

Highlights

New cost measurement tools will help substance abuse treatment providers meet rising demands for rigorous financial accountability.

The Cost and Components of Substance Abuse Treatment



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 *The Cost and Components of Substance Abuse Treatment* (Harwood, 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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The Cost and Components of Substance Abuse Treatment

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 it has collected, CSAT is attempting to gain useful insight into the fundamental question: *What constitutes effective (and cost-effective) treatment, and for what populations?*

As methods of financing substance abuse treatment evolve, precise data on the cost of treatment become increasingly important. Government funding authorities, managed plan officials, and other treatment purchasers are under mounting pressure to allocate the scarce financial resources available to them as efficiently as possible. At the same time, treatment providers must be able to pinpoint the cost of specific service components in order to negotiate appropriate reimbursement rates. Treatment services researchers and evaluators are also seeking ways to link outcomes with costs in their analyses.

This growing need for rigorous financial oversight calls for the use of new cost measurement tools that will measure substance abuse treatment costs and determine the cost-effectiveness and cost-benefits of treatment with a maximum of specificity as well as accuracy.

Analytic Purpose

This analysis explored and demonstrated the application of a new tool

developed by CSAT to determine the cost of substance abuse treatment services. The Substance Abuse Treatment Cost Allocation and Analysis Template (SATCAAT) allows treatment providers, researchers, and evaluators to measure treatment costs across service units (see overview at end of this summary). The SATCAAT was created by cost accountants and has been extensively tested on a variety of provider types. The primary product of the SATCAAT is the generation of unit cost data regarding individual services and the costs of those services at individual service delivery units (SDUs)¹.

Unit cost data can serve as the basis for establishing reimbursement rates for specific services, such as intake assessment, physical examination, or one-on-one counseling. They can be summed as a means of calculating the total cost of a specific client's treatment experience, or they can be used to calculate the average cost of treatment for many clients over a given period of time.

Unit cost data are a distinct improvement over so-called slot cost data, which have traditionally been used in the substance abuse treatment field. In their most basic form, slot cost data are used to estimate the overall cost of treatment—including space and staff—for one client, or a succession of clients, over a 1-year period (otherwise known as a "client-year" or a "slot").

This analysis addressed three key questions:

- **What are the basic components of substance abuse treatment?**
- **What costs are associated with these components?**
- **How does unit cost data compare with slot cost data?**



¹The unit of analysis for the administrative component was the SDU, 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. For example, a large county mental health agency may be the organization within which the SDU is located. The organization may have multiple substance abuse treatment components, such as a county hospital and a county (ambulatory) mental health center. The county hospital may have multiple SDUs, such as an inpatient detoxification service, an outpatient counseling service, and a hospital satellite center providing transitional care. In summary, the SDU provided evaluators with a stable, uniform level of comparison for examining service delivery issues.

The SATCAAT methodology for cost measurement includes the following steps:

- **Compile expenditures by general categories of expenses**
- **Collect data on donated resources**
- **Identify types of services SDU provides**
- **Define unit of service measurement for each type of service**
- **Calculate unit costs for each type of service.**



The Cost and Components of Substance Abuse Treatment (cont.)

Although slot cost estimates can provide useful approximations, they reveal little about the cost of specific substance abuse treatment components. Unit-cost estimates can provide significantly more information about the cost of treatment and can have important implications for economic planning and review.

In this analysis three key analytic questions were addressed:

- What are the basic components of substance abuse treatment?
- What costs are associated with these components?
- How does the nature of unit cost data compare with that of slot cost data?

This analytic summary describes the SATCAAT methodology and gives a sense of why and when this or a similar cost measurement tool should be considered for use.

Analytic Approach

Data Sources

The cost data for this analysis were collected from 37 community-based SDUs operated by 11 different providers of substance abuse treatment. All of the providers were corporately affiliated with treatment units that were funded by CSAT to demonstrate promising approaches to treatment. Four types of SDUs were represented: freestanding detox (n=6), residential (n=15), intensive outpatient (n=9), and standard outpatient (n=7).

