

NEDS ANALYTIC SUMMARY

Summary #10
September
2000

Highlights

Several treatment provider characteristics contribute to substantially better retention of clients in treatment.

Showing clients their treatment plan improved retention in many types of treatment.



The National Treatment Improvement Evaluation Study: Retention Analysis



NEDS Analytic Summary Series

The Center for Substance Abuse Treatment (CSAT) works to improve the lives of those affected by alcohol and other substance abuse, and, through treatment, to reduce the ill effects of substance abuse on individuals, families, communities, and society at large. Thus, one important CSAT mission is to expand the knowledge about effective substance abuse treatment and recovery services. In support of these efforts, CSAT established the National Evaluation Data Services (NEDS) contract to provide a wide array of secondary data analysis products to the substance abuse treatment field.

Specifically, the NEDS project is focused upon providing CSAT with an analytic capability to use existing data to address policy- and practice-relevant topics as well as future research and evaluation activities. NEDS has developed several product lines designed to provide analytic findings to substance abuse treatment policy makers, service providers, services researchers and evaluators in a format that is most useful to the end user.

The Analytic Summary is one of the NEDS product lines. The purpose of the Analytic Summary is to provide a brief summary of each technical report produced by NEDS written in non-technical language. Readers who find the Analytic Summary results of interest can contact the original NEDS technical report authors for more detailed information. Through this process, the NEDS Analytic Summaries provide information to the substance abuse treatment field and promote linkages among different areas in the field.

This Analytic Summary

This particular NEDS Analytic Summary is based on the NEDS Technical Report titled *The National Treatment Improvement Evaluation Study: Retention Analysis* (Orwin, R., and Williams, V., July 1999). For a more thorough discussion of the analysis and findings, please obtain a copy of the complete Technical Report. Information for doing so is provided on the last page of this summary.

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The National Treatment Improvement Evaluation Study: Retention Analysis

This analysis describes:

- **The influence of treatment setting and intended duration on retention**
- **Provider-level factors that could improve retention.**

Retention was measured using treatment completion, length of stay, and reason for discharge.



Analytic Importance

One important function of CSAT is to expand the knowledge about, and the availability of, effective treatment and recovery services for those affected by alcohol and other substance abuse. In sponsoring these analyses of the data they have collected, CSAT is attempting to gain useful insight into the fundamental question: *What constitutes effective (and cost-effective) treatment, and for what populations?*

Clients in treatment for drug or alcohol problems need to remain long enough for that treatment to have an impact. Ideally, clients will complete a planned course of care, but many do not. Numerous studies have demonstrated that clients who stay longer in treatment have better outcomes. What is less clear, however, is what factors can decision makers and providers use to improve client retention.

Analytic Purpose

This analysis identifies several provider characteristics that were associated with improved client retention in treatment. Previous studies provide few consistent, conclusive findings regarding client characteristics that predict retention. Therefore, focusing on provider level characteristics may lead to new insight about increasing retention.

This study addressed the following specific questions:

- How do treatment completion rates and actual lengths of stay compare for providers with different intended lengths of stay within the same treatment setting?

- How do treatment completion rates and actual lengths of stay compare for providers from different modalities within the same intended length of stay?
- What provider-level factors appear to improve retention, and by how much?
- To what degree does the inclusion of provider-level factors improve overall strength of predictive models over and above client-level factors alone?

Analytic Approach

This analysis of NTIES data is based upon 3,117 clients treated in 50 treatment providers. This final analysis sample excludes clients and providers with missing data, and excludes providers that could not be compared with other providers. Methadone treatment providers were excluded from the analysis because the intended duration of methadone treatment is frequently indefinite.

The providers were differentiated according to treatment setting as well as the length of time that they expect treatment to last for most clients:

- Treatment settings included outpatient non-methadone, short-term residential, long-term residential and correctional programs.
- The intended length of treatment was also reported by programs to be 21-30 days, 41-89 days, 90-119 days, or 120+ days.

Clients were grouped according to the treatment setting and intended duration of treatment. For example, clients in 90-119 day outpatient providers were

The National Treatment Improvement Evaluation Study: Retention Analysis (cont.)

More clients completed short-duration treatment than long-duration treatment.

Longer duration treatment provides more exposure to treatment over time.



put in one group, clients in 120+ day outpatient providers were put into another group, clients in 120+ day long-term residential providers were put into yet another group, and so on. This assures that subsets of clients who might differ significantly in terms of treatment program type could be considered separately. In all, eight analysis subgroups were developed (Exhibit 1).

