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NATIONAL EVALUATION DATA SERVICES

DO LARGER RESIDENTIAL SERVICE DELIVERY UNITS HAVE LOWER COSTS?

July 2001

CSAT
Center for Substance
Abuse Treatment
SAMHSA

The Lewin Group



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FOREWORD

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 mission of CSAT is to expand the knowledge about, and the availability of, effective substance abuse treatment and recovery services. To aid in accomplishing that mission, CSAT continues to invest significant resources in the development and acquisition of high quality data about substance abuse treatment services, clients, and outcomes. Sound scientific analysis of this data provides evidence upon which to base answers to questions about what kinds of treatment are most effective for what groups of clients, and about which treatment approaches are cost-effective methods for curbing addiction and addiction-related behaviors.

In support of these efforts, the Program Evaluation Branch (PEB) of CSAT established the National Evaluation Data Services (NEDS) contract to provide a wide array of data management and scientific support services across various programmatic and evaluation activities and to mine existing data whose potential has not been fully explored. Essentially, NEDS is a pioneering effort for CSAT in that the Center previously had no mechanism established to pull together databases for broad analytic purposes or to house databases produced under a wide array of activities. One of the specific objectives of the NEDS project is to provide CSAT with a flexible analytic capability to use existing data to address policy-relevant questions about substance abuse treatment. This report has been produced in pursuit of that objective.

This analytic report presents the results of an analysis of the relationship between the size of providers and the cost of delivering treatment services. It was found that large providers tend to have lower costs per unit of service than small providers, although it appears that this may be partially due to delivery of lower intensity services, with uncertain implications for the outcomes of care.

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A number of persons have contributed substantially to making this report possible. The staff at Capital Consulting Corporation developed and refined the “SATCAAT” protocol and have administered it in numerous clinics across the nation. Duane McCliggot J.D., CPA, Robert Bennet and Charles Brennan played central role in this process and in collecting the data that have been analyzed in this report.

Caliber Associates is the prime contractor for NEDS in partnership with Battelle Centers for Public Health Research and Evaluation (CPHRE); the Lewin Group; and the National Opinion Research Center (NORC). Many individuals within the NEDS team contributed significantly to this report, including Sharon Bishop, Irene Rich, Doug Fountain, and others.

EXECUTIVE SUMMARY

This analysis demonstrates that larger residential substance abuse providers, on average, have lower costs per day of care than smaller providers. While this analysis should be considered “indicative” because only a small unique sample of providers was available, the potential financial implications of this finding and questions about treatment quality/outcomes warrant further studies linking size, cost and outcomes.

In this analysis, part of this apparent economy is due to lower housing costs per day of care and to unit costs for selected services. However, some of the difference appears to be due to lower intensity of care delivered by larger providers. This size/cost relationship only holds on average: some small treatment units have costs per day of care very similar to typical larger providers, but others have costs per day far greater than average. A difference in intensity of care between larger and smaller providers raises the critical question of whether larger and smaller providers are delivering care of similar quality and are achieving similar outcomes with clients. Unfortunately, for this analysis, data was not available on client outcomes, and future studies must pursue this issue.

1. INTRODUCTION

This report examines the question of whether the size of the residential substance abuse treatment service delivery unit affects the cost of the care being delivered. An SDU is a discrete clinical unit at a specific location, providing a single particular type/level of care; e.g. residential, intensive outpatient. Economic theory leads us to expect that larger SDUs/providers (measured here by average daily census of enrolled clients) can deliver treatment services at a lower cost per unit of service than smaller SDUs/providers, given that both are delivering similar types and intensities of care. Cost efficiencies are expected to be achieved through staff specialization, both of clinical and administrative staff. This is called “economies of scale .”

This phenomenon of “bigger is cheaper” is not unique to substance abuse treatment. Within the health sector, both hospitals and physician practices grew larger across the 20th century. Smaller entities either went out of operation or merged with other, larger organizations. Larger organizations allow highly specialized staff to concentrate on clinical efforts, and allow administrative responsibilities to be handled by other, often lower paid staff. The same is true of virtually all industries in the nation, including manufacturing, farming, services and retail trades. Of course, it may be that large organizations achieve advantages compared to smaller ones because they can give consumers a wider range of services, not because they have lower costs. It is often difficult to determine whether the quality of goods and services being provided by different entities are comparable, which makes cost comparisons difficult although important.

2. METHODS

The following analysis offers a unique opportunity to examine the effect of provider size on cost per day of care and per unit of selected treatment components (e.g., individual and group counseling) in residential substance abuse treatment and to examine the intensity and unit cost of services delivered. This analysis takes advantage of highly detailed cost data that were collected onsite by professional cost accountants using a cost protocol developed for CSAT: the Substance Abuse Treatment Cost Allocation and Analysis Template (SATCAAT). The method applies generally accepted accounting practices (GAAP) to the cost estimation. The protocol rigorously compiles data on SDU expenses and then allocates them to 16 separate units of service (such as intake assessment, counseling, and case management). This is one of several cost estimation protocols currently available to the field.

Data were collected from 1997 to 1999 from a unique, non-representative sample of residential substance abuse treatment providers. Most of the data is from 42 residential service delivery units funded under the Center for Substance Abuse Treatment's (CSAT) treatment demonstrations for Residential Women and Children (RWC; 24 SDUs) and the closely related Pregnant and Postpartum Women initiative (PPW; 18 SDUs). Data were used for each service delivery unit for which a SATCAAT unit cost analysis was done. About a fifth of demonstration SDUs were not administered cost profiles because of difficulties in coordinating cost data collection activities with demonstrations.

These RWC/PPW initiatives were unique in several respects. Most important from the perspective of this analysis, they attempted to define standards for clinical care that are more intensive than "usual" care—which should somewhat moderate differences between providers in their quality and intensity of care. The second major difference is that these programs provided care for children of the clients and/or accepted pregnant women and provided care up to several months after delivery. Separate cost estimates were developed for women and children, respectively, in each service delivery unit.

Another 18 residential service delivery units were included in the analysis. These were included to test whether the size/cost relationship is evident for a separate sample, and not to provide an explicit comparison to the RWC and PPW estimates. They are more "typical" providers only in the sense that they were not CSAT-funded demonstrations, although they were corporately affiliated with SDUs that were. Indeed, this affiliation is the sole reason cost data were obtained for these additional SDUs. Therefore, they are likely to be a somewhat atypical sample in that their parent organizations were willing and able to compete successfully for the CSAT awards. We might expect these providers to be "better than average," if not in the quality of services, then in their ability to write successful grants.