The data were collected on-site by trained cost accountants using the SATCAAT's data collection forms and protocols. Generally accepted accounting principles were applied to the cost estimation throughout. In most cases,

the analysis was based on 1997 data. For some providers, however, 1996 data were the latest available.

The Substance Abuse Treatment Cost Allocation and Analysis Template (SATCAAT)

For the SATCAAT method, costs are not the same as expenses. The SATCAAT includes both the actual disbursements by a treatment provider, plus the estimated market value of donated services, facilities, etc.

The SATCAAT methodology was used in developing unit costs for each of the 37 SDUs. This methodology, which was pilot-tested in numerous substance abuse treatment SDUs nationwide, included the following steps:

Gather comprehensive data on expenditures by general categories of expenses. These "cost centers" include administration, facility and grounds, laboratory, and therapists' salaries and fringe benefits.

Collect data on donated and volunteered resources. Donated resources such as facilities and staff must be recognized at market value in order to accurately reflect all costs in case another provider wishes to replicate an SDU. This portion of total costs tends to be less than 10 percent for substance abuse treatment providers.

Identify and define the types of services that the SDU provides. Types of services include initial assessment, medical/diagnostic services, examination, initial counseling, client education, and continuing care. Nearly 100 discrete services were initially identified and subsequently collapsed into a core set of 13 relatively distinct service categories. The SATCAAT methodology permits adding, taking away and changing service types.

The Cost and Components of Substance Abuse Treatment (cont.)

Define a unit of service measurement for each type of service. A unit of service may be, for example, an hour of individual counseling, a day of client housing, or a complete initial assessment, regardless of the length of time it consumes.

Calculate unit costs for each type of service. The SATCAAT uses the standard "step-down" accounting method which imposes an order by which costs are allocated from very general cost centers to increasingly specific cost centers and, ultimately, to types 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 period.

The strength of unit cost estimates is that they can be analyzed in several ways that are useful for different purposes. For example, the average cost per client can be broken out to reveal the cost per client for various units of service. The compilation of data on units of service per client and per unit

of time makes it possible to develop cost estimates for a range of treatment profiles (e.g., short, medium, long stays of defined duration).

Findings

This analysis demonstrated an application of the SATCAAT in examining data on SDU expenses, staffing patterns, deployment of SDU staff members, and costs of key components of treatment services. In doing so, it addressed the three key analytic questions. That is, the analysis identified the basic service components, calculated the unit costs associated with those components, and compared the unit costs with slot costs.

Types of Expenses Incurred by Treatment Providers

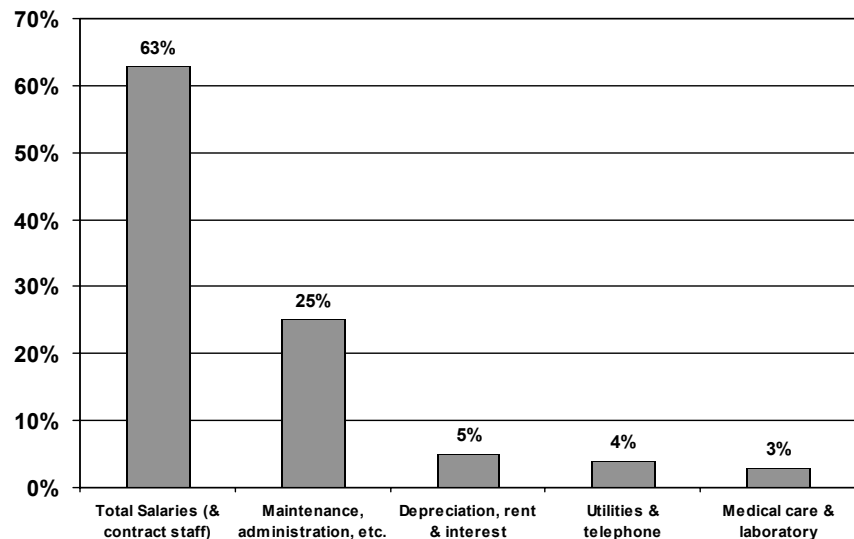
Almost two-thirds (63%) of the expenses incurred by the 37 SDUs were for wages and salaries (Exhibit 1). A variety of maintenance and administrative expenses accounted for 25 percent of the total expenses. The remaining 12

