

NEDS ANALYTIC SUMMARY

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Highlights

Longer, more intensive treatment costs more than shorter, less intensive treatment, but may also have better outcomes.

Treatment Episode Costs and Duration by Type of Care



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 analytic 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 Costs and Benefits of Substance Abuse Treatment: Findings from the National Treatment Improvement Evaluation Study (NTIES)* (Koenig, L., Denmead, G., Harrison, M. & Harwood, H., August 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.

Contents

Analytic Importance	2
Analytic Approach	2
Findings	3
Implications	6
Future Steps	7



Treatment Episode Costs and Duration by Type of Care

This analysis addresses two questions:

- What is the average length of stay, treatment cost, and cost per client day for an average treatment episode?
- How do costs and length of stay vary across clients and treatment settings?

Analytic Importance

One important function of CSAT is to expand the knowledge about and improve the availability of effective treatment and recovery services for those affected by alcohol and other substance abuse. In sponsoring these secondary analyses, CSAT is attempting to learn *what actually constitutes effective (and cost-effective) treatment and for what populations.*

The cost of delivering treatment is one of the most fundamental items of information needed to manage treatment services. Costs can vary considerably across types of care and by the duration of services. This analytic summary describes the costs and treatment duration as experienced by the CSAT-funded demonstration projects and clients that participated in the National Treatment Improvement Evaluation Study (NTIES).

Analytic Purpose

Decision makers who either fund or manage delivery of treatment services need information that helps them compare the relative value of treatment services. Information on the cost and duration of typical treatment episodes can help decision makers compare treatment services. Previously, little systematic information had been collected and analyzed from a large number of treatment providers reflecting many types of treatment services.

This analysis describes the costs and length of stay for a treatment episode by treatment setting. Information is provided on both the average as well as the range of these values. NTIES data were analyzed to address the following questions:

- What is the average length of stay, total treatment cost, and cost per client day for an average treatment episode?
- How do costs and length of stay vary across clients within each treatment setting?

This analysis only focuses on cost and duration, not outcomes. Other analyses conducted through NEDS explore the relationship between costs and outcomes (e.g., Analytic Summary #13: *Costs and Benefits of Providing More Intensive Substance Abuse Treatment*).

Analytic Approach

Data Sources. In NTIES, data were collected about publicly funded treatment providers and their clients. The providers primarily served the medically indigent population. This analysis examined data provided by administrators regarding treatment services, costs, and revenues, as well as client interviews. A total of 68 treatment providers contributed data used in this analysis, including:

- Four short-term residential providers
- Eighteen long-term residential providers
- Seven outpatient methadone providers
- Thirty-one outpatient non-methadone providers
- Eight correctional facility providers.

Treatment cost estimates were developed from provider financial data and client data. Provider revenues were used rather than provider-reported



Treatment Episode Costs and Duration by Type of Care (cont.)

Long-term residential treatment costs more per episode than other types of care.

Short-term residential treatment costs the most per day of care.

Outpatient methadone treatment costs the least per day, and has the longest length of stay.



expenses, as the revenues were judged to be more reliable data in the NTIES database. Treatment episode data are based on 4,966 clients who entered and left treatment, and completed follow-up interviews. Except for methadone treatment clients, clients who were still in treatment were not counted.

NTIES cost estimates and services data are limited to one admission; however, some clients step up or step down to more or less intensive treatment or re-enter care after leaving treatment. Full cost and duration of care for an individual may be greater than reflected here. These results are based on actual observed treatment duration rather than planned duration, which varies across providers.

Constructing Cost Estimates. Treatment costs per day were calculated by dividing total annual revenue by total client days of enrollment (e.g., average active caseload times 365). These costs were calculated separately for each provider. The nine providers

missing cost data were assigned the average costs for the providers offering services within the same type of treatment setting.

Total treatment costs per episode per client was calculated by multiplying each client's length of stay by treatment costs per client day.

Findings

Treatment Costs and Length of Stay by Treatment Setting

Exhibit 1 presents the basic findings on costs and duration of treatment by treatment setting. Both costs and length of stay differed across the respective types of care.

Long-term residential programs had the highest average treatment episode costs, about \$7,200 per treatment episode (at \$65 per day). Short-term residential programs cost about \$2,100 per episode and had the highest average costs per client day (\$79 per day).

