The Economic Costs of Substance Abuse Treatment: Updated Estimates and Cost Bands for Program Assessment and Reimbursement

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Abstract

Federal, State, and local government agencies require current and accurate cost information for publicly funded substance abuse treatment programs to guide program assessments and reimbursement decisions. The Center for Substance Abuse Treatment (CSAT) published a list of modality-specific cost bands for this purpose in 2002. However, the upper and lower values in these ranges are so wide that they offer little practical guidance for funding agencies. Thus, the dual purpose of this investigation was to assemble the most current and comprehensive set of economic cost estimates from the readily-available literature and then use these estimates to develop updated modality-specific cost bands for more reasonable reimbursement policies. Although cost estimates were scant for some modalities, the recommended cost bands are based on the best available economic research, and we believe these new ranges will be more useful and pertinent for all stakeholders of publicly-funded substance abuse treatment.

Keywords

Economic Cost; Substance Abuse Treatment; Reimbursement; Policy

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1. Introduction

Total spending on substance abuse treatment in the United States was an estimated $21 billion in 2003 (Mark et al., 2007). The vast majority (77%) of this spending was financed by public sources, including Federal, State, and local governments. Some of the most difficult decisions that State government policymakers face are which substance abuse treatment programs to fund and where to set reimbursement rates. Similarly, a challenge facing both Federal and State policymakers is how to efficiently allocate limited public funds while avoiding either over or under treating substance-abusing patients. In principle, only programs that meet some minimum set of performance standards should be funded, and reimbursement rates should be

linked to the economic (opportunity) cost of service provision, [1] clinical outcomes, and economic benefits. In reality, performance standards are hard to define and enforce, and reimbursement rates are often based on crude approximations of economic costs or historical stipends to providers based solely on capacity estimates.

Little guidance exists on how reimbursements should be calculated for treatment programs, especially given differences in performance, client characteristics, setting, location, and resource cost. Even among programs within the same modality, there are considerable differences in range and intensity of services provided, types of clients served, and location of the program. These factors contribute to the legitimate variation in treatment costs and make it challenging to calculate standardized reimbursement rates. One potential reimbursement strategy is to use mean program cost per client. However, focusing solely on mean cost, even if modality specific, would ignore the diversity of treatment programs currently operating in the United States. A potential consequence of failing to recognize and adjust for these factors is reduced access to treatment for persons with multiple disabilities (e.g., severe mental illness [SMI], pregnant women and/or those with children, criminal justice referrals, HIV infected) (Cartwright, in press[b]). Similarly, the lack of periodic rate adjustments to reflect increases in operating costs (i.e., effective rate reductions) could cause the elimination of services to the most difficult-to-treat patients (Hser, Anglin, Grella, Longshore, & Prendergast, 1997).

As an alternative to mean cost per patient, the Center for Substance Abuse Treatment (CSAT) tried to partially address this informational need by developing a set of modality-specific "cost bands" that government policymakers could use to guide rate setting decisions (Substance Abuse and Mental Health Services Administration [SAMHSA], 2004). While cost bands are preferable to point estimates such as mean cost, numerous limitations are present as well. First and most notably, the upper and lower bounds for each modality are so wide that policymakers have little practical assistance on where to set specific reimbursement amounts for individual programs, even within the bands. For example, CSAT reports a range of $1,000 to $5,000 per patient for outpatient non-methadone treatment, which translates to a weekly cost of approximately $19 to $96 per patient. Second, it is not clear how these ranges were developed, to what unit of service they apply (session, day, week, episode, etc.), and whether the estimates were based on economic costs, accounting costs, program budgets, or some other factors. Third, one would presume that given these wide ranges, some programs will be reimbursed at rates below the mid-point and others at rates above the mid-point, but criteria stating how the reimbursement rate decisions are made are not provided in the source document. Finally, it is not stated if or how these ranges change over time as treatment services and resource costs change.