The analysis found that:

- **Two-thirds of SDU expenses were for staff salaries**
- **One out of three SDU staff members were certified addictions counselors**
- **Staffing patterns differed across treatment modalities.**



Exhibit 1
Distribution of Costs by Type of Expense, Total Sample



The Cost and Components of Substance Abuse Treatment (cont.)

percent of the expenses were associated with (1) depreciation, rent, and interest; (2) utilities and telephone; and (3) medical care and laboratory. The medical/laboratory expenses were for blood alcohol and drug urinalysis tests provided or paid for on behalf of clients.

The expense distributions were also examined for different types of providers: residential, outpatient, and mixed types. As might be expected, outpatient providers had a larger proportion of expenses in staff and smaller proportions of expenses in maintenance, housekeeping, and related costs.

Staffing Patterns Among Treatment Providers

Among the various types of personnel, certified addictions counselors accounted for the largest proportion (32%) of staff expense (Exhibit 2). They were followed closely by administrative personnel, who accounted for 25 percent of staff expense. Support staff (housing technicians and "others") combined to account for 27 percent of the staff expense. The remaining 16 percent of staff expense went to behavioral health therapists (psychiatrists, psychologists, and social workers), medical staff, and other therapeutic staff.

When the data were analyzed by modality, up to 60 percent of outpatient staffing expenses were for therapeutic personnel, compared to about 30 to 35 percent in residential and mixed providers. Residential providers spent less than outpatient providers on behavioral health professionals, such as psychiatrists, psychologists, and social workers.

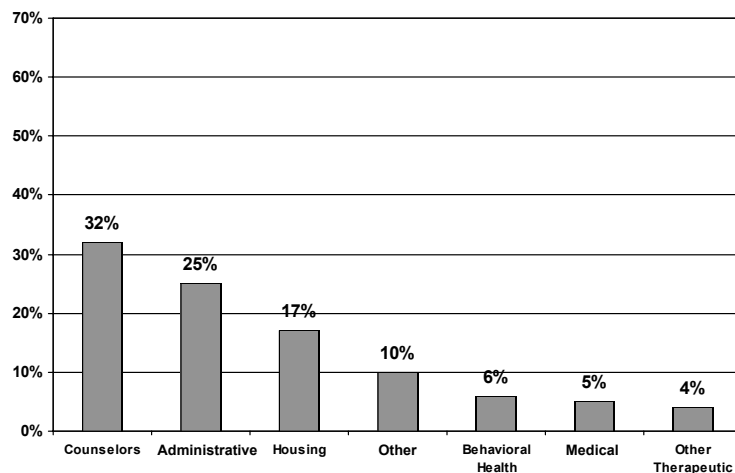
Use of Staff in Delivering Services

Exhibit 3 shows the ways in which counselors, psychologists, social workers, and psychiatrists spent their on-the-job hours. The majority of time (41%) was devoted to case management, record keeping, networking, and "other" activities. An appreciable amount of staff time (12%) went into intake assessment. This activity is, by definition, concentrated at the beginning of client treatment, with obvious implications for the time profile of costs across the course of a single treatment episode.

Utilization of different types of clinical staff was also examined. Psychologists and psychiatrists worked almost exclusively on clinical assessments. Counselors and social workers performed the complete range of clinical functions,

A large part of clinical staff time (41%) was spent on case management, record keeping, and other tasks that may not be thought of as primary activities of clinical staff.

Exhibit 2
Distribution of Staffing Expenses by Type of Personnel, Total Sample



The Cost and Components of Substance Abuse Treatment (cont.)