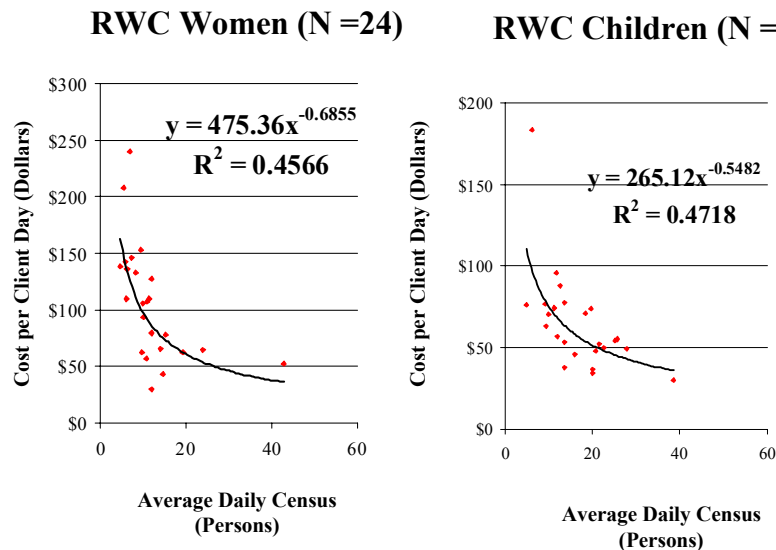
The analysis of the effect of SDU size on cost per day of care and selected unit of service costs has been performed separately for women and children treated in RWC and PPW demonstrations, respectively. The residential providers who did not receive CSAT funding are analyzed separately.

3. RESULTS

The analyses reveal that larger residential SDUs have significantly lower costs per client day than smaller SDUs. Exhibit ES-1 demonstrates the main finding of this paper for service delivery units for the Residential Women and Children (RWC) demonstration sponsored by CSAT. Observations for each of the 24 RWC SDUs with cost data are plotted for women and children, respectively, with size of provider (average daily census) on the horizontal axis, and cost per day of care on the vertical axis. The printed equations represent the best-fit regressions, and the R square values indicate a strong fit between the data and the regressions.

EXHIBIT ES-1

GRAPH OF RELATIONSHIP BETWEEN AVERAGE DAILY CENSUS SIZE AND COST PER CLIENT DAY FOR RWC SERVICE DELIVERY UNITS, WOMEN AND CHILDREN



A similar pattern was observed for the most important units and components of service, including daily costs of housing, per client day costs for counseling, case management and “other services.” The most expensive/extreme cost observations were always among the very

smallest providers, and the larger providers were consistently low in cost. There is further evidence that larger SDUs accomplish cost reductions by delivering lower intensity services. Unit service and cost data were collected for both individual and group therapy. The analysis found that unit costs were not affected by the size of the SDU. Thus, the significant reductions in counseling costs per client day achieved by larger SDUs were almost entirely the result of reductions in the intensity of counseling (fewer individual and/or group counseling sessions). Regression analysis found that the number of group sessions per client day (but not hours of individual therapy) was reduced in larger SDUs.

Similar patterns and results were obtained from analysis of the 18 CSAT PPW service delivery units with data and from analysis of 18 other residential providers. Treatment capacity (total beds) was also tested as an alternative size measure and similar results held.

4. IMPLICATIONS FOR RESEARCH, POLICY AND PRACTICE

It is evident from this study that more study is needed to understand the relationship of SDU size to the cost of delivering substance abuse treatment. Purchasers/funders generally appear to operate as if providers deliver equivalent quality of care and accomplish similar outcomes with clients, based on the existence of licensing, certification, and treatment process standards. Material differences in costs and possibly intensity of services across “otherwise similar” providers challenge the field to think more carefully about these issues.

Certainly, larger samples of SDUs will be needed to study the effects of other factors such as operation of multiple SDUs by a single provider, type of ownership, and local costs of living. Representative samples of providers should be studied instead of purposively selected sets of providers such as CSAT demonstration grantees. Similarly, future analyses must study standard outpatient, methadone maintenance, and intensive outpatient care because it is not obvious that their costs will have the same relationship to provider size.

Based on this analysis, the SATCAAT and similar cost estimation protocols that examine unit costs and service composition and intensity appear to be valuable tools for use in evaluations. Still another avenue for research will be to further refine the SATCAAT instrument. Several types/units of services are not currently defined or are analyzed as actual units of service, although the data needed to define them, is collected by the SATCAAT. This added detail will give better information about the services clients receive, and will, therefore, allow greater insight into the relationship of SDU size to treatment costs.

Policy makers should also be aware that larger SDUs tend to have lower costs on average when they contract for services. Unfortunately, there are often limited opportunities to choose

between providers. One of the most surprising findings was that costs of treatment vary widely from SDU to SDU, even for relatively similar types and units of care, particularly for the very smallest SDUs. Policy makers purchasing substance abuse treatment will want to monitor provider costs to get maximum value for their investments.

The finding that the greatest cost variation was found for very small providers should send up a flag. While the possibility exists that small providers deliver better quality of care and achieve better client outcomes, it is possible that small providers may be most able to benefit significantly from technical and managerial assistance.

Providers will want to learn about new and improved data keeping approaches. It will become more important for providers to institute data collection procedures and systems to improve their management as well as their quality of care.

I. INTRODUCTION

I. INTRODUCTION

This report examines the question of whether the size of a substance abuse provider affects the cost of the care being delivered. In the broader economy, it is generally found that larger enterprises can produce goods or services at a lower cost per unit than smaller enterprises, given that both are delivering similar types and intensities of goods/services. Cost efficiencies for substance abuse providers, as for the general economy, are expected to be achieved through greater opportunities for staff specialization and utilization of facilities. This is called “economies of scale.”

This issue has received little attention in the published literature, although it is an issue with a great deal of practical import. Public purchasers, (excluding Medicaid and Medicare) often using grant or program funding, pay almost \$4.2 billion in substance abuse treatment per year (Mark et al., 2000).

1. OVERVIEW OF RELEVANT RESEARCH

There is an increasing body literature dealing with the cost of substance abuse treatment. Certain of these published articles focus primarily on the methodology of cost estimation (Anderson et al., 1998; French & McGeary, 1998; Yates, 1999), the cost of specific providers or types of care (Cisler et al., 1998; French & McGeary, 1998; French et al., 1999), while others examine costs from the perspective of insurance plans (Goodman et al., 1992, 1996, 1998; Schoenbaum et al., 1998), and still others undertake to compare the costs and economic benefits of alternative approaches to substance abuse treatment (Avants et al., 2000; Weisner et al., 2000).

However, to the best of our knowledge, no analysis has previously looked at whether service delivery unit (SDU)¹ size affects the cost and the *unit costs* of treatment. The closest similar study involved national level analyses performed by Mark et al. (2000) using the Uniform Facility Data System (UFDS) national census of specialty substance abuse providers performed for the Substance Abuse and Mental Health Services Administration (SAMHSA). An early edition of that study estimated that the national average for a day of short-term residential substance abuse treatment cost \$102, and long-term care cost \$46 (Genuardi et al., 1998)per day.

