

**Service Delivery and Use of Evidence-Based Treatment Practices in  
Adolescent Substance Abuse Treatment Settings:**

**PROJECT REPORT  
June 2008**

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## **Executive Summary**

Adolescent substance abuse is a significant public health problem in the United States. However, there are few studies that have described the treatment services available for adolescents with substance use disorders. The Adolescent Treatment Program Study (ATPS), supported by the Robert Wood Johnson Foundation's Substance Abuse Policy Research Program, drew upon existing samples of publicly funded and privately funded addiction treatment organizations to explore the availability and content of adolescent-only substance abuse treatment services. Brief telephone screening and 154 in-depth telephone interviews were used to measure the availability of adolescent-only treatment and to document the services delivered within these programs.

The ATPS yielded several key findings:

- Adolescents with substance use disorders may face sizeable barriers in accessing treatment. Nearly 40% of the treatment organizations screened for eligibility did not admit adolescent clients. Another 22% of organizations admitted adolescents but did not offer a separate adolescent program; adolescents admitted to these organizations were treated within the same programs that served adults.
- The predominant type of adolescent-only treatment available was standard outpatient, although about 30% of organizations offered some type of 24-hour care (e.g. residential or inpatient treatment).
- An overall measure of treatment quality revealed that the average adolescent-only program had adopted about half of the specific quality indicators, suggesting a medium level of quality. Notably, this finding from random samples of programs was similar to a recent study of "highly regarded" programs which also reported a medium level of average quality (Brannigan et al., 2004).
- Services related to co-occurring health risks, such as services for smoking cessation, psychiatric conditions, and HIV/AIDS, tended to be adopted by about half to two-thirds of the programs.
- Differences between publicly and privately funded programs tended to be modest.
- The presence of more intensive 24-hour levels of care (i.e. residential or inpatient) was a strong proxy indicator of treatment quality and availability of services for co-occurring conditions. That is to say, quality was higher and more services tended to be available if programs had an inpatient or residential level of care.

## **Section 1**

### **Introduction to the Adolescent Treatment Program Study (ATPS)**

Research has repeatedly demonstrated that the use and abuse of substances by adolescents, including alcohol, illicit drugs, and tobacco, is a major health problem in the United States (Johnston et al., 2002; Physician Leadership on National Drug Policy, 2002). Substance abuse increases the probability that adolescents will experience a variety of negative consequences, including risks to physical and mental health (Delaney, Broome, Flynn, & Fletcher, 2001; Dennis, Dawud-Noursi, Muck, & McDermeit, 2003; Diamond et al., 2002). However, interventions during adolescence may have significant impacts in changing behaviors before they become enmeshed in the role repertoires that characterize adulthood. For these reasons, treating adolescents with substance use disorders is a high public health priority.

Despite the significance of the problem of adolescent substance abuse, little is known about what constitutes “treatment as usual” in substance abuse treatment organizations that have developed programs for adolescents. The limited data on treatment services for adolescents has either relied on facility-level analyses of the federal National Survey of Substance Abuse Treatment Services (N-SSATS; Mark et al., 2006; Olmstead & Sindelar, 2004) or on non-random samples of treatment programs (Brannigan et al., 2004; Drug Strategies, 2003; Etheridge et al., 2001).

To address this issue, the study team of the Adolescent Treatment Program Study (ATPS) submitted an application to the Robert Wood Johnson Foundation’s Substance Abuse Policy Research Program to build upon its previous research on addiction treatment organizations. The primary goals of the ATPS were to draw upon existing nationally representative random samples of privately and publicly funded treatment organizations to understand the extent to which adolescent-only treatment was available and to describe the key elements of “treatment as usual” within these programs. The project aimed to:

1. Document the structure of adolescent substance abuse treatment in nationally representative samples of publicly and privately funded specialty substance abuse treatment facilities;
2. Measure the adoption of “best practices” and treatment quality in these settings; and,
3. Examine the factors associated with treatment quality and the adoption of “best practices.”

We interviewed 154 managers of adolescent-only treatment programs and collected a wealth of data about the services and practices within these programs. This report summarizes the key findings from these interviews, with a heavy emphasis on describing “treatment as usual” as it pertains to the structure of the programs and practices adopted within them. Such an emphasis on descriptive information is important because this is one of the few studies with data from adolescent-only treatment programs. Furthermore, effective policymaking requires detailed information about the “state of the field.” Otherwise, it is difficult to determine what domains within the adolescent treatment system may be improved through policymaking.

## **Section 2**

### **Identifying Adolescent-Only Treatment Programs**

A key goal of this project was to describe the characteristics of substance abuse treatment organizations that offer adolescent-only treatment programs and to describe the services delivered within adolescent-only treatment programs. This project builds on a larger study known as the National Treatment Center Study (NTCS), which is housed at the University of Georgia. As part of the NTCS, administrators of nationally representative samples of publicly funded and privately funded treatment organizations are periodically interviewed about their treatment operations.

To be included in either sample, organizations must offer a minimum level of care at least equivalent to standard outpatient for the treatment of alcohol and drug abuse. Some organizations are focused on a single level of care, such as outpatient or residential treatment, while others offer multiple programs including outpatient, inpatient, and/or residential services. Some programs offer methadone maintenance as part of their continuum of care, but organizations that only dispense methadone are not eligible to participate in the NTCS. All programs must be open to the public, which means that corrections-based programs and those operated by the Veterans Health Administration are not included in the NTCS.

Program funding is the key distinction that delineates the two samples. Privately funded programs receive less than half of their revenues from government block grants and contracts, while publicly funded programs receive more than half of their revenues from these governmental sources. Data in the NTCS were collected via face-to-face interviews with administrators between 2002 and 2004, which included 363 publicly funded treatment organizations and 403 privately funded treatment organizations.<sup>1</sup>

Treatment organizations that had participated in the previous round of NTCS interviews were contacted by telephone for the current Adolescent Treatment Program Study (ATPS); screening and data collection occurred between July 2005 and March 2007. This brief telephone screening procedure was used to answer four main questions:

1. Was the organization still in operation and delivering substance abuse treatment services?
2. Did the organization admit clients who were 18 years or younger?
3. Did the organization offer at least one adolescent-only level of care for the treatment of substance abuse?
4. Was the organization willing to participate in a telephone interview about the services delivered within their adolescent-only level(s) of care?

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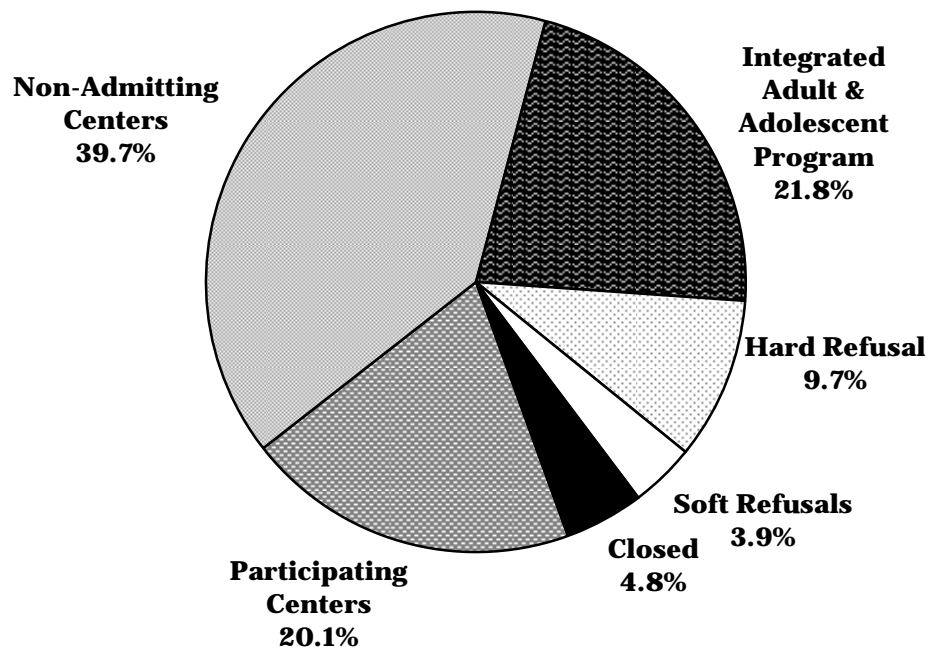
<sup>1</sup> A full description of these nationally representative samples of public and private addiction treatment organizations can be found in Knudsen, Ducharme, and Roman (2007).

Based on these eligibility screening calls, treatment organizations were divided into six categories (Figure 1):

1. Centers that offered an adolescent-only program and were willing to participate in the study (“participating centers”)
2. Centers that did not admit adolescents into their treatment programs (“non-admitting centers”)
3. Centers that admitted adolescents but did not offer a separate adolescent program (“integrated adult/adolescent treatment centers”)
4. Centers that were eligible but refused to participate in the study (“hard refusals”)
5. Centers that were unable to be contacted after repeated attempts, so eligibility could not be established (“soft refusals”)
6. Centers that were no longer offering any substance abuse treatment services (“closed centers”)

Of the 229 programs that were eligible to participate in the ATPS, 154 completed the telephone interview. This results in a 67.2% response rate.

**Figure 1:  
Eligibility and Participation of NTCS Centers**



This categorization of organizations participating in the NTCS revealed several interesting issues. First, nearly 40% of programs did not admit adolescents; this finding is similar to data reported in the federal National Survey of Substance Abuse Treatment

Services (N-SSATS) in which 48% of facilities did not admit adolescent clients (SAMHSA, 2004).<sup>2</sup> A sizeable percentage of organizations admitted adolescents but did not offer a separate program; this integration of adolescent and adult clients is contrary to the guidelines offered by the Center for Substance Abuse Treatment (CSAT, 1999b). The relatively low number of organizations offering adolescent-only treatment programs (20.1%) is similar to N-SSATS data which reported that just 15.9% of facilities offered an adolescent-only treatment program or group (Mark et al., 2006). These similarities provide evidence of the representativeness of the NTCS data.

A statistical analysis of these six categories can answer to several questions. First, it can offer some insight into the types of organizations that exclude adolescents from treatment or only treats adolescents within its existing programming for adults. Second, it can identify organizational characteristics that are risk factors for center closure (meaning that either the organization has ceased to exist or has shifted its operations away from addiction treatment into some other type of service). Finally, it can address whether there are certain types of organizations that may have been eligible for the study but did not participate (i.e. the “hard” and “soft” refusals).

Basically, this statistical analysis examines whether there are differences in organizational characteristics between those centers that participated in the current study and the five other categories (e.g. non-admitting centers, centers with integrated adolescent/adult programs, etc.).<sup>3</sup> We considered seven organizational characteristics that have been shown to be important in our previous studies of addiction treatment centers. These seven characteristics were:

- *Sample Type*: whether the center was in the sample of publicly funded centers or in the sample of privately funded centers
- *Ownership*: whether the center was owned by a government (state, county, or local), was a privately owned non-profit, or was for-profit
- *Organizational Affiliation*: whether the center was affiliated with a hospital, community mental health center, or was a freestanding organization
- *Accreditation Status*: whether the center was accredited by either JCAHO (Joint Commission on Accreditation of Healthcare Organizations) or CARF (Commission on Accreditation of Rehabilitation Facilities)
- *12-Step Treatment Philosophy*: whether the center was based on a 12-step model of recovery or some other treatment philosophy
- *Center Size*: the number of full-time equivalent employees (FTEs) employed by the center
- *Center Age*: the age of the center in years

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<sup>2</sup> This higher rate of programs in N-SSATS that exclude adolescents from admission may reflect the inclusion of programs such as the VHA or methadone maintenance programs which do not serve adolescent clients. Such programs are not included in the NTCS.

<sup>3</sup> For more information about using multinomial logistic regression to analyze categorical data, see Long (1997).

