

Family-based therapies for adolescent alcohol and drug use: research contributions and future research needs

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ABSTRACT

Objective To characterize the developmental status of the family-based adolescent alcohol and drug treatment specialty by identifying and discussing research and clinical advances.

Method Selective and interpretative literature review and analysis.

Study selection Controlled trials and mechanisms of change studies of family-based treatments for adolescent alcohol and drug misuse.

Results Clinical innovations of family-based treatments include development of detailed therapy, training/supervision, and adherence manuals. Different family-based treatments have been tested with success in controlled trials and process studies. Different versions of the same approach might vary on parameters such as treatment dose, setting, and client characteristics. Research advances include findings that engagement and retention rates for family-based treatments are superior to standard treatment engagement/retention methods. Also, in clinical trials in which they are compared with alternative interventions, in the majority of studies, family-based treatments produce superior and stable outcomes with significant decreases on target symptoms of alcohol and drug use, and related problems such as delinquency, school and family problems, and affiliation with substance abusing peers. Mechanisms of change studies support the theory basis of family-based treatments. For instance, improvements in family interaction patterns coincide with decreases in core target alcohol and drug misuse symptoms.

Conclusions Once in the shadows of the adult substance abuse field, the adolescent substance abuse specialty has become a unique, clinically creative, and empirically-based area. Research and clinical advances of family-based treatments have implications for non-family-based interventions in the adolescent substance misuse treatment specialty.

KEYWORDS Adolescent substance misuse, adolescent treatment research, family-based interventions.

'Despite the accumulating evidence for the important role of families, on the whole service delivery remains focused on the individual drinker or drug user, with families and other members of the user's social network playing a very peripheral role, if any. Where available, services for families and cou-

ples are highly specialized and based on those models with the least evidence for effectiveness. With very few exceptions, help for those concerned about the user is reactive, poorly thought out and marginal' (Copello & Orford 2002, p. 1361).

INTRODUCTION

Adolescent drug and alcohol abuse continue to pose enormous public health challenges world-wide (Krausz 2000; McArdle *et al.* 2002). Epidemiological studies, reports from prestigious think tanks and media coverage, as well as the actions of governments around the globe, all reveal a widespread and growing preoccupation with the increases in substance misuse and related problems among adolescents (Hibell *et al.* 1997; Klingman & Hunt 1998; Sutherland & Shepherd 2001). These concerns have helped to spur scientific advances, and the adolescent substance abuse specialty has matured accordingly. Previous reviews have summarized the basic (Hawkins, Catalano & Miller 1992) and applied research base on youth substance misuse (Weinberg *et al.* 1998) and reviews of treatment research have identified methodological strengths and weaknesses of intervention studies to date (Waldron 1997). This paper describes the advances that have been made in a well-developed and research-based approach to adolescent substance abuse—namely, family-based therapy—and identifies avenues for future therapy development and research activity.

WHY FAMILY-BASED TREATMENT?

As research has identified the multiple risk and protective factors for adolescent substance use and misuse that operate in the family, clinicians have come to understand the important role that parents or caregivers play in treatment engagement and outcome (Kazdin, Siegel & Bass 1990). This is now reflected in numerous practice guidelines that underscore the importance of working with the parents and families of adolescent substance abusers (AACAP 1997; CSAT 1999b) in publications that call for a systemic perspective and treatment orientation toward addictive disorders (Copello & Orford 2002; Miller 2003). Reports from influential policy-making groups have reached a similar conclusion—parents and families need to be involved in the treatment of substance-abusing teens (Drug Strategies 2002). Contributing further to the growing interest in and acceptability of family-based treatment is a burgeoning research literature on the effects of this approach.

Family-based treatment is the most thoroughly studied treatment modality for adolescent substance misuse (Crits-Cristoph & Siqueland 1996). A number of family-based interventions have been developed, tested and shown promise in treating substance-misusing teens. Several approaches, most notably Multisystemic Therapy (MST) (Henggeler 1999), Brief Strategic Family Therapy

(BSFT) (Szapocznik *et al.* 1986), an integrative cognitive behavior therapy and family therapy model (Waldron *et al.* 2001), a family empowerment intervention (Dembo *et al.* 1998) and Multidimensional Family Therapy (Liddle 2002a), have been developed, tested and yielded promising findings. Another research-supported approach, Functional Family Therapy (FFT) (Alexander & Parsons 1982), focuses on delinquent youth.

CLINICAL INNOVATIONS AND CONTRIBUTIONS

This section identifies the unique clinical innovations and contributions to the adolescent substance abuse field made by family-based therapies, the popularity of which has soared over the last decade. Although not the case a decade or so ago, clinicians now understand the importance of parents to treatment engagement and outcome (Kazdin *et al.* 1990). Several science-supported family-based treatments are manualized, and these documents offer guidelines for the engagement of parents and influential others in treatment. Although there were expectations to the contrary, therapists do not feel constrained when using manual-guided family-based therapies (Addis & Waltz 2002). Clinicians report that certain approaches provide flexibility within a principle-based structure (Godley *et al.* 2000), and identify supervision as the key ingredient that facilitates the adoption of science-based therapies (Najavits *et al.* 2004). This is good news for those wishing to adopt science-based family therapies, because training and supervision methods have long been a part of this approach (Liddle, Breunlin & Schwartz 1988).