¹ The 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, etc.); intensity of care (e.g., 24-hour, etc.); and type of service (e.g., outpatient, etc.). An SDU could be a stand-alone treatment provider or it could be one component of a multitiered 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 NTIES evaluators with a stable, uniform level of comparison for examining service delivery issues.

A more recent phase of that study (Mark et al., 1999) analyzed the relation of cost to size of residential SDUs and found moderate—although statistically highly significant—cost benefits to size. A 10 percent increase in average residential daily census was associated with about a 2.5 percent decrease in cost per client day. Comparable size-cost advantages were seen for standard outpatient providers, and intensive outpatient providers appeared to achieve somewhat greater per client day cost reductions (about 4%). There appeared to be no benefit in terms of reduced cost per client from increased size for methadone providers.

2. PURPOSE AND PARAMETERS OF THE PRESENT ANALYSIS

This report analyzes whether the size of residential substance abuse treatment service delivery unit (SDU) confers advantages to providers. While in the general economy, as well as in the health industry, organizations have become increasingly large over the past two centuries, the substance abuse treatment system is still largely made up of small, independent providers. The national census of substance abuse treatment providers reveals that about 50 percent of residential providers have fewer than 40 clients per day, and 25 percent have 15 or fewer (Office of Applied Studies, 2000). In the current climate of cost consciousness, it seems reasonable to ask whether size confers cost advantages.

This analysis uses a unique source of rich data about residential substance abuse treatment providers. The distinct advantage of this data set for the current analysis is that it contains SDU-level data about delivery and costs of defined units of service. To our knowledge, this is the largest data set of its kind. Other data sets with cost data (such as the Uniform Facility Data Set, Office of Applied Studies, 2000) obtain little or no data about units of service, or else the data set has fewer observations (e.g., Anderson et al., 1998; Cisler et al., 2000; French & McGeary, 1996; Weisner et al., 2000).

This database allows us to analyze several distinct types of residential providers, as well as a number of defined units of service, to study the extent to which SDU size is related to differences in costs per unit of service. While this data set is larger than others, it is not large enough to simultaneously (using multivariate methods) analyze whether factors other than SDU size (e.g., the provider operates multiple SDUs, local cost of living, or type of ownership) are also important determinants of the costs of substance abuse treatment. It will be possible to examine how the various factors individually relate to the costs per unit service.

3. ORGANIZATION OF THE REPORT

This chapter presents the main objective of the present analysis, and a brief overview of prior research related to this topic. The following section (Chapter II: Methods) presents a description of the data collection protocol used to compile and prepare the data for analysis.

This includes an overview of the sample of SDUs available for this analysis. Chapter III: Results, contains the main empirical findings from our analysis, and conclusions and implications are discussed in Chapter IV: Summary and Recommendations.

II. METHODS

II. METHODS

The purpose of this chapter is to describe the methodology used to analyze the costs of substance abuse treatment. We provide a description of the approach taken and the tool used to collect the cost data on treatment, and then we briefly describe the sample of providers available for this analysis.

1. MEASURING THE COST OF SUBSTANCE ABUSE TREATMENT SERVICES

To provide a systematic cost accounting and cost measurement method that can be used for management operations as well as treatment services evaluation, The Program Evaluation Branch (PEB) of the Center for Substance Abuse Treatment (CSAT) developed and employs in its evaluation activities a cost methodology entitled the Substance Abuse Treatment Cost Allocation and Analysis Template (SATCAAT). This is part of a series of analytic products developed for CSAT to guide evaluations and knowledge generation activities (see Devine et al., 1997, for an overview of this conceptual framework and an introduction to the respective components). The SATCAAT methodology was developed for CSAT by cost accounting experts at Capital Consulting Corporation in consultation with a NIDA/SAMHSA-convened expert panel of substance abuse treatment and cost analysts. The methodology using national accounting standards and principles, was pilot tested to assess the validity of the unit costs and units of measure in more than 100 substance abuse treatment service delivery units (SDU). (An SDU is a distinct clinical unit at a specific location delivering a particular type/level of care such as residential or intensive outpatient care.)

1.1 SATCAAT Approach

The SATCAAT offers CSAT and the substance abuse treatment field one model for performing unit 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 the methodology, the SATCAAT, in its current format, necessitates data collection and analysis by individuals who are familiar with it. This model also requires at least one full year of cost data and is most appropriate to evaluation activities where the treatment services have been in place for two years, since the first year cost data typically reflect start-up costs atypical to normal operations. Developmental efforts supported by CSAT, which began in the Fall of 1997, attempt to enhance the system, provide operational tools to minimize the need for cost accounting knowledge, and lessen the experience required to use the methodology accurately. By completing this developmental phase, a public domain data collection package could be available that can be used by treatment provider staff. These development efforts are under consideration by CSAT, but have not yet been initiated.

The following discussion provides more detail about the use of the SATCAAT and its application to evaluation activities.

1.2 SATCAAT Application to Evaluation Activities

The SATCAAT applies standard accounting principles and techniques to generate a cost methodology specifically for substance abuse treatment services (Capital Consulting Corporation, 1993, 1994, and 1995; Lewin-VHI, Inc., 1995). The SATCAAT was developed for CSAT to provide a generally available and applicable standard cost methodology for the substance abuse treatment field. This tool facilitates valid and reliable comparisons of service costs across SDUs and assists individual providers in determining the aggregate cost of their services (and service components). The tool can give providers accurate cost information with which to negotiate treatment contracts with managed care and public treatment authorities, as well as to manage their day-to-day operations.

This methodology has been piloted to assess the costs for more than 100 substance abuse treatment service delivery units across the nation. The vast majority of these have been CSAT grantees, cutting across many different types of SDUs. Types of SDUs analyzed include residential (non-hospital) treatment, day treatment services, outpatient services, hospital-based detoxification and rehabilitation services, and methadone maintenance services (Capital Consulting Corporation, 1994; Lewin-VHI, Inc., 1995). The methodology has been applied to “systems” such as Target Cities demonstration projects, and has proven amenable to analysis of centralized system components such as central intake units.

The first step in the approach of the SATCAAT is to acquire comprehensive data about expenditures for substance abuse service providers by service delivery unit, including all of the general categories of expenses presented in Exhibit II-1 (Capital Consulting Corporation, 1998). Note that these are categories of expenses, and that, under each category, there may be numerous items. For example, administration costs include the services of various different types of personnel, equipment rental/service/supplies, various professional services (e.g., legal, bookkeeping), telephone, insurance, and others. It is necessary for personnel cost to include direct salaries, fringe benefits and payroll taxes.

Standard accounting practice dictates that to accurately represent the cost of services, the SATCAAT requires the analyst to identify and attach a market value to donated and/or volunteered resources such as facilities/space and staff (e.g., a visiting psychiatrist). The market value is the cost to rent or hire the facility or staff that have been gotten at below market value. In this way, the cost estimate represents the “opportunity cost” of the services provided to clients, and gives an accurate representation of the true cost of delivering or replicating the services in question.