## **Centers That Exclude Adolescents from Admission**

The ATPS employed two key criteria in screening centers for inclusion in the study. First, centers were required to admit clients that were 18 years or younger. As seen in Figure 1, a sizeable percentage of treatment centers did not admit clients who were 18 years or younger. In fact if you only analyze the cases with complete screening data,<sup>4</sup> nearly half (49.0%) of the centers do not admit adolescent clients to their facilities. This finding alone indicates that a lack of access to treatment is a significant barrier faced by adolescents with substance use disorders.

We were interested in what types of centers excluded adolescents from admission, so we included this as one of the categories in our model of participation in the ATPS. (The statistical results appear in Appendix 1). Four of the organizational characteristics were significantly associated with the odds that a center excluded adolescents from admission. First, publicly funded centers were more likely to exclude adolescents than privately funded centers. Also, the odds that a center excluded adolescents from admission were significantly greater in hospital-based programs, relative to freestanding facilities. This difference was considerable; hospital-based centers were 3 times more likely to exclude adolescents than freestanding centers. However, two of the variables were “protective” factors in the sense that they reduced the likelihood that adolescents were excluded from the treatment center. The odds that adolescents were excluded from admission were significantly lower in accredited programs when compared to non-accredited programs; the odds were about 58% lower in accredited programs. In addition, larger programs were less likely to exclude adolescent clients than smaller programs. This finding likely reflects the fact that centers with more staff are probably better able to offer tailored treatment programs that address the needs of specific groups of clients.

## **Centers that Integrate Adolescents with Adult Clients**

The second eligibility requirement for the ATPS was that centers had to offer at least one adolescent-only level of care. This level of care could be equivalent to or more intensive than standard outpatient treatment. For example, eligible centers might offer adolescent-only inpatient, residential, and/or levels of outpatient treatment. This criterion excluded centers that only offered assessment services or occasionally counseled adolescent clients. It also excluded centers that admit adolescents but place them in treatment programs with adults.

Focusing on adolescent-only treatment is consistent with existing practice guidelines about the high-quality care for adolescent clients. The Center for Substance Abuse Treatment (1999) advocates the separation of adolescent and adult substance abuse service delivery, with adolescent services tailored to meet their special needs.

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<sup>4</sup> This would include participating centers, centers that do not admit adolescents, and centers that admit but do not have an adolescent-only level of care; it excludes hard refusals, soft refusals, and closed centers from the denominator.

Such separation is necessary so that the adolescents' unique treatment needs, due to their less mature stage of psychological and physical development, can be addressed (Etheridge et al., 2001; Hser et al., 2001; PLNDP, 2002). In addition, programs that integrate adolescents and adults often fail to address the specific problems in family functioning that may be tied to the adolescent's substance abuse (Coatsworth et al., 2001). Thus, from the perspective of CSAT (1999b) and experts in the addiction treatment field, the separation of adolescent clients from adult clients is key indicator of the quality of care.

This second requirement—that centers offer least one adolescent-only level of care—excluded a sizeable percentage of centers from the study. If the analysis is limited to the centers for which screening data are available,<sup>5</sup> about 26.9% of centers admitted adolescent clients but did not offer tailored services that were separate from adult clients. The integration of adolescents with adult clients suggests that these adolescent clients are receiving sub-standard care, at least based on CSAT's (1999b) recommendation for the separation of adolescent clients from adults in addiction treatment programs.

The group of centers admitting adolescents but not offering separate programming was included in the statistical model of center participation (see Appendix 1 for the statistical results). Two of the organizational characteristics differentiated these “integrated adolescent/adult programs” from centers with adolescent-only programming. First, centers based on a 12-step model of recovery were more likely than centers based on other treatment models to admit adolescent clients to an integrated adolescent/adult program. However, center size was a protective factor, in the sense that larger centers were less likely than smaller facilities to integrate adolescents with adult clients in their programming.

## **Center Closure**

The reality of longitudinal research projects, such as the larger National Treatment Center Study (NTCS) is that organizations may undergo substantial changes over time. For example, in the sample of privately funded addiction treatment centers, about 26.4% of the original panel of centers interviewed in 1995-1996 had closed by the 2002-2004 interviews (Knudsen et al., 2005). Given this substantial rate of closure of time, we examined closure among the sample of 766 centers that were contacted for the adolescent treatment program interview. About 4.1% of centers (n = 36) had closed between the 2002-2004 face-to-face interview and being contacted about participating in the Adolescent Treatment Program Study (ATPS).

Thus, we considered whether the seven organizational characteristics were associated with the odds of center closure relative to the odds of participating in the ATPS. Two of the variables were statistically significant in the multinomial logistic

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<sup>5</sup> This would include participating centers, centers that do not admit adolescents, and centers that admit but do not have an adolescent-only level of care; it excludes hard refusal, soft refusal, and closed centers from the denominator.

regression model (see Appendix 1 for these results). There was a positive association between the odds of closure (vs. participation) based on the organizational affiliation of the center. Specifically, hospital-based centers were at significantly greater risk of center closure when compared to freestanding facilities. This finding is not unexpected given our previous research in which the risk of closure was greater among hospital-based centers (Knudsen et al., 2005). The second significant variable was center size. This association was negative, meaning that increases in the number of employees within the organization reduced the odds of closure. It may be the case that these larger organizations have greater resources, and are therefore, at lower risk of closure.

We included this part of the analysis because it furthers our understanding of what types of treatment centers are at greater risk of closure. The “organizational death” of a center reduces access to treatment for all clients in the surrounding geographic area. As such, it is important to the field to better understand the risk factors of center closure.

### **Centers that Did Not Participate in the APTS: Examining the Issue of Response Bias**

The quality of every research study depends, in part, on the methodology employed and the quality of the data collected. Of particular interest is whether a sample is representative of the larger population. It is important to know whether the sample of organizations participating in the study is similar to the larger field of treatment organizations, or whether the sampled organizations are unique in certain meaningful ways. Researchers are particularly interested in whether study participants are different from those who refuse to participate. Generally, it is very difficult to know if this type of response bias is occurring in a research study because there is no available information about those who refuse to participate. Their refusal to participate generally means that nothing is known about them.

An advantage of using existing samples of addiction treatment organizations as a platform for the APTS is that it offers the opportunity to examine organizational characteristics that may be associated with refusing to participate in the study. Response bias would be indicated in two possible situations: 1) that participating centers were different from centers refusing to participate (“hard refusals”), or 2) that participating centers were different from centers that were unable to be contacted (“soft refusals”).

The statistical model suggests that **these two types of response bias were not a significant problem in the study**. None of the seven organizational characteristics were significantly related to the odds of being either a “hard refusal” or “soft refusal” center relative to the odds of being a participating center. (The statistical results appear in Appendix 1.)

### Section 3

## The Structure of Adolescent-Only Substance Abuse Treatment Programs

The Center for Substance Abuse Treatment's publication (1999b), *Treatment of Adolescents with Substance Use Disorders*, recommends viewing adolescent treatment needs as a continuum, where adolescents are matched to services of the appropriate intensity and duration. The ATPS offers information about how community-based adolescent services are organized within the publicly funded and privately funded treatment sectors in terms of level of care, program format, and availability of multiple levels of care to allow for appropriate treatment matching.

### Adolescent-Only Levels of Care

As expected, the predominant types of adolescent-only programming offered by addiction treatment centers were outpatient levels of care. About two-thirds of the sample had a standard outpatient program for adolescents, while about half offered an intensive outpatient program. Programs that provided 24-hour care for adolescents with substance use disorders were less common, with only 19% of centers offering a residential program and 15% providing adolescent-only inpatient services. Detoxification services that were adolescent-only were particularly rare.

**Table 1: Available Levels of Care**

% of Centers Offering....	All Centers	Publicly Funded Centers	Privately Funded Centers
Inpatient Detoxification	9.2%	1.4%**	15.9%
Outpatient Detoxification	4.6%	1.4%	7.3%
Inpatient Residential	15.1%	2.9%***	25.6%
Residential	19.1%	21.4%	17.1%
Partial Hospitalization	12.5%	2.9%***	20.7%
Intensive Outpatient	50.7%	45.7%	54.9%
Outpatient	69.1%	81.45%**	58.5%

*Significant public-private center differences \*\*p<.01; \*\*\*p<.001*

In addition to the pattern of greater availability of less intensive services, these data revealed several notable differences between publicly funded and privately funded treatment organizations. Adolescent-only detoxification services, inpatient treatment programs, and partial hospitalization treatment in publicly funded treatment organizations were virtually non-existent. Privately funded treatment programs were significantly more likely to have an adolescent-only inpatient detoxification program

than publicly funded programs; they were also more likely to offer inpatient substance abuse treatment and partial hospitalization. The only instance in which publicly funded programs outpaced privately funded programs was in the availability of standard outpatient treatment programs.

For most of the levels of care, treatment mostly consisted of group therapy sessions and psychoeducational sessions. In the more intensive levels of care, group sessions per week were offered two to four times more frequently than individual sessions. The number of psychoeducational sessions was also quite large in more intensive programs. Most of the levels of care offered about one family therapy session per week; the exception was standard outpatient where it appeared that family sessions were more likely to be offered about twice a month.

**Table 2: Program Format**

<i>Average...</i>	Residential	Inpatient	Partial Hospitalization	Intensive Outpatient	Outpatient
Hours per day	---	---	7.00	2.89	1.93
Days per week	---	---	5.32	3.41	1.94
Contact hours per week	---	---	37.84 (15.50)	9.97 (3.95)	3.90 (2.90)
# weekly individual therapy sessions	1.71	3.43	2.26	1.13	0.93
# weekly group therapy sessions	8.21	9.38	7.05	3.49	1.39
# weekly family therapy sessions	1.28	1.90	1.42	0.95	0.68
# weekly psycho-educational sessions	6.17	8.67	7.16	2.69	0.72

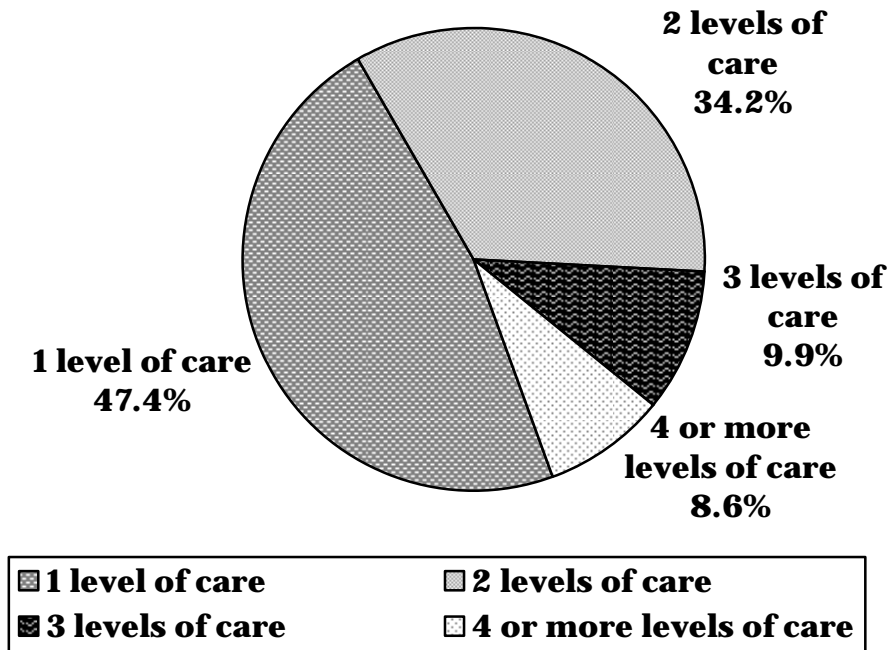
*Note: These levels of care are not mutually exclusive, meaning some programs offer multiple levels of care. All measures reflect how the level of care has been designed. Contact hours were calculated by multiplying hours per day by days per week.*

Given that the predominant levels of care were either intensive outpatient or standard outpatient, we compared publicly funded and privately funded centers on contact hours and weekly sessions for these levels of care. There was not a significant public-private difference in average contact hours for either intensive outpatient or standard outpatient. When comparing the four types of weekly sessions (group, individual, family, psychoeducational), there were no public-private differences for intensive outpatient treatment programs. However, when examining these types of sessions offered as part of standard outpatient programs, there were two significant public-private differences. Specifically, privately funded outpatient programs averaged more family therapy sessions per week (0.84) and more psychoeducational sessions per

week (4.09) than publicly funded programs (0.56 family sessions and 1.94 psychoeducational sessions).

