

Treating Adolescents for Substance Abuse and Comorbid Psychiatric Disorders

Recent research has identified a cluster of standardized approaches that effectively treat adolescents with substance abuse disorders. Many of these approaches share elements that may be adopted to improve outcomes in substance treatment programs. In adolescents, treatment goals should be informed by a comprehensive assessment that includes the adolescent patient's developmental history and evaluation of psychiatric comorbidity. Treatment for behavioral, psychosocial, and psychiatric problems should be integrated with substance abuse interventions. The author describes practical clinical guidelines, grounded in current research, for providing integrated treatment services. Special emphasis is given to strategies for integrating the treatment of comorbid psychiatric disorders with substance use disorders in adolescents.

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Adolescents who abuse drugs possess special characteristics that include behavioral problems, skills deficits, academic difficulties, family problems, and mental health problems that generally have been shaped by environmental adversities and biological vulnerabilities that began in early childhood. Developmental studies have yielded an inventory of the risks, difficulties, and typical problems that most often mark the developmental path of adolescents who develop substance use disorder (SUD) (Tarter, 2002; Tims et al., 2002).

Developmental research has also informed the creation of behavioral and family-based interventions that integrate the treatment of adolescent drug abuse with efforts to address other problems associated with adolescent SUD; these interventions have been captured in manuals to guide treatment providers (Drug Strategies, 2002). A growing research and clinical consensus indicates that treatment for adolescents is most effective when it attends to the patients' many psychosocial problems and mental health needs in addition to their drug abuse. There is also evidence that an increasing number of community-based treatment programs are successfully implementing integrated treatment services (Drug Strategies, 2002; National Institute on Drug Abuse, 1999).

Despite these advances, integrated treatment of comorbid psychiatric disorders in drug treatment programs for adolescents has trailed other integrated treatment services because of clinical and systemic barriers. These include a critical shortage of child/adolescent psychiatrists with training in addictions, poor

third-party payer coverage for integrated psychiatric services, and the longstanding separation of provider networks for psychiatric and substance abuse treatment (Rotheram-Borus and Duan, 2003).

Another barrier has been the lack of research on adolescents to support the development of integrated “best practice” standards (Weinberg et al., 1998). Fortunately, recent studies have begun to address this significant research gap. A primary focus of this article is an overview of recent scientific advances, highlighting how research can guide the development of practice standards to improve treatment outcomes for dually diagnosed adolescents.

PATHS TO ADOLESCENT SUD

Adolescents who enter substance abuse treatment programs are more likely than peers who do not abuse drugs to have had a “difficult temperament” as toddlers or preschoolers, characterized by oppositional behavior, aggressiveness, impulsivity, and poor frustration tolerance (Tarter, 2002). They are also more likely to have experienced abuse or neglect and significant family problems and to have developed a psychiatric disorder during early childhood, such as a learning disability (LD), attention-deficit/hyperactivity disorder (ADHD), or oppositional defiant disorder (ODD). Behavioral, psychosocial, and mental health problems often have hindered their adjustment to school and led to placement in separate classes for the behaviorally and learning disabled, increasing their association with peers with similar vulnerabilities, including elevated risk for school failure and for developing conduct disorder (CD) (Tarter, 2002).

In youths with such histories, limited experiences of academic success or mastery often lead to demoralization by the end of elementary school and to middle school careers marked by escalating behavior problems, increased social marginalization and association with deviant peers, and early onset of substance abuse. Early substance abuse, coupled with the neurohormonal changes of puberty, impacts the development of the brain and neuroendocrine system in ways likely to contribute to the onset or exacerbation of preexisting psychiatric disorders, such as CD, ADHD, and mood or anxiety disorders (Crowley and Riggs, 1995; Rutter et al., 1998).

By the time an adolescent enters substance treatment, he or she often has reaped the cumulative psychological, health, and social consequences of earlier

developmental adversities and behavior problems (Rutter et al., 1998; Tims et al., 2002). Newly presenting adolescent patients are often poorly motivated for treatment and have psychiatric problems; worsening academic, family, and behavior problems; and a limited range of coping and social skills. They are also likely to lag in important adolescent developmental tasks, including individuation, moral development, and conceptualization of future educational, vocational, and family goals (Rutter et al., 1998; Tims et al., 2002). The complexity of the problems these youths typically bring to drug abuse treatment underscores their need for multimodal approaches that address a broad range of mental health and psychosocial problems as well as drug abuse. The following section overviews research-based treatment modalities for adolescent SUD and research on treatments for the comorbid disorders most commonly seen in these youths.