Exhibit 1 Average Treatment Costs and Length of Stay by Treatment Setting				
Treatment Setting	Clients	Treatment Episode Costs*	Length of Stay*	Costs/Client Day*
Short-term residential	556	\$2,076	26	\$79.17
Long-term residential	987	\$7,218	115	\$65.05
Discontinued outpatient methadone (not in treatment)	299	\$1,461	151	\$9.01
Continued outpatient methadone (still in treatment)	144	\$4,890	494	\$9.03
Outpatient non-methadone	1,663	\$2,072	125	\$15.62
Correctional: Residential**	1,317	\$1,038	91	\$13.75

* Mean Values

** Correctional residential costs are for treatment participation only and exclude housing and other incarceration specific costs.

Longer treatment is more expensive than shorter treatment, but longer care may be more effective.

Most clients in long-term residential treatment did not remain long enough to cost more than \$10,000.

Continued methadone maintenance cost about \$5,000.



Treatment Episode Costs and Duration by Type of Care (cont.)

Outpatient non-methadone treatment cost about \$2,000 per episode. Clients discharged from outpatient methadone programs (excluding clients still in methadone treatment) had costs per episode of almost \$1,500, and the longest average length of stay of 151 days. Clients continually enrolled in methadone had average costs of almost \$5,000 and remained in treatment for an average of 500 days by the end of the study period.

Length of Stay Within Treatment Setting

Actual cost per episode may differ from client to client based on the services they receive. Most treatment providers incur higher costs per client (estimated to be several hundred dollars per client) during the first few weeks of treatment as they assess client needs and develop treatment plans. Costs decline after the admission period.

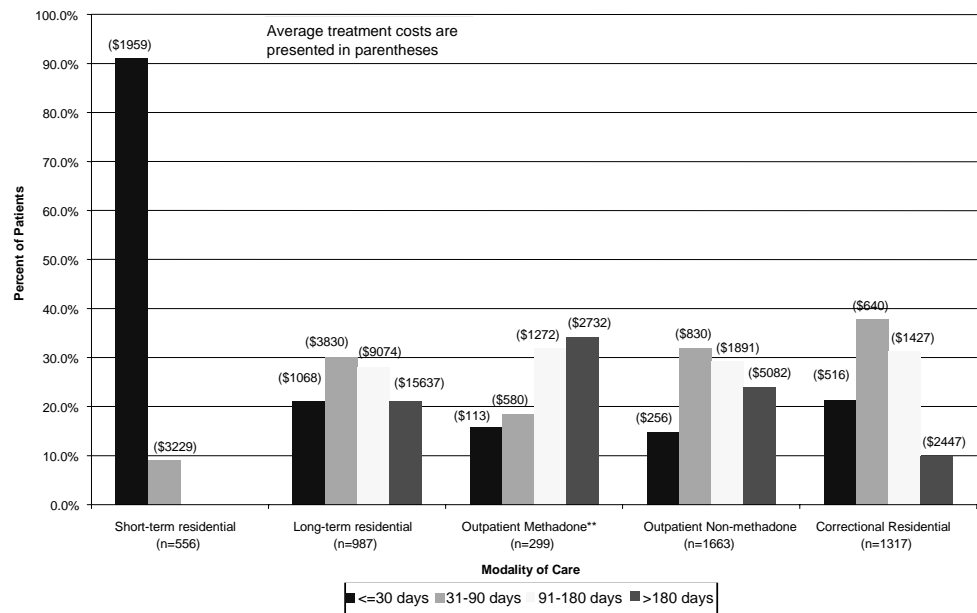
The average cost per treatment episode depends to a large degree on the length of treatment. Exhibit 2 presents two types of information: the proportion of clients staying in treatment for different treatment durations by type of treatment, and the average cost associated with each respective treatment duration and type of care.

In the three “longer-term” settings (residential, outpatient non-methadone and outpatient methadone), approximately 15 to 21 percent of clients left treatment after less than one month.

In long-term residential, outpatient and residential correctional programs, the largest share of clients (30%, 32% and 38%, respectively) stayed in treatment for 30 to 90 days.

In methadone programs, the largest share of clients who left treatment (34%) left after 180 days. About one-third of the NTIES methadone clients

Exhibit 2
Length of Stay and Treatment Cost Within Treatment Setting



** Only includes those clients who had terminated their treatment at an outpatient methadone clinic

In long-term residential, outpatient and residential correctional programs, the largest share of clients (30%-38%) stayed in treatment for 30 to 90 days.