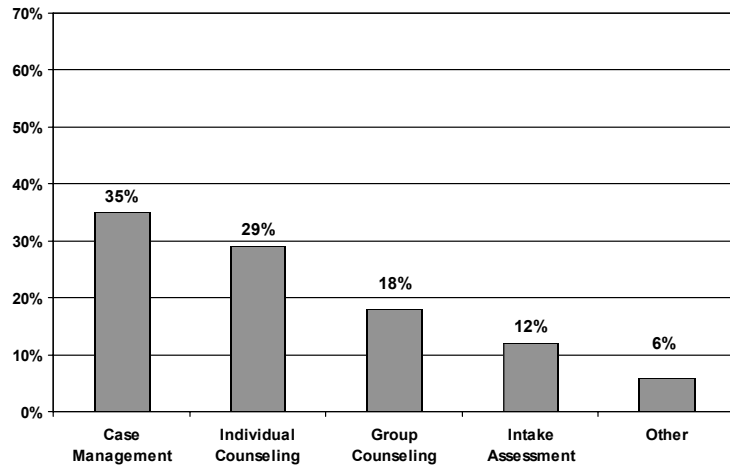
Unit costs vs. slot costs:

- Slot costs give a distorted picture of costs involved in the delivery of substance abuse treatment over time
- Unit costs present an accurate indication of costs incurred throughout the full duration of treatment
- The unit cost method is preferable as managed care systems proliferate and as cost data are integrated into outcome studies.



Exhibit 3

Distribution of Clinical Staff Time by Clinical Services



including case management and group and individual counseling as well as intake assessment.

outpatient, 20% for residential, and 12% for detoxification).

Average Component Costs of Services

Exhibit 4 presents the average treatment episode costs allocated across the major treatment components for the four provider types. Intake services constituted a considerable proportion of treatment costs—more than 8 percent in the case of standard outpatient providers and about twice that much in the case of detoxification services. A relatively modest proportion of costs went to counseling services (54% for intensive outpatient, 28% for standard

The major conclusion that can be drawn from this examination of unit costs is that a large part of the cost of treatment was for activities that go beyond traditional counseling services. These services are provided because professionals in the substance abuse treatment field have found that clients need them if they are going to make productive use of treatment. In such a case, a system moving away from bundled services toward units of service and unit costs would have to decide whether or not to recognize this kind of additional service and to make reimbursement for it.

Exhibit 4				
Average Component Costs of Treatment in Various Levels of Care				
Service Type	Freestanding Detox	Residential	Intensive Outpatient	Standard Outpatient
Treatment episode	\$1,046	\$6,043	\$1,735	\$1,336
Intake assessment	\$196	\$370	\$352	\$109
Counseling	\$127	\$1,229	\$929	\$374
Medical services	\$260	\$275	\$72	\$118
Housing	\$331	\$2,574	N.A.	N.A.
Case mgt./network./outreach	\$47	\$581	\$227	\$218
Other	\$91	\$1,014	\$161	\$517

The Cost and Components of Substance Abuse Treatment (cont.)

Unit Costs Versus Slot Costs

Breaking costs up into their constituent components provides a much more accurate indication of the cost of treatment across a treatment episode than does the slot cost estimate. This is an important consideration in comparing the costs and benefits of longer treatment with the costs and benefits of shorter treatment, as well as other treatment cost analyses.

The slot cost approach to estimating treatment costs generally does not look at when costs occur. Rather, it estimates the cost of providing a year of treatment and then—by dividing the annual slot cost by 365 days of operation—calculates an average cost per day. This approach gives a distorted picture of the costs of delivering treatment of different durations in a single SDU. It underestimates the cost of short stays and overestimates the cost of long stays.

Unit cost estimates make it clear, on the other hand, that a significant amount of treatment costs goes into client intake assessments at the very beginning of treatment. It thereby can give a

more accurate indication of how costly treatment dropouts are, and it can reflect the more moderate costs of retaining clients for extended periods of time while improving anticipated outcomes. Exhibit 5 compares the cost-of-treatment trajectories over a 56-day period as determined by using both the unit cost and slot cost methods of estimating.