RESEARCH-BASED INTERVENTIONS FOR ADOLESCENT SUD

Pharmacotherapy

Many medications commonly used to treat adult SUD have not been evaluated in controlled trials with adolescents. Such medications include substitution/replacement therapies (e.g., methadone and buprenorphine), opioid antagonists (e.g., naltrexone), aversive therapies (e.g., disulfiram), or anticraving medications (e.g., bupropion and naltrexone) (Solhkhah and Wilens, 1998). If these medications are used in treating adolescents, they must be used with caution, careful monitoring, and consideration of the developmental characteristics that distinguish adolescents from adults, such as greater impulsivity and polydrug use (Deas et al., 2000).

Behavioral or Psychosocial Interventions

Research on behavioral/psychosocial interventions for adolescent SUD has made significant advances in the past decade. Controlled trials now provide good evidence that several psychosocial treatment approaches can be effective in treating adolescent SUD and other associated problems. Some of these interventions are based on modalities that have been effectively used with adults and modified substantially to make them developmentally appropriate for adolescents (Deas et al., 2000; Drug Strategies, 2002; Wagner et al., 1999). Among the modalities with substantial research support:

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Studies of adolescents indicate that it is important both to provide individual therapy and to involve the family in treatment.

Family-based interventions include structural-strategic family therapy, parent management training (PMT), multisystemic therapy (MST), and multidimensional family therapy (MDFT). They are based on family systems theory and share the assumption that dysfunctional family dynamics contribute to adolescent SUD and related problems. In practice, clinicians perform a functional analysis to identify problem behaviors, and relationship patterns that are then targeted with restructuring interventions. Parents are taught better monitoring skills and basic behavioral management principles to improve their adolescent's behavior and reduce drug abuse together with strategies to improve overall family functioning and sustain the gains of treatment (Drug Strategies, 2002; Wagner et al., 1999).

Behavioral therapy approaches are based on operant behavioral principles that include rewarding behaviors or activities that are incompatible with drug use and withholding rewards or applying sanctions when drug use or other targeted behaviors occur. This provides a constructive reinforcement system to help promote desired behaviors and extinguish those related to drug use. Urine monitoring to detect drug use is indispensable to linking consequences as closely as possible to the targeted behaviors. Studies of adolescents indicate that it is important both to

provide individual behavioral therapy and to involve the family in treatment. Behavioral therapy has been shown to help adolescents become drug free and to improve problems in other areas, such as employment, school attendance, family relationships, conduct problems, and depression (Azrin et al., 1994; National Institute on Drug Abuse, 1999).

Cognitive-behavioral therapy (CBT), based on learning theory, also has been shown to be effective in treating adolescent SUD (Drug Strategies, 2002; Wagner et al., 1999). Although there is more empirical support for individual CBT, preliminary studies indicate that group CBT may also reduce adolescent substance use and improve other problem behaviors (Kaminer et al., 1998). Treatment manuals have been developed for courses of weekly CBT treatment ranging from 5 to 16 weeks. Features common to most CBT models include:

- Employing motivation-enhancing techniques to establish a strong treatment alliance and improve treatment engagement and retention;
- Performing a functional analysis to identify patterns of substance use, skills deficits, and dysfunctional attitudes and thinking that then become specific targets of intervention;
- Enhancing coping strategies to effectively deal with drug craving, negative moods, and anger;

- Strengthening problemsolving and communication skills and the ability to anticipate and avoid high-risk situations; and
- Identifying enjoyable activities incompatible with drug use.

New skills and coping strategies are initially taught and practiced during therapy sessions, then applied to the patient's daily life in "homework" assignments, with a review of successes and setbacks the following week (Drug Strategies, 2002; Wagner et al., 1999).