EXHIBIT II-1	
TYPES OF EXPENSES OF SUBSTANCE ABUSE PROGRAMS	
Administration	Psychiatrist
Facility and grounds	Psychologist
Dietary	Social worker
Laundry	Certified Addiction Counselor
Housekeeping	Vocational therapist
Medical Care	Recreational therapist
Laboratory	Other therapist
Depreciation, rent & interest	

Source: Capital Consulting Corporation, 1998

The ultimate product of the SATCAAT is unit cost calculations for selected types of services that make up virtually all (or at least the most important) of the activities/services substance abuse treatment SDUs provide. The analyst can choose or define the service types to be analyzed, depending on the type of provider being studied. Initially, a core set of 13 broad services were defined with the assistance of expert panels. The services studied for SDUs in this analysis are identified and defined in Exhibit II-2. Note that each “type” of service may actually be made up of a number of related types of services, such as medical/diagnostic, which could include tests for TB, hepatitis, and pregnancy, as well as many others.

Also, for each type of service, a unit of measurement is defined (see Exhibit II-2) to allow costing per unit of service. 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 has calculated and used a related measure: the cost per client day.

The objective of the SATCAAT is to generally characterize the level of resources put into discrete types of services. This methodology could be extended to define more precise units/types of services, and to estimate costs for those services. It was judged by the NIDA/SAMHSA expert committee that the 13 initial types of services would constitute a solid initial typology that would start the field moving toward greater cost awareness. The design of the template allows services to be changed, added or deleted. For the RWC/PPW demonstrations, several units of service—therapeutic child care, record keeping and aftercare/continuing care—were added at the request of evaluators and grantees because they were important to the design of these initiatives.

EXHIBIT II-2		
DEFINITIONS OF UNITS OF SERVICE OF RWC/PPW		
AND OTHER RESIDENTIAL PROVIDERS		
Service Type	Unit of Measurement	Definition
Initial Assessment	Assessment	Pre-admittance interview/screening, obtaining background, eligibility and financial information
Medical Examination	Exam	Initial medical exam, including medical history, vital signs, and laboratory testing
Psychosocial Evaluation	Evaluation	More extensive evaluation typically performed by mental health professional focusing on social history and history of abuse and psychological testing
Individual Counseling	Hour	One-on-one meeting with counselor; review treatment plan progress and discuss client specific problems
Group Counseling	Session hours	Facilitated sessions presented to multiple clients with lectures and discussion focusing on substance abuse and mental health issues
HIV Counseling and Testing	Client, client/day	Counseling on, and testing for, HIV/AIDS
Medical/Diagnostic Services	Client, client/day	Medical services such as urinalysis, other laboratory services, medical supplies and medicines (including methadone), and medical staff labor costs
Housing	Day	Cost to house clients, including dietary, housekeeping, utilities, laundry, and maintenance
Records Management	Client, client/day	Documentation of treatment services received by clients
Case Management/Networking/Outreach	Client, hours/client, client/day	Chart review, collateral contact, treatment plan writing, and clinical staff coordinating living arrangements, legal advocacy, court attendance, and providing street outreach
Therapeutic Child Care	Children, child hour or day	Provision of child care services to children of treatment clients while the clients receive treatment
Client Transportation	Client, client/day	Transportation for medical care, educational trips, and other needs
Staff Education	Client, client/day	Includes cost of staff training and education
Client Education	Client, client/day	GED preparation, college course work, vocational training, and employment skills training
After/Continuing Care	Client	Follow-up contacts with clients after discharge
Project Evaluation	Client	Activities conducted by consultants or staff related to compilation of statistics, tracking client outcomes, outcome analysis, etc.

The core of the SATCAAT is a large number of allocation rules for translating expenses into unit costs for each type of service. Specifically, a project starts with total costs by category

(listed across the top of the table) and allocates these within a column across the respective services (listed down the side of the table). Once total costs by type of service are summed, this is divided by the number of units of that type of service that have been delivered during the period being studied.

2. THE DATA

The data for this analysis were collected from 60 different residential service delivery units (SDUs) in organizations that held demonstration grants from the Center for Substance Abuse Treatment (CSAT). The data were collected on-site by trained cost accountants using the SATCAAT data collection forms and protocols.

Most of the SDUs (24) were participating in the CSAT Residential Women and Children (RWC) demonstration or the Pregnant/Postpartum Women and Children (PPW) demonstration (18). These initiatives were designed to deliver long-term (6+ months) intensive/comprehensive residential treatment to substance abusing women and their children. The RWC program was to provide care to alcohol/drug dependent women and their children. Often, the women were at risk of losing custody of their children, and successful participation in treatment was mandated. Women were given assistance and instruction in parenting in addition to intensive treatment. Children were given substance abuse treatment if needed, and prevention services, and worked with their mothers and therapists on parenting/family building. The PPW providers focused on identifying, reaching out to, and treating pregnant women both to improve birth outcomes and to improve the mother's ability to care for her newborn.

The grants were for multiple years, and cost data were ideally to be collected for two complete years of operation between 1996 and 1997. For this analysis, we primarily used 1997 cost data, although for some providers 1996 was the most recent financial year available.

Most of the organizations funded to participate in the CSAT demonstrations also operated additional service delivery units (although not supported with CSAT demonstration funds). The cost accountants needed to acquire data on these other SDUs to develop cost estimates for the CSAT demonstration SDUs that accurately allocated shared costs between demonstration and non-demonstration units. This is the source of the additional 18 residential SDUs.

Cost data for this analysis were obtained from more than 80 percent of SDUs participating in these two demonstrations. Another 10 RWC/PPW SDUs were funded over this time period; however, no cost data were collected for them due to difficulties in scheduling and accomplishing cost data collection within the study time frame.

As described above, the SATCAAT was used to collect data on expenses and staffing of the respective SDUs, the types and numbers of services delivered, and the staffing requirements for particular types of services. The same types of data were collected for women and children (including newborns), respectively, to allow separate estimates to be developed. Unit cost estimates were developed for each of the types of services for women and for children; however, actual unit cost estimates can only be calculated for certain services. Other services must be considered “bundles” of services and activities that are not amenable to comparable measurement. These include “medical services” and “client education.” Accordingly, for these service types, costs have been estimated per client day.

For this analysis, we separately analyzed the costs for women and children and for the RWC and PPW SDUs. We explored summing together costs for mothers and children and RWC and PPW, but found they had quite different cost profiles (although similar relationships between SDU size and costs per unit of service). Therefore, we have analyzed, and will present them separately.

III. RESULTS

III. RESULTS

This chapter describes the results of the analysis. First, we review the basic characteristics of the SDUs in the sample available for analysis. Average costs and unit costs are presented. This is followed by the regression analysis and graphs of selected cost-size relationships.

1. CHARACTERISTICS OF THE PROVIDER SAMPLE

The main characteristics of the sample of providers are found in Exhibits III-1 and III-2. The RWC and PPW providers treated about 100 clients per year (86 and 116, respectively), with an average daily census of almost 30 clients. Most of the providers had average daily census (summing women and children together for the RWC and PPW SDUs) between 15 and 45 clients, with a few below 10 or over 70.

