment centers provide centralized intake, screening, and referral of

clients, which may lead to a better fit between the program and client than would otherwise occur, for example, when clients are referred to treatment through the courts.

How do these results compare with other findings reported in the literature? While comparisons must be made cautiously, it appears that the completion rates described here are somewhat higher than those reported by other studies.[2,14,18,31]

One important limitation of the present study was its focus on a single treatment episode. Clients with substance abuse problems often move in and out of treatment over time. What may be important for achieving abstinence or positive outcomes (e.g., employment) in the long run is the cumulative effect of multiple treatments over time rather than the fact of treatment completion for a single treatment episode. The results of the regression analysis indicated that clients with fewer years of addiction were less likely to complete intensive outpatient drug and alcohol treatment than were clients with a longer history of addiction. The latter clients probably had greater exposure to treatment over time, and the cumulative effects of this previous treatment may have increased the likelihood of their completing the current treatment episode. Unfortunately, it was not feasible within the scope of this study to extract data from the Substance Abuse Monitoring System that would have allowed us to link records over time to construct a variable that could reliably measure past treatment.

Treatment completion is believed to be important because it presumably has a positive effect on long-term outcomes. It was not feasible, in the present study, to perform long-term follow-up on clients. Thus, we do not know whether the clients in this study who completed treatment had better long-term outcomes than those who did not complete treatment.

In addition to analyzing treatment completion, this study had a secondary purpose: to demonstrate the potential of a statewide information system to provide reliable data for analysis. Only 3 of the more than 6000 records we obtained for the project proved unusable as a result of poor data, a remarkable fact. Furthermore, an independent study of youth treatment programs, undertaken at the same time as our study and involving actual reviews of client files, generated completion-rate estimates virtually identical to those reported here.

Our experience suggests that state information systems can provide a rich

source of data, yielding information that is sufficiently complete and timely to provide a basis for meaningful analysis. Yet the capabilities of many state systems appear to be rather limited.[34] A critical need for improving understanding of treatment effectiveness through analysis of information contained in state information systems is the ability to track clients over time and to link treatment episodes. Building the capacity to do so, even on random samples of clients, would greatly enhance the capability of these information systems to provide meaningful data.

From a health policy perspective, the question of the effectiveness of substance abuse treatment has taken on added importance in the context of health care reform with discussion of expanding health insurance coverage for mental health and substance abuse treatment. On the private side, the cost of substance abuse treatment has risen dramatically in recent years and is now one of the fastest growing expenditure categories, a fact that has prompted employers and insurers to scrutinize treatment much more closely and to question its value. The need for information systems that can provide reliable data to support and enhance planning and evaluation of substance abuse treatment services will doubtlessly grow in the future.

Further study will be needed to better understand the factors predictive of program completion. This study suggested the notion that fit between the client and program may be a key factor explaining why some clients complete treatment and others drop out. In this regard, there is a need for careful systematic assessment of how different referral mechanisms may influence client–program fit. More generally, there is a need to better understand how program factors, which may be amenable to change through health policy or management initiatives, may affect completion rates as well as long-term outcomes. □

Acknowledgments

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