Motivational enhancement therapy (MET) has been used both as a standalone, brief intervention (for example, among adolescents presenting to emergency rooms with alcohol-or drug-related injuries) and integrated with other modalities such as CBT (Monti et al., 2001). It is a client-centered approach that helps patients resolve ambivalence about engaging in treatment and strengthen their motivation to build a plan for change. MET has been shown to improve treatment commitment and motivation and reduce substance abuse and risky behaviors (for instance, drunk driving and unsafe sex). Utilizing MET techniques is particularly important for adolescents, as they are generally resistant to more directive approaches and are often ambivalent about committing to abstinence (Drug Strategies, 2002; National Institute on Drug Abuse, 1999).

Community reinforcement therapy combines principles and techniques derived from behavioral, cognitive-behavioral, motivational, and family therapy, often using incentives to enhance treatment outcomes (Drug Strategies, 2002).

Research is needed to identify which components of the research-based modalities are integral and must be implemented with close adherence to the treatment manual to be effective and which components—if any—may be eliminated or modified for adaptation to local settings. This is a significant gap in our knowledge and has important implications for dissemination of evidence-based practice, given the increasing number of community-based treatment programs that are incorporating or combining all or portions of these modalities into their standard treatment.

Although each of these research-developed modalities is underpinned by a somewhat different theoretical model, all share several common features. All employ empathic, supportive, motivationally enhancing techniques, behavioral and cognitive-behavioral

approaches. All emphasize the importance of performing a comprehensive evaluation or functional analysis to identify a broad range of problems associated with drug abuse, which then become targets of intervention. All stress the importance of including the family in treatment in addition to providing individual and/or group counseling.

There is also evidence that using a combination of treatment modalities to target a broader range of problems may be an effective strategy. A recent study systematically evaluated community-based adolescent substance treatment programs nationwide. An expert panel of clinicians and researchers asked knowledgeable community and organizational sources nationwide to identify programs they considered the best in their area, or which they would recommend to a family member or close friend (Drug Strategies, 2002). An examination of the treatment offerings of a subset of these 144 "exemplary" programs reveals striking overlap with the commonly shared components of the research-developed modalities. The shared components include:

- Comprehensive, systematic evaluation to identify problems and treatment needs in multiple domains, including psychiatric comorbidity;
- Use of empathic, supportive, and motivation-enhancing techniques to improve alliance, engagement, and retention;
- Use of behavioral techniques informed by urine toxicology results to promote and shape desired, prosocial behaviors and discontinuation of drug use and other problem behaviors;
- Use of cognitive-behavioral and skills-building techniques delivered in an individual or group format to enhance adolescents' self-efficacy, problemsolving, decisionmaking, communication, anger management, mood regulation, coping, and relapse prevention skills. These techniques are often used to help adolescents anticipate and avoid high-risk situations and identify triggers for drug use, decrease association with drug-using peers, and encourage involvement in enjoyable, prosocial activities incompatible with drug use;
- Involvement of the family in an adolescent's treatment, emphasizing enhancement of parental monitoring and behavioral management skills and use of restructuring interventions to correct dysfunctional patterns of interaction, relationships, and behaviors to improve overall family functioning;

Motivational enhancement techniques are particularly important for adolescents.

A recent study systematically evaluated community-based treatment programs nationwide.

- Emphasis on relapse prevention and the need for continuing care, including development of specific plans to manage relapse;
- Focus on adequate training and ongoing staff development activities for counselors and program specialists;
- Emphasis on providing developmentally appropriate interventions, often including specialized program components such as gender-specific or culture-specific programming;
- Focus on evaluating treatment outcomes; and
- Emphasis on the importance of integrating the assessment and treatment of comorbid psychiatric disorders with substance abuse treatment.

In summary, both research and community treatment programs are converging on a consensus that treatment for adolescents is most effective when multimodal treatment services are provided and integrated. Although it would be premature from a scientific standpoint to say that the components common to both research-developed and “model” community-based programs are the essential or active ingredients of effective treatment, they can certainly be considered clinically important components of adolescent treatment.

