

# Treating adolescent substance abuse: state of the science

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In October, 2001, just a month after the World Trade Center tragedy, a 2-day conference was scheduled to be held in Coral Gables, Florida entitled *Treating Adolescent Substance Abuse: State of the Science* funded by the National Institute on Drug Abuse (grant 1 R13 DA13395-01A1, H. Liddle, PI). It was hosted by the University of Miami Center for Treatment Research on Adolescent Drug Abuse. The conference objective was to characterize and articulate the developmental status of the research specialty in adolescent drug abuse treatment. Specifically, we aimed to explore the specialty's readiness to adopt or adapt existing treatment development models, and to develop new empirical and clinical frameworks. A broader function of the conference was to disseminate the latest research-based work on a range of core topics in adolescent substance abuse treatment to a diverse audience. With a diversity of research and clinical interests, viewpoints, and settings represented, we hoped that the conference would facilitate dialogue and specify unanswered empirical questions and points of controversy. In addition, if issues of this kind could be addressed successfully, additional advances in the adolescent substance abuse treatment research specialty could occur.

In the weeks after the terrorist attacks, amidst threats of continued violence, fears of flying, and the anthrax outbreak only miles from the conference venue, serious questions emerged: could the conference proceed at all, and if it did, would more than a handful of participants attend? We held the meeting and the participants turned up. We were relieved and amazed to see that there was standing room only throughout the 2-day event, and that participants and presenters came from across the USA to attend. The conference exceeded all expectations. The capacity turnout and enthusiastic discussions following the presentations testified to the fact that research on adolescent substance abuse treatment had come of age and had taken its place in the substance abuse field. There was a sense of looking back, reviewing progress, and taking stock of where we had come as a field in our

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short history. But more pronounced was the excitement about where we could go together if we focused less on our theoretical and clinical differences and more on the cross-cutting themes of our work. The Roman mythical god Janus was the god of both beginnings and endings. Like Janus, the conference looked to the past but also faced the future. Consensus was that we were turning a page as well as trying to specify what needs to come next in the field.

The conference turned out to be more than just a 2-day event. New collaborations were formed among researchers who had never met before. Partnerships also were forged among providers, research teams, and representatives of state and federal funding agencies and policy makers. The first adolescent-focused substance abuse treatment association, the Society for Adolescent Substance Abuse Treatment Effectiveness (SASATE), was created. SASATE now holds a full-day meeting in conjunction with the annual conference of the College on Problems of Drug Dependence (CPDD). With funding from the Center for Substance Abuse Treatment (CSAT), SASATE also maintains a list-serve to promote regular dialogue among clinicians, researchers, program directors, funders, and policy makers.

The conference also created the foundation for this book. While the scope of the volume far exceeds what we were able to cover in the 2 days of the event, the overall objective and the themes of the book grew from the seeds planted in the conference presentations and discussions. Like the conference, the book covers a range of issues. It includes theoretical models that provide a foundation for adolescent substance abuse interventions, research innovations, specific empirical findings supporting assessment and treatment techniques and interventions with special populations, as well as research funding trends and practice and policy guidelines. We aim to reach a wide audience that includes researchers in adolescent substance abuse, researchers and therapists who are training, clinical program administrators, funders, and practitioners interested in the latest scientific issues and advances in treating adolescent drug abuse.

Like the guiding objectives and themes for the conference, the book's primary purpose is to organize state-of-the-science treatment research findings in conceptually coherent and clinically meaningful ways, and to show how advances across our specialty can be brought to bear in improving research, clinical work, and the connection between these realms. Five major sections organize the volume: Theoretical, empirical, and methodological foundations for research into treatment of adolescent substance abuse; Practice and policy trends in treatment for adolescent substance abuse; Comprehensive assessment and integrative treatment planning with adolescent substance abusers; Empirically based interventions for adolescent substance abuse: research and practice implications; and Culturally based treatment development for adolescent substance abusers. Contributors

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were asked to address the following points and questions in summarizing progress and new directions in their subspecialty area.

- Define the relevant background and history of your subspecialty relative to the broader adolescent substance abuse specialty.
- Why is this focal area and content important in the field?
- What research has been done in this area, and what are the most important findings?
- Explain the clinical relevance of these findings.
- What are the limitations of this particular specialty area?
- What is needed to advance the research and/or clinical work in this area?

In expanding the volume beyond the scope of the conference, we sought a diverse collection of experienced scholars with expertise in a variety of subspecialties within the adolescent substance abuse treatment field and experience with a variety of client groups and treatment and research settings. The following sections offer a brief history and status report on the field’s progress and introduce the themes and content areas to be covered in the chapters that follow.