In the current cost-conscious environment, a great deal of effort has been put into reducing substance abuse treatment costs. One of the strategies has been to reduce the length of treatment stay. When a slot cost method is employed, a 10 percent reduction in length of stay will apparently translate into a 10 percent drop in treatment cost. Unit cost analysis, however, demonstrates that in an SDU with progressive stages of treatment involving gradually reduced intensity of care, the savings from a 10 percent reduction in length of stay may be only a few percent.

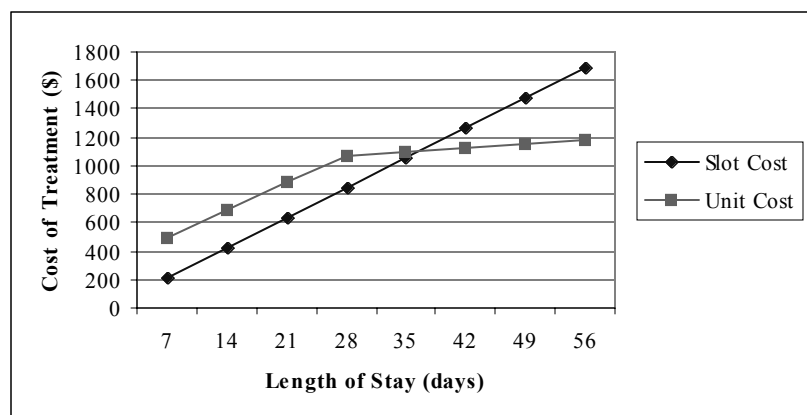
Implications

The slot cost method of accounting was adequately functional for decades, when most publicly supported substance abuse treatment was offered by

Implications for research:

- Identify variations in the intensity of treatment across an entire treatment episode
- Incorporate specific services to specific clients into unit cost estimates.

Exhibit 5
Comparison of Costs of Treatment for Unit Cost and Slot Cost Methods



The Cost and Components of Substance Abuse Treatment (cont.)

community-based providers holding grants from public agencies.

The substance abuse treatment field is now changing the way it does business. It is moving in directions that will require better cost data and analyses. One direction is clearly toward managed care systems that are operated either by commercial behavioral health vendors or by entities owned by community-based organizations.

However owned, these systems are negotiating contracts that require more than traditional slot cost estimates. Instead, they require sophisticated unit cost data along with detailed information about individual clients' receipt of services.

Unit cost data such as that provided by SATCAAT can prove useful to providers in this emerging environment.

Implications for Research

Evaluation of substance abuse treatment will require increasingly detailed data on the composition and cost of treatment. Specific implications for analysts include the following:

- **Distinguish between intake assessment costs and costs of services delivered across the course of a treatment episode.** These initial costs can be considerable and can thus skew estimates for total cost of treatment.
- **Identify variations in the intensity of services across an entire treatment episode.** Clients who remain in treatment for a relatively long duration are likely to require progressively less intense treatment. Consequently, accurate cost estimates should reflect the anticipated decline in treatment expense over time.

- **Incorporate specific services provided to specific clients into unit cost estimates.** Highly detailed case-by-case information can enhance the value of unit cost data.
- **Define types and units of service with maximum specificity.** Clear, detailed description of such general categories as "group counseling," "case management," and "client education" will enable dosage units for clients to be measured with greater accuracy. Improvements in the SATCAAT would facilitate the development, use, and measurement of more precise service categorizations.

Despite the efficacy of the SATCAAT and similar cost systems, unit cost data, no matter how detailed and accurate, reveal nothing about the cost-effectiveness of various treatment services. The data can be immensely valuable, however, if analyzed in relation to information that is gathered regarding the success—or failure—of individual substance abuse treatment episodes.

Implications for Policy

The work done with SATCAAT to date demonstrates the feasibility of obtaining high-quality data on the composition and cost of substance abuse treatment. Specific implications for policy include:

- **Demand better data on service utilization and cost of care.** New cost measurement tools are capable of yielding higher-quality information. They will enable more revealing comparisons across providers regarding the nature, intensity, and cost of substance abuse treatment.