Two types of analyses are reported for these subgroups:

- **Treatment setting and intended duration.** Retention was compared for provider subgroups with three variables: completion rates, reason for discharge, and length of stay.
- **Other provider influences on retention.** Logistic regressions were used to identify which provider-level factors predict treatment completion within each provider subgroup. These models were then assessed in terms of:
 - The *increase in strength* of models that add provider-level data to client-level variables.
 - The *sensitivity* of the models to alternative reasons for clients leaving treatment.

Findings

Treatment setting and intended duration

Completion rates. In general, shorter programs have higher treatment completion rates but longer programs retain clients for longer periods.

- More than 84 percent of clients in the shortest intended duration treatments completed treatment, compared to 22 to 39 percent of clients in the longest intended duration treatment (Exhibit 2).
- More clients completed 90-119 day treatment than 120+ day treatment. Among outpatient providers, 42 percent of clients completed 90-119 day treatment while 28 percent completed 120+ day treatment. Among correctional providers, 52 percent of clients completed 90-119 day treatment while 22 percent completed 120+ day treatment.

Reason for discharge. Clients who leave treatment prematurely may do so by their own choice, the program's choice, or for other reasons (e.g., they become incarcerated).

Exhibit 1			
Modality and Intended Length of Stay Subgroups in NTIES			
Modality	Intended Duration	Number of Providers	Number of Clients
Non-methadone outpatient	90-119 days	7	349
	120+ days	16	918
Short Term Residential	21-30 days	4	450
	120+ days	14	691
Long Term residential	21-30 days	2	217
	41-89 days	2	127
Corrections	90-119 Days	2	124
	120+ days	3	241
Total		50	3,117

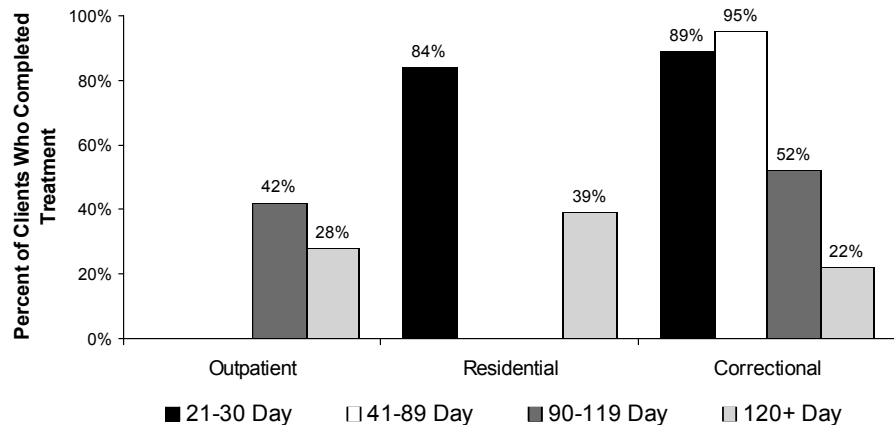
The National Treatment Improvement Evaluation Study: Retention Analysis (cont.)

More than one-third of clients left the longest-duration outpatient and residential treatment by their own choice before finishing.

Length of stay was equal to or shorter in the programs designed to last the longest compared to programs that were designed to end earlier.



Exhibit 2
Percent of Clients Who Completed Treatment, by Treatment Setting and Intended Treatment Duration



- More than a third of clients left the longest duration outpatient and residential providers before finishing, and by their own choice.
- More than a third of clients left the longest duration correctional treatment before finishing, for “other reasons” than their own choice.
- More long-term residential clients completed treatment (39%) compared to outpatient (28%), and both graduated more clients than correctional programs (22%).
- Actual average length of stay was significantly longer in outpatient providers (121 days) compared to long term residential (102 days) and correctional providers (93 days) (Exhibit 3).

Length of stay. As expected, clients generally stay longer in the programs designed to last the longest than in the shortest programs. Contrary to expectation, however, clients actually stayed as long in the 90-119 day outpatient programs and longer in the 90-119 day correctional programs than in the corresponding 120+ day programs.

Fewer than half of the clients in 120+ day outpatient, correction, and long-term residential treatment actually remained in treatment 120 days.

Comparisons across treatment settings. Treatment completion and length of stay varied across settings within the longest duration treatment:

Length of stay did not vary across modalities irrespective of the intended treatment duration but did vary within modalities. This confirms that intended length of stay has a greater effect on actual duration than does the treatment setting.