TREATMENT FOR COMORBID DISORDERS

Current research supports integrating the treatment of co-occurring psychiatric disorders with treatment for drug abuse by adolescents (Drug Strategies, 2002; National Institute on Drug Abuse, 1999). The findings can be summarized as follows:

- Adolescents with SUD and comorbid psychiatric disorders have poorer drug treatment outcomes than those with only SUD. The probable reason is that psychiatric illness frequently goes untreated among dually diagnosed adolescents and reduces the likelihood of successful engagement, retention, and completion of substance abuse treatment (Grella et al., 2001; Lohman et al., 2002; Wise et al., 2001).
- Untreated comorbid psychiatric disorders such as ADHD or mood disorders persist even after successful substance abuse treatment produces abstinence. Depression is much less likely to remit with abstinence in adolescents than in depressed adults with chronic alcohol or drug dependence (Bukstein et al., 1992; Riggs et al., 1996).
- Recent controlled trials indicate that treatment of comorbid psychiatric disorders alone is not likely to

significantly reduce substance use or induce abstinence in dually diagnosed adolescents (Geller et al., 1998; Lohman et al., 2002; Riggs et al., 2001).

Until very recently, almost nothing was known about the safety and efficacy of medications for treatment of psychiatric disorders in adolescents with SUD or the potential for adverse interactions with drugs of abuse. Thus, clinicians have been understandably reluctant to treat psychiatric disorders with medications in this population, often referring youths for substance abuse treatment before considering treatment of psychiatric comorbidity. This sequential approach is cautious, but it perpetuates a clinical conundrum. Treatment for the comorbid disorder is withheld pending successful drug abuse treatment and achievement of abstinence, but the untreated psychiatric illness significantly diminishes the likelihood of successful drug abuse treatment.

While caution is reasonable and abstinence ideal before initiation of pharmacotherapy for a comorbid disorder, treatment risks must be balanced against the potential consequences of leaving psychiatric illness untreated. For example, many adolescents in substance treatment programs have been court-mandated to treatment. If their psychiatric disorders are not treated soon after admission for substance treatment, their chances of failing treatment may be increased and may result in incarceration with few or no treatment options (Grella et al., 2001; Teplin et al., 2002; Wise et al., 2001).

Recent controlled clinical trials have begun to extricate clinicians from the conundrum of sequential treatment by demonstrating the safety and efficacy of medications for some of the most common psychiatric comorbidities, namely bipolar disorder, depression, and ADHD. Although there is not yet consensus on “best practices” for the use of medications to treat comorbid disorders for adolescents’ dual diagnosis, these recent advances offer preliminary evidence for an integrated treatment strategy, moving current practice standards forward until research can guide further refinement.

Pharmacotherapeutic Options For Comorbid Disorders

While we have substantial knowledge about pharmacotherapy for common comorbid disorders of adolescents with SUD, it is important to note that medications are not the first-line treatment approach for

all comorbid disorders. For example, behavioral interventions and family-based therapies are considered the first-line treatment for conduct disorder, the most common comorbidity associated with SUD in adolescents (see review by Riggs and Whitmore, 1999). Many drug treatment programs already provide these or similar behavioral interventions, since these modalities treat both CD and SUD, especially if augmented with voucher incentives or contingency management techniques more specific to substance abuse treatment (Drug Strategies, 2002).

ADHD

Pharmacotherapy with psychostimulants is considered first-line treatment for ADHD in children and adolescents without SUD. Only one controlled medication trial has been conducted in adolescents with ADHD and SUD. In this study, 69 out-of-treatment adolescents with CD, SUD, and ADHD were recruited from the community and randomized to receive either placebo or pemoline (a psychostimulant with low abuse potential compared to the relatively high abuse liability of schedule II psychostimulants such as methylphenidate). Results showed that pemoline's safety and efficacy in treating ADHD in nonabstinent adolescents was similar to that reported for adolescents without SUD (Riggs et al., 2001). Despite its efficacy for ADHD, pemoline did not reduce substance use in the absence of specific treatment for SUD. Although no patients in this trial developed serious side effects or elevations in liver enzymes, recent concerns about the rare but serious potential for liver toxicity with pemoline have led to recommendations for frequent monitoring of liver enzymes (Safer et al., 2001). This restriction has diminished the clinical feasibility of using pemoline, especially in outpatient settings. Nonetheless, pemoline is still considered an important treatment option for ADHD in settings requiring the use of medications with low abuse potential and once-per-day dosing regimens.