Given the pressing need for current and rigorous economic cost information that can assist government policymakers with their funding decisions, we set out to update and improve the substance abuse treatment cost bands originally proposed by CSAT by linking them directly to existing economic research. A key aim of this investigation is to develop cost bands based upon standard economic analysis principles, reflective of the current economic literature, that are expressed in 2006 dollars, can be applied to both a typical week and an average episode of treatment, and are better specified (apply to more existing modalities) than the original CSAT bands.

To complete these objectives, we compiled data from 110 substance abuse treatment programs that had completed the Drug Abuse Treatment Cost Analysis Program (DATCAP) (French,

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[1] Economic or opportunity costs do not always equate to the accounting costs of a treatment program. Opportunity costs include the value of unpaid resources, such as the estimated market value of donated buildings or voluntary labor. The "opportunity cost" is the value of the next best alternative forgone when these resources are used by the program.

Bradley, Calingaert, Dennis, & Karuntzos, 1994; Bradley, French, & Rachal, 1994; French and McGeary, 1997; French, Dunlap, Zarkin, McGeary, and McLellan, 1997; Roebuck, French, and McLellan, 2003; www.DATCAP.com). The DATCAP is a program-level data collection instrument designed to estimate the costs of a substance abuse treatment program based on standard economic principles. It can be used in a variety of treatment settings. By using only DATCAP estimates, we ensured a standard method of cost data collection and calculation among all programs included in the cost bands. Using the weekly and episode cost estimates obtained through the DATCAP for each program, we estimated new cost bands for eight treatment modalities based on modality-specific interquartile ranges.

We further discuss the DATCAP instrument and the method for calculating updated cost bands in the Methods section. We then present the results of the DATCAP and cost band estimation, as well as a sensitivity analysis based on other cost estimation approaches. Finally, we outline the strengths and limitations of the updated cost band estimates, highlight policy implications, and make recommendations for future studies.

2. Methods

The DATCAP was the first standardized approach to collect resource use data and estimate the economic costs of substance abuse treatment for individual programs and clients. The DATCAP has undergone several transformations since the early 1990s to improve clarity, coverage, respondent burden, electronic entry, and precision. For previous versions and improvements on the DATCAP, see French, Dunlap, Zarkin, McGeary, & McLellan (1997); French & McGeary (1997); Dunlap & French (1998); French, Salomé, & Carney, (2002a); French, et al. (2002b); McCollister, French, Inciardi, Butzin, Martin, & Hooper (2003a); McCollister, French, Prendergast, Wexler, Sacks &, Hall (2003b); and Zavala, French, Henderson, Alberga, Rowe, & Liddle (2005). Roebuck, French, and McLellan (2003) published the first summary article of all DATCAP studies to date, which amounted to 85 substance abuse treatment programs across 9 modalities. Since 2002, at least 25 additional programs have completed the DATCAP. The current editions of the full and brief DATCAP instruments can be found at www.DATCAP.com.

The instrument is designed to collect and organize detailed information on resources used in service delivery and their associated dollar cost. Resource categories include personnel, supplies and materials, contracted services, buildings and facilities, equipment, and miscellaneous items. The instrument also collects information on program revenues and client case flows. Data are collected directly from program officials with the assistance of a researcher trained to administer the DATCAP. An instruction manual is also provided to program personnel along with the actual data collection instrument. Total annual economic costs are based on the data reported for the six resource categories. Estimates for average (per client) weekly and episode costs are calculated from program data on average daily census, average length of stay, and total annual cost.

Because the DATCAP estimates are standardized, based on established economic cost methods, more voluminous, and cover more modalities than the other approaches (see Sensitivity Analysis), we chose to base the updated cost bands on DATCAP estimates only. Our first step in updating the cost bands was to assemble all of the available DATCAP estimates since the instrument's inception. This amounted to 110 programs, which we organized by the following modalities: methadone maintenance, non-methadone outpatient, intensive (i.e., day treatment) outpatient, adolescent outpatient, screening and brief intervention, drug court, adult residential, adolescent residential, therapeutic community, and in-prison therapeutic community. Because financial information was collected and reported during different years,

all cost estimates were converted to constant 2006 dollars using the Consumer Price Index (CPI).