Implications for policy:

- **Demand better data on service utilization and cost of care**
- **Recognize that the development of better cost data will entail increased expenses on the provider's part.**



The Cost and Components of Substance Abuse Treatment (cont.)

Implications for practice:

- **Recognize the limitations of slot cost data**
- **Collect post-treatment outcome data whenever possible.**



- **Recognize that the development of better data will entail increased expenses on the part of providers.** Some providers may require funding support specifically targeted at the acquisition of new cost measurement tools and the recruitment of adequately skilled accounting professionals.

Although the capability of generating high-quality data may require financial investment, the cost to an SDU is much less than the cost of performing treatment outcome analyses. Policy makers may have to invest in outcome research as well as the development of cost data in order to make the best use of either type of information.

Implications for Practice

This analysis demonstrated that, with a cost measurement tool such as SATCAAT, community-based substance abuse treatment organizations can develop credible unit cost data. Specific implications for practice include:

- **Recognize the limitations of slot cost data.** The traditional method of cost analysis and determination of cost-effectiveness cannot meet the demands of the rapidly proliferating fee-for-service reimbursement system.
- **Augment unit cost data with supplementary information as needed.** Where documented data do not exist, it is reasonable for a provider to obtain and use the expert judgment of qualified treatment professionals in order to allocate expenses toward various types of activities and services.

- **Collect post-treatment outcome data where feasible.** In the effort to improve services and allocate financial resources most efficiently, providers can benefit by viewing unit cost data in relation to the results of post-treatment outcome research and evaluation.

Future Steps

Managed care systems are becoming more numerous. They require improved cost data from providers in order to properly negotiate contracts and establish appropriate reimbursement rates. As this occurs, providers' revenue streams are undergoing change. This means that providers also will experience an increasing need for better financial data in order to function.

The SATCAAT offers the substance abuse treatment field a model for performing cost analyses that are directly applicable to substance abuse treatment and related services. Because the approach requires knowledge of cost accounting as well as the systematic application of a specific methodology, the SATCAAT, in its current format, necessitates data collection and analysis by individuals specifically trained in its use.

Developmental efforts supported by CSAT have attempted to simplify the system, provide operational tools that will minimize the need for cost-accounting expertise, and lessen the amount of experience required to use the methodology effectively. The ultimate goal is to develop a public domain data collection package that can be used by provider staff and evaluators as well as by professional cost analysts.

The Cost and Components of Substance Abuse Treatment (cont.)

Unit cost data generated by SAT-CAAT or similar systems cannot solve all of the emerging financial management issues. They can, however, be useful in addressing the challenges of the changing substance abuse treatment environment.

Reference

Harwood, H.J., Kallinis, S., & Liu, C. (2001). *The cost and components of substance abuse treatment*. 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 Thomas Ewing of Caliber Associates.

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Overview of the Substance Abuse Treatment Cost Allocation and Analysis Template (SATCAAT)

This analysis demonstrated an application of the Substance Abuse Treatment Cost Allocation and Analysis Template (SATCAAT). SAMHSA's Center for Substance Abuse Treatment funded the development of this cost measurement tool that allows treatment providers, researchers and evaluators to measure treatment costs across service units. The SATCAAT is part of the Integrated Evaluation Methods (IEM) materials which provide tools for conducting treatment effectiveness and efficiency studies. The SATCAAT was developed by the Capital Consulting Corporation under contract to CSAT.

The SATCAAT includes downloadable spreadsheets that providers, states, policy

researchers, treatment services researchers and evaluators can use to collect and analyze treatment services cost data. This tool was developed so that it could be used for analytic purposes as well as day-to-day operational purposes by treatment providers and treatment systems managers.

The SATCAAT tool, together with the summary reports from the contract under which the SATCAAT was developed, can be accessed and downloaded from CSAT's National Evaluation Data Services (NEDS) web site, under Products, at: <http://www.neds.calib.com> and in future will be available on the SAMHSA website, under CSAT Data Resources:
<http://www.samhsa.gov/csatsat.htm>.

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