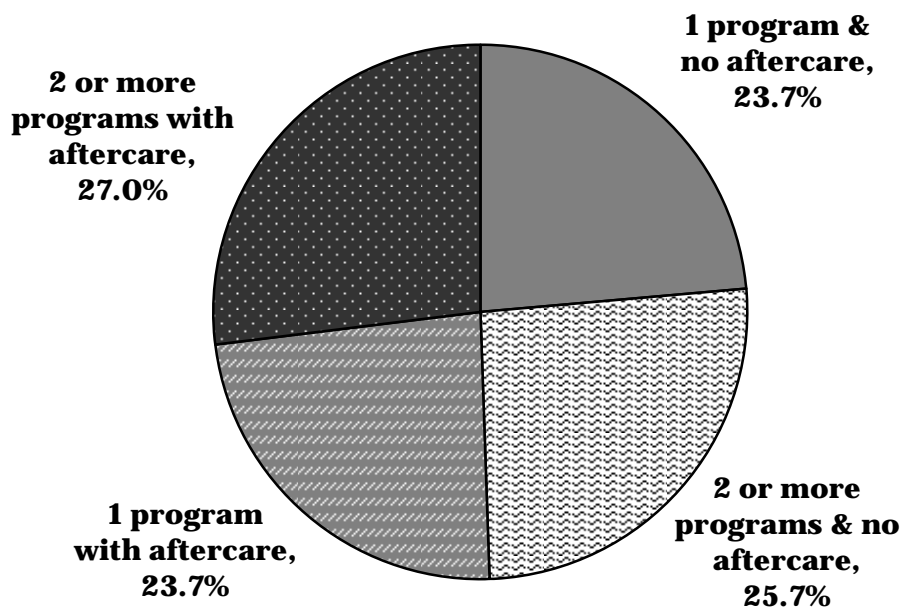
Another method for describing levels of care is to consider whether there are multiple treatment programs available. Such a continuum would allow for adolescent clients to be matched to a treatment program that was of the appropriate level of intensity given their current level of substance abuse. Furthermore, adolescents could transition from more intensive levels of care to less intensive programs as their conditions improved. To measure the presence of a continuum of care, we examined the number of distinct adolescent-only programs available at the center. The average number of programs was slightly less than two programs (mean = 1.80). About half of the centers offered only one adolescent-only treatment program, one-third offered two levels of care, and about 19% offered three or more levels of care.

**Figure 2: Number of Adolescent-Only Levels of Care**



An even broader way of thinking about a continuum of adolescent care is to consider whether the center offers multiple levels of care in combination with an aftercare program. Such aftercare programs recognize that addiction is a chronic illness that requires management over time. Only about 27% of centers offer at least two levels of care in combination with a separate aftercare program for their adolescent clients. About 24% of programs have no continuum of care, meaning that they offer a single level of care and have no separate aftercare program for adolescents.

**Figure 3: Presence of a Continuum of Care**



To summarize, the predominant form of adolescent-only substance abuse treatment was standard outpatient. Residential or inpatient services were offered by a minority of treatment organizations, suggesting that some adolescents with more severe treatment needs may have difficulty accessing these more intensive services. Almost half of these programs only offered one level of treatment. The availability of a continuum of care was variable—only about a quarter of programs had more than one treatment level of care combined with an aftercare program. This again suggests that it may be difficult to match adolescents to a level of care that is appropriate to their needs and that adolescents may lack access to continuing care after discharge to support their recovery.

### **Treatment Models**

Adolescent-only treatment programs can be best characterized as relying on a mixture of treatment philosophies and interventions. When asked about the dominant treatment model used by the program, the most common response was that the program was based on an eclectic/mixed model (42.4%). The next most common model was the cognitive behavioral model (39.7%). Only 8.6% reported that the program was solely based on the 12-step model, and 9.9% indicated using some other model. What is interesting, however, is that even though few programs explicitly identified as 12-step-based programs, there still were significant percentages of programs that required attendance at 12-step meetings as part of the treatment process (49.0%) or held adolescent-only 12-step meetings at the treatment center (24.5%).

Cognitive behavioral therapy (CBT) was nearly universally adopted by adolescent-only treatment programs. About 96.0% of programs reported that they used CBT as part of their programming. Even among the minority of programs that identified themselves as being based on the 12-step model, nearly all of those 12-step programs also used CBT.

Among these programs that reported using CBT as part of their adolescent-only treatment, a set of nine additional questions were asked about how much emphasis is placed on different elements of CBT; these questions were intended to measure the fidelity with which CBT was implemented. Program managers were asked to rate on a scale that ranged from 0 (not at all emphasized) to 5 (heavily emphasized), the extent to which the program's use of CBT emphasized each of these nine elements. As seen in the table below, CBT-adopting programs generally placed strong emphasis on these nine key elements. All of the means are above the midpoint of the scale. In fact, if these nine items are averaged (mean = 4.22), about 70.8% of adopting programs scored at least 4.0 on the 5-point scale, indicating strong fidelity to CBT.

**Table 3: Implementation of Elements of CBT**

<i>To what extent does the delivery of CBT emphasize the following:</i>	Average
The use of functional analysis to identify clients' thoughts and feelings before and after substance use?	3.82
The identification of "triggers" of substance use?	4.76
Routine discussions of encounters with "high-risk" situations for substance use and the coping skills used in those situations?	4.76
The use of role-playing in learning new skills?	3.52
The assigning of "homework" through which clients practice new skills?	3.58
The development of concrete strategies for coping with craving?	4.29
Learning drug refusal skills?	4.35
Creating an "all-purpose coping plan" of emergency contacts, safe places, and reliable distracters?	4.29
Developing problem-solving skills?	4.55

## **Section 4**

### **The Adoption of Best Practices and Program Quality**

When designing the interview about services in adolescent-only treatment programs, we conceived of “evidence-based and high-quality treatment practices” in a broad sense. Specifically, our research is guided by the work of Brannigan et al. (2004) who identified nine dimensions of effective adolescent substance abuse treatment based on a review of the literature and an expert consensus panel. These nine dimensions of effective treatment include:

1. Assessment and treatment matching
2. A comprehensive treatment approach that includes wraparound services to address adolescents’ complex needs
3. Family involvement in treatment
4. Developmentally appropriate programming
5. The tailoring of treatment to address gender and cultural differences
6. Motivational strategies to engage and retain adolescents in treatment
7. The hiring of qualified staff
8. Continuing care
9. Measurement of treatment outcomes

In the sections that follow, we describe how we measured these dimensions and present results from the ATPS about these nine dimensions and an overall measure of treatment quality.

#### **Dimension 1: Assessment and Treatment Matching**

The initial activities of treatment include assessment, treatment planning, and treatment matching. A thorough assessment is critical in developing the best treatment plan for adolescents (Winters, 1999). As expected, some form of standardized assessment of the youth’s substance use was universal (99.3%) and the vast majority (86.6%) of programs indicated that adolescents were re-assessed during treatment. Program administrators were also asked if they created individualized treatment plans for their adolescent clients, and this was essentially universally adopted (99.3%).

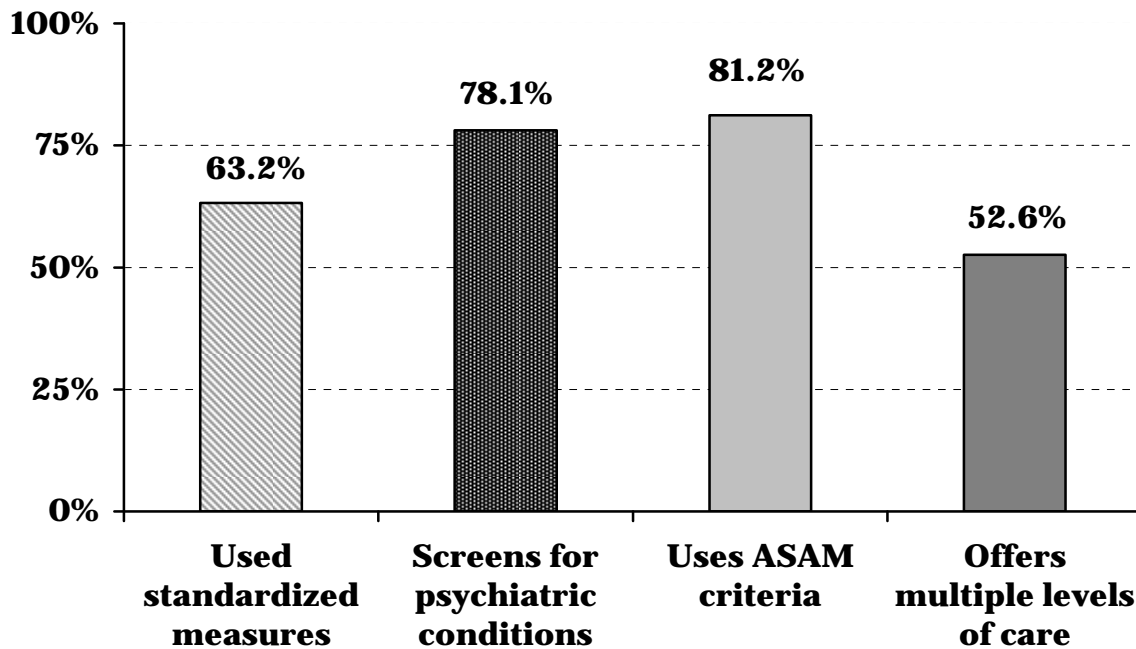
To measure the Assessment and Treatment Matching domain of effective adolescent treatment, we examined four indicators. Specifically, we measured whether adolescent-only treatment programs:

- Used standardized measures to assess the three areas of substance abuse, psychological functioning, and relationships within the family
- Routinely screened for the four conditions of depression, anxiety, attention deficit/hyperactivity disorder, and conduct disorder
- Used the American Society of Addiction Medicine (ASAM) patient placement criteria

- Offered more than one level of adolescent-only care to allow for treatment matching

Each of these indicators was endorsed by a majority of programs, as seen in the figure below. On average, programs had adopted 2.7 of the four indicators.

**Figure 4:  
Assessment & Treatment Matching**



We also asked about the use of six specific standardized assessment measures that are included in CSAT's (1999a) *Treatment Improvement Protocol* on assessing adolescents with substance use disorders. We found variability in the adoption of these specific measures. The most popular assessment tool was the Substance Abuse Subtle Screening Inventory (SASSI).

The percentage of programs using....

- Global Appraisal of Individual Needs (GAIN): 16.1%
- Substance Abuse Subtle Screening Inventory (SASSI): 42.7%
- Comprehensive Adolescent Severity Inventory (CASI): 12.8%
- Personal Experience Screening Questionnaire (PESQ): 11.4%
- Teen Addiction Severity Index (T-ASI): 12.2%
- Problem Oriented Instrument for Teenagers (POSIT): 5.4%

## **Dimension 2: A Comprehensive Treatment Approach**

Adolescents receiving treatment for substance abuse often have a variety of other needs. Adolescents with substance use disorders are at high risk of co-occurring mental health problems, such as depression, anxiety, attention deficit/hyperactivity disorder, and conduct disorders (Chan, Dennis, & Funk, 2008; Rowe, Liddle, Greenbaum, & Henderson, 2004). They are also at heightened risk of contracting HIV/AIDS as well as other sexually transmitted diseases (Deas-Nesmith, Brady, White, & Campbell, 1999; Joshi, Hser, Grella, & Houlton, 2001). Adolescents in substance abuse treatment often need educational, employment, legal, and other medical services (Etheridge et al., 2001). They may also need assistance with transportation in order to participate in treatment.