After assembling the data, we used a statistical software program (Stata) to calculate an interquartile range (the values corresponding to 25th and 75th percentiles of the distribution) for weekly and episode costs within eight modalities. Interquartile ranges are not reported for "screening and brief intervention" and "adolescent residential" due to very small sample sizes for these modalities. We chose to base the cost bands on the interquartile range after exploring the option of running modality-specific linear regression models and calculating 95% confidence intervals for mean predicted values of weekly and episode costs. The relatively small sample sizes within each modality constrained the use of ordinary least squares (OLS) regression or any other regression technique to derive confidence intervals (Montenegro, 2001). Moreover, while a substantially larger sample size would improve the efficiency of OLS, 95% confidence intervals are directly linked to the number of program-level cost estimates included in the regressions via the standard errors of the estimates. For example, if the 95% confidence interval was based on 1,000 programs, it would be virtually a point estimate, with little variability around the mean value. For this critical reason, the interquartile range is the preferred approach for estimating the cost bands given relatively small sample sizes. In addition, interquartile ranges are advantageous because the estimates can be updated as the number of programs available for analysis increases within each modality.

3. Results

3.1 DATCAP cost estimates

Table 1 presents summary statistics for the DATCAP estimates, by modality. For each of the 110 programs, we used data on average length of stay (reported in weeks), average daily census, total annual economic cost, weekly economic cost per client, and economic cost per treatment episode to calculate summary statistics (mean, standard deviation, standard error, and median) for each of the ten modalities. Some modalities, like non-methadone outpatient or adolescent outpatient, are represented by at least 20 unique programs and have fairly tight distributions for average weekly cost and average episode cost. However, other modalities, like therapeutic community, are represented by many fewer programs and/or have highly variable program-specific cost estimates.[2] The sizeable variation in weekly and episode costs for some modalities can be explained by the substantial differences within modality in types of populations served, range and intensity of services provided, types of substance abuse problems addressed, or location of the treatment programs.

Besides program and client characteristics, two critical determinants of the variation in mean costs are the average daily census and the mean length of stay in treatment. Current studies suggest that average daily census affects program-specific operating costs through economies of scale. Duffy, Dunlap, Feder, and Zarkin (2004) and Beaston-Blaakman, Shepard, Horgan, and Ritter (2007) find that larger outpatient treatment facilities are less costly on a per admission basis than smaller ones, holding constant the clients' characteristics. Harwood, Kallinis, and Liu (2001a) find economies of scale in the residential sector, although this is partly due to lower intensity treatment delivered by larger residential care providers. To illustrate this phenomenon, we provide two examples from our dataset. The average daily census for the non-methadone outpatient program with the largest mean weekly cost ($385) is 22 clients, whereas the average daily census for the program with the smallest mean weekly cost in this modality ($32) is 388 clients. Another illustration of this point can be found in the adult residential modality, where the program with the largest average weekly cost ($2,070) has an

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[2]A detailed version of Table 1 containing program specific information is available upon request from the corresponding author.

average daily census of 8 clients, whereas the program with the smallest average weekly cost ($213) has an average daily census of 93 clients. Furthermore, the mean length of stay in treatment has a direct influence on average episode costs because more resources are necessary as the duration of treatment grows longer. This positive correlation is evident in our dataset.

3.2 Cost band estimates

Table 2 presents the recommended cost bands for each modality. Compared to the CSAT cost bands discussed earlier, these ranges are generally tighter. CSAT published cost bands for an average episode of treatment for three of the eight modalities covered by our cost band estimates. For non-methadone outpatient treatment, our proposed cost band ($1,132 to $2,099) is much narrower than CSAT's cost band ($1,000 to $5,000). Alternatively, the extreme variation in average length of stay for methadone maintenance (16 to 150 weeks) and adult residential (3 to 50 weeks) programs in our dataset makes the proposed cost bands for these modalities (see Table 2) wider than those presented by CSAT ($1,500 to $8,000 for methadone maintenance and $3,000 to $10,000 for adult residential).