Fortunately, newer medications with low abuse liability, such as bupropion and atomoxetine, have been shown to be effective for ADHD in adults and adolescents without SUD (Michelson et al., 2002; Wilens et al., 2001). Bupropion may also be helpful in treating both ADHD and depression in adolescents and adults without SUD (Daviss et al., 2001). Bupropion has also been reported to have a good safety profile without serious adverse effects in cannabis-depend-

ent adults who were smoking marijuana up to five times per day (Haney et al., 2001). Given these data, clinicians may wish to consider bupropion as a treatment option for adolescents with SUD, ADHD, and depression, again with the caveat that no controlled trials have yet been completed in adolescents with SUD.

Bipolar Disorder

Pharmacotherapy with mood stabilizers (e.g., lithium, valproic acid, carbamazepine) is the first-line treatment for bipolar disorder in adolescents without SUD. Only one controlled trial (lithium versus placebo) has been conducted in adolescents with bipolar disorder and SUD (Geller et al., 1998). In this study, lithium had a relatively good safety profile and was shown to be effective in stabilizing mania or hypomania, despite ongoing substance use by most subjects during the trial. As mood began to stabilize in the lithium-treated patients, substance use declined somewhat more than in those treated with placebo. However, pharmacotherapy for bipolar disorder was not effective in treating SUD or inducing abstinence in the absence of specific substance treatment. These data support treating bipolar disorder in the context of concurrent treatment for SUD. No data are yet available from controlled trials about the safety or efficacy of other mood stabilizers in this population.

Depression

Current practice guidelines recommend that adolescents with severe depression receive both psychotherapy and pharmacotherapy, while those with mild or moderate symptoms may be offered a trial of psychotherapy alone before medications are considered (Birmaher et al., 1998). Both CBT and interpersonal psychotherapy have demonstrated efficacy for depression in adolescents without SUD (Birmaher et al., 1998).

Selective serotonin reuptake inhibitors (SSRIs) are considered first-line medications for treatment of adolescent depression without comorbid SUD, with most evidence for fluoxetine (Emslie et al., 2002). No adequately powered controlled trials of SSRIs have yet been completed in adolescents with SUD. However, preliminary data from an ongoing randomized controlled trial of fluoxetine for depression in 120 adolescents with CD and SUD indicate that the medication appears to have a very good safety profile even in nonabstinent adolescents with polydrug abuse (Lohman

A sequential approach to treating comorbid disorders perpetuates a clinical conundrum.

et al., 2002). Although efficacy data are not yet available from this ongoing trial, data from open trials and one small controlled trial indicate some promise for the safety and efficacy of SSRIs for depression in adolescents with SUD (Deas and Thomas, 2001; Riggs, 1997). Clinically, SSRIs are frequently used by both adult and adolescent addiction psychiatrists as first-line medications for the treatment of comorbid depression with SUD (Deas and Thomas, 2001). If ADHD is also present, bupropion may be considered, given its efficacy for both disorders and preliminary data indicating a favorable safety profile in cannabis-dependent adults and in an open-label trial in adolescents with SUD (Haney et al., 2001; Riggs et al., 1998; Riggs and Davis, 2002; Wilens et al., 1997).

Tricyclic antidepressants are contraindicated for the treatment of depression or ADHD in adolescents with SUD. These agents have significant anticholinergic and cardiac side effects, a relatively high potential for adverse interactions with substances of abuse (especially cannabis), and considerable danger of causing death if an overdose should occur (Wilens et al., 1997).

Anxiety Disorders

Cognitive-behavioral therapies, often combined with SSRI medications, are considered best practice for a spectrum of anxiety disorders in adolescents without SUD (March and Wells, 2002). Although no conclusive randomized trials have yet been completed in adolescents with SUD, preliminary results suggest that CBT may also be helpful in treating anxiety disorders, including posttraumatic stress disorder (PTSD), in this population (Najavits, 2003). While SSRI treatment for anxiety disorders in substance-abusing adolescents has not been well studied, clinicians may wish to consider SSRIs for treatment of anxiety disorders in dually diagnosed adolescents in conjunction with SUD treatment, given the available data (from previously mentioned depression studies) indicating that fluoxetine (an SSRI) appears to have a favorable safety profile even in nonabstinent adolescents (Lohman et al., 2002). Such medications may be particularly useful in managing the sleep problems, depressive symptoms, intrusive memories, and hyperarousal symptoms often associated with PTSD (March and Wells, 2002). Benzodiazepines are contraindicated for anxiety disorders in patients with SUD because of their well-known abuse potential.