Given these complex needs, another dimension of quality is the availability of comprehensive wraparound services to help adolescents access the full range of services that they need. The broader literature on comprehensive services in addiction treatment suggests that locating services on-site within treatment programs can reduce barriers to accessing services. On-site delivery of comprehensive services is more effective than referral strategies in increasing service utilization (Friedmann, D'Aunno, Jin, & Alexander, 2000).

In the table below, the percentage of programs offering each specific service is presented. Adoption of services related to psychiatric conditions and HIV/AIDS were common. Other services, such as medical care and smoking cessation programming, were less common. On average, adolescent-only treatment programs adopted about 3.3 of these nine services.

**Table 4: Comprehensive Treatment Approach**

	<b>% of Programs</b>
Treats both substance abuse and mental health disorders	63.6%
Prescribes psychiatric medications for co-occurring disorders	42.7%
Offers HIV/AIDS-related services, including prevention, testing, and/or services	61.6%
Offers a smoking cessation program	28.7%
Provides on-site primary medical care	20.5%
Offers educational services	33.8%
Offers on-site vocational services	10.6%
Offers housing/shelter assistance	13.2%
Arranges transportation	57.6%

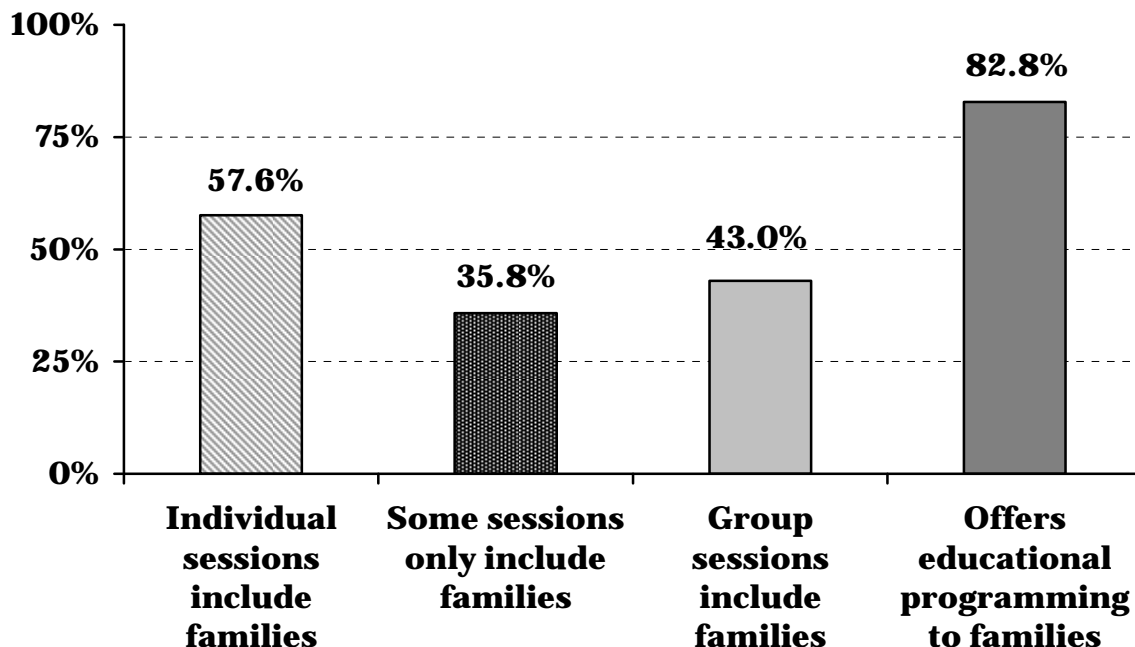
### Dimension 3: Family Involvement in Treatment

Substance abusing adolescents often have complex relationships with their families and caregivers (Battjes et al., 2004; Deas & Thomas, 2001). Specific problems in family functioning may be linked to the adolescent's use of alcohol and other drugs (Coatsworth, Santisteban, McBride, & Szapocznik, 2001). Thus, we asked program managers about the extent to which families were included as part of the treatment process. We asked whether:

- Individual counseling sessions included both the adolescent and his/her family/caregivers
- Some counseling sessions were conducted with only the family/caregivers present (i.e. the adolescent was not a part of the session)
- Group counseling sessions included families/caregivers
- Educational programming was offered to families

Educational programming was highly prevalent. Less than two-thirds of programs included families/caregivers in some of the individual sessions, and only one-third offered some counseling sessions with only family/caregivers present. On average, programs scored about 2.2 on the four-item measure of family involvement in the treatment process.

**Figure 5:  
Family Involvement**



#### **Dimension 4: Developmentally Appropriate Programming**

The developmental differences between adolescents and adults are one of the key reasons why the separation of these two groups is advocated within substance abuse treatment settings. It has been suggested that therapeutic approaches for adolescents should focus on concrete behavioral issues and should use “hands on”/interactive activities rather than relying on more abstract forms of reasoning (CSAT, 1999b). Age and maturity may be relevant factors when planning and designing treatment activities.

We asked program administrators five questions related to developmental appropriateness in treatment activities. On average, programs endorsed about 3.1 of the five indicators.

**Table 5: Developmentally Appropriate Treatment Activities**

	% of Programs
Treatment planning takes into account age/maturity	71.8%
Younger clients are separated from older adolescents during group therapy	26.4%
Strong emphasis is placed on experiential and “hands on” activities	68.2%
Strong emphasis is placed on concrete rather than abstract thinking	62.8%
Strong emphasis is placed on interactive activities for practicing new skills	78.8%

#### **Dimension 5: Tailoring Treatment to Address Gender and Cultural Differences**

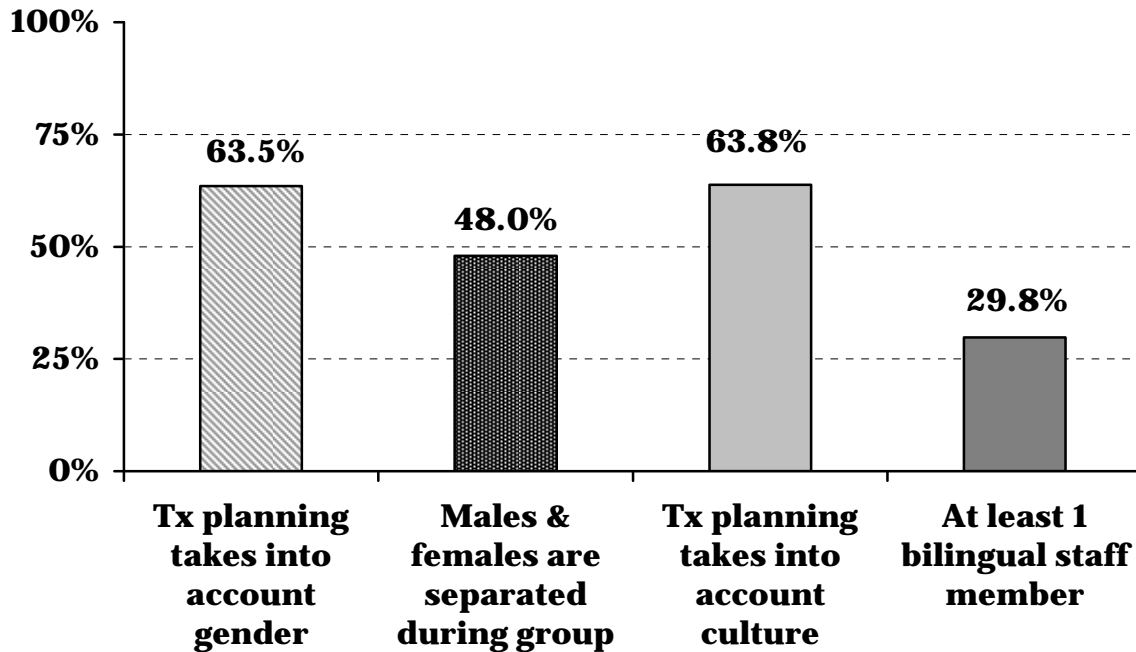
It has been argued that boys and girls may differ in their treatment needs (Rowe et al., 2004; Winters, 1999) and that cultural background may have relevance in substance use behaviors (Castro & Alarcon, 2002; Coatsworth et al., 2001). Treatment programs then may tailor their services to meet these diverse needs. At times there may be the need to separate males and females during group treatment; some programs may do this at all times, while other may reserve it for when sensitive topics are going to be covered. The presence of bilingual staff may also help programs to address the needs of adolescents for whom English is not their first language.

Data from these adolescent-only programs indicated that about one-third of their clients were females (mean = 33.6). The average program reported that about 42.6% of their adolescent clients were of a racial or ethnic minority background; on average, programs reported about 20.7% of their caseload were African Americans, 14.9% were Hispanic/Latino, and 7.1% from other racial/ethnic backgrounds. These caseload demographics suggest that indeed there are clients who may benefit from tailored services.

We examined four indicators of tailoring treatment to gender and culture: 1) a strong emphasis placed on taking into account gender during treatment planning; 2) separation of males and females during group treatment (at all times or during sensitive

topics; 3) a strong emphasis placed on taking into account cultural background during treatment planning; and 4) having at least 1 bilingual staff member. On average, programs had adopted about 2.0 of the four types of tailoring treatment to gender and culture.

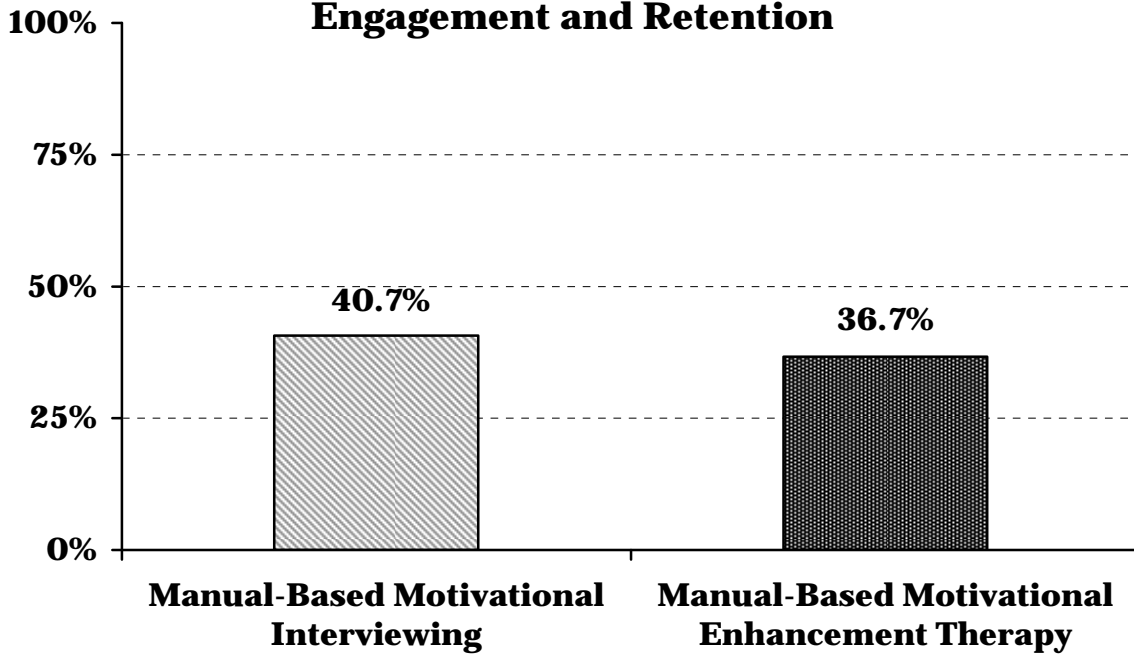
**Figure:  
Tailoring Treatment to Gender & Culture**



**Dimension 6: Motivational Strategies to Engage and Retain Adolescents in Treatment**

Engaging and retaining adolescents in treatment can be challenging because they may lack the motivation to change. Some have suggested that interventions can be used to enhance motivation which may reduce the likelihood that adolescents will drop out of treatment. We asked program managers about two motivational approaches that focus on increasing internal motivation to change: motivational interviewing during assessment and motivational enhancement therapy. These approaches rely on an empathetic therapeutic orientation that builds the adolescent’s motivation to change in stages (Dennis, 2000). There are manuals available related to these approaches (Sampl & Kadden, 2001; Webb et al., 2002). Less than half of adolescent programs reported using these manual-based approaches.