**A brief history of adolescent substance abuse treatment research**

Adolescent substance abuse treatment has evolved into a robust, well-defined specialty since the mid-1990s. Indeed, the proliferation of studies on adolescent substance abuse treatment in recent years can be characterized as nothing short of a “research renaissance” (Liddle, 2002a). Since the National Institute on Drug Abuse (NIDA) released its first solicitation for adolescent-specific drug abuse research nearly 20 years ago, the specialty has matured a great deal. Emerging from the shadows of adult studies, adolescent-focused research has firmly established its own identity distinct from both adult drug abuse treatment and substance abuse prevention (Liddle, 2004). One developmental marker is the increase in the number of published and funded studies. Between 1997 and 2001 alone, studies on adolescent substance abuse treatment doubled, and taking into account funded, in-process research, an even larger increase is forecasted in this decade (Dennis, 2002).

Several interacting factors account for this research bonanza. First, there was the rapidly changing epidemiology of teen drug use. Surveys in the USA and a variety of other countries documented alarming increases in adolescent substance use throughout the 1990s, and rates have remained steady and consistently high in the early years of this century (Johnston, O’Malley, & Bachman, 2003; Gilvarry, 2000; see Ch. 6). The high prevalence of adolescent substance abuse was evident across all sectors of care – not only in the substance abuse treatment system but in mental health, juvenile justice, child welfare, and the schools (Aarons *et al.*, 2001). At

the same time, data from large-scale evaluation studies revealed that standard, community-based substance abuse programs that were available in the 1990's were not effective with adolescents nor were they meeting the needs of most adolescents with substance abuse and related problems (Dennis *et al.*, 2003; Etheridge *et al.*, 2001). For instance, the Services Research Outcomes Study (SROS) of the Substance Abuse and Mental Health Services Administration (SAMHSA) found that while adult patients improved significantly in drug abuse programs, adolescents actually increased their alcohol and drug use in the years following treatment (SAMHSA, 1998a). Other basic and applied research began to delineate more clearly the unique developmental and treatment needs of referred adolescents (e.g., Winters, Latimer, & Stinchfield, 1999), and the complexity of adolescent substance abuse and its corresponding impairments (Bukstein, Glancy, & Kaminer, 1992). Consequently, it became increasingly clear that treatment models borrowed from adult addiction programs were inappropriate for teenagers (Deas *et al.*, 2000). But this insight could not solve a troubling conundrum. The need for effective, developmentally tailored adolescent substance abuse treatment continued to grow (Kaminer, 2001), while funding, capacity, and resources in standard treatment practice dwindled (Muck *et al.*, 2001). These circumstances created fertile soil for major advances in research on adolescent substance abuse treatment.

In response to these multiple interacting forces, funding for research into adolescent-focused substance abuse treatment increased steadily, and major initiatives were launched in the USA and in Europe. In 1993, NIDA identified adolescent drug treatment as a high priority area in its *Behavioral Therapies Development* program (NIDA, 1993). Five years later, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) launched its own adolescent treatment research program in partnership with CSAT (NIAAA, 1998). That initiative called for clinical trials to establish the efficacy of well-defined, developmentally appropriate treatment models, as well as scientifically rigorous studies to examine the effectiveness of standard practice for adolescents with primary alcohol abuse. NIAAA subsequently released another solicitation for adolescent-focused treatment studies in 2003, calling for research to build on its developing program and fill in gaps in identified areas, such as diminishing the substance abuse potential of high-risk groups including children of alcoholics (NIAAA, 2003). Also in 2003, NIDA funded several new adolescent treatment studies through its initiative designed to stimulate research that would improve behavioral health services and treatment for adolescent drug abuse (NIDA, 2002a). At around the same time, CSAT was developing its own adolescent substance abuse treatment portfolio. In 1998, CSAT launched its multi-site Cannabis Youth Treatment study (Ch. 5) and the Adolescent Treatment Models program announcement was released that same year and again in 1999 (SAMHSA, 1998b, 1999). These multisite initiatives represented major advances in identifying

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and disseminating effective treatment models for adolescent substance abusers in the USA (Dennis *et al.*, 2003, 2004).

