NATIONAL EVALUATION DATA SERVICES

NEDS ANALYTIC SUMMARY

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Highlights

This analysis indicates that a one dollar investment in substance abuse treatment results in:

- **Four dollars in savings from avoided criminal activity, or**
- **A 400 percent return on investment.**

CSAT
Center for Substance
Abuse Treatment
SAMHSA

Economic Impact of Substance Abuse Treatment on Crime

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 Costs and Benefits of Substance Abuse Treatment: Findings from the National Treatment Improvement Evaluation Study* (Koenig, L., Denmead, G., Nguyen, R., Harrison, M., & Harwood, H.J., 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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Economic Impact of Substance Abuse Treatment on Crime

This analysis addresses two important questions:

- **How does substance abuse treatment impact criminal behavior?**
- **How do the crime-related costs of clients differ prior to and following treatment?**

Analytic Importance

One important function of CSAT is to expand knowledge about the impact of treatment on people affected by substance abuse. In sponsoring secondary analyses, CSAT is attempting to gain useful insight into the fundamental question: *What is the behavioral and economic impact of treatment not only on clients but also on society as a whole?*

The association between crime and the use and/or abuse of alcohol and illicit drugs has been well-documented. Given the direct links between substance abuse and crime, it is not surprising that substance abuse treatment leads to a decrease in the criminal behavior of clients. While earlier studies have shown that treatment reduces the criminal behavior of clients, there has been little work on its impact on crime-related costs to society (i.e., the tax-paying population).

Analytic Purpose

The purpose of this analysis was to assess the impact of substance abuse treatment on criminal behavior and its associated economic costs. Using data from the National Treatment Improvement Evaluation Study (NTIES), we addressed the following questions:

- **How does the criminal behavior of clients in the year prior to treatment differ from their criminal behavior in the year following treatment?**
- **What are the economic benefits of substance abuse treatment in terms of reduced crime-related costs?**

Economic benefits are estimated as the difference between pre-treatment and post-treatment crime-related costs.

Analytic Approach

Data sources. Client-level data for this secondary analysis came from the NTIES data set. Specifically, we analyzed data from the intake questionnaire that gathers baseline data and the post-treatment discharge questionnaire that gathers follow-up data. To allow for comparison across modality of care, the data were grouped into the following categories:

- Short-term hospital
- Short-term residential
- Long-term residential
- Outpatient methadone
- Non-methadone outpatient.

Data on crime-related costs and expenditures (e.g., policing, corrections, adjudication, victim/theft losses) were obtained from four main data sources:

- *Justice Expenditures and Expenditure Extracts, 1992*
- *Crime in the United States, 1994*
- *Criminal Victimization in the United States, 1994*
- *The Corrections Yearbook, 1997.*

Pre/post treatment comparisons. To estimate the impact of treatment on crime, we compared the criminal behavior of clients during the pre-treatment reference period (year prior to treatment) to their behavior during the

Economic Impact of Substance Abuse Treatment on Crime (cont.)

post-treatment period (year following treatment discharge).

Four components of criminal behavior were assessed in the pre/post treatment comparisons:

- Number and type of crimes committed by clients
- Number of client arrests
- Amount of time spent by clients in jail or prison
- Whether or not clients were on probation or parole.

The responses of clients included in the analysis were adjusted so as to make the data more comparable. First, we annualized the post-treatment measures of criminal activity and crime-related costs to account for the varying follow-up interview reference periods. Second, a "time-at-risk" adjustment was made to the measures of criminal activity in the pre- and post-treatment period.

The purpose of this adjustment was to account for the time clients spent incarcerated during the reference periods. The adjustment was not made to the pre- or post-treatment crime-related costs since the average cost of incarceration is reflected in the cost estimates.

Analytic sample. For this analysis, we adjusted the client sample to drop out any client ineligible for the pre/post analysis. We excluded clients who were still in treatment at the time of the follow-up interview with the exception of clients receiving methadone. This left a sample of 5,264 clients.