Counselors or team specialists can learn to clinically screen for symptoms of psychiatric disorders.

IMPLEMENTING INTEGRATED TREATMENT

Screening

Given the high prevalence of comorbid psychiatric disorders and their adverse impact on substance treatment engagement and retention, treatment programs should try to develop the capability of early screening for comorbid disorders. Several screening instruments have been developed for this purpose in addition to longer structured diagnostic instruments. Treatment programs should use standard assessment instruments that have been rigorously evaluated for reliability and validity. Reviews can be found in several sources (Crowley et al., 2001; Drug Strategies, 2002; National Institute on Drug Abuse, 1999; Winters et al., 1996).

Counselors or team specialists can learn to clinically screen for symptoms of psychiatric disorders, referring affected patients for psychiatric evaluation. Programs can provide staff with the appropriate training in a number of ways, including psychiatric inservice training that includes information on the symptoms of common comorbid disorders and the most commonly used medications and their side effects. Once trained, counselors can play an important role throughout treatment in monitoring target symptom response, psychosocial functioning, and treatment progress, including urine toxicology results and identification of adverse side effects. They also can relay this information to the staff or consulting psychiatrist or a program mental health specialist. Designating one clinician (or team specialist) to be the single point liaison who communicates regularly with the treating psychiatrist regarding new consultations and ongoing medication followup promotes efficiency of communication and good clinical monitoring practices.

The Clinical Interview and Evaluation

In general, an adolescent's parents or caretakers should be present at his or her initial clinical interview. Their presence enables the counselor to establish the rules of confidentiality (including that reports of abuse, neglect, or threats of harm to self or others must be disclosed), obtain early development history, and assess family dynamics. Subsequently, a private interview with the adolescent is important to facilitate a strong treatment alliance and elicit candid information about substance abuse and behavior problems that the patient may not be comfortable disclosing with parents present. It is crucial that clinicians use an empathic, non-

judgmental, supportive, and motivation-enhancing interview style with adolescent patients.

Adolescents' self-reports of drug use have been shown to be reliable in the assessment context when confidentiality is assured (Winters et al., 1990). The patient's self-reports of his or her dynamics of substance use and problems related to drug use provide the foundation for collaborative goal setting and effective treatment planning. For each substance of abuse, clinicians should assess DSM-IV diagnostic criteria for substance abuse and dependence. They should then ask the adolescent about the onset of use for each substance; progression, patterns, and frequency of use; use in combination with other substances; presence of tolerance or withdrawal symptoms; and response to any previous treatment. Other important information includes triggers for craving and use (such as parents fighting, coping with low moods, and stress); context of use (for example, peer influence and use at school); perceived motivation for using; positive and negative consequences of use; and current motivation and goals for treatment (Drug Strategies, 2002; Riggs and Davies, 2002).

Clinicians may find it useful to map relevant developmental history and the onset and progression of both psychiatric symptoms and substance abuse onto a lifetime timeline. Organizing the assessment information along a timeline enables clinicians to evaluate the impact of developmental adversities (for example, abuse and neglect, parental divorce, and significant losses) on current problems and elucidate the temporal relationship between psychiatric symptoms and substance use—especially periods of intoxication, withdrawal, and abstinence. This facilitates meaningful clinical formulations and diagnostic impressions to better guide treatment planning (Riggs and Davies, 2002).

Treatment Design and Delivery

The following step-by-step approach to treatment can be modified as appropriate to the details of each case and with consideration of available family, clinical, psychiatric, and program resources, such as clinical staff and training and community resources.

Step 1. Convene the entire treatment team in a comprehensive case conference. Include substance abuse counselors, line staff, education specialists, the consulting psychiatrist or program mental health specialist, family therapist, and representatives from

involved outside agencies (such as a social worker, case manager, and probation officer). Together, systematically review and integrate the assessment information from all sources and perspectives, including the patient's statement of treatment goals, in order to develop a problem list for targeted interventions. Treatment goals and intervention effectiveness should be regularly reviewed and modified, if necessary, as the patient progresses in treatment.