Interest in youth substance misuse and funding for new research initiatives has also increased substantially in the UK and Europe (EMCDDA, 2003a; EORG, 2002; Rigter *et al.*, 2004; UK Department of Health, 2002). Government-funded reports across the UK and European nations reveal disturbing trends in recent years, including exposure to and access to a wide range of drugs by young people, increases in the number of young teens who have used drugs, higher rates of youth presenting for treatment, and increases in drug misuse among younger adolescents (EMCDDA, 2003b; McKeganey *et al.*, 2003; UK Drug Strategy Directorate, 2002). Consistent with research on adolescent drug abuse in the USA (e.g., Hawkins, Catalano, & Miller, 1992), drug use among young people in the UK and Europe is associated with a challenging set of problems, including delinquent behavior; peer drug use; school exclusion; and family dysfunction such as marital discord, poor parental supervision and management, and family substance abuse and disruption (EMCDDA, 2003b; Scottish Executive, 2003). Further, research reveals that young people with substance misuse problems in the UK and Europe are not being identified accurately or treated with integrative, developmentally appropriate, research-supported interventions (Burniston, *et al.*, 2002; DrugScope, 2003; Scottish Executive, 1999; Strijker *et al.*, 2001). With growing recognition and concern about the multifaceted nature of the clinical problem, the increase in the numbers of substance involved youth, and the lack of services for substance-abusing teens, many nations have given a high priority to the problem of youth substance misuse in their recently released national strategies for addressing substance misuse (Ketelaars *et al.*, 2002; Scottish Executive, 2003; UK Anti-Drugs Co-Ordinator, 2000). In one current study, for instance, scientists from five European countries are working together with funding from their Health Ministers to embark on new research to examine treatment approaches for adolescent cannabis misuse. This collaborative will attempt to replicate the impressive effects of a multisystem-oriented, family-based intervention established in the USA (Rigter, 2003).

Beyond the obvious commitment of federal funding bodies to improving adolescent substance abuse treatment and increasing the research base for effective interventions, evidence of the specialty's maturation is apparent in several areas. One is in the proliferation of specialized adolescent-focused methods of assessment (Ch. 11) and intervention (Liddle *et al.*, 2000; Wagner & Waldron, 2001) based largely on developmental research and studies of risk factors for adolescent substance abuse (Ch. 2). Many treatments are now available as studies have shown that even complex adolescent treatment models can be translated into practical manuals, and that these are not only acceptable to and feasible for training

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community-based providers (Godley *et al.*, 2001; Liddle *et al.*, 2002) but also, critically, are efficacious in curtailing drug use and improving functioning among drug-abusing adolescents (e.g., Liddle *et al.*, 2001, 2004). The literature has expanded accordingly. Since 2000, three comprehensive volumes on treatment of adolescent substance abuse have been published (Monti, Colby, & O’Leary, 2001; Stevens and Morral, 2003; Wagner & Waldron, 2001). Special issue publications have been compiled on timely and clinically important topics in adolescent substance abuse treatment, such as national trends in drug treatment evaluation for adolescents (the Drug Abuse Treatment Outcome Studies in Adolescents [DATOS-A]; Fletcher & Grella, 2001; Ch. 7), qualitative methods for evaluating adolescent substance abuse treatment (Currie, Duroy, & Lewis, 2003), the prevalence and clinical implications of child abuse among adolescent substance abusers (Dennis & Stevens, 2003), empirically supported treatment approaches for adolescent substance abusers (Cavanaugh & Muck, 2004; Fromme & Brown, 2000), and a report on the first multisite field trial of several manual-guided interventions for teenage cannabis abuse (Dennis *et al.*, 2002). The adolescent specialty also is now regularly represented in special journal issues and featured articles on important cross-disciplinary topics such as bridging the research–practice gap and conducting state-of-the-art economic evaluations of adolescent drug treatment (Liddle *et al.*, 2002; Roebuck, French, & McLellan, 2003).

Dennis (2002, p. 2) summarized the specialty’s growth in the following way: “We’ve seen major methodological advances in screening and assessment, placement, manual-guided approaches for targeted interventions and for more comprehensive program management that can be easily disseminated, treatment engagement and retention, recovery management, follow-up and outcome assessment, and economic analysis, as well as organizational changes in treatment delivery and financing systems.”

These numerous and diverse signs of progress place this specialty at an interesting crossroad. On the one hand, a solid foundation of research on adolescent substance abuse treatment has been constructed and enormous excitement has been generated by the development of more and more sophisticated, empirically supported treatments. On the other hand, much of this work remains isolated and disconnected from trends and developments that could enhance it. For instance, practitioners remain largely unaware of the important empirical advances that have been made and are necessary to implement effective strategies with this difficult-to-treat population. This volume is designed to address some of these limitations by presenting the latest treatment research advances in clinically relevant ways, by inspiring thoughtful reflection, and by offering practical steps that can be taken to advance the field into the next developmental stage.