**Figure:  
Motivational Approaches for  
Engagement and Retention**



For programs that reported using either motivational interviewing (MI) or motivational enhancement therapy (MET), a series of ten follow-up questions were asked about how these approaches are implemented within the program. Program managers were asked about how much emphasis was placed on each of these elements, using a scale that ranged from 0 (no emphasis) to 5 (very great emphasis). All of the responses were above the midpoint of the scale. However, this was true even for two items that were about using confrontation, which is not a technique that is to be used in MI/MET. Averages for these ten items appear in Table 6 on the following page.

Another method that seeks to enhance motivation during treatment is the use of contingency management, which has also been called “motivational incentives.” This approach has shown promise in improving outcomes for adolescents (Higgins et al., 2002). Under this approach, adolescents receive rewards for meeting treatment goals (Petry & Simcic, 2002). About 33.3% of treatment programs reported using contingency management/motivational incentives. For those programs that had adopted this approach, the most popular behavior to reward is session attendance (80.0% of adopters). About half of adopting programs (54.0%) rewarded clean urine tests, and 44.0% rewarded adolescents for being on time for appointments.

**Table 6: Implementation of Elements of MI/MET**

<i>To what extent does the delivery of MET/MI emphasize the following:</i>	Average
Assessing clients with regard to the 5 stages of change (precontemplation, contemplation, preparation, action, maintenance)	3.85
Confronting clients about their substance-related problems*	4.13
Encouraging clients to evaluate how their behaviors are different from their goals and ideals	4.35
Allowing clients to compare the costs and benefits of continuing or stopping their substance abuse	4.28
Exploring the areas in which the client wants to achieve change	4.37
Avoiding the use of argumentation with clients	4.20
Expressing support for the client's ability to succeed	4.68
The use of "reflexive listening"	4.22
Encouraging clients to develop their own "change plan" with goals and plans for dealing with barriers to those goals	4.15
Confronting clients about resistance*	3.79

*\*These two items are not consistent with MI/MET.*

### **Dimension 7: The Hiring of Qualified Staff**

The complex needs of adolescents receiving substance abuse treatment may be better addressed if there are specialized staff members within the program. In addition to professional substance abuse counselors, the high rate of co-occurring mental health conditions and dysfunctional family functioning suggests that adolescents may benefit from professional mental health counselors and psychiatrists as well as family therapists. Case managers may help adolescents access needed services.

We asked program managers about the presence of seven different types of professional staff within the adolescent program. As seen in Table 7 on the next page, the vast majority of programs had at least one professional substance abuse counselor within the adolescent program. About half of the programs had at least one psychiatrist. Certified/licensed mental health counselors and family therapists were less common. On average, adolescent-only programs had about half of these seven different kinds of staff (mean = 3.5).

**Table 7: Prevalence of Types of Staff in Adolescent-Only Treatment Programs**

	% of Programs
At least one master's-level substance abuse counselor	82.9%
At least one licensed or certified substance abuse counselor	83.6%
At least one licensed or certified mental health counselor	24.3%
At least one licensed or certified family therapist	37.5%
At least one case manager	34.9%
At least one psychiatrist	49.3%
At least one nurse	42.0%

### **Dimension 8: Continuing Care**

Research has repeatedly demonstrated that substance abuse treatment has positive effects on outcomes for adolescents (Brown, D'Amico, McCarthy, & Tapert, 2001; Hser et al., 2001; Winters, Stinchfield, Opland, Weller, & Latimer, 2000). However, a significant percentage of adolescents will relapse following treatment (Winters, 1999). Given that substance abuse is a chronic condition, adolescents may benefit from continuing care after the end of formal treatment.

Referrals to community-based support and services were more common than formal types of continuing care. The vast majority of programs give their clients referrals to 12-step meetings and services in the community after discharge. About half offer a formal aftercare program or make follow-up contact with clients after discharge. On average, programs had adopted about half of these six elements of continuing care (mean = 3.2).

**Table 8: Elements of Continuing Care**

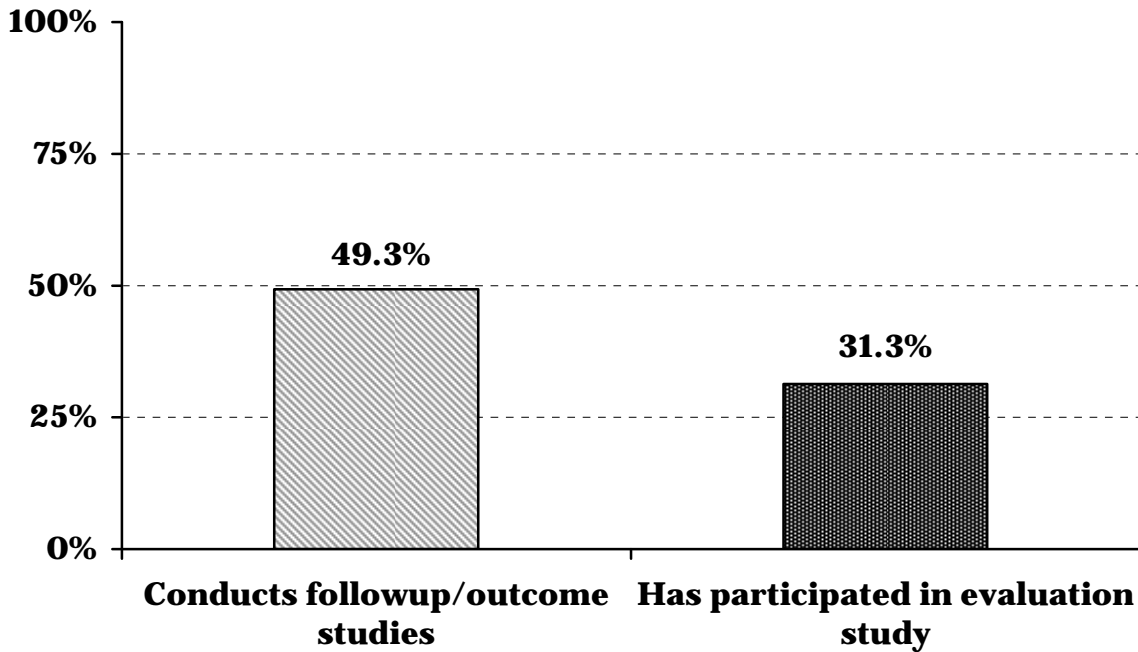
	% of Programs
Offers adolescent-only aftercare program	50.7%
Makes continuing care plans that include telephone counseling	38.4%
Makes continuing care plans that include home-based counseling	12.6%
Links clients to community-based 12-step meetings at discharge	84.7%
Refers clients to community-based services at discharge	80.5%
Engages in follow-up contact after discharge	58.8%

### **Dimension 9: Measurement of Treatment Outcomes**

The final dimension of treatment quality focused on whether treatment program engage in formal measurement of treatment outcomes. Program managers were asked about two types of outcomes measurement: 1) whether the program conducts follow-up or outcome studies (which could be done in-house or through contracting with an

external evaluator) and 2) whether the program has ever been a part of an evaluation study. Less than half of the programs conduct follow-up studies and only one-third had ever participated in an evaluation study.

**Figure 8:  
Measurement of Treatment Outcomes**



### **Overall Quality of Adolescent-Only Treatment**

Finally, an overall measure of treatment quality was calculated by summing the 43 components that had been used to measure the 9 dimensions. This approach is similar to how Brannigan et al. (2004) constructed an aggregate measure of quality. While this overall measure of quality had a possible range of 0 to 43, none of the programs approached the minimum or maximum of this scale. The actual range of the overall measure of quality was between 12 and 43 components. The greatest number of actual components reported by a program was 34, representing about 79% of the possible components. The average center scored 21.6 on this scale. With the average score being situated at about the midpoint of the scale, it suggests a medium level of overall quality.

What is interesting is how this average compares to the average level of quality reported by Brannigan et al. (2004), particularly given that their research involved a set of “highly regarded” programs rather than a random sample of programs. Data in the current study, using random samples of programs, revealed an average of 21.6 out of 43 components, or 50.2% of the possible components. The average quality rating for Brannigan et al.’s “highly regarded” programs was 23.8 out of a maximum of 45 components, or 52.9% of the possible components. While there were slight differences

in measurement between the two studies, the findings about treatment quality are quite similar.

## **Organizational Characteristics and Overall Treatment Quality**

Finally, we examined whether there were organizational characteristics that were related to overall treatment quality. We began by considering seven organizational characteristics:

- *Sample Type*: whether the center was in our sample of publicly funded centers or privately funded centers
- *Ownership*: whether the center was owned by a government (state, county, or local), was a privately owned non-profit, or was a for-profit
- *Organizational Affiliation*: whether the center was affiliated with a hospital, or a community mental health center, or was a freestanding organization
- *Accreditation Status*: whether the center was accredited by either JCAHO (Joint Commission on Accreditation of Healthcare Organizations) or CARF (Commission on Accreditation of Rehabilitation Facilities)
- *12-Step Treatment Philosophy*: whether the center was based on a 12-step model of recovery or some other treatment philosophy
- *Center Size*: the number of full-time equivalent employees (FTEs) employed by the center
- *Center Age*: the age of the center in years

We found that three of these organizational characteristics were significantly associated with treatment quality at the bivariate level. First, publicly funded treatment programs scored significantly lower than privately funded programs on this overall measure of quality. At the bivariate level, accredited programs reported significantly greater overall quality than non-accredited programs. Organizational size was positively associated with overall quality, meaning that larger centers scored higher on the measure of quality.

Next, we tested a model of overall treatment quality that included the three significant organizational characteristics and the availability of the five levels of care (i.e. residential, inpatient, partial hospitalization, intensive outpatient and standard outpatient). The statistical results can be found in Appendix 2. Once the levels of care were included into this model of overall treatment quality, the three organizational characteristics were no longer statistically significant. The association for organizational size trended towards, but did not achieve, statistical significance.

However, there were significant associations between levels of care and the overall measure of treatment quality. Essentially the results revealed that the availability of more intensive forms of treatment was associated with higher average scores on the quality measure. For example, programs offering residential treatment had greater overall treatment quality compared to programs without residential services. This level

of care was the one that was most strongly related to treatment quality. Similarly, treatment quality was greater in programs with inpatient services relative to those without inpatient care. The presence of more intensive kinds of outpatient treatment, such as partial hospitalization or intensive outpatient care, was also positively associated with overall treatment quality. The only level of care not associated with program quality was standard outpatient.

## **Section 5**

### **Reducing Health Risks through Services for Co-Occurring Conditions**

In addition to their substance abuse problems, adolescents receiving substance abuse treatment often face additional health risks from conditions that frequently co-occur with abuse of alcohol and other drugs. Three areas of health risks are particularly prevalent within this population. First, it is estimated that 70-80% of individuals receiving addiction treatment also smoke cigarettes and other tobacco products (Richter et al., 2002), which heightens their long-term risk of premature morbidity and mortality from tobacco-related diseases (Hurt et al., 2002). Second, co-occurring psychiatric conditions are highly prevalent among adolescents with substance use disorders (Chan et al., 2008; Rowe et al., 2004). Left untreated, co-occurring conditions reduce the likelihood of long-term recovery from substance abuse and reduce quality of life. Finally, adolescents with substance use disorders are at heightened risk of contracting HIV through risky sexual and drug use behaviors (Deas-Nesmith et al., 1999; Joshi et al., 2001).