For the analysis on the level of criminal activity, we excluded the responses of clients who were imprisoned during the entire 12-month period prior to treatment or during the entire post-discharge reference period. The final sample was 4,805 clients.

Constructing cost estimates. To estimate crime-related costs, we incorporated the expenditures for police protection, adjudication and sentencing, and corrections as well as costs to victims and losses from theft. To calculate total crime-related costs, we multiplied the number of crimes by the estimated per crime cost (by type of crime) and incorporated the policing and victim costs. We estimated the average cost per client for each component.

Since NTIES interviews were conducted primarily during 1993 and 1994, crime-related cost data were obtained for 1994 where available. When 1994 data were not available, the values were converted into 1994 dollars using the appropriate price index.

Statistical analysis. Tests of significance such as t-tests were employed to identify changes in costs where the differences were greater than would have been expected by chance. The changes presented in the exhibits throughout this report are all statistically significant to the 95 percent confidence level.

Findings

Changes in Criminal Behavior

Criminal behavior and involvement fell dramatically from the pre- to post-treatment periods. This showed up in all measures: number of arrests; time

Four components of criminal behavior were assessed in the pre/post treatment comparisons:

- **Number of crimes committed**
- **Number of arrests**
- **Time spent in jail or prison**
- **Whether or not on probation or parole**

Economic Impact of Substance Abuse Treatment on Crime (cont.)

There was about a 60 percent reduction in the percent of clients who reported engaging in criminal activity from the pre- to post-treatment periods.

Criminal activity declined by about a third even among the clients that were still criminally active.

spent in jail or prison; probation and parole status; and crimes committed. A detailed analysis has been done of the decline in crimes committed.

Criminal behavior was measured by the percent of clients reporting criminal activity and the average number of crimes committed by clients.

Reported Criminal Activity. The level of criminal activity strongly declined following treatment in all modalities of care (see Exhibit 1). Overall, the percent of clients who reported any criminal activity declined by 60 percent. Clients in short- and long-term residential care had the sharpest decline in reported criminal activity.

Average Number of Crimes Committed. The average number of crimes per year also dropped significantly from 47 (pre-treatment) to 12 (post-treatment) or 74 percent. Once again, short- and long-term residential programs had the sharpest declines in average number of crimes committed.

In contrast, outpatient methadone (primarily discharged clients) and short-term hospital clients had the smallest change in average number of crimes committed. However, for those clients reporting any criminal activity after treatment, the average number of crimes decreased by 35 percent. These findings suggest that the decrease in average number of crimes committed was due to both:

- Fewer clients engaged in any criminal activity
- Fewer crimes were committed by those clients who engaged in criminal activity.

Aggregate Changes in Crime Related Costs

The findings on crime-related costs are estimates of the annual costs to society associated with the clients' self-reported criminal activity. Costs to society (e.g., the tax-paying population) include the costs of police protection, adjudication, and sentencing; corrections, and costs to victims (e.g., medical care, property damages and lost wages).

Exhibit 1
Crime Rates and Average Number of Crimes by Modality (n=4,805)

Modality of Care	Percent Reported Engagement in Criminal Activity		Average No. of Crimes (Total Population)		Average No. of Crimes (if any committed)*	
	Pre	Post	Pre	Post	Pre	Post
Short-term Hospital	67%	41%	27	14	40	35
Short-term Residential	91%	28%	50	9	54	30
Long-term Residential	100%**	33%	77	15	77	46
Outpatient Methadone	61%	48%	38	21	63	43
Ambulatory Outpatient	55%	29%	25	9	46	32
All Modalities	80%	32%	47	12	59	38

* Average number of crimes for those clients who reported engaging in criminal activity.
** Actual estimated figure exceeded 100 percent due to the "time-at-risk" adjustments.

Economic Impact of Substance Abuse Treatment on Crime (cont.)

The greatest crime-related savings were in police protection (75%), incarceration (79%), victim costs other than theft losses (79%) and theft losses (74%).