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**Theoretical, empirical, and methodological foundations for research**

Part I contains four chapters highlighting some of the advances in theory and science that have provided a foundation for the field; at the same time, they address potential paths that might be followed. Brook *et al.* (Ch. 2) present the developmentally oriented framework of risk and protective factors that has guided and served as the basis for much of the current treatment development work and research. Research methodologies have improved since the first studies of treatment for adolescent substance abuse were carried out, with features such as intervention manuals (e.g., Liddle, 2002b) and adherence evaluations (Hogue *et al.*, 1998), now being considered necessary standards: a feature of treatment and prevention science generally. Statistical methods for analyzing data both during and following treatment are more sophisticated; they enable investigators to answer more nuanced questions about the effects of interventions on youth and their families (Ch. 3). The use of more rigorous methods for following teens post-treatment (Meyers *et al.*, 2003) has provided a knowledge base about the longer-term impact of adolescent substance abuse treatment (Ch. 3). A major development in the field's history, CSAT's Cannabis Youth Treatment Initiative, (Ch. 4), describes the first multisite study of adolescent substance abuse treatment, the methods that led to its successful implementation, and its key findings. Building on these theoretical and scientific advances and following the recommendations of these and other investigators for new research directions, the field's promise for continued growth is considerable.

**Practice and policy trends in treatment for adolescent substance abuse**

The potential for this specialty to improve the quality of care for adolescent substance abusers will depend in large part on the field's examining and making critical changes in the context of service delivery. The gulf between science and practice has been criticized by researchers and clinicians alike (Brown & Flynn, 2002), and this disconnection impacts the work of all stakeholders involved in efforts to improve treatment for substance abusers (Institute of Medicine, 1998). Empirical studies are now showing that research-based adolescent substance abuse interventions can influence the day-to-day practice of community providers (Liddle *et al.*, 2002), and more empirical support exists for a range of models (Stevens & Morral, 2003). However, changes in the service delivery systems themselves will be necessary before widespread dissemination of evidence-based practices will be possible. Even though providers may be motivated to adopt effective models and may be supportive of change, implementation capacity in most programs remains limited (Burke & Early, 2003).

Systems-level organizational factors impede technology-transfer efforts (Simpson, 2002). Adolescent substance abusers are involved in multiple social systems, yet the coordination of care among systems – substance abuse treatment, juvenile justice programs, mental health treatment, and the schools – is notoriously poor (CSAT, 1999). Fragmentation of services has been identified as a major obstacle in treating youth effectively (Aarons *et al.*, 2001; Garland *et al.*, 2001). Recommendations from expert panels suggest that new linkages and partnerships among juvenile justice officials, substance abuse treatment providers, community health agencies, and social service agencies, as well as between these and researchers, must be made in order to create effective treatment systems and promote the use of evidence-based practices (CSAP, 2000; CSAT, 1995 NIDA, 2002a; Robert Wood Johnson Foundation, 2001).

Part II provides a briefing on some important practice and policy trends and on existing barriers to improving services for adolescent substance abusers. For instance, our understanding of the evolution of substance abuse services for adolescents can be enhanced by first understanding epidemiological trends in youth substance use. Essau (Ch. 6) discusses the trends seen in Europe and their treatment implications while Grella (Ch. 7) describes parallel findings from national drug treatment evaluation studies done in the USA and their influence on practice patterns. Some of the more specific challenges of service implementation are presented in chapters discussing the systems of care for adolescent substance misusers in the USA (Ch. 8) and the UK (Ch. 9). Finally, Flanzer (Ch. 10) identifies a broad range of research issues in health services that will be important to address successfully if we are to make progress in bridging the research–practice divide in adolescent substance abuse treatment.

**Comprehensive assessment and integrative treatment planning  
with adolescent substance abusers**

Among the most consistent and clinically pertinent findings to emerge from basic and applied research with this population since the mid-1980s is the complexity, heterogeneity, and multiplicity of problems associated with adolescent substance abuse (Grella *et al.*, 2001; Rowe *et al.*, 2004). Adolescent substance abuse is no longer considered as an isolated clinical problem since these youth almost without exception suffer multiple interrelated deficits that together form what has been called a “problem behavior syndrome” (Jessor & Jessor, 1977). Contemporary assessment and treatment development efforts are, therefore, organized around the constellation of problems that typically co-occur with adolescent substance abuse: psychiatric disorders and symptoms, school problems, delinquency, and high-risk sexual behavior (Dennis *et al.*, 2003). Unfortunately,

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although strong statements have been made about the need for changes in this area (Drug Strategies, 2003), most adolescent substance abusers in community-based treatment programs do not receive comprehensive interventions to address their multiple needs (Jaycox, Morral, & Juvonen, 2003), and there is a well-documented mismatch between the services that are offered and the service needs of the clients (Grella *et al.*, 2001). In the absence of coordinated and targeted interventions, youth with comorbid conduct problems are at especially high risk to drop out of treatment (Kaminer *et al.*, 1992), have poor long-term outcomes (Crowley *et al.*, 1998), and are likely to reoffend following treatment (Farabee *et al.*, 2001).