Other provider influences on retention

Several provider characteristics helped explain why some clients are more likely to complete treatment than others. Statistical models were run separately within each of the eight provider subgroups. Treatment clients were

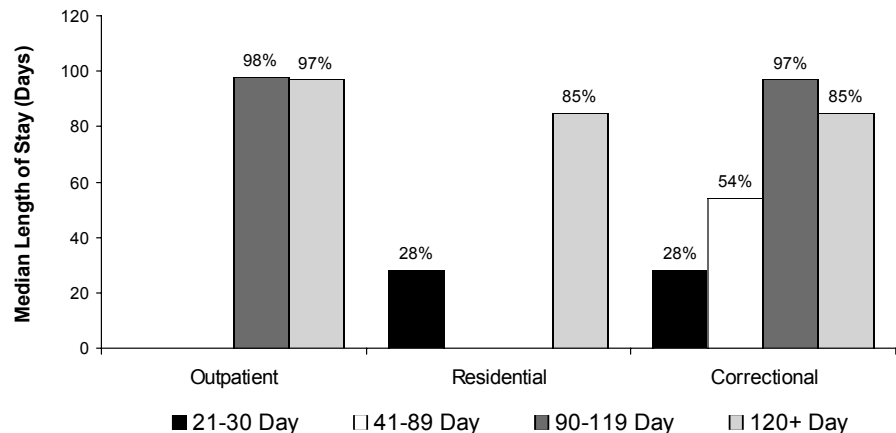
The National Treatment Improvement Evaluation Study: Retention Analysis (cont.)

Retention was better among programs that:

- Showed clients their treatment plans
- Provided vocational training
- Used specially designated case managers.



Exhibit 3
Median Length of Stay by Treatment Setting and Intended Treatment Duration



more likely to complete treatment if their providers:

- **Showed the clients their treatment plans.** Clients who recalled seeing their treatment plans were more likely to complete treatment in all provider subgroups.
- **Provided vocational training.** This applied to the longest duration outpatient and long-term residential providers, as well as in short term residential providers.
- **Used specifically-designated case managers.** The use of staff specifically designated as case managers improved retention in both outpatient and long term residential providers, but was significant only within outpatient providers.

The greatest number of factors identified for any provider subgroup was for the longest-duration outpatient treatment. Clients in these longest-duration providers had significantly higher probability of completing treatment if the providers:

- Showed clients the treatment plan
- Provided a specifically designated case manager
- Provided vocational training
- Provided services tailored to specific populations (homeless, pregnant, etc.).

Outpatient providers in which clients who requested revisions to treatment plans had significantly lower odds of completing outpatient treatment.

Provider characteristics influence whether or not clients will complete treatment. All of the models with provider and client-level variables were stronger than models that included only client-level variables. Several statistical tests support this finding. The model for long-term residential treatment that incorporates provider-level variables with client-level variables was especially strong.

Showing clients their treatment plan was the strongest single predictor of treatment completion. This variable was significant in all of the

The National Treatment Improvement Evaluation Study: Retention Analysis (cont.)

While showing clients their treatment plan increased retention overall, in outpatient programs:

- **Tailoring treatment to client needs improved retention more**
- **Clients requesting changes to treatment plans were less likely to finish treatment.**

models in which it was included. This suggests that programs can raise their completion rates by sharing treatment plans with their clients.

Further analyses refuted a potential concern that treatment completers were more likely to report seeing their plans simply because they stayed longer in treatment.

- Completers who stay longer are not more likely to report having seen a treatment plan than are those who stay for shorter periods.
- Only among clients who did NOT complete treatment did the probability of seeing the treatment plan increase with longer treatment duration (except in short-term residential providers).

These observations suggest that longer treatment does not necessarily increase the likelihood that clients will see their treatment plan. If this were the case, the relationship would exist for both completers and non-completers.

Findings did not change when more stringent definitions of “non-completers” were used. For this sensitivity analysis, statistical models were re-run. The new models limited the number of non-completers studied to only those clients who were classified as having had definite negative exits from their programs. This analysis demonstrated that the previously stated results were not significantly affected by including clients who did not complete treatment because they had been transferred to another program, died, were incarcerated, or left for “other reasons.”

Implications

Results of this analysis inform the questions posed at the start of this report.

- **How do treatment completion rates and actual lengths of stay compare for providers with different intended lengths of stay within the same modality?** Within the different modalities, shorter programs generally have higher treatment completion rates but longer programs retain clients for longer periods.
- **How do treatment completion rates and actual lengths of stay compare for providers from different modalities within the same intended length of stay?** More clients completed the longest duration residential treatment than outpatient or correctional treatment.
- **What provider-level factors appear to improve retention, and by how much?** The most consistent significant predictor of retention is “the client saw the treatment plan.” Moreover, the longest duration outpatient providers had higher probability that clients would complete treatment if they provided vocational training, case managers, and a treatment plan tailored to the needs of specific populations.
- **To what degree does the inclusion of provider-level factors improve overall strength of predictive models over and above client-level factors alone?** Provider-level factors increased the strength of all predictive models.