Crime-related costs to the tax-paying population dropped by about $12,000 or 75 percent per client treated.

The dollar value of theft losses also were incorporated. Theft losses are considered a cost to the tax-paying population because they affect individuals who are victims of crimes.

Exhibit 2 presents the annual per client crime-related costs by type of cost for the pre- and post-treatment periods as well as potential savings in costs.

According to our findings, the incarceration (jail and prison) and victim costs showed the highest percent savings among all crime-related costs. Incarceration costs dropped by 79 percent on average from $4,251 to $889 per client. Victim costs (health expenses and earnings) decreased from $1,244 during the pre-treatment period to $258 during the post-treatment period.

The costs from adjudication and sentencing dropped 49 percent from $670 (pre-treatment) to $339 (post-treatment). These crime-related costs constituted approximately five percent of the total costs to society. The majority of crime-related costs stemmed from the costs of police protection, incarceration (jail and prison), and theft losses.

The average crime-related costs to society fell by approximately $12,000 or 75 percent following treatment. Given that this figure represented avoided crime-related costs, it reflects the benefits to society per client from substance abuse treatment.

Changes in Crime-Related Costs by Modality

Overall, the change in crime-related costs across all modalities of care was nearly 75 percent. Exhibit 3 shows the change in crime-related costs from the pre- to post-treatment reference periods by modality of care. Clients in residential care (short-term and long-term) experienced the highest percent change in costs. In contrast, the change in crime-related costs was smaller for short-term hospital and ambulatory outpatient programs.

Exhibit 2
Annual Per Client Pre- and Post-Treatment Crime-Related Costs

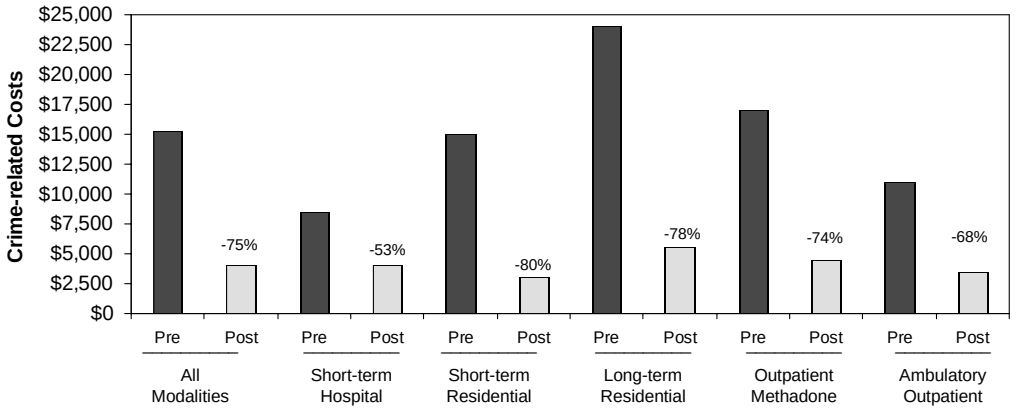
Crime-related Costs	Annual Average Cost, Pre-Treatment*	Annual Average Cost, Post-Treatment*	Savings per Client per Year	Percent Savings
Police Protection	$ 5,145	$ 1,312	$ 3,833	75%
Adjudication and Sentencing	$ 670	$ 339	$ 331	49%
Incarceration: Jail and Prison	$ 4,251	$ 889	$ 3,362	79%
Parole and Probation	$ 152	$ 53	$ 99	65%
Victim Costs	$ 1,244	$ 258	$ 986	79%
Theft Losses	$ 4,924	$ 1,269	$ 3,654	74%
Costs to Tax-Paying Population	**$ 16,386**	**$ 4,120**	**$ 12,266**	**75%**

* Costs per client

Economic Impact of Substance Abuse Treatment on Crime (cont.)

Short-term and long-term residential programs had the largest change in crime-related costs (80% and 78%).

Exhibit 3
Comparing Crime-Related Costs by Modality of Care in the Pre- and Post-Treatment Periods (n=5,264)



Changes in Cost by Client Characteristics

Exhibit 4 presents average crime-related costs by client characteristics. Highlights of these findings are described below.

Gender. Men had higher crime-related costs in the pre- and post-treatment periods ($13,158 and $3,122 respectively) than females ($7,188 and $2,152). Male clients also had a somewhat larger decrease in their crime-related costs (76 percent) than female clients (70 percent).

Race and Ethnicity. There were negligible differences among various ethnic groups in the percent change in crime-related costs. During the pre-treatment period, crime-related costs for Hispanic and white clients were 32 and 27 percent higher than those costs for African Americans. These differences still remained after treatment discharge.

Education. There was minimal variation in the changes in crime-related costs among clients with different levels of education (e.g., high school dropout, high school education, GED or some college education). Overall, cost decreases ranged from 78 percent for clients with some college education to 74 percent for those clients with no high school degree.

However, clients with lower levels of education had higher initial levels of crime and crime-related costs. In the pre-treatment period, clients with no high school degree had crime-related costs that were 72 percent higher than those of clients with a college degree. In the post-treatment period, this difference grew to 102 percent.

Age. There was a strong relation between the age of clients and their criminal activity and associated costs. During the pre-treatment period, clients under the age of 21 had costs that were 282 percent higher than the costs of clients over 40 years of age. Change in the crime-related costs was essentially the same for all ages of clients, ranging from 73 to 78 percent.

Economic Impact of Substance Abuse Treatment on Crime (cont.)

Costs fell by 70 percent or more for all demographic groups.

The ratio of crime-related treatment benefits to treatment costs is 4 to 1 for the tax-paying population.

Exhibit 4
Average Crime-Related Costs by Client Characteristics

Population (observations)	Before Treatment	After Treatment	% Change
Gender			
Male (3,795)	$ 13,158	$ 3,122	- 76%
Female (1,469)	$ 7,188	$ 2,152	- 70%
Race/Ethnicity			
African-American (2,909)	$ 9,642	$ 2,333	- 76%
White, Non-Hispanic (1,406)	$ 13,277	$ 3,211	- 76%
Hispanic (768)	$ 14,157	$ 3,717	- 74%
Education			
No high school degree (2,467)	$ 14,033	$ 3,669	- 74%
GED (827)	$ 11,614	$ 2,676	-77%
High school degree (986)	$ 8,345	$ 1,986	- 76%
College degree (984)	$ 8,172	$ 1,818	- 78%
Age			
Less than 21 years old (677)	$ 26,271	$ 7,186	- 73%
21 – 30 years old (1,725)	$ 11,636	$ 2,685	- 77%
31 – 40 years old (2,041)	$ 8,325	$ 2,091	- 75%
40+ years old (821)	$ 6,873	$ 1,518	- 78%

Changes in Cost by Treatment Characteristics

Exhibit 5 shows average cost reduction by treatment characteristics. Two highlights of this analysis are presented below.

Type of Substance Abuse. Very similar percent reductions were achieved for all types of problems. Clients with poly-drug abuse had the highest crime-related costs in the pre- and post-treatment periods. Clients with poly-drug abuse had the greatest decrease in costs (76%).

Time in Treatment. Overall, the percent reduction in crime-related costs was greater for clients who spent longer in treatment. Clients who were in treatment for less than one month had a 69 percent drop in costs. In contrast, clients in treatment for 5 or more months had an 83 percent drop in costs.

Implications

The findings of this analysis indicate that substance abuse treatment has a significant impact on criminal behavior and its associated economic costs. After treatment discharge, the level of criminal activity decreased significantly. We estimate that after treatment discharge, clients' crime-related costs dropped by roughly 75 percent.