Of course, some currently operating programs in each modality may have average weekly or episode costs that fall considerably below or rise well above the proposed ranges. Much of the variation in mean episode costs will be due to average length of stay in treatment, which can be highly variable across programs. We would view these "out-of-range" programs as true outliers that may require a different set of criteria for reimbursement decisions, which should not necessarily be factored into the prevailing cost bands. Stated differently, the updated, research-based cost bands presented in Table 2 are intended to characterize the majority of programs in each modality that are more typical in terms of service delivery, average length of stay, and costs. Recognizing that unusual programs exist, other program features must be considered to derive alternative reimbursement guidelines for these entities. For example, special populations (e.g. dually diagnosed patients, women with children) are expensive to treat as costs include wrap-around services that supplement the core services provided to the general population. These wrap-around services are often highly correlated with treatment retention and outcomes. Therefore, reimbursement rates for programs treating special populations should take into account the additional costs incurred as a result of these specialized services. Moreover, the chronic and relapsing nature of addiction points to the need for extended care or some form of continuing care following the initial phase of treatment. Emerging clinical literature provides support for the effectiveness of extended or continuing care, but the optimum length of stay in treatment is still the subject of intense debate (McKay, 2005;McKay, 2007). The large variation in the mean length of stay among programs within the same modality is the main factor affecting the width of cost bands for average episode cost.

4. Sensitivity analysis

A natural sensitivity or legitimacy test for the proposed cost bands is how they compare to the published cost estimates using data collection methods other than the DATCAP. Several other substance abuse treatment cost estimation approaches have been proposed since the launch of the first edition of the DATCAP in 1994. Among these are the Substance Abuse Services Cost Analysis Program (SASCAP) (Zarkin, Dunlap, & Homsi, 2004), the Alcohol and Drug Services Study (ADSS) (SAMHSA, 2003), Capital Consulting Corporation's (1998) accounting approach, and the unit service costs and accounting method (Anderson, Bowland, Cartwright, & Bassin, 1998). Besides these instruments, several published studies use alternative methods to estimate daily, weekly, episode, or total annual costs of treatment. Extensive literature reviews were conducted to locate all of the possible studies that estimate the costs of addiction treatment. We searched Web of Science and Google Scholar using the keywords "substance abuse treatment" or "addiction treatment" and "cost" to identify studies that provide addiction treatment cost estimates. In selecting cost estimates from other sources,

we included studies that were readily available in the literature, were based on standard economic or accounting principles, and reported findings that were identical or at least similar to the DATCAP cost categories. We excluded roughly 10 studies that used budgets rather than expenditures, reimbursement rates, or billing records to estimate costs, as they were not directly comparable to the DATCAP cost estimates. We identified 13 studies that fit our inclusion criteria (SAMHSA, 2003; Zarkin et al., 2004; Avants et al., 1999; Mojtabai and Zivin, 2003; Ettner et al., 2006; Anderson et al., 1998; Weisner et al., 2000; Harwood et al., 2001b; Alterman et al., 1994; Burgdorf et al., 2004; Barnett and Swindle, 1997; Harwood et al., 2001a; and Hartz et al., 1999). The majority of these studies estimate economic costs per client per day, episode, month, or year of treatment. These economic cost estimates include the opportunity cost of the resources used, such as the value of volunteer labor or donated buildings, making them similar and comparable to the DATCAP estimates. When the study did not provide average weekly costs, we estimated these based on the data and estimates provided. For example, the weekly cost per client was calculated by multiplying the mean cost per client day by 7 days a week, by dividing the average cost per month by 4.348, or by dividing the mean cost per episode by the average number of days in treatment and multiplying the result by 7 days per week. All cost estimates were converted to 2006 dollars using the Consumer Price Index (CPI). We compiled these cost estimates into a table similar to Table 1 that is available upon request. We then compared them against the cost bands derived from the DATCAP data for each modality.

The 13 studies included in the sensitivity analysis estimate costs for 849 programs across five modalities: 244 methadone maintenance programs, 280 non-methadone outpatient programs, 12 intensive outpatient programs, 305 residential programs, and 8 methadone detoxification programs. Some of the estimates are reported for individual programs while others are an average of multiple programs within the same modality. 90% of the modality-specific cost estimates fall within the proposed episode cost bands in Table 2, or very close to the lower or upper bounds. 88% of the weekly cost estimates fall within or very close to the proposed weekly cost bands. The episode cost estimates that fall outside the proposed cost bands (corresponding to 27 methadone, 9 outpatient, 1 intensive outpatient, and 39 residential programs) can be attributed to atypical values for the average length of stay when compared to the average length of stay reported by the programs completing the DATCAP. We suspect that a few weekly cost estimates fall outside the proposed cost bands (corresponding to 1 methadone, 1 intensive outpatient, and 90 residential programs) due to the considerable diversity in the intensity or range of treatment services provided by programs across the country. With the additional programs included in this sensitivity analysis, we were able to consider cost data for nearly 1,000 substance abuse treatment programs across the United States. Given that the vast majority of program costs adhere closely to the updated cost bands presented in Table 2, this sensitivity analysis bolsters our confidence in the DATCAP-based cost bands.

5. Discussion

The substance abuse treatment cost bands originally proposed by CSAT need to be updated and improved with evidence from standardized and scientific studies of treatment services, duration, and economic costs if they are to become meaningful and constructive for policymakers and program evaluators (see French et al., 1994). The present analysis incorporated DATCAP-based economic cost estimates from a variety of sources to derive research-driven cost bands for most of the major substance abuse treatment modalities. The proposed cost bands cover more modalities, are portrayed in 2006 dollars, apply to both a week and episode of treatment, and can easily be linked to the data in Table 1.

We must caution that any reimbursement rates derived from the cost bands should be applied to individual programs carefully, as the cost bands alone are not intended for use as efficiency

measures. Programs that are operating efficiently may fall above or below certain cost bands due to the variations in services provided, clients served, program location, and other factors. Conversely, an inefficient program may still fall within the estimated cost bands due, for example, to lower resource costs in their area of operation. A separate set of performance or evaluation measures should be used in addition to the cost bands when undertaking a full economic evaluation of substance abuse treatment programs. Space constraints do not permit us to fully elaborate on the methods used for more advanced approaches, such as cost-effectiveness analysis, cost-utility analysis, and benefit-cost analysis. These techniques have been presented thoroughly in a number of recent articles in the substance abuse literature (e.g., Cartwright, 2000; French & Drummond, 2005; Zavala et al., 2005; Cartwright, in press[a]; Cartwright, in press[b]). Interested readers can consult these articles to obtain a complete perspective on the approaches used to estimate costs, outcomes, and economic benefits of substance abuse treatment services.

5.1 Limitations

Despite the improvements made by this study, there are still limitations to the updated cost bands. One limitation pertains to the cost per treatment episode. As mentioned previously, there is large variation in the average length of stay within most treatment modalities. In addition, there is no consensus in the clinical literature on the appropriate length of treatment episodes for all types of clients; episode length is highly variable based on individual client needs and program characteristics (Hser et al., 1997). For example, among methadone maintenance treatment programs in our sample, average length of stay (which constitutes one episode of treatment) ranges from 16 to 150 weeks. These variations make comparisons of episode costs across programs tenuous. Although variations in the intensity, range of treatment services offered, patients served, and location of the program result in differences in weekly costs as well, we believe the weekly cost bands are more stable and reliable as a unit of comparison than the episode cost bands.

A challenge related to cost bands as a tool for reimbursement decisions is the lack of corresponding data on program and client characteristics. For example, special populations, like patients with multiple co-occurring conditions (e.g. clients with substance abuse, as well as mental disorders) can be very expensive to treat. The proposed cost bands do not take into account the comprehensive services that should be provided to these patients. On the other hand, a program that is primarily treating functional patients with support systems and who are still employed may generate actual costs that fall below the proposed bands. Unfortunately, we do not have the necessary data to recommend adjustments to the cost bands based on program and client characteristics, and especially clinical outcomes. We cannot determine at this point whether programs with higher operating costs provide better or more effective treatment. Indeed, the higher costs may be more reflective of the services needed to address populations with greater problem severity, and thus poorer prognoses for improvement. Finally, besides applying the CPI or some other index to inflate the current estimates to future years, there is no structured way to update the cost bands based on organizational, service delivery, client, or resource changes.

5.2 Conclusion

This study improves upon and updates the cost bands originally developed by CSAT by basing the values on a comprehensive set of economic cost estimates derived through a standardized, peer-reviewed, and well-used instrument. However, given the limitations that still exist with the new cost bands, we encourage CSAT, the National Institute on Drug Abuse, the National Institute on Alcohol Abuse and Alcoholism, and other interested stakeholders to embark on a comprehensive study of substance abuse treatment costs that can be used to develop, among other things, a defensible set of modality-specific cost bands that can be adjusted for program

and client characteristics and outcomes, and updated periodically to reflect current resource costs and trends.

One way for CSAT and other stakeholders to undertake the suggested study is to use an augmented version of the DATCAP to collect cost and key clinical information on a nationally representative sample of programs within each treatment modality. By expanding the instrument to include additional information on a variety of program and client characteristics (e.g., urban, suburban, or rural setting; program size; ownership; service provision; clients with special needs), more rigorous models and estimates can be developed. This enhancement would allow researchers to make adjustments in the cost bands for changes in program organization, service delivery, clients, or resources, all of which can affect economic costs.

We feel confident that these updated cost bands are a significant improvement upon the original ranges published by CSAT. These estimates can be used to formulate future reimbursement decisions for existing programs, to estimate the costs of treatment expansion, and to shape the foundation of more advanced economic evaluations. However, our analysis indicates that a comprehensive study as described above is necessary to make any further improvements in the cost bands. We hope that this paper serves as a motivator and guide for CSAT and other interested stakeholders to undertake such a study of substance abuse treatment costs in the near future.

Acknowledgments

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Table 1

Summary DATCAP Information from 110 Substance Abuse Treatment Programs[1] (2006 Dollars)

Descriptive Statistics	Average length of stay (weeks)	Average daily census	Total annual economic cost	Weekly economic cost per client[2]	Economic cost per treatment episode[3]
Methadone Maintenance (n= 12)					
Mean	87	377	$1,869,042	$104	$7,409
(SD)	(42)	(182)	($750,828)	($36)	($4,747)
(SE)	(12)	(52)	($216,745)	($10)	($1,794)
Median	87	350	$1,974,738	$101	$6,689
Non-Methadone Outpatient (n= 21)					
Mean	18	185	$974,762	$140	$2,325
(SD)	(9)	(174)	($811,629)	($106)	($2,183)
(SE)	(2)	(38)	($177,112)	($23)	($476)
Median	16	165	$781,633	$90	$1,488
Intensive Outpatient (n= 9)					
Mean	12	31	$355,532	$370	$4,271
(SD)	(8)	(39)	($353,060)	($246)	($5,057)
(SE)	(3)	(13)	($117,687)	($82)	($1,788)
Median	12	17	$193,459	$283	$1,875
Adolescent Outpatient (n= 20)					
Mean	12	10	$74,426	$218	$2,954
(SD)	(6)	(9)	($92,669)	($99)	($2,678)
(SE)	(1)	(2)	($20,721)	($22)	($599)
Median	13	8	$33,405	$181	$2,104
Screening and Brief Intervention[4] (n= 3)					
Mean	N/A	N/A	$80,856	N/A	$407
(SD)	N/A	N/A	($47,345)	N/A	($195)
(SE)	N/A	N/A	($27,335)	N/A	($113)
Median	N/A	N/A	$104,300	N/A	$303
Drug Court (n= 9)					
Mean	46	205	$614,316	$93	$3,942
(SD)	(20)	(184)	($155,626)	($49)	($2,490)
(SE)	(7)	(61)	($51,875)	($16)	($830)
Median	45	84	$617,503	$99	$2,688
Adult Residential (n= 22)					
Mean	13	34	$1,286,840	$789	$10,228
(SD)	(13)	(20)	($772,887)	($362)	($11,354)
(SE)	(3)	(4)	($164,780)	($77)	($2,478)
Median	11	30	$1,061,395	$774	$7,405
Adolescent Residential (n= 1)					
1	8	22	$1,487,883	$1,295	$10,640
Therapeutic Community (n= 5)					
Mean	33	152	$3,790,828	$668	$21,404
(SD)	(22)	(265)	($5,488,606)	($221)	($14,125)
(SE)	(10)	(119)	($2,454,579)	($99)	($6,317)
Median	32	53	$1,568,042	$642	$21,251
In-Prison Therapeutic Community[5] (n= 8)					
Mean	28	265	$1,232,842	$63	$1,747
(SD)	(11)	(288)	($1,806,580)	($13)	($1,078)
(SE)	(4)	(102)	($638,723)	($5)	($407)
Median	27	119	$365,134	$61	$1,536

Notes: DATCAP refers to the Drug Abuse Treatment Cost Analysis Program. All costs are inflated to 2006 dollars.

N/A = not available. Some numbers may not add, divide, or multiply exactly due to rounding.

[1] Table includes data from Fleming, Mundt, French, Manwell, Stauffacher, & Lawton Barry (2000); French, Zavala, McCollister, Waldron, Turner, & Ozechowski (in press); Knealing, Roebuck, Wong, and Silverman (in press); Kunz, French, and Bazargan-Hejazi (2004); Mundt, French, Roebuck, Baier Manwell, and Lawton Barry (2005); Roebuck et al. (2003); Zavala et al. (2005) and numerous unpublished DATCAP studies.

[2] Weekly Economic Cost per Client = Total Annual Economic Cost ÷ Average Daily Census ÷ 52.14 weeks

[3] Economic Cost per Treatment Episode = Weekly Economic Cost per Client × Average Length of Stay (weeks)

[4] We conducted extensive searches of the relevant literature on screening and brief intervention and the results of only these three studies provided the information necessary to be included in the table and subsequent analyses. Furthermore, as the DATCAP was not originally designed to evaluate costs of screening and brief interventions, Fleming et al. (2000) do not directly use the DATCAP, but a similar method to estimate the cost of their intervention.

[5] Reported costs for in-prison therapeutic communities are incremental (i.e., in addition to standard incarceration).

Table 2

Proposed Weekly and Episode Cost Bands

Modality	Weekly Cost	Episode Cost
Methadone maintenance	$87 – $112	$4,277 – $13,395
Non-methadone outpatient	$74 – $221	$1,132 – $2,099
Intensive (i.e., day treatment) outpatient	$243 – $598	$1,384 – $5,780
Adolescent outpatient	$139 – $281	$1,517 – $3,237
Drug court	$34 – $146	$2,486 – $4,888
Adult residential	$607 – $918	$2,907 – $11,260
Therapeutic community	$569 – $708	$14,818 – $32,361
In-prison therapeutic community	$55 – $71	$1,249 – $2,112

Notes: The cost bands correspond to the interquartile range for each modality (25th to 75th percentile). Estimates are not reported for "screening and brief intervention" and "adolescent residential" due to very small sample sizes for these modalities.