A small number of clients had very long lengths of stay and high treatment costs relative to the average.

Almost all client treatment episodes cost less than \$5,000.



Treatment Episode Costs and Duration by Type of Care (cont.)

were continuously enrolled for almost 500 days on average.

For short-term residential programs, 91 percent of clients remained in treatment for 30 days or less with average treatment episode costs of \$1,959. Approximately 9 percent of clients stayed in treatment for 31 or more days with average costs of \$3,229.

In long-term settings, some of the clients who stayed less than 30 days may have returned to treatment, resulting in higher total treatment costs for those persons.

The “average” length of stay and cost reflect the fact that a small number of clients have exceptionally long lengths of stay and treatment costs. Therefore, it is important to examine a range of values to understand what constitutes relatively small versus relatively large values (Exhibit 3).

In long-term residential treatment, 25 percent of clients had treatment costs greater than \$10,400. Among those clients, about 5 percent had treatment

costs greater than \$19,362 (for average stays longer than 10 months in duration, not shown).

In outpatient non-methadone programs, about 25 percent of clients have treatment costs greater than \$2,338. Among those clients, about 5 percent had treatment costs greater than \$7,405 (not shown).

Sometimes, long duration and high cost care are necessary for clients who have more problems or more severe problems than other clients do. Such cases may become less common under stringent requirements that limit treatment length.

Treatment Costs and Length of Stay by Treatment Completion Status

Data on the treatment costs and length of stay by treatment completion status and treatment setting are presented in Exhibit 4. In general, the cost of a “completed” treatment episode was greater than the cost of a non-completed episode because the length of stay was greater. For example:

Exhibit 3 Distribution of Treatment Costs by Treatment Setting					
Treatment Setting	Clients	Treatment Costs*			
		Mean	25% of clients are below:	Median/ 50% of clients are below:	25% of clients are above:
Short-term residential	556	\$2,076	\$1,435	\$1,600	\$2,091
Long-term residential	987	\$7,218	\$1,963	\$5,092	\$10,463
Outpatient methadone (not in treatment)	299	\$1,461	\$549	\$1,241	\$2,135
Outpatient methadone (still in treatment)	144	\$4,890	\$4,069	\$4,736	\$5,867
Outpatient non-methadone	1,663	\$2,072	\$545	\$1,210	\$2,338
Correctional: Residential**	1,317	\$1,038	\$273	\$488	\$1,259

* Treatment costs are presented by quartiles of persons

** Correctional residential costs are for treatment participation only and exclude housing and other incarceration specific costs.

Treatment Episode Costs and Duration by Type of Care (cont.)

About 45 percent of clients completed treatment.

More clients completed short-term residential (81%) and residential correctional treatment (61%) than did not.

Completed treatment cost more than incomplete treatment, but may yield better outcomes.



Exhibit 4 Treatment Costs and Length of Stay by Treatment Completion and Treatment Setting				
Treatment Setting	Treatment Completed	%	Average Treatment Costs	Average Length of Stay
Short-term residential (n=553)	Yes	81%	\$ 2,260	27
	No	19%	\$ 1,323	18
Long-term residential (n=980)	Yes	34%	\$ 10,915	167
	No	66%	\$ 5,264	88
Outpatient methadone* (n=297)	Yes	20%	\$ 1,155	134
	No	80%	\$ 1,541	156
Outpatient non-methadone (n=1642)	Yes	33%	\$ 2,940	164
	No	67%	\$ 1,634	105
Correctional: Residential** (n=1306)	Yes	61%	\$ 814	88
	No	39%	\$ 1,384	94

* Only includes those clients who had terminated their treatment

** Correctional residential costs are for treatment participation only and exclude housing and other incarceration specific costs.

- A completed outpatient episode costs, on average, \$2,900 for 164 days of care.
- A non-completed outpatient episode costs \$1,600 for 105 days of care.

Similar patterns hold for long-term and short-term residential treatment. The opposite pattern is found for discharged methadone clients.

For short-term residential programs and residential correctional facilities, more clients completed treatment than did not (81% and 61%, respectively). This may be because the other types of care are designed to last longer than in these settings.