In part III, the contributors address ways in which effective assessment and treatment can be achieved with adolescents with multiple problems. Chapter 11 reviews and discusses assessment issues and challenges, as well as the latest assessment methods and their application in practice. Two chapters address in different ways some of the challenges and effective approaches for treating adolescent substance abusers with comorbid psychiatric problems: Ch. 12 discussing integrative psychopharmacological interventions and Ch. 13 presenting a broad-based review and discussion of treatment and research issues pertaining to comorbidity. Finally, Ch. 14 is a summary of the latest in human immunodeficiency virus (HIV)/acquired immunodeficiency disease (AIDS) prevention for this population, discussing approaches that have the potential for integration within adolescent substance abuse programs. These topics represent some of the most perplexing and important issues in the field today.

**Empirically based interventions for adolescent substance abuse: research and practice implications**

Remarkable advances have been made since the mid-1990s in the development and testing of promising interventions for adolescent substance abuse and its associated problems (Weinberg *et al.*, 1998). Much of this progress has been based on the considerable knowledge gained from developmental psychopathology research (e.g., Dishion & Kavanagh, 2003). Interventionists have used basic research about normative and atypical development to design interventions that address the multiple interacting risk and protective factors contributing to adolescent substance abuse (Liddle *et al.*, 2000). A second important theme of treatment development efforts has been a focus on integration: not only in terms of incorporating traditional drug counseling techniques (Liddle, 2002b; Randall *et al.*, 2001; Rowe *et al.*, 2002) but also in blending therapeutic models to have maximum impact (Latimer *et al.*, 2003; Ch. 17). Many of the most promising empirically supported models are based on systemic sensibilities that represent a break with traditional disease models of addiction or with reductionistic thinking

that locates the problem within the individual adolescent (Liddle, 1999). In fact, family-based interventions with an ecological and developmental orientation are widely recognized as the most effective approaches for adolescent substance abuse (NIDA, 2002a; Rowe & Liddle, 2003; Weinberg *et al.*, 1998; Williams & Chang, 2000).

A greater number of adolescent substance abuse interventions are available than ever before, with roots in a range of theoretical orientations including family therapy, cognitive-behavioral treatment, behavioral therapy, psychopharmacology, and the 12-step approaches (Deas & Thomas, 2001). Since 1998 alone, NIAAA (2003) has identified 10 effective interventions for adolescent alcohol abusers, with several more being studied in new projects. The CSAT multisite study identified five Cannabis Youth Treatment interventions that were effective in adolescents for reducing marijuana use and maintaining gains following treatment (Ch. 5); the CSAT Adolescent Treatment Models initiative identified 10 promising interventions and evaluated them up to 12 months after intake (see Cavanaugh & Muck, 2004). Three promising approaches specific for adolescents were also profiled by NIDA (1999a) in a publication outlining the principles of effective interventions for drug abuse. With sufficient empirical support and replication in rigorously controlled trials, some of these models have reached “best practice” status on sites such as the USA Department of Health and Human Services Best Practice Initiative (<http://phs.os.dhhs.gov/ophs/BestPractice>).

While the treatment models are diverse and represent a range of theoretical frameworks, their essential elements are generally consistent across different disciplines and sources. For instance, the practice parameters for treating adolescent substance abuse published by the *Journal of the American Academy of Child and Adolescent Psychiatry* (Bukstein, 2004) state that interventions need to be focused on achieving and maintaining abstinence from substances, as well as targeting associated problems across domains of functioning (e.g., coexisting psychiatric and behavioral problems, family functioning, interpersonal relationships, and academic factors). According to these guidelines, treatment for adolescent substance abuse must be of sufficient duration and intensiveness; should be comprehensive and provide after-care or follow-up sessions; be sensitive to cultural, racial, and socioeconomic factors; include families; facilitate collaboration with social services agencies; promote prosocial activities and a drug-free lifestyle (including involvement in self-help groups); and should be provided in the least-restrictive setting that is safe and effective. Similarly, in a recent publication focusing exclusively on adolescent substance abuse treatment, Drug Strategies (2003) presented nine principles illustrating practices common to the most effective programs (see Box 1.1).