The National Treatment Improvement Evaluation Study: Retention Analysis (cont.)

Implications for Research and Analysis

NTIES and other similar outcome datasets should be analyzed to extend and replicate these findings:

- **Explore in detail what it means that patients “saw the treatment plan.”**
- **Explore reporting bias** that results when non-completers perhaps are less likely to recall seeing a treatment plan because they were less engaged in the treatment process.
- **Investigate variable combinations.** Assess how specific provider and client variables work together to influence retention.
- **Take a closer look at non-completers.** Develop a profile of “early” and “late” leavers to help treatment providers identify clients who may be at risk for leaving the program early. Explore, for both types of non-completers, why they left treatment. This information can then be used to develop strategies to improve retention.
- **Explore the relation between completion and post-treatment outcomes.** Using this dataset, further explore the relationship between retention and post-treatment outcomes (reduced substance abuse, etc.).
- **Assess whether similarities in client characteristics within providers affected statistical tests.** Similarities among baseline and follow-up measures could overstate significance levels of the analyses.

Some of the limitations of this study can also be overcome when future data are collected.

- **Clarify terms.** The utility of this analysis is limited by a lack of standardization in certain NTIES data. For example, criteria for successful treatment completion are idiosyncratic to the providers: some providers require clients to follow the treatment plan, others require clean urinalyses, and others require consistent attendance.
- **Prevent missing data problems.** The fact that the analysis sample is severely attenuated due to missing data indicates that improving data completeness would yield a more complete analysis.

Implications for Policy Makers

Consider the merits of intensive moderate-length (about 90 days) residential program. This analysis shows that clients are much more likely to finish the short-term residential program than the long-term programs. However, length of time in treatment may be more important in affecting ultimate outcomes than completing treatment.

Implications for Treatment Providers/Clients

- **Focus on the treatment plan.** The importance of the treatment plan is underscored by this analysis. Two aspects emerged: showing clients the treatment plan, and tailoring the treatment plan to the specific needs of target populations. Both strategies may improve retention.
- **Provide case management.** This analysis indicates that “specially designated” case managers improved

Provider level factors can be manipulated to improve retention.

Implications for policy and practice:

- **Consider more moderate-length treatment programs**
- **Enhance treatment provider’s focus on treatment plans**
- **Augment case management.**



The National Treatment Improvement Evaluation Study: Retention Analysis (cont.)

retention. Treatment providers can explore whether such case managers are more important for certain types of clients than others.

- **Consider providing vocational training.**

Future Steps

Provider level analyses are attractive in that they directly inform decision makers about a series potential manipulations to treatment services that could improve results. The optimal next step for research, policy and practice would be to conduct new prospective studies that rigorously examine some of the relationships suggested in this analysis. In the meantime, treatment providers need to experiment with changing provider characteristics. Researchers also need to continue this research into program-level effects on retention.

Clearly, much more needs to be learned about the effectiveness of treatment options and different situational factors that keep clients in treatment long enough to maximize its benefit. The more we know about methods to improve both retention and effectiveness of treatment, the more likely it is that we efficiently direct resources to

reduce the impact of substance abuse on society.

References

Orwin, R. and Williams, V. *The National Treatment Improvement Evaluation Study: Retention Analysis*. July 1999. Prepared for the Center for Substance Abuse Treatment by Battelle Centers for Public Health Evaluation and Research under the National Evaluation Data Services (NEDS) contract.

National Opinion Research Center, *The National Evaluation Treatment Improvement Evaluation Study Final Report*. March 1997. Prepared for the Center for Substance Abuse Treatment, U.S. Department of Health and Human Services.

For more information, please contact the National Evaluation Data Services analysis team at (703) 385-3200, or visit the NEDS Web site.

**Find more on the web
<http://neds.calib.com>**

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The analytic summary was produced by Caliber Associates under the NEDS contract (270-97-7016). We wish to thank Dr. Ron Smith, CSAT Program Evaluation Branch, GPO for the NEDS contract, for his overall guidance and direction. In addition, we wish to recognize the many Battelle and Caliber staff who contributed to production of this analytic summary and the technical report upon which it is based.

National Treatment Improvement Evaluation Study (NTIES)

This analysis was performed on data derived from the National Treatment Improvement Evaluation Study (NTIES). The NTIES was a national evaluation of the effectiveness of substance abuse treatment services delivered in comprehensive treatment demonstration programs supported by the Center for Substance Abuse Treatment (CSAT). The NTIES project

collected longitudinal data between FY 1992 and FY 1995 on a purposive sample of clients in treatment programs receiving demonstration grant funding from CSAT. Data are derived from client interviews conducted at three points in time: treatment intake, treatment exit, and 12 months after treatment exit.



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