Family-based therapies utilize basic research on developmental psychology and developmental psychopathology (Liddle *et al.* 2001). Considerable research underscores the influential role played by family relationships and family environments in the development of adolescent alcohol and drug problems (Repetti, Taylor & Seeman 2002). While these various forms of family-based therapy may differ in their clinical techniques and particular foci, all share a conceptual framework that acknowledges the contribution to substance abuse problems made by dysfunctional family environments. For example, poor family functioning affects the youth's development, making a teen more likely to gravitate toward and then affiliate with youth who are also having problems with their parents or in other areas of their life (Duncan *et al.* 1998). The systemic view, however, would remind us of the converse reality. That is, adolescent problems and substance misuse also disrupts family relationships and can be a cause and not only a consequence of family dysfunction.

In any case, family interactional patterns are indicators of family relationship quality, and because family relationships are a primary target in family-based therapies, the capacity to assess and then, on the basis of this assessment, intervene in the family environment, are fundamental to treatment—the assumption being when family relationships change, other aspects of the youth's and parent's life can change in more positive directions as well (Azrin *et al.* 1994; Schmidt, Liddle & Dakof 1996). It follows that family-based treatment development programs would include detailed efforts to understand and map the processes contributing to continued dysfunction and to specify and refine the therapeutic procedures that can change parent–adolescent interactions (Liddle & Hogue 2001). The systematic linking of specific, research-derived target behaviors with clearly prescribed interventions (Diamond & Liddle 1999) is one of family-based therapies greatest strengths and contributions to the field and a means of providing a bridge between research and practice. Using knowledge from the basic science of how dysfunction develops (Shortt *et al.* 2003), these therapies use interventions that pinpoint particular aspects of functioning such as emotional disengagement and high family conflict or poor parenting practices.

Family-based therapies also recognize the research-established influences of contextual influences on problem development. These include, for instance, neighborhood disorganization (Brook, Nomura & Cohen 1989); neighborhood stressors and school attendance (Scheier, Botvin & Miller 1999); and acculturation differences between parents and children (Vega & Gil 1999). At the same time, in summarizing the results of their own research and commenting on the studies of others, Rankin & Quane (2002) remind us that 'family factors are much more important predictors of adolescent outcomes than neighborhoods' (p. 94). By systematically incorporating this knowledge into treatment, family-based therapies have expanded the targets of traditional individual treatment. Just as they expanded to include the social environment of the family (i.e. beyond an individual-only approach), these therapies evolved to include other treatment targets in the teen's daily environment. These environmental factors are influenced, or at least taken into account, through a therapist's work with individual family members and other members of the teen's social ecology. For instance, modification of parenting practices may occur with neighborhood characteristics in mind (i.e. effective parenting reduces the youth's chances of becoming involved with antisocial peers; Steinberg 1987); or a therapist might help a parent in their dealings with influential social settings or people, such as the school or juvenile justice authorities and in this way create circumstances that can divert or loosen their adolescent's ties to drug-using peers. Family-based

therapies target several domains of the teen's daily life for change—areas known to be related to problem development and maintenance. In the normal course of events with a case, these therapies work directly with the teen on the drug-taking behaviors *per se*, directly with the parent on changing aspects of the family environment, and with the parent and teen together on changing important aspects of their everyday psychosocial world (Liddle 2002a). Problems in school-related factors and with the juvenile system relate to drug problems, sometimes pre-dating them. These extrafamilial treatment foci represent areas that, if strengthened, create buffers and concrete alternatives to drug using life-styles.

Thus we see that family-based treatments have broken new ground in using basic research about a variety of important ecological influences on youth development to inform treatment development activities. This research knowledge has been translated in practical terms. For example, knowledge about dysfunctional and protective family environments has been used to formulate treatment targets and corresponding intervention methods, and studies of family-based therapies have begun to demonstrate how changes in this variety of variables are linked to changes in the core targets of substance abuse and related problem behaviors (Schmidt *et al.* 1996; Robbins *et al.* 2003).

Integrative models

One of the most significant and influential developments in the field has been the advent of integrative or combined treatments. Family-based therapies offer good examples of these model construction efforts. For example, Multi-systemic Therapy (MST) represents an approach that, depending on the particular case, selects from elements of family therapy, family preservation, parent training and cognitive therapy methods (Henggeler, Pickrel & Brondino 1999), depending on what the assessment yields. Some family-based therapies have successfully integrated a clinical focus on specific drug taking behaviors with a focus on other, related domains of functioning. The integrative approach of Waldron and colleagues (Waldron *et al.* 2001) combines functional family therapy (FFT) with a behavioral family therapy developed initially with delinquent rather than drug abuse samples, and a substance abuse-oriented cognitive behavioral therapy (CBT). This integrative treatment outperformed both of the component approaches—CBT and FFT—in reducing drug use among substance-abusing teenagers. In accord with some recommendations in the field about new integrative drug treatment possibilities (e.g. Kaminer 2000), Henggeler is experimenting with the combination of a behavioral contingency management approach and his family preservation-oriented MST (Randall *et al.* 2001).

Another model, Brief Strategic Family Therapy (BSFT) (Coatsworth *et al.* 2001; Santisteban *et al.* 2003) is an integrative family therapy approach that has developed culturally specific interventions for Hispanic conduct and early stage substance-using youth. The MDFT treatment system of Liddle and colleagues represents an even broader effort at integration, combining drug counseling methods with a multiple systems assessment and intervention scheme, both inside and outside of the family (Rowe *et al.* 2002). Thus family-based treatments are, almost by definition, integrative models.

Flexible models

Concern has been expressed about the one-size-fits-all approach to treatment taken by some manualized therapies. However, accumulating evidence suggests that family-based treatments are capable of being principle driven and structured as well as flexible in their delivery and contrary to some expectations, at least, therapists do not feel constrained when using manual-guided, family-based therapies. They find that certain approaches can provide flexibility within a principle-based structure (Godley *et al.* 2000). Multidimensional Family Therapