

NEDS ANALYTIC SUMMARY

Summary #24
August
2001

Highlights

Larger residential substance abuse providers on average had lower costs than smaller providers, partially due to reduction in intensity of services.

Do Larger Residential Service Delivery Units Have Lower Costs?



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 Analytic Summary is based on the NEDS Technical Report titled *Do Larger Residential Service Delivery Units Have Lower Costs?* (Harwood, H. J., Kallinis, S., & Liu, C., 2001). 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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Do Larger Residential Service Delivery Units Have Lower Costs?

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 insight into the fundamental question: *What constitutes effective (and cost-effective) treatment, and for what populations?*

There is an increasing literature dealing with the cost of substance abuse treatment. Some have focused on methodology of cost estimation, others have examined the cost of specific providers or types of care, and still others have compared the costs and economic benefits of alternative approaches to substance abuse treatment. Few studies have explored how the size of the provider affects treatment costs. Almost no one has looked specifically at whether service delivery unit (SDU)¹ size affects the cost and the unit costs of treatment.

Organizations in the health industry and general economy have become increasingly larger while the substance abuse treatment field is still dominated by small independent providers. According to the Office of Applied Studies (2000), about 50 percent of residential providers have fewer than 40 clients per day and 25 percent have 15 or fewer. In the current cost conscious climate, it is useful to know if larger service delivery units (SDUs) offer real advantages in containing costs of care. It is often difficult to determine whether the quality of services provided by dif-

ferent entities is comparable, and this ambiguity must also be recognized when making cost comparisons of treatment providers of any size.

Analytic Purpose

The purpose of this analysis was to determine whether the size of the SDU affects the costs of providing substance abuse treatment. Using data collected from 60 residential SDUs that were funded in part through demonstration grants from CSAT, the following questions were addressed:

- Does the overall cost of treatment differ for SDUs of different sizes?
- Do specific costs, such as housing, counseling and case management, differ for SDUs of different sizes?
- Do lower costs result from a reduction in the amount or intensity of services delivered?

This data base made it possible to analyze several distinct types of residential providers as well as a number of defined units of service to study whether and to what extent SDU size is related to differences in costs per unit of service.

Analytic Approach

This analysis relied on a cost methodology called the Substance Abuse Treatment Cost Allocation and Analysis Template (SATCAAT). Accounting experts developed the SATCAAT methodology for CSAT to provide a systematic cost measurement tool that could be used for management operations as well as treatment services evaluation. (See Analytic Summary #22 for

¹Service delivery unit (SDU) is defined by CSAT as a single site offering a single level of care. The classification of level of care is based on three parameters: facility type (e.g., hospital), intensity of care (e.g., 24-hour), and type of service (e.g., outpatient.) An SDU could be a stand-alone treatment provider or it could be one component of a multi-tiered treatment organization.

This analysis addressed three questions:

- **Does the overall cost of treatment per client day differ for SDUs of different sizes?**
- **Do specific costs (e.g., housing, counseling) differ for SDUs of different sizes?**
- **Do lower costs result from a reduction in services delivered?**



Do Larger Residential Service Delivery Units Have Lower Costs? (cont.)

more information on the SATCAAT and the costs for various components of treatment.)

SATCAAT is one model for performing unit cost analyses that are directly applicable to substance abuse treatment and related services.

Treatment Provider Expenditures

The initial step was to acquire comprehensive data about the expenditures of substance abuse treatment providers by service delivery unit, in general categories of expenses.

These categories of expenses included: salaries and wages; depreciation, rent and interest; utilities and telephone; and maintenance and administration.

Unit Cost of Specific Treatment Services

The SATCAAT provided unit cost calculations for selected types of services that substance abuse treatment SDUs provide. Exhibit 1 lists the types of services included in the analysis and for each

type of service, a unit of measurement to allow costing per unit of service. Unit costs are calculated by summing the total costs per type of service and dividing the total by the number of units of that type of service that were delivered during the defined periods. The most typical unit of service measurement is the number of clients treated by the provider over the time period. Other important units are the number of individual and group counseling hours delivered. This analysis used a related measure: cost per client day.

Data for this analysis were collected on-site by trained cost accountants using the SATCAAT data collection forms and protocols to measure the level of resources allocated to specific services.

Analytic Sample

Cost data for this analysis were obtained from 24 Residential Women and Children (RWC) SDUs and 18 Pregnant/Post-Partum Women and Children (PPW) SDUs. The CSAT-funded RWC/PPW initiatives attempted to define standards for clinical care that are

The cost methodology helped to examine:

- Treatment provider expenditures
- Cost of specific treatment services.



Exhibit 1	
Service Type and Units of Measurement	
Service Type	Unit of Measurement
Initial Assessment	Assessment
Medical Examination	Exam
Psychosocial Evaluation	Evaluation
Individual Counseling	Hour
Group Counseling	Session hours
HIV Counseling and Testing	Client, client/day
Medical/Diagnostic Services	Client, client/day
Housing	Day
Records Management	Client, client/day
Case Management/Networking/Outreach	Client, hours/client, client/day
Therapeutic Child Care	Children, child hour or day
Client Transportation	Client, client/day
Staff Education	Client, client/day
Client Education	Client, client/day
After/Continuing Care	Client
Project Evaluation	Client

Do Larger Residential Service Delivery Units Have Lower Costs? (cont.)

more intensive than "usual" care. They provided care for children of clients and for pregnant women, which could impact the cost estimates.

An additional 18 residential SDUs were included in the analysis to test the size/cost relationship for a separate sample of providers that were not CSAT-funded demonstrations. For this analysis primarily 1997 cost data were used, although for some providers 1996 was the most recent financial year available.

The SATCAAT was used to collect data on expenses and staffing, the types and number of services delivered, and the staffing requirements for specific services. The same types of data were collected for women and for children in order to obtain separate estimates.

Unit cost estimates were developed for women and children for each type of service. Some "bundles" of services and activities were not amenable to comparable measurement (e.g., medical services, client education). For these service types, costs were estimated per client day.

Regression analyses were used to assess the relationship between unit costs per day of care and SDU size. The size of the SDU was measured by average daily census of clients.

Findings

The main characteristics of the residential SDUs included in the analysis are shown in Exhibit 2. The RWC and PPW treatment providers serviced an average of 30 clients per day. The average length of stay was about 120 days. The RWC SDUs retained clients longer (at lower cost per day) than the PPW SDUs, which had shorter retention but higher costs per client day. The other residential providers treated about twice as many clients per year but average length of stay was shorter than for the RWC/PPW SDUs.

Average Cost of Treatment per Client Day Differed by SDU Size

The data on cost per client day and on SDU size were graphed and regression analyses were used to test where the observed relationship was statistically significant. There was a significant relationship between the SDU cost per client day of substance abuse treatment services and the size of the SDU providing services. Two factors accounted for most of the effect:

- The very small providers had a large impact on estimated cost relationship because some of them had extremely high costs.
- The costs per client day tended to be lower for SDUs with higher average daily census.

The costs per client day tended to be lower for SDUs with higher average daily census.



Exhibit 2					
Characteristics of the SDUs in the Sample					
	RWC		PPW		Other Residential
	Women	Children	Women	Children	
Annual clients	36	50	69	47	220
Average daily census	12	17	15	16	25
Cost per client day	\$100	\$65	\$150	\$140	\$92

Do Larger Residential Service Delivery Units Have Lower Costs? (cont.)

Exhibit 3 illustrates the main finding for the 24 RWC SDUs, with size of provider on the horizontal axis, and cost per client day of care on the vertical axis (plotted for women and children, respectively).

Analyses of the costs of major components of treatment consistently showed lower costs on most types of services in larger SDUs than in smaller SDUs.

- Intake costs were the type of service cost least consistently related to size.
- For children, intake costs declined with increased size in RWC but did not change significantly in PPW.
- Housing costs, which made up 25 to 30 percent of overall costs, had a stronger relationship with size than did total cost per day.

- Counseling and case management costs tended to decline with greater size.

Because these analyses were conducted on the basis of a "day of treatment," it was uncertain whether costs were declining because each unit of service was less expensive or because fewer units of service per client were being delivered at large treatment facilities. Therefore further analyses of more refined units of service were conducted.

Costs of Some Specific Units of Service Were Unaffected by Size of SDU

Analyses on specific units of service (e.g., cost per minute for assessments, cost per hour of counseling services, counseling sessions per day) suggested that much of the savings on clinical serv-

Intake costs were the type of service cost least consistently related to size.

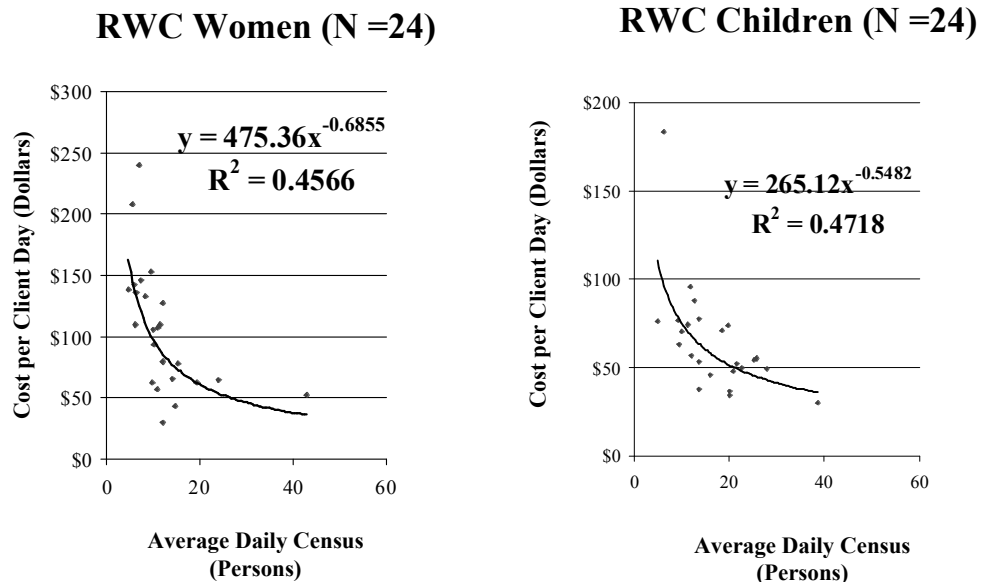
Costs that were lower in larger SDUs included:

- Housing
- Counseling
- Case management services.



Exhibit 3

Relationship Between Average Daily Census Size and Cost per Client Day for RWC Service Delivery Units, Women and Children



Unit costs of individual counseling or of group counseling services were unaffected by the size of the SDU.



Do Larger Residential Service Delivery Units Have Lower Costs? (cont.)

ices by larger SDUs may be related to intensity of counseling (fewer individual and/or group counseling sessions).

- The costs per minute of initial assessments and psychosocial assessments were virtually unaffected by SDU size among residential providers other than the RWC/PPW providers.
- Similarly, the cost of an hour of individual counseling or the cost of a group counseling session did not change with the size of the SDU.

Given the significant decline in cost of counseling per day in larger SDUs found in the earlier analyses, it seems likely that clients were getting less counseling in the larger SDUs.

There was also a statistically significant reduction in the number of group sessions per client day in larger SDUs compared to smaller ones. The reason may be that larger SDUs have larger group sessions (more clients per session). This again raises the question of whether intensity/quality of therapy is affected by size of the group.

Implications

In considering the implications of this analysis, it is important to keep in mind that the analysis was limited to providers of residential substance abuse treatment services, primarily to women and their children. The analyses showed that larger residential SDUs generally had lower costs per client day than smaller SDUs for providing substance abuse treatment. However, it is not completely clear whether the lower costs are due to greater efficiency or less intensity in services delivered.

Implications for Research

Further analysis is needed to understand the cost advantage larger SDUs may have in providing substance treatment services. Larger samples of SDUs will be needed to study the effects of multiple ownership and type of ownership.

- **Expand analyses to other treatment modalities.** This analysis was limited to residential, CSAT-funded demonstration SDUs and affiliated SDUs. Residential treatment tends to be more expensive than other types of care. Future studies are needed to estimate costs of standard outpatient, methadone maintenance and intensive outpatient care.
- **Create more refined cost methodologies.** Although the SATCAAT appears to be a valuable tool for cost estimations, it needs further refinement to include types or units of services that cannot be analyzed with the current instrument.

Cost methodologies designed for application to the substance abuse treatment field will offer better information about the amount of services provided to individual clients and expand the ability to analyze the relationship of SDU size and treatment costs.

Implications for Policy

There are several issues of concern to policymakers based on the findings of this analysis. The extent to which larger SDUs demonstrate an ability to provide substance abuse treatment services at lower costs could lead smaller SDUs to form networks or collaborations with other small SDUs if

Do Larger Residential Service Delivery Units Have Lower Costs? (cont.)

not directly merge with others. There are other implications:

- **Consider how the lower costs of treatment are achieved.** If, as this study suggests, lower costs are obtained by a reduction in the amount or intensity of treatment services, then less effective treatment might be the undesired trade-off for lower costs in some cases. Client outcome data are needed to arrive at meaningful conclusions about cost-effectiveness of treatment.
- **Consider the possible reasons for the wide variation in costs among small SDUs.** One surprising finding was how widely treatment costs varied among SDUs, even for relatively similar types of care, particularly in the smallest SDUs. Policymakers may wish to make provisions for providing technical and managerial assistance to improve costs.
- **Encourage providers to seek new and improved data acquisition and management systems.** Better data management will be needed for evaluation and accountability for service costs as funding sources seek to maximize their investment.

Important to any policy discussion is the need to understand the link between treatment costs, quality of services, and client outcomes, regardless of SDU size.

Implications for Practice

Practitioners want to stay abreast of advances in treatment approaches that are the most effective for the clients they serve. At the same time it is necessary to understand and know their costs of operation as well as the effec-

tiveness of their services. Implications of this analysis for substance abuse treatment practice include:

- **Keep abreast of new and improved data-keeping approaches to evaluate cost and quality of services.** This analysis, like other recent economic studies on substance abuse treatment, demonstrate that providers will need to understand and know their costs of operation.
- **Consider potential benefits from growth or merger/consolidation with other providers.** It appears particularly easy for small SDUs to have very high costs due to difficulties in matching staff size and skills to client flow. The need for highly specialized staff is particularly difficult for small providers to manage.

It will be more and more important for providers to institute data collection procedures and systems to improve their management as well as their quality of care.

Implications for research, policy, and practice include:

- **Create more refined cost methodologies**
- **Give careful consideration to how lower costs of treatment are achieved**
- **Implement improved methods of evaluating cost and quality of services provided.**



Do Larger Residential Service Delivery Units Have Lower Costs? (cont.)

Future Steps

While the findings of this analysis provide evidence that substance abuse treatment services can be provided at lower cost in larger SDUs, more needs to be learned about why this might be the case. Do larger service delivery units (SDUs) benefit from economies of scale? If so, how are they more efficient at providing services?

One aspect of this analysis that calls for further study is preliminary evidence that at least some of the cost effectiveness of larger SDUs may be attributed to a reduction in the amount or intensity of some treatment services. If this is true, then further exploration is needed in whether changes in treatment affect the overall effectiveness of treatment services. What are the outcomes for clients receiving services in larger SDUs compared to clients receiving services in smaller SDUs? How do they fare over time?

While achieving lower costs is a laudable goal for substance abuse treatment providers, the ultimate concern must be the benefits to the clients they serve.

Reference

Harwood, H. J., Kallinis, S., & Liu, C. (2001). *Do larger residential service delivery units have lower costs?* Report prepared by the Lewin Group under Contract No. 270-97-7016 for 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>

The author of this Analytic Summary is Charles E. Lewis, Ph.D., of Caliber Associates.

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 Lewin Group and NEDS staff who contributed to production of this analytic summary and the technical report upon which it is based.

Overview of the Residential Women and Children (RWC) and Pregnant/Post-Partum Women and Children (PPW) Demonstrations

This analysis was performed using primary data collected from 24 service delivery units (SDUs) participating in the Residential Women and Children (RWC) demonstration and 18 SDUs participating in the Pregnant/Post-Partum Women and Children (PPW) demonstration funded by the Center for Substance Abuse Treatment (CSAT). These initiatives were designed to deliver long-term (6+ months) intensive/comprehensive residential treatment to substance abusing women and their children. The RWC program provided care to women at risk of losing custody of their children and participation in treatment was mandated. The PPW providers

focused on treating pregnant women both to improve birth outcomes and to improve the mother's ability to care for her newborn. Additional data were collected from 18 residential SDUs that were not CSAT-funded demonstrations.

The RWC and PPW grants were for multiple years and cost data were to be collected for two complete years of operation between 1996 and 1997. This analysis primarily used 1997 cost data, although for some providers 1996 data was the most recent available data.

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