The cost per client day is about \$90 (RWC) and \$145 (PPW). In this analysis we do not report on or discuss the total cost of treatment per client because this measure is best analyzed using individual client data. Such an analysis will be performed for the RWC and PPW data as part of the ongoing evaluation of these demonstrations.

The other residential providers treated about twice as many clients per year (220); however, average length of stay tended to be somewhat shorter (81 days). Costs per client day for clients treated by residential providers not funded by CSAT were lower than RWC/PPW costs. Again, these other residential providers are analyzed to look for size/cost relationships, and not in order to be compared to the quite unique RWC and PPW demonstration SDUs.

EXHIBIT III-1					
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	15	15
Cost per client day	\$110	\$65	&150	\$140	\$92

Source: Cost data collected by Capital Consulting Corporation; analysis by The Lewin Group.

Data central to this analysis are found in Exhibit III-2. These are data on the average unit costs. The values presented are the averages for each of the SDUs in the sample. This exhibit presents both the specific types of units for which costs were developed, plus “bundled” costs for similar types of services. For example, during intake, most of the providers had three distinct steps: brief assessments; medical examinations; and comprehensive psychosocial assessments.

The SATCAAT develops estimates for each of these service units. In addition, we have constructed several “bundles” of related services, primarily for exposition and discussion.

Although comparison of RWC/PPW and other residential costs is not an objective of this analysis, there are a few quite clear cost differences that we will discuss briefly. RWC/PPW demonstrations are appreciably more expensive per client day of care than other residential treatment. The primary cost differences are for intake assessments, therapeutic child care services and for “other” bundled services, including records management, client and staff education, and aftercare. The RWC/PPW SDUs spent roughly twice as much on client assessments for adult women as the other residential providers—almost \$700 versus \$333 per client. Some of this difference may stem from the fact that the RWC/PPW providers were participating in evaluations that required intensive data collection about clients. Although these costs should have been listed as project evaluation expenses, it is possible that therapeutic assessments were used to collect data about clients that was primarily used for the evaluation.

EXHIBIT III-2						
AVERAGE UNIT COSTS OF TREATMENT IN RWC/PPW AND RESIDENTIAL PROVIDERS						
Service Type	Unit of Cost Measurement	RWC		PPW		Other Residential
		Women	Children	Women	Children	Unit Cost
Treatment episode	Cost / Client Day	\$106.16	\$64.68	\$150.26	\$139.92	\$92.00
Intake assessment	Cost / Admission	\$697.48	\$158.56	\$662.35	\$285.37	\$333.48
Initial assessment	Cost / Admission	\$93.88	\$135.20	\$239.03	\$59.41	\$97.10
Medical exam	Cost / Admission	\$136.33	\$62.53	\$136.17	\$50.06	\$117.58
Psychosocial evaluation	Cost / Admission	\$478.63	\$55.31	\$294.71	\$226.94	\$239.34
Counseling	Cost / Client Day	\$21.60	\$3.07	\$26.73	\$2.68	\$17.12
Individual counseling	Cost / Counseling Hour	\$28.99	\$26.15	\$30.79	\$23.76	\$37.25
Group counseling	Cost / Counseling Session	\$43.97	\$35.48	\$41.97	\$44.59	\$54.44
Medical services	Cost / Client Day	\$7.68	\$3.98	\$14.43	\$7.40	\$7.03
Medical/diagnostic	Cost / Client Day	\$7.34	\$3.88	\$13.34	\$7.40	\$6.18
HIV counseling and testing	Cost / Client Receiving Service	\$67.94	-	\$46.43	-	\$51.93
Housing	Cost / Client Day	\$34.10	\$27.10	\$43.78	\$43.04	\$39.18
Case mgt./ network. / Outreach	Cost / Client Day	\$9.24	\$3.00	\$18.88	\$11.94	\$6.69
Child care services*	Cost / Client Day	n.a.	\$20.64	n.a.	\$62.46	\$3,145.07 (N=2)

EXHIBIT III-2						
AVERAGE UNIT COSTS OF TREATMENT IN RWC/PPW						
AND RESIDENTIAL PROVIDERS (CONT.)						
Service Type	Unit of Cost Measurement	RWC		PPW		Other Residential
		Women	Children	Women	Children	Unit Cost
Other	Cost / Client Day	\$28.54	\$7.46	\$32.83	\$18.29	\$12.43
Records mgt.	Cost / Client Day	\$13.31	\$3.09	\$16.47	\$15.23	\$7.80
Client transportation	Cost / Client Day	\$6.14	\$3.15	\$7.15	\$3.11	\$2.69
Staff education	Cost / Client Day	\$3.50	\$1.69	\$3.79	\$2.24	\$1.41
Client education‡	Cost / Client Day	\$5.03	-	\$1.93	-	\$4.83
After/continuing care	Cost / Client	\$169.67	\$44.71	\$319.12	\$112.90	\$103.33
Project evaluation	Cost / Client Day	\$17.52	\$6.26	\$15.75	\$5.71	\$2.53

Note: N values vary either because not all SDUs provided the respective services.

* The cost of child care was reported in the “Children-Only” components of the SDUs used in this analysis. Children did not receive these services at the RWC/PPW SDUs, Client Education applied only to the “Women-only” components of SDUs used in this analysis.

The most notable difference is the fact that the RWC/PPW SDUs all had children in residence. These providers were required to deliver high quality (defined as “therapeutic”) child care (which made up a third to half of their costs per day). Only two of the other residential providers had child care. The demonstration providers incurred costs that were about twice as high per client day for case management, and for the “other” bundled services.

Otherwise, RWC/PPW and residential providers had somewhat similar average costs per client day across the profiled providers in terms of costs of counseling services, housing and medical services. However, the focus of this analysis is on whether larger and smaller SDUs have cost differences within these two types of SDUs. It would take a much more detailed level of analysis of therapeutic approach and staffing patterns to explain differences across the three sets of providers (RWC, PPW and other residential).

2. ANALYSIS OF SDU SIZE AND COST

A very simple and direct approach has been taken to exploring the relationship between cost and SDU size. We have graphed the data, and performed regression analyses to test

whether the observed/visual relationship is statistically significant.² We have then plotted the estimated regression line on each respective graph along with the regression parameters and R square. Due to the relatively small number of observations, we have not added further characteristics to the regressions to analyze whether, e.g., cost differences can be explained by region of the country, urban/rural location, therapeutic approach, staffing patterns, or nonprofit/public ownership of the SDU. Future analyses with larger sample sizes should explore these issues. (The analysis in Mark et al. (1999) found that both region and ownership were important predictors of cost per client day).