Substance abuse treatment may offer the opportunity to deliver interventions that address these three areas of health risks. However, there are few data on the extent to which these domains of health risks are addressed within adolescent-only substance abuse treatment programs. Detailed information was collected as part of the ATPS to measure whether programs offered services related to these three health-related issues as part of their usual care. Findings from the ATPS related health services for smoking cessation, co-occurring psychiatric conditions, and HIV/AIDS are presented in this section.

#### **Smoking Cessation Services**

Cigarette smoking among treatment-seeking adolescents is highly prevalent (Myers & Brown, 1994). In treatment settings that do not include smoking cessation techniques in their programming, adolescents are likely to continue their nicotine addiction after discharge (Myers and Brown, 1997), increasing the likelihood that they will suffer from tobacco-related illnesses and premature death. In addition, continued smoking may be a risk factor for substance abuse relapse (Lemon et al., 2003). Although there has been little well-designed experimental research on adolescent smoking cessation (Myers, 1999), clinical practice guidelines issued by the Public Health Service advocate the delivery of smoking cessation services in substance abuse treatment settings and providing these services to adolescents that are nicotine dependent (Fiore et al., 2000). Services may include formal counseling programs that address smoking, pharmacotherapies (e.g. nicotine replacement therapies or bupropion-SR), or a combination of counseling and medications.

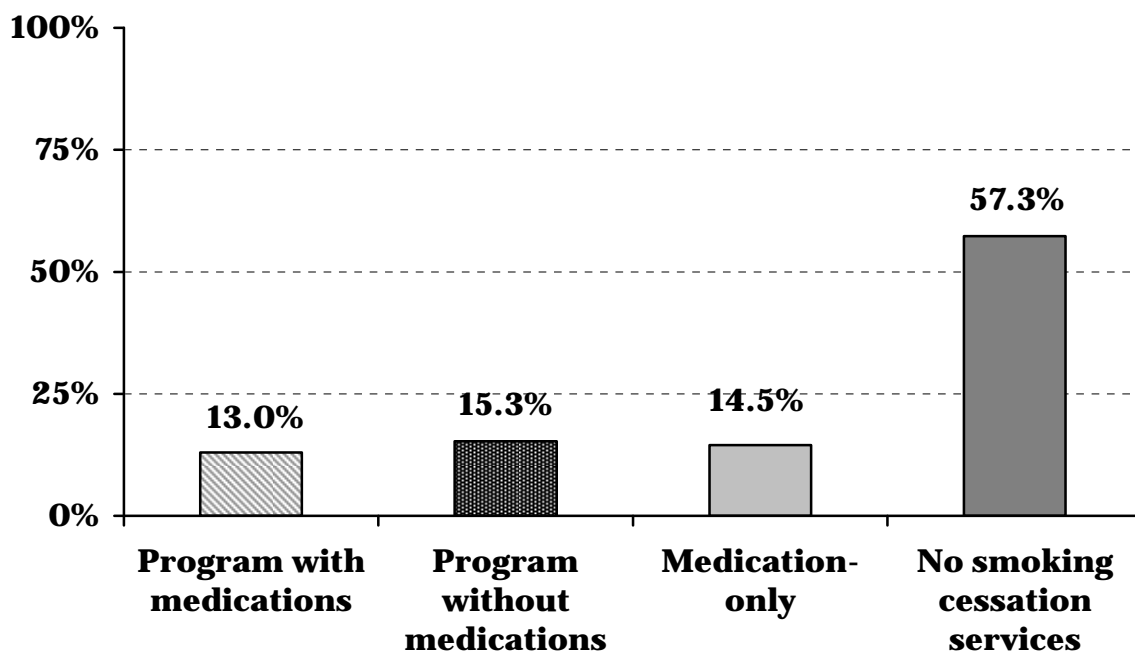
Consistent with the literature on the high prevalence of tobacco use among adolescents receiving addiction treatment, adolescent programs reported that on average 71.7% of their adolescent clients were tobacco users. This high prevalence of

tobacco use suggests that there is a significant need for smoking cessation-related services for this population.

Adolescent treatment programs were highly likely to include measures of tobacco use during the intake process. Nearly all programs (97.7%) indicated that they asked all adolescent clients about whether they used tobacco as part of their intake procedures. During intake, most programs assessed whether adolescents were willing to quit (82.4%) and advised adolescents of the need to quit using tobacco (71.0%). A majority of programs use motivational techniques to increase willingness to quit (61.8%). Each of these practices is recommended in the Public Health Service's (2000) clinical practice guideline, so the high rates of adoption were promising. However, it is important to note that less than half of programs (45.8%) had adopted all four of these specific practices.

In contrast, the delivery of formal smoking cessation services was less prevalent. About 42.7% of programs reported that they offered some type of smoking cessation services, such as a counseling-based program with medications, a program without medications, or only offering medications (e.g. NRT or Zyban® without a formal program). The prevalence of the three types of services was fairly low.

**Figure 9:  
Formal Smoking Cessation Services**



## Organizational Characteristics and Availability of Smoking Cessation Services

We examined a variety of organizational characteristics to see if they were related to the three types of formal smoking cessation services (i.e. program with medications, program without medications, only medications, or no services). These organizational characteristics included:

- *Sample Type*: whether the center was in the sample of publicly funded centers or privately funded centers
- *Ownership*: whether the center was owned by a government (state, county, or local), was a privately owned non-profit, or for-profit
- *Hospital-based*: whether the program was located within a hospital
- *Program size*: whether the adolescent program employee fewer than 10 employees or 10+ employees
- *Presence of at least one physician on-staff*
- *Number of “best practices” in assessment and treatment matching adopted*: measures from Dimension 1 of treatment quality
- *Adoption of all four tobacco-related assessment practices*: whether program asks about use, advises quitting, assesses willingness to quit, and uses motivational techniques to increase willingness to quit
- *Availability of adolescent-only residential treatment*
- *Availability of adolescent-only inpatient treatment*
- *Psychiatric medications*: whether the center prescribes psychiatric medications to adolescent clients
- *% of adolescent clients who use tobacco*

Each of these measures was examined in a bivariate multinomial regression models; the full statistical results appear in Appendix 3. Essentially, each analysis considered whether the variable increased or decreased the odds of program offering one of the three types of smoking cessation programming, relative to the odds of not offering any smoking cessation services.

Although ownership was not significant, publicly funded centers were significantly less likely than privately funded programs to offer a pharmacotherapy-only approach to smoking cessation (relative risk ratio = .103,  $p < .01$ ). The only difference between hospital and non-hospital programs was for the adoption of pharmacotherapy-only, with hospital settings being 4.7 times more likely than non-hospital programs to only offer pharmacotherapy (RRR = 4.69,  $p < .01$ ).

Both the presence of physicians and program size were associated at the bivariate-level with smoking cessation services. Having at least one physician on staff increased the odds of having a smoking cessation program with medications (RRR = 5.04,  $p < .01$ ) and increased the odds of having a pharmacotherapy-only approach to smoking cessation (RRR = 7.70,  $p < .001$ ). Smaller programs were significantly less likely to offer these two types of smoking cessation services. Being a small program reduced

the odds of offering a formal program with pharmacotherapy (RRR = .12,  $p < .01$ ) and reduced the odds of offering only pharmacotherapy (RRR = .10,  $p < .01$ ).

The availability of inpatient treatment and residential treatment were strongly associated with smoking cessation services. Programs offering inpatient adolescent-only treatment were more likely than those without inpatient programs to offer the two types of cessation services that included pharmacotherapy. The odds of offering a formal program with pharmacotherapy were more than 12 times greater (RRR = 12.44,  $p < .001$ ) and the odds of offering only medications were 6 times greater (RRR = 6.46,  $p < .01$ ) if the center had an adolescent-only inpatient level of care. Similar positive associations were found residential adolescent-only level of care. The odds of offering a formal program with pharmacotherapy were more than 5 times greater (RRR = 5.13,  $p < .01$ ), and the odds of offering pharmacotherapy-only were more than 6 times greater (RRR = 6.60,  $p < .01$ ) if the center offered a residential level of care.

Finally, there were strong positive associations between the availability of psychiatric medications and the two types of smoking cessation services that include pharmacotherapy. The odds of offering a formal program with medications were more than 7 times greater (RRR = 7.35,  $p < .01$ ) and the odds of offering a pharmacotherapy-only approach to smoking cessation were more than 12 times greater if the program also prescribed psychiatric medications (RRR = 12.06,  $p < .001$ ).

### **Services for Co-Occurring Psychiatric Conditions**

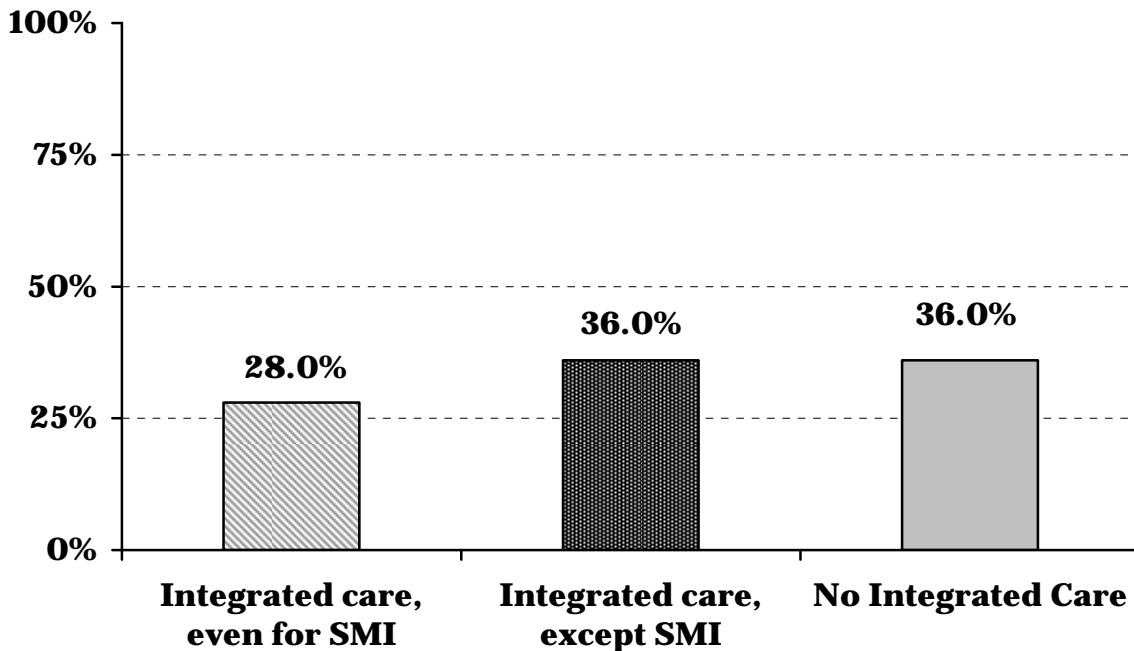
The co-occurrence of substance abuse and mental disorders, sometimes referred to as dual diagnoses, has been well documented (Kessler et al., 1997). Data from DATOS-A indicated that 63% of the adolescents in substance abuse treatment had a co-occurring mental disorder (Hser et al., 2001). Left untreated, substance abuse treatment clients with co-occurring psychiatric disorders are likely to have worse treatment outcomes (Agosti et al., 2002). Adolescents with co-occurring psychiatric conditions tend to have more severe substance use disorders, and thus, have unique service needs (Rowe et al., 2004; Crowley & Riggs, 1995). Services for co-occurring psychiatric conditions may include assessment, integrated care that addresses both substance abuse and psychiatric needs, and pharmacotherapy.