The benefits of treatment were estimated at $12,266 per client in terms of reduced crime-related costs. Using previously calculated estimates of the cost of treatment per single episode of care for the NTIES population ($2,491), we estimate that the ratio of average benefits from reductions in crime-related costs to the average costs of treatment is about 4 to 1. Therefore, our findings suggest that the benefits from treatment from reduction in crime-related costs alone are generally more than enough to offset the cost of treatment.

Economic Impact of Substance Abuse Treatment on Crime (cont.)

The reduction in crime-related costs increased as clients spent more time in treatment.

Clients who abused multiple drugs had a 76 percent reduction in crime-related costs.

Exhibit 5 Average Crime-Related Costs by Treatment Characteristics			
Population (observations)	**Before Treatment**	**After Treatment**	**% Change**
Type of Substance Abuse			
Crack/Cocaine (1,079)	$ 8,488	$ 2,224	- 74%
Heroin (414)	$ 10,406	$ 2,963	- 72%
Alcohol (761)	$ 7,351	$ 2,008	- 73%
Multiple drug addiction (2,259)	$ 14,073	$ 3,318	- 76%
Length of Treatment			
1 months or less (1,529)	$ 9,983	$ 3,126	- 69%
1 – 2 months (1,312)	$ 12,622	$ 3,237	- 74%
3 – 4 months (813)	$ 12,798	$ 3,144	- 75%
5 – 6 months (337)	$ 9,905	$ 1,536	- 85%
6+ months (814)	$ 11,435	$ 1,973	- 83%

Implications for Research

Several issues related to the costs of criminal activity among the substance abuse treatment population are worthy of further investigation:

How does the length of substance abuse treatment impact crime? According to our findings, reductions in crime-related costs increase with length of treatment. This finding is important and should be studied further. In particular, the following questions should be explored:

- Does the relationship between length of time in treatment hold after accounting for differences in characteristics of clients, providers and types of services received?
- Do benefits from increasing the length of treatment offset the additional costs of treatment?

Is modality of care an important determinant of post-treatment criminal behavior? This issue was not addressed in this analysis but warrants further study. If certain types of modality can be identified as being more or less effective at reducing the crime-related costs of particular types of clients, treatment providers may be better able to serve clients and society by ensuring that clients receive the most appropriate care.

Implications for Policy-Makers

The findings from this study suggest that increased coordination of funds and operations between the treatment system and the criminal justice system has potential benefits. Policymakers may consider:

- Establishing or improving access to treatment for the substance abuse population that can be reached through/in the nation's correctional institutions
- Encouraging access and supporting the creation of more substance abuse treatment programs across the nation, particularly in areas with a higher incidence of crime.

Economic Impact of Substance Abuse Treatment on Crime (cont.)

Implications for Treatment Providers and Clients

The findings from this study should provide encouragement for providers and clients. As evidenced by the data, substance abuse treatment programs are producing positive outcomes. The percent of clients engaging in crime after treatment discharge decreases dramatically and the average number of crimes per client is significantly smaller.

Increasing emphasis on education while clients are in treatment, and directing more treatment resources toward younger clients may reduce crime-related activity after treatment.

Future Steps

It is clear from these analyses that the savings to society resulting from reduced criminal activity following substance abuse treatment is enormous. But, these analyses only form the foundation of the essential assessment of the costs of substance abuse and the savings resulting from treatment. The ongoing assessment of costs and cost savings are indexed to 1994 values. We must continue to assess treatment-related reductions in criminal activity and resulting societal cost savings to persuade the public and the policy makers that investment in substance abuse treatment yields major benefits to the entire nation.

References

Koenig, L., Denmead, G., Nguyen, R., Harwood, R., & Harrison, M., *The Costs and Benefits of Substance Abuse Treatment: Findings from NTIES*. August 1999. Prepared under the NEDS contract.

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Nguyen, R., Koenig, L., & Harwood, R. "Economic Impact of Substance Abuse Treatment on Health Care Costs." NEDS Analytic Summary #6, April 2000.

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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 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.

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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