2.1 Analysis of Major Cost Components

The following graphs present the relationship of SDU size (average daily census) to total cost per client day for the RWC and PPW providers (women and children, respectively) and the other residential providers (Exhibit III-3). Graphs for other components of treatment are presented in the Appendix. We have plotted the estimated regression lines on the graphs, and the summary regression results for each estimated line are printed on the graph. We present a summary of the regression results in Exhibits III-4 and III-5. Specifically, only the coefficient of size (average daily census) is presented. Statistically significant coefficients are indicated.

The first question is whether the overall cost of treatment per client day differed for SDUs of different sizes. Both the graphs (Exhibit III-3) and the regression analysis demonstrate clearly that total cost per client day of care does tend to vary in the predicted direction by SDU size. The relationship is quite strong for RWC and PPW SDUs, and very distinct for the other residential SDUs. The nature and strength of the relationship between unit cost and size can be characterized by three values: the regression coefficient (the “b” value), the significance for the “b,” and the R square. For all of the graphs shown, the “b” is negative (as predicted) and statistically significant at the .05 probability level or higher. In addition, the R square for the RWC and PPW regressions (both for women and children) is greater than about .50, and a still quite strong 0.35 for the other residential providers. Therefore, size alone explains a large proportion of variation in cost per client day across SDUs.

Exhibit III-3 quickly makes clear that very small providers have a major impact on the estimated cost relationship, because some of them have extremely high costs. While not all of the smallest providers have “extremely” high costs, such “high cost/outliers” (most extreme observations) were not seen for medium and large SDUs, and the very largest SDUs had the

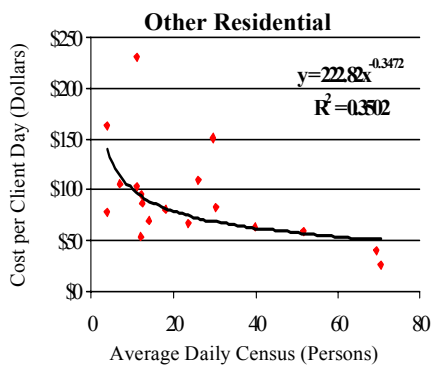
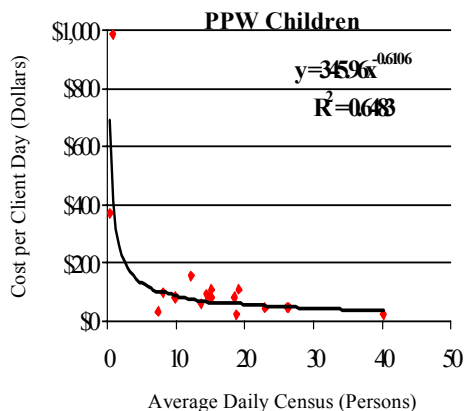
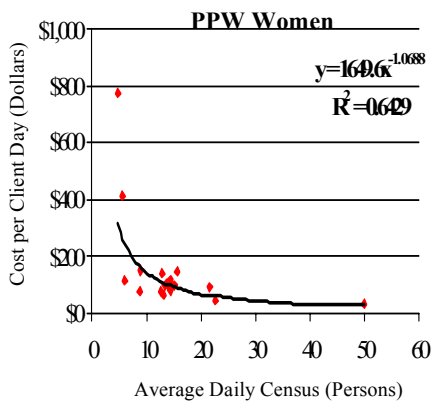
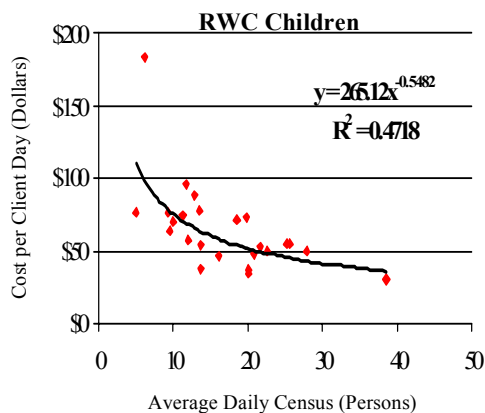
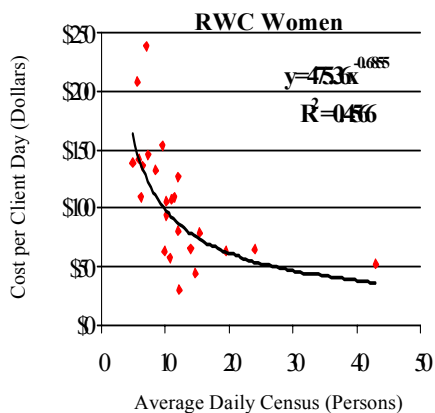
² Different specifications of the regression were tested, and it was determined that the “power analysis” specification provided the best fit as well as meaningful interpretation. The relationship estimated was of the form $y = a * x ** b$ where y is the unit cost, x is the average daily census of the provider, a and b are parameters to be estimated and x is exponentiated to the power of b.

lowest costs. Out of concern that the estimated relationships were primarily driven by the few smallest, most expensive (outlier) observations, we dropped them and re-estimated the relationships. All previously significant “b” estimates still had the same signs and were still significant.

Still, Exhibit III-3 shows that it is not simply the very smallest providers or the outliers that drive the relationship. There is a distinct tendency for costs per client day to be lower for SDUs with a higher average daily census.

Regression analysis was used to test for whether there is a statistically significant relationship between the unit cost and SDU size for each unit of service tested. We tested both basic “linear” regression and “power analysis.” The more traditional linear regression calculates the “best fit” line through the observations. Observation of the graphs in Exhibit III-3 should suggest to the reader that all of the linear regressions found negative and statistically significant trend lines. However, the alternative “power analysis” (see Footnote 2, above) offers several advantages. First, unlike linear regression, the estimated regression line will not go below the horizontal axis (which would mean that the predicted value would go to zero, and then into negative values). The mathematics of the power analysis prevents this. Second, the coefficient of the size variable in power analysis has a useful and intuitive interpretation.

EXHIBIT III-3 RESIDENTIAL SDU TOTAL COST PER CLIENT DAY, GRAPHED BY AVERAGE DAILY CENSUS, BY TYPE OF PROVIDER/POPULATION



When larger size is associated with lower costs per unit, a negative coefficient is expected. Positive coefficients mean that larger SDUs have higher unit costs. The coefficients from this form of regression can be directly interpreted as the proportional change in unit cost (a client day of care, for example) in response to a proportional change in size (the average daily census). Thus, a coefficient of (-.20) can be interpreted to indicate that a 10 percent increase in average daily census would be associated with a 2.0 percent decrease in the cost per client day of care. This would indicate a relatively modest degree of association between size and declining cost per client. In this example, the 10 percent increase in average daily census, coupled with a 2 percent reduction in cost per client day would indicate that total costs would increase by about 8 percent. In the case of a doubling of SDU size (a 100 percent increase), the cost per client day would decline by 20 percent, and total costs would increase by about 80 percent.