Step 2. The initial focus of treatment should be to engage the adolescent by establishing a strong treatment alliance and collaboratively developed goals to stabilize substance abuse and begin to address comorbid disorders as well as other problems. Ideally, motivation-enhancing techniques should be used with other empirically supported individual and/or group therapies (such as CBT), as well as family-based treatment modalities previously reviewed (Deas and Thomas, 2001; Wagner et al., 1999). Adolescents may also benefit from participation in a 12-step program as a component of multidimensional, multimodal treatment (Deas and Thomas, 2001). In addition to individual counseling and group therapy treatment components, the family should be included in the adolescent's treatment.

Step 3. If the adolescent has a comorbid disorder for which medication is being considered (for example, ADHD or major depression), the following procedure may help guide medication initiation and monitoring. Abstinence is ideal before medication is started, but clinicians must weigh the risk of potential drug-medication interactions against the risk that the untreated psychiatric illness will thwart treatment engagement, precipitate early dropout, or interfere with achievement of abstinence. It may be necessary to tolerate some ongoing alcohol or cannabis use during the initial phase of treatment. Once the adolescent is engaged in substance abuse treatment and both urine drug screening and self-report indicate either abstinence or reduction in substance use, work with the mental health professional or psychiatrist to develop a plan for regular monitoring and information exchange on compliance with substance abuse treatment, urine toxicology results, target symptom response, and emergence of adverse side effects.

When initiating medications, the patient should comply with at least weekly therapy sessions. Preliminary evidence and clinical experience indicate that using a motivation-enhancing style with CBT and an

Organizing the assessment information along a timeline enables clinicians to elucidate the temporal relationship between psychiatric symptoms and substance abuse.

empathic, encouraging therapeutic approach may induce consistent attendance and reduced substance use after 2 to 4 weeks of treatment, such that medication for comorbidity often can begin during the first month of treatment. Moreover, in our clinical research protocols, medication for depression or ADHD is started in the first week after study admission for adolescents who generally are active users of substances of abuse (Lohman et al., 2002; Riggs et al., 2001).

The following principles may be helpful in guiding medication management for comorbid adolescents:

- When medication is indicated, consider medications with good safety profiles, low abuse liability, and once-per-day dosing, if possible;
- Use a single medication if at all possible;
- Provide the patient and family with information about the potential for adverse interactions of medications with substances of abuse and the need for abstinence or reduced substance use to ensure safety and efficacy;
- Establish mechanisms to closely monitor medication compliance (initially weekly), adverse effects, target symptom response, and ongoing substance use (using both self-report and urine drug screening);
- Monitor compliance with regular substance abuse treatment (generally, individual and/or family counseling at least weekly) and regular urine drug screening (if not the primary substance treatment provider); and
- Monitor patient treatment motivation and target symptom response and behavior changes and psychosocial functioning throughout treatment.

Step 4. If substance abuse or target symptoms of the comorbid disorder do not significantly improve within the first 2 months of treatment, or if there is evidence of drug abuse escalation or clinical deterioration, reevaluate or consider changing the medication, reassessing the diagnosis (for example, bipolar versus unipolar depression), and increasing the level of care or treatment frequency.

Step 5. Talk with the patient about relapse prevention strategies and the need for continuing care with regular followup for his or her psychiatric disorder and SUD. Lack of followup and treatment compliance for either disorder increases risk of relapse and destabilization of the psychiatric disorder. The poten-

tial for relapse after an acute treatment episode is high, as is characteristic of many chronic, relapsing illnesses. Therefore, it is critical to discuss this frankly and develop before discharge a realistic, workable plan for anticipating and managing relapses and a plan for continuing care. It is also important to emphasize that relapse is common and represents neither personal failure nor treatment failure.

Little research is available to guide the optimal treatment length, frequency, and modalities that are most effective for continuing care. Treatment programs and clinicians should work flexibly and creatively with patients, families, and available community resources to develop workable plans for continued monitoring of drug use, managing relapses when they occur, and mental health followup. Primary care physicians (PCPs) can often be enlisted to help in this process by regularly checking in with adolescent patients, obtaining urine drug screens, and assessing the stability of psychiatric comorbidity. It is helpful for the substance abuse and psychiatric treatment providers to liaise with PCPs to provide them with specific referral information if they become concerned that the patient has relapsed or if the level of functioning has declined.