A precondition of delivering services for co-occurring psychiatric conditions is that assessment must occur in order to identify mental health needs. Program administrators were asked about the types of screening for co-occurring psychiatric conditions that occurred within their programs. The vast majority of programs indicated that they routinely screening adolescents for depression (93.4%), anxiety disorders (90.1%), attention deficit/hyperactivity disorder (81.5%), and conduct disorders (86.1%).

Programs varied in terms of their capacity to treat both substance abuse and mental health conditions. Integrated care is a term used to describe the treatment of both conditions within the same program. Some programs can address all types of

psychiatric conditions, even including serious mental illness (SMI); about 28% of adolescent programs offered this type of integrated care. Other programs (36%) can address less serious conditions (e.g. depression, anxiety) but refer clients with SMI to external service providers. Finally, about a third of programs do not offer integrated care for co-occurring substance abuse and mental health conditions.

**Figure 10:  
Availability of Integrated Care**



We compared the privately funded and publicly funded samples in their delivery of integrated care for co-occurring conditions. A multinomial logistic regression model, with “no integrated care” as the reference category, revealed that publicly funded adolescent programs were about 58% less likely to offer full integrated care that included serious mental illness (odds ratio = .42). In addition, publicly funded programs were less likely to offer integrated care for non-SMI (odds ratio = .41) than privately funded adolescent programs.

### **Organizational Characteristics and Integrated Care**

Next, we examined whether six organizational characteristics were related to whether programs offered either of the two types of integrated care. These six organizational characteristics were:

- *Sample Type*: whether the center was in the sample of publicly funded centers or privately funded centers

- *Ownership*: whether the center was owned by a government (state, county, or local), was a privately owned non-profit, or for-profit
- *Presence of any psychiatrists on-staff*
- *Presence of any nurses on-staff*
- *Size*, based on the number of counselors
- *Total number of levels of adolescent-only care*

The full statistical results appear in Appendix 4. Staffing, size, and the number of adolescent-only levels of care were related to the availability of integrated care. The presence of staff psychiatrists increased the odds of integrated care including SMI by 4.1 times (RRR = 4.15,  $p < .05$ ) and increased odds of integrated care excluding SMI by 2.9 times (RRR = 2.88,  $p < .05$ ). The presence of nurses also increased the odds of both types of integrated care. Additionally, the odds of both types of integrated care were greater when there were a greater number of adolescent-only levels of care available; that is to say, as programs offered more adolescent-only programs, the odds of having an integrated care program also increased. Programs with more counselors, another indicator of size, were more likely to offer an integrated care program except for SMI.

### **Adoption of Medications to Treat Co-Occurring Psychiatric Conditions**

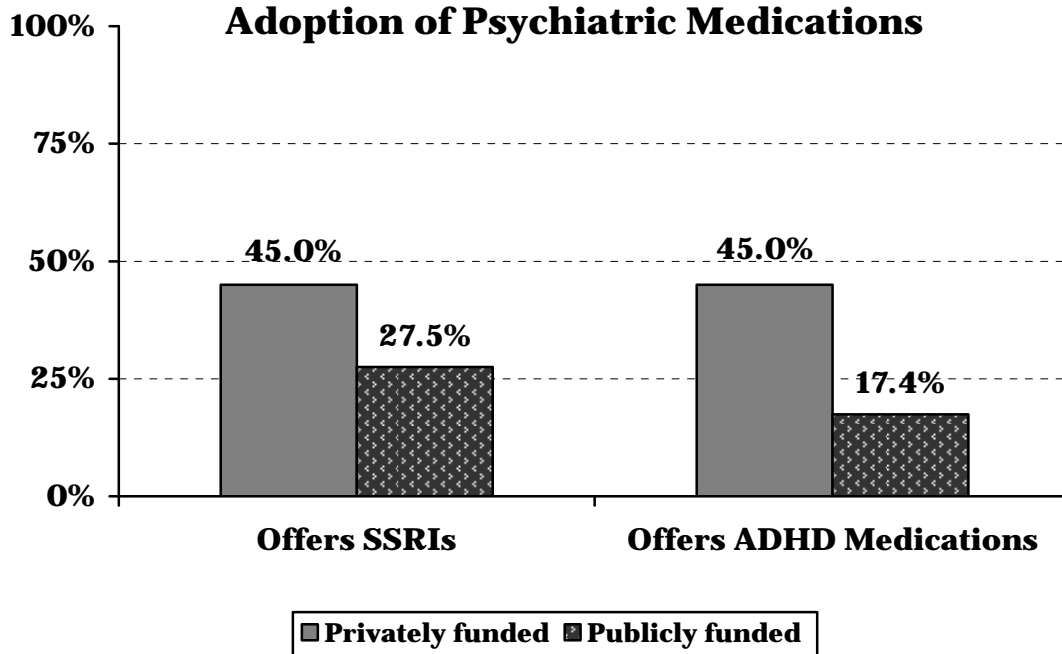
Given the development of new prescription medications to deal with mood disorders, such as depression and anxiety, which are prevalent among substance abusing adolescents, the use of these psychiatric medications may be characterized as a treatment innovation. Some data suggests that there has been an overall increase use of antidepressants, at least among adolescents with alcohol use disorders (Clark et al., 2003). Although there has been an escalation in the prescription of medications to treat adolescents with psychiatric conditions in the general population, it is important to note that many of these prescriptions represent “off-label” use (National Center for Health Statistics, 2004). The evidence base for the efficacy of medications to treat co-occurring psychiatric conditions in the adolescent population is less clear than in the adult population. In particular, there are recent concerns about potential linkages between selective serotonin reuptake inhibitors (SSRIs) and suicide in adolescents. Cornelius et al. (2001) studied the SSRI, fluoxetine, in a small sample of adolescents with alcohol use disorders and found that it reduced depressive symptoms without increasing suicidal ideation. Prior to the ATPS, there has been little data on the adoption of antidepressant medications such as SSRIs by adolescent treatment programs.

In addition to depression and anxiety, attention-deficit and hyperactivity disorder (AD/HD) is prevalent among substance-abusing adolescents (Crowley & Riggs, 1995). In the general population, stimulant medications are increasingly prescribed to treat AD/HD (NCHS, 2004), but there is a potential for abuse that makes such medications more controversial for adolescents in substance abuse treatment. As was the case with SSRIs, there has been little information about the extent to which these medications have been adopted by adolescent treatment programs.

Data from the ATPS initially suggested that the adoption of psychiatric

medications to treat adolescents with co-occurring psychiatric conditions was somewhat prevalent. About 36.9% of programs reported that they prescribed selective serotonin reuptake inhibitors (SSRIs, e.g. Prozac®) and 32.2% prescribing stimulant medications for ADHD (e.g. Adderall®, Concerta®). However, there were sharp differences in adoption of these medications between privately funded and publicly funded adolescent programs. About 45.0% of privately funded programs prescribed SSRIs, while only 27.5% of publicly funded programs had adopted these medications. The difference was even greater for ADHD medications—only 17.4% of publicly funded programs have adopted these medications, compared to 45.0% of privately funded programs.

**Figure 11:  
Comparing Private and Public Programs on  
Adoption of Psychiatric Medications**



### HIV-Related Services

In addition to substance abuse treatment services, adolescent treatment programs represent an important site for delivering services related to HIV/AIDS. Adolescents in general have been identified as being at high-risk of HIV infection due to unsafe sexual behaviors (CDC, 2000), and therefore in need of prevention and intervention health services (Brown et al., 1991). Substance-abusing adolescents are at even greater risk of HIV transmission due to the increased likelihood of unsafe sexual activity as well as the risks posed by intravenous drug use (Hou & Basen-Engquist, 1997). Data from a sample of substance abusing adolescents mandated into treatment revealed low levels of condom skills (Malow et al., 2001), placing them at greater risk of HIV/AIDS infection. Others have reported that while adolescents in treatment are aware and knowledgeable about HIV/AIDS, these adolescents continue to engage in

high risk sexual behavior (Deas-Nesmith et al., 1999). This finding highlights the argument made by Joshi et al. (2001) that information about HIV/AIDS is not enough to reduce risky behavioral practices. Intervention strategies, particularly cognitive-behavioral skills training interventions, have been developed to reduce the risks posed by HIV/AIDS to adolescents, and this approach appears to hold promise for reducing risky behaviors (Jemmott et al., 1992; Rotheram-Borus, 2000; St. Lawrence et al., 1995).

The ATPS asked a series of questions about the delivery of HIV/AIDS-related health services. First, administrators were asked if the adolescent program delivered any HIV/AIDS-related services; “services” were broadly defined to include risk assessment, prevention/education, and HIV testing. About 61.6% of adolescent programs reported offering some type of HIV/AIDS-related services; there was no significant difference between publicly and privately funded programs.

Slightly more than half of all programs (55.7%) reported that they conduct a specific assessment related to HIV risk behaviors for their adolescent clients. Among 83 programs that conduct risk assessments, key areas of HIV risk were generally assessed, such as number of sexual partners (88.0% of programs conducting assessments), frequency of unprotected sexual intercourse (90.4%), frequency of intravenous drug use (83.1%), and severity of substance dependence (77.1%).

The percentage of programs offering HIV/AIDS education/prevention was also about half (57.1%). The average amount of HIV education/prevention was about four hours (mean = 4.06). In those programs that offered HIV education, program managers were then asked about how much emphasis was placed on different topics, including information about HIV transmission and building risk reduction skills. Responses ranged from 0 (no emphasis) to 5 (very great emphasis). Information about how HIV is transmitted was nearly universal within education/prevention programs, but less emphasis was placed on specific skills, such as communication skills and condom use skills.

**Table 9: Topics emphasized during HIV education/prevention**

<i>To what extent does HIV education/prevention emphasize the following:</i>	Average
How HIV is transmitted	4.95
Safer sex skills	4.52
Practicing communication to stop unsafe sex	3.56
Practicing communication about safer sex practices	3.30
Condom skill rehearsal	2.97

Onsite HIV testing services may offer advantages over referral to external providers. For example, on-site testing may be more convenient for clients rather than having to arrange for transportation to another facility. Compared to the high adoption of HIV behavioral risk assessment and education/prevention, the availability of on-site

HIV testing was modest. Of programs offering any HIV-related health services, about 36.6% (n = 34) had adopted on-site HIV testing, while 45.2% (n = 42) indicated that they referred adolescents to external providers for HIV testing. About 18.3% (n = 17) of programs with HIV-related health services indicated that they neither conducted on-site testing nor referred adolescents to external providers for HIV testing.

## **Organizational Characteristics & HIV Services**

In addition to understanding what types of HIV-related services were offered by these adolescent programs, we were also interested in understanding if certain organizational characteristics were associated with the adoption of these HIV-related services. Four measures of HIV-related services were analyzed:

1. Whether program conducts HIV behavioral risk assessments as part of intake
2. Whether the program conducts HIV education/prevention
3. The type of HIV testing available (onsite HIV testing, referral to external provider for testing, or no testing)
4. Adoption of the HIV service bundle, which described centers that have adopted HIV behavioral risks assessments, HIV education/prevention, and onsite HIV testing

We looked at whether five organizational characteristics were associated with these four measures of HIV-related services:

- *Sample Type*: whether the center was in the sample of publicly funded centers or privately funded centers
- *Ownership*: whether the center was owned by a government (state, county, or local), was a privately owned non-profit, or for-profit
- *Program size*: whether the adolescent program employee fewer than 10 employees or employed at least 10 people
- *24-hour treatment*: whether the adolescent program offers round-the-clock care (e.g. residential and/or inpatient) or only offers outpatient services
- *Onsite medical care*: whether the program offers onsite primary medical care or not

The statistical results appear in Appendix 5. Two organizational characteristics were consistently associated with all four measures of HIV-related services. First, programs that offered some type of 24-hour care, such as residential or inpatient treatment, were more likely to have adopted each of the four types of HIV-related services. That is to say, programs with residential/inpatient services were more likely to conduct HIV behavioral risk assessments, conduct HIV prevention/education, offer onsite HIV testing or refer clients to testing, and more likely to have adopted all three of these services. Compared to outpatient-only programs, programs offering 24-hour care

were nearly 3 times more likely to conduct HIV risk assessments, 2.4 times more likely to offer HIV education/prevention, and 5.2 times more likely to have adopted on-site HIV testing. Programs offering residential/inpatient treatment were about 2.8 times more likely to have adopted the comprehensive “bundle” of HIV services (consisting of risk assessment, education/prevention, and on-site testing).