A coefficient of (-1.00) indicates that a 10 percent increase in size is associated with a 10 percent decrease in the unit cost. This could be called the “two can live as cheaply as one” situation. While this may work in renting rooms, an estimate of -1.0 (or even more negative) should be considered problematic for treatment providers. This value implies that treatment of additional clients is accomplished at no increase in *total* costs/resources. Thus, no additional staff or other resources are being added even though more clients are being served, and this can only be accomplished by reducing the services provided (or at least the staff availability) to each client. A less serious, but perhaps also challenging way in which this cost pattern could manifest itself would be if smaller SDUs on average have more skilled and expensive staff (more M.D. and Ph.D. time) compared to larger SDUs (fewer licensed clinicians).

The regression results (Exhibit III-4) show that an increase in the average daily census of clients in the other residential SDUs (not RWC or PPW) of 10 percent is associated with about a 3.5 percent reduction in cost per client day. The RWC and PPW SDUs have materially greater savings in costs per day of care—three of the four program/population values are quite close to -.60, implying that a 10 percent increase in clients would be associated with about a 6 percent decrease in cost per client day. In fact, for women in PPW projects, the estimated effect appears to be about equal to 1.0. This finding will need closer analysis to understand its implications.

EXHIBIT III-4					
REGRESSION RESULTS FOR MAJOR COMPONENTS OF TREATMENT, BY TYPE OF PROVIDER/POPULATION					
Type of Cost or Services Costed	RWC		PPW		Other Residential (18)
	Women (24)	Children (24)	Women (18)	Children (11)	
Total \$/day	-.69**	-.55**	-1.07**	-.62**	-.35**
Housing \$/day	-.82**	-.84**	-.137**	-.71**	-.35*
Intake \$/day	-.28	-.90**	.04	.28	-.54*
Counseling \$/day	-.57**	.73	-.79**	-.16	-.45**
Case mgt. \$/day	-.31	-.33	-.81**	-.58**	-.66**
Other \$/day	-.73**	-.42*	-1.08**	-.52**	-.19
Childcare \$/day	NA	-.15	NA	-.60**	NA

Number of observations in ().

*Statistically significant at the .10. level.

** Statistically significant at the .05 level.

The major components of total cost per client day are also analyzed in Exhibit III-4. On average, it appears that larger SDUs consistently have lower costs per client day on most types of services than smaller SDUs. Housing costs in particular (which tend to make up on the order of 25 to 30 percent of total costs) display an even stronger relationship with size than total cost per day (measured in terms of both the responsiveness of cost to size, and the R square). However, patterns are somewhat irregular across the other various services and types of providers/populations. This means that other costs have a less defined relationship with size.

Intake costs are the type of service cost least consistently related to size. While larger Other Residential providers have lower per client intake costs, this is not consistently true for the RWC and PPW providers. For women in RWC and PPW care, there appears to be minimal change in intake costs in relation to size. For children, there are opposite patterns: costs decline significantly with increased size in RWC, but do not change significantly in PPW. There is no theoretical reason why intake costs for women and children should have different relationships to SDU size.

Counseling and case management services display a tendency to decline with greater size, although the magnitude of the relationship is variable. Costs for serving women appear to decline. But costs for children do not have a consistent pattern.

These findings do not, however, confirm whether there are savings per unit of service associated with larger providers. The “day of treatment” is too amorphous a unit or “bundle of services” to support this conclusion. We don’t know whether costs are declining at larger sizes because each unit of service (e.g., counseling) is being delivered more efficiently (at lower cost) or whether fewer units of service are being delivered (fewer units of counseling per client). Therefore, further analysis is undertaken of the more refined units in Exhibit III-3.

2.2 Analysis by Units of Service

The SATCAAT data offer the opportunity to analyze costs by more narrowly defined units of service. As discussed above, the aggregates of treatment such as total cost per day, or counseling cost per day reveal little about the intensity of services, and apparent “economies of scale” may reflect a delivery of fewer units of service per day, rather than achievement of cost efficiencies. The following analyses focus specifically on better-defined units of service that may support more confident inferences.

These regression analyses (Exhibit III-5) suggest that most of the economies of size for clinical services per day may be related to lower service intensity. Among the better-defined units of service, SDU size is generally not related to unit cost. For the other residential treatment providers, the cost per minute of initial assessments and psychosocial assessments, respectively, were virtually unaffected by SDU size, although medical exam costs per minute (the smallest part of intake costs) did decline with larger size. Also, the cost of an hour of individual counseling and of a “group counseling session” (for multiple persons) do not change in a meaningful way with SDU size.

For the RWC and PPW providers, there is no consistent pattern between the cost of units of intake services and SDU size. For RWC and PPW women, it seems that the cost per minute of intake service tends to be lower for larger providers (although not for all three components of intake assessments), in contrast to the finding that the total cost of an intake assessment was not affected by SDU size. Thus, it seems conceivable that women clients in larger SDUs may even get more minutes of intake services. The cost of a minute of intake services for children, for the most part, does not appear to change in larger SDUs (although it does for some components).

EXHIBIT III-5					
REGRESSION RESULTS FOR COST PER DISTINCT UNITS OF SERVICE OF TREATMENT, BY TYPE OF PROVIDER/POPULATION					
	RWC		PPW		Other Residential (18)
	Women (24)	Children (24)	Women (18)	Children (11)	
Initial assessment \$/minute	-.38*	-.06	-.53**	-.01	.18
Medical exam \$/minute	-.75	-1.17	-.14	.07	-.74*
Psychosocial assessment \$ / minute	-.81	-1.05*	-.001	-.52	-.14
Individual counseling \$/hr	-.13	-.09	.06	-.06	-.11*
Group counseling \$/session	-.44*	-.27	.20	.40	-.01
Hours individual counseling/day	-.10	.34	-.79**	-.58	-.16
Sessions group counseling/day	-.67**	-.15	-1.08**	-.08	-.49**

Number of observations in ().

*Statistically significant at the .10 level.

** Statistically significant at the .05 level.

Based on these results, it seems likely that the intensity of counseling services tends to be lower for women in larger RWC and PPW programs. Given the strong decline in cost of counseling per client day, it seems likely that clients in larger SDUs are getting less counseling. This has been analyzed in the same manner that unit costs have been examined. We have calculated the average hours of individual counseling and group sessions per client day and examined their relationship to average daily census. These results are also presented in Exhibit III-5. There is a quite strong—and statistically significant—reduction in the number of group sessions per client day in larger SDUs compared to smaller ones. This pattern was evident for the Other Residential as well as the RWC and PPW programs. It is possible that this result comes about because 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.

It appears that children in large SDUs are receiving about as many units of counseling services as those in small providers. The number of individual counseling sessions per client day appears to be lower only for the PPW women.