Encouraging involvement in 12-step groups or other self-help support efforts can also be an important component of continuing care and relapse prevention. Another is to encourage teens while still in treatment to become involved in an enjoyable, prosocial activity that is incompatible with drug use (for example, martial arts). An important area for future research is to evaluate whether involvement in such community-based activities complements other relapse prevention efforts and helps sustain the gains of treatment.

SUMMARY, IMPLICATIONS FOR RESEARCH

Controlled efficacy trials, coupled with the results of systematic treatment program evaluation, clearly indicate that treatment for adolescent SUD is effective in reducing drug use and improving associated behavioral, familial, and psychosocial outcomes. The evidence also indicates that these outcomes are enhanced when a combination of modalities is offered in a comprehensive, integrated treatment plan that addresses drug abuse and a broad range of biopsychosocial problems, skills deficits, and psychiatric problems. Although integrating the treatment of psychiatric comorbidity

Prevalence of Common Comorbid Disorders and Impact of Treatment on Adolescents With a Substance Abuse Disorder

Comorbid Disorder	Prevalence Among Adolescents With SUD	Effective Treatment for Adolescents Without SUD	Impact of Treatment on Adolescents With SUD
Conduct Disorder (CD)	60-80%	<ul style="list-style-type: none"> • Multisystemic therapy or other behavioral, family-based intervention 	Decreases both CD and substance use, especially when augmented with specific behavioral intervention for SUD
Attention-Deficit/Hyperactivity Disorder (ADHD)	30-50%	<ul style="list-style-type: none"> • Pharmacotherapy (generally, psychostimulants) • Medication options with low abuse potential: pemoline, bupropion, atomoxetine 	<p>One controlled trial of pemoline suggests:</p> <ul style="list-style-type: none"> • Effective for ADHD • Good safety profile • No impact on SUD without substance abuse treatment • Research is needed on other low-abuse medication
Depression	15-25%	<ul style="list-style-type: none"> • Combined pharmacotherapy and psychotherapy • Pharmacotherapy: SSRIs in adolescents without SUD • Psychotherapy: cognitive-behavioral therapy (CBT) and interpersonal psychotherapy, combined with medication for severe depression 	<p>Preliminary evidence suggests:</p> <ul style="list-style-type: none"> • SSRIs may reduce depression, but are inadequate for SUD in the absence of specific substance abuse treatment • Good safety profile for fluoxetine (SSRI) in nonabstinent adolescents in one randomized, controlled trial • Bupropion may be effective for depression and ADHD in adolescents; fairly good safety profile with comorbid SUD • Tricyclics contraindicated
Anxiety Disorders (often comorbid with depression; includes posttraumatic stress disorder [PTSD])	15-25%	<ul style="list-style-type: none"> • Combined psychotherapy (CBT) and pharmacotherapy (SSRI) 	<p>Preliminary evidence suggests:</p> <ul style="list-style-type: none"> • CBT and SSRIs effective for anxiety disorders/PTSD but inadequate for SUD without specific SUD treatment
Bipolar Disorder	10-15%	<ul style="list-style-type: none"> • Pharmacotherapy • Mood stabilizers (lithium, valproic acid, carbamazepine) 	<p>One randomized controlled trial of lithium for bipolar disorder with SUD suggests:</p> <ul style="list-style-type: none"> • Pharmacotherapy is effective for bipolar disorder but not adequate for SUD without specific SUD treatment

Outcomes are enhanced when a combination of modalities is offered in a comprehensive, integrated treatment plan.

with substance abuse treatment has lagged behind integration of other treatment services, recent advances in the state of the science can now better inform practice guidelines.

The integrated treatment model presented here is grounded in current research and may serve as a helpful guide for clinicians until further research can contribute to its refinement. Beyond the need for more research, further progress in implementing integrated treatment in community-based programs may require fresh attitudes about sequential and integrated treatment models, the importance of assessing and treating comorbid disorders in conjunction with sub-

stance abuse treatment, the place of medications in substance abuse treatment, and the clinical implications of developmental vulnerabilities and adversities in the lives of adolescents in our treatment programs.

ACKNOWLEDGMENTS

Support was provided in part by NIDA grants number K20-DA-0-0271, R01-DA-1-3176, and U10-DA-1-3716.

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