Outpatient methadone treatment facilities had the greatest percentage of non-completers (80%), followed by outpatient non-methadone programs (67%). Both of these modalities had long lengths of stay.

Implications

Other analyses have also shown strong differences in costs across treatment settings and types of clients. This analysis also shows that many clients began but did not complete treatment, and that the cost of non-methadone and non-corrections-based treatment was higher for clients who completed treatment than for those who did not.

Some treatment providers may have different average lengths of stay and average costs than those analyzed here. Treatment providers analyzed here received CSAT demonstration grants to deliver “enhanced” treatment services. As a result, the costs presented in this study may be higher than costs incurred by the same providers prior to becoming a demonstration project.

Policy makers should consider the relationship between cost and outcomes when making decisions about treatment.



Treatment Episode Costs and Duration by Type of Care (cont.)

Implications for Policy

The cost to treat substance abusers does differ strongly by type of treatment. The type and mix of care (modalities) offered in the community, as well as the types and mix of clients, will strongly affect the level of funding needed.

Implications from this analysis are that policy makers may need to:

- **Make decisions about treatment by looking at both costs and outcomes.** Looking at cost data alone without considering outcomes can lead decision makers to only seek lower costs.
- **Support development of tools to monitor the relationship between treatment services, costs, completion and outcomes.** Whether or not clients “complete” treatment has major cost implications. The definition of “completion” varies from provider to provider, making accurate forecasts of the cost of successful treatment difficult.
- **Be aware that improving treatment may necessitate changes in funding levels.** To the extent that providers are more successful at keeping clients in treatment until completion, total treatment costs will increase and fewer clients will be served if treatment budgets remain fixed. Improved treatment and higher completion rates come with a price and a payoff.
- **Set funding levels for treatment to be commensurate with treatment need.** Some clients may require more intensive or more expensive treatment to produce sustainable positive outcomes than others.

Implications for Practice

This analysis highlights the relationships between treatment, length of stay, and treatment completion. Implications from this analysis are that treatment providers may need to:

- **Examine and seek to rectify reasons why clients drop out of treatment prematurely.** Many clients complete and benefit from substance abuse treatment; however, some clients exit before completing treatment.
- **Maximize the outcomes that can be attained by trying different services.** Treatment providers can identify how well treatment services are matched to client needs to assure that services needed are provided, and that savings are realized when unnecessary services are curtailed. Outcomes are reduced when services needed are not provided.

Implications for Research

The findings from this analysis illustrate the distribution of treatment costs and length of stay across different types of treatment settings and clients. Implications for research and analysis are to:

- **Explore additional data on how treatment enhancements affect treatment costs.** This analysis reflects costs of treatment in providers that were funded to implement treatment enhancements. Future analyses could compare the cost of care before versus after implementation of treatment enhancements to break out the costs of improvements and the benefits.

Treatment Episode Costs and Duration by Type of Care (cont.)

- **Review and consider revising how treatment costs are measured.** This analysis used provider revenues as a proxy for treatment expenditures and costs. For the purposes of this analysis, this was the best data available. However, as previously mentioned, revenue is at best a proxy for cost. Better estimates for the costs of treatment and its components (i.e., intensity of services and number of services, intake, etc.) are needed.

Future Steps

Understanding the cost of substance abuse treatment, and the relationship between cost, treatment duration, and success, is necessary for treatment system funding bodies and managers. Expanding the understanding of these factors can help decision makers by providing a “baseline” against which subsequent data may be compared.

The tools that decision makers currently have available to monitor costs, duration, and completion rates need

improvement. Existing tools may be either crude or idiosyncratic to specific systems, and it is difficult to compare information across clients, providers, modalities and systems.

Through the collection and analysis of cost data using valid and widely accepted cost analysis tools, the substance abuse treatment field will be positioned to manage treatment services even more efficiently than is currently the case. Improvements in cost data will, therefore, help move the nation toward the goal of reducing the harmful impacts of substance abuse on society.

References

Koenig, L., Denmead, G., Nguyen, R., Harrison, M., & Harwood, H. 1999. *The Costs and Benefits of Substance Abuse Treatment: Findings from the National Treatment Improvement Evaluation Study (NTIES)*. Report to the Center for Substance Abuse Treatment. Fairfax, VA: Caliber Associates.

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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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 treatment services 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: at treatment intake, at treatment exit, and 12 months after treatment exit.



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