IV. SUMMARY AND RECOMMENDATIONS

IV. SUMMARY AND RECOMMENDATIONS

Understanding the costs of substance abuse treatment is becoming more important as systems are subjected to increasingly rigorous accountability. We have found that in this sample, size of residential provider measured by average daily census of clients has a strong negative relationship with the costs per day of client care. Size of service delivery units (SDUs) will need to be carefully considered in designing treatment SDUs and in making funding decisions. Smaller providers are at risk of having very high costs, which may be symptomatic of inefficiencies. Still, some small providers succeed in operating at cost levels comparable to larger providers.

This analysis—although not broadly generalizable due to the unique nature of the sample—has practical implications at multiple levels. Ultimately, it may have its greatest value at the SDU management level. Providers are being called on to improve their performance with respect to both quality of care and value for their funding. This analysis should be instructive to purchasers, providers, and researchers in the substance abuse treatment area..

1. SUMMARY

The analyses reveal that larger residential SDUs have significantly lower total costs per client day than smaller SDUs. This conclusion is somewhat more subtle than might be expected, however. It appears that larger SDUs actually may be delivering fewer units of service to clients. A similar pattern—larger SDUs have lower unit costs—was observed for the most important units and components of service, including daily costs of housing, counseling, case management and other services. The most expensive/extreme cost observations were always among the very smallest providers, and the largest providers were consistently low in cost.

There is some evidence that larger SDUs accomplish cost reductions by reducing the intensity of their services. For example, it was possible to analyze unit service and cost data for both individual and group therapy. The analysis found that unit costs (cost per hour of individual therapy, and per group session) generally were not affected by the size of the SDU. Thus, the significant reductions in counseling costs per client day achieved by larger SDUs were almost entirely the result of reductions in the intensity of counseling (fewer individual and/or group counseling sessions).

In future analysis, it will be important to investigate whether client outcomes are different for large and small SDUs. Using less expensive SDUs (whether large or small) could be a false saving if quality is being reduced and otherwise similar clients have poorer average outcomes.

Unfortunately, it is much more difficult to get credible data about outcomes for clients served by particular SDUs than it is to get meaningful data on the cost of treatment. This should

not stop further analyses of the relationship between SDU size and unit costs of treatment from being done. However, it should strongly motivate treatment evaluators to look at the relationship between costs of treatment, intensity and quality of care, and client outcomes.

Despite the fact that these data offer a richness generally not seen in substance abuse treatment cost data, there have been some distinct limitations to this analysis. There is real variability of services provided by the different SDUs. SDUs provide different ranges of services—which makes it all the more important to obtain unit service and unit cost data. For example, not all SDUs regularly administer psychosocial evaluations at admission, nor do all SDUs provide regular HIV counseling and testing services. Finally, SDUs utilize various types of health care practitioners. For example, nurses at one SDU might superficially appear to perform services that physicians would perform at another (a physical exam, or sick call), although the nature of services would be qualitatively different.

Furthermore, there is variability in the recording methods utilized by the sites. Record-keeping procedures appear to vary from provider to provider. This makes it all the more important to use a standardized data collection protocol and trained or experienced cost analysts to collect and analyze cost data. Calculation of costs appears to vary also, since cost per service often differs greatly.

2. IMPLICATIONS FOR POLICY, RESEARCH AND PRACTICE

This analysis has clear implications for substance abuse treatment policy, research and practice. Costs are a quite important aspect of the modern substance abuse treatment system, and keeping costs low while maintaining quality is one of the major challenge. This analysis has tangible implications on several fronts.

2.1 Implications for Policy

One of the most surprising findings was that costs of treatment vary widely from SDU to SDU, even for relatively similar types and units of care. Policy makers involved in purchasing substance abuse treatment should be aware that costs of services can be quite different for different providers. They will want to monitor provider costs to make sure they are getting the maximum value for their purchases.

Policy makers should also be aware when they contract for services, that larger SDUs tend to have lower costs on average. Unfortunately, in the public sector, there are often limited opportunities to choose between providers to get lower costs (hopefully at similar or better quality). There may be only one provider of a given type of care, and there is a need to provide a continuum of services.

The finding that the greatest cost variation was found for very small providers should be noted. These small providers may be most able to benefit significantly from technical and managerial assistance in the operation of their treatment services. It is possible that small providers could bring down the cost of their treatment.

More important in the policy discussion is the need to think about cost data together with quality and client outcomes. Even though some kinds of client outcome data can be very expensive, policy makers and purchasers of treatment still need to try to understand the link between treatment costs and client outcomes.

2.2 Implications for Further Research

The SATCAAT cost estimation protocol appears to have been successful at capturing and reflecting important differences in costs and unit costs and has yielded new evidence about an important issue. This provides further evidence that the instrument can be a valuable tool for use in evaluations.

The results from this very preliminary analysis appear to strongly support the theory that larger SDUs may have lower unit costs than smaller SDUs. This is particularly notable in this analysis given the small sample size of providers. However, it is also evident that much more study needs to be done to understand economies of SDU size. Specifically, larger samples of SDUs will be needed to allow simultaneous adjustments for important cost effects such as operation of multiple SDUs by a single provider; region of the country; urban/rural location; approach to treatment; staffing patterns; and ownership. This area of investigation will also strongly benefit from use of representative samples of providers, in addition to the purposively selected set of CSAT demonstration grantees.

Similarly, this analysis has only used data on residential providers. While residential treatment episodes tend to be more expensive than other types of care, many more clients are currently enrolled in standard outpatient, and, increasingly, in intensive outpatient care. These levels of care also need to be studied, because it is not obvious that their costs will have the same relationship to provider size.

Another avenue for study will be further refinement of the SATCAAT instrument. Several types/units of services are currently not analyzable as actual units of service, although it is feasible that this could be done. The most notable example of this type of service is “group counseling.” At present, data is mainly collected and reported on the number of group sessions. Information is needed for the number of clients that participate in each (or an average) session,

to measure the “dosage unit” for clients. Similar data on sessions, duration (“hours”), and intensity should be collected for “case management” and for “client education.” This added detail will give much better information about the dosage of services clients receive, and will, therefore, give greater insight into the relationship of SDU size to treatment costs.

Finally, and most important, these analyses tell us nothing about the cost-benefits or cost-effectiveness of treatment. Client outcome data are required to arrive at conclusions about the relative cost-effectiveness of alternative treatment regimens or sizes of providers. Unit cost data, however, are integral to analyses of the outcomes of separate service elements or bundles of services.

2.3 Implications for Treatment Practice

Providers need to be aware that it appears easy for small SDUs to have very high costs. High costs can occur due to difficulties in matching staff size and skills to client flow. Small providers are particularly susceptible to variation in client population that can result in periodic under-utilization of staff, driving up costs. The need for highly specialized staff is difficult to manage under the best of circumstances, but is all the more difficult for small providers. Small providers should be conscious of potential benefits that could be realized from growth or merger/consolidation with other providers.

Providers will want to learn about new and improved data keeping approaches. This study, and all of the other recent economic studies on substance abuse treatment, demonstrate that providers will need to understand and know their costs of operation. The measures and tools used in this analysis are not solely for research. 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.

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