The other consistent characteristic associated with HIV-related services was the availability of on-site primary medical care. Programs with on-site medical care were nearly 5 times more likely to conduct HIV risk assessments, 2.8 times more likely to conduct HIV education/prevention, and 7.5 times more likely to have adopted on-site HIV testing. These programs with medical care were 3 times more likely than those without medical care to have adopted the comprehensive “bundle” of HIV services.

While these two characteristics were strongly associated with HIV-related services, it is important to note that neither is highly prevalent among adolescent-only treatment programs. Only about 30.2% of programs offer some type of 24-hour care. Onsite primary medical care is even less common; it is available in just 19.5% of programs. Thus, while 24-hour care and primary medical care are associated with greater odds of HIV-related services, neither characteristic is common in adolescent-only treatment programs.

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**APPENDIX 1:  
Multinomial Logistic Regression Model of Study Participation  
on Organizational Characteristics**

<b>Centers that Do Not Admit Adolescents vs. Participating Centers</b>	<b>b (S.E.)</b>	<b>Relative Risk Ratio</b>
Public center sample (vs. private center sample)	.660 (.275)*	1.93*
Government-owned (vs. privately owned non-profit)	-.280 (.319)	NS
For-profit (vs. privately owned non-profit)	.557 (.316)	NS
Hospital-based (vs. freestanding)	1.129 (.316)***	3.09***
Community mental health center-based (vs. freestanding)	-.276 (.385)	NS
Accredited center (vs. non-accredited)	-.866 (.261)**	.421**
12-step based center (vs. other treatment model)	.173 (.222)	NS
Center size	-.243 (.095)*	.784*
Center age	.007 (.154)	NS
<b>Centers that Admit but Do Not Have Adolescent-Only Program vs. Participating Centers</b>	<b>b (S.E.)</b>	<b>Relative Risk Ratio</b>
Public center sample (vs. private center sample)	.010 (.304)	NS
Government-owned (vs. privately owned non-profit)	-.250 (.390)	NS
For-profit (vs. privately owned non-profit)	.505 (.333)	NS
Hospital-based (vs. freestanding)	.392 (.332)	NS
Community mental health center-based (vs. freestanding)	-.495 (.471)	NS
Accredited center (vs. non-accredited)	-.081 (.287)	NS
12-step based center (vs. other treatment model)	.525 (.260)*	1.691*
Center size	-.318 (.105)**	.728**
Center age	.044 (.172)	NS
<b>Closed Centers vs. Participating Centers</b>	<b>b (S.E.)</b>	<b>Relative Risk Ratio</b>
Public center sample (vs. private center sample)	.075 (.516)	NS
Government-owned (vs. privately owned non-profit)	-.984 (.806)	NS
For-profit (vs. privately owned non-profit)	-.771 (.694)	NS
Hospital-based (vs. freestanding)	1.283 (.586)*	3.610*
Community mental health center-based (vs. freestanding)	-.057 (.817)	NS
Accredited center (vs. non-accredited)	-.652 (.512)	NS
12-step based center (vs. other treatment model)	.455 (.437)	NS
Center size	-.534 (.178)**	.586**
Center age	-.083 (.275)	NS
<b>Hard Refusals vs. Participating Centers</b>	<b>b (S.E.)</b>	<b>Relative Risk Ratio</b>
Public center sample (vs. private center sample)	.068 (.383)	NS
Government-owned (vs. privately owned non-profit)	.280 (.419)	NS

For-profit (vs. privately owned non-profit)	-.073 (.481)	NS
Hospital-based (vs. freestanding)	.377 (.440)	NS
Community mental health center-based (vs. freestanding)	-.053 (.501)	NS
Accredited center (vs. non-accredited)	-.559 (.364)	NS
12-step based center (vs. other treatment model)	.147 (.312)	NS
Center size	-.005 (.134)	NS
Center age	.191 (.227)	NS
<b>Soft Refusals vs. Participating Centers</b>	<b>b (S.E.)</b>	<b>Relative Risk Ratio</b>
Public center sample (vs. private center sample)	.396 (.518)	NS
Government-owned (vs. privately owned non-profit)	-1.178 (.804)	NS
For-profit (vs. privately owned non-profit)	-.346 (.700)	NS
Hospital-based (vs. freestanding)	.561 (.627)	NS
Community mental health center-based (vs. freestanding)	.849 (.600)	NS
Accredited center (vs. non-accredited)	-.264 (.496)	NS
12-step based center (vs. other treatment model)	.365 (.448)	NS
Center size	-.317 (.184)	NS
Center age	.008 (.286)	NS

*Note:* In this multivariate model, each coefficient represents the association after controlling for all other variables in the model. Participating centers with at least one adolescent-only level of care represents the reference category in this analysis.

\*p<.05, \*\*p<.01, \*\*\*p<.001 (two-tailed tests)

**APPENDIX 2:  
OLS Multivariate Regression Model of Overall Treatment Quality on  
Organizational Characteristics and Levels of Care**

	$\beta$
Publicly funded center (vs. privately funded)	-.089
Accredited center (vs. non-accredited)	NS
Organizational size	NS
Center offers adolescent-only residential treatment (vs. no residential program)	.366***
Center offers adolescent-only inpatient treatment (vs. no inpatient program)	.183*
Center offers adolescent-only partial hospitalization (vs. no partial hospitalization)	.155*
Center offers adolescent-only intensive outpatient (vs. no intensive outpatient)	.148*
Center offers adolescent-only standard outpatient (vs. no standard outpatient)	NS
<hr/>	
Adjusted R <sup>2</sup> = .309	

*Note:* In this multivariate model, each coefficient represents the association after controlling for all other variables in the model. The dependent variable is overall treatment quality.

Non-significant coefficients are represented by "NS."

\*\*\*p<.001, \*p<.05 (two-tailed test)

**APPENDIX 3:  
Unadjusted Multinomial Logistic Regression Coefficients for  
Availability of Formal Smoking Cessation Services**

	Program with Medications (vs. No Program) b (SE)	Program without Medications (vs. No Program) b (SE)	Only Medications (vs. No Program) b (SE)
Publicly funded center (vs. privately funded)	NS	NS	-2.27 (.78)**
Government-owned (vs. privately owned non-profit)	NS	NS	NS
For-profit (vs. privately owned non-profit)	NS	NS	NS
Hospital-based program (vs. non-hospital)	NS	NS	1.55 (.54)**
Accredited (vs. non-accredited)	NS	-1.34 (.57)*	1.08 (.609) +
At least one physician on staff (vs. no physicians)	1.62 (.57)**	NS	2.04 (.58)***
Adolescent program has less than 10 employees (vs. at least 10 employees)	-2.15 (.79)**	NS	-2.27 (.78)**
Number of “best practices” in assessment & treatment matching	-.57 (.28)*	NS	.88 (.35)*
Center has adopted all four tobacco-related intake/assessment procedures	NS	NS	NS
Center offers adolescent-only inpatient care	2.52 (.67)***	NS	1.87 (.68)**
Center offers adolescent-only residential care	1.64 (.61)**	NS	1.89 (.58)**
Program prescribes psychiatric medications to adolescent clients	1.99 (.62)**	-1.38 (.79) +	2.49 (.68)***
% of adolescent caseload who use tobacco	NS	NS	NS

*Note:* This table summarizes a series of bivariate multinomial logistic regression models. The reference category in this analysis is no formal smoking cessation services.

Non-significant coefficients are represented by “NS.”

+p<.10, \*p<.05, \*\*p<.01, \*\*\*p<.001 (two-tailed test)

**APPENDIX 4:  
Multinomial Logistic Regression Model of  
Availability of Integrated Care for Co-Occurring Psychiatric Conditions**

	Integrated Care even for Serious Mental Illness (vs. No Program)	Integrated Care except for Serious Mental Illness (vs. No Program)
	b (SE)	b (SE)
Publicly funded center (vs. privately funded)	.118 (.575)	-.130 (.512)
Government-owned (vs. privately owned non-profit)	-.250 (.723)	-.847 (.696)
For-profit (vs. privately owned non-profit)	1.123 (.768)	.458 (.737)
At least one psychiatrists on staff (vs. no psychiatrists)	1.422 (.568)*	1.057 (.518)*
At least one nurse on staff (vs. no nurses)	1.148 (.574)*	1.011 (.544)+
Organizational size (LN-transformed number of counselors)	.510 (.336)	.663 (.314)*
Number of adolescent-only levels of care	.966 (.339)**	.678 (.327)*

*Note:* In this multivariate model, each coefficient represents the association after controlling for all other variables in the model. The reference category in this analysis is no integrated care for co-occurring psychiatric conditions.

+p<.10, \*p<.05, \*\*p<.01, \*\*\*p<.001 (two-tailed test)

**APPENDIX 5:  
HIV-Related Services**

**Unadjusted Logistic Regression Models of Three HIV-Related Services**

	HIV Behavioral Risk Assessment (vs. No Assessment)	HIV Education/ Prevention (vs. No Education)	HIV Services “Bundle” (vs. No Bundle)
	Odds Ratio	Odds Ratio	Odds Ratio
Publicly funded center (vs. privately funded)	NS	1.76 <sup>+</sup>	2.08 <sup>+</sup>
Government-owned (vs. privately owned non-profit)	NS	NS	2.83 <sup>*</sup>
For-profit (vs. privately owned non-profit)	NS	NS	NS
Adolescent program has less than 10 employees (vs. at least 10 employees)	NS	NS	.453 <sup>+</sup>
Center offers 24-hour care (e.g. residential or inpatient)	2.97 <sup>**</sup>	2.37 <sup>*</sup>	2.75 <sup>*</sup>
Center offers on-site primary medical care	4.96 <sup>**</sup>	2.84 <sup>*</sup>	3.06 <sup>*</sup>

*Note:* This table summarizes a series of bivariate logistic regression models for three dependent variables. Column 1 shows associations for whether or not programs conduct HIV behavioral risk assessments. Column 2 shows associations for whether or not programs conduct HIV education/prevention. Column three shows the association for the HIV “bundle” which consists of assessment, education, and onsite testing.

Non-significant coefficients are represented by “NS.”

<sup>+</sup>p<.10, <sup>\*</sup>p<.05, <sup>\*\*</sup>p<.01, <sup>\*\*\*</sup>p<.001 (two-tailed test)

## Unadjusted Multinomial Logistic Regression Model of HIV Testing

	On-site HIV Testing (vs. No Testing)	Referral to Testing (vs. No Testing)
	Odds Ratio	Odds Ratio
Publicly funded center (vs. privately funded)	NS	NS
Government-owned (vs. privately owned non-profit)	2.75 <sup>+</sup>	NS
For-profit (vs. privately owned non-profit)	NS	NS
Adolescent program has less than 10 employees (vs. at least 10 employees)	.32 <sup>*</sup>	NS
Center offers 24-hour care (e.g. residential or inpatient)	5.17 <sup>***</sup>	3.31 <sup>**</sup>
Center offers on-site primary medical care	7.53 <sup>**</sup>	5.71 <sup>**</sup>

*Note:* This table summarizes a series of bivariate logistic regression models for HIV testing. The reference category is no HIV testing.

Non-significant coefficients are represented by "NS."

<sup>+</sup>p<.10, <sup>\*</sup>p<.05, <sup>\*\*</sup>p<.01, <sup>\*\*\*</sup>p<.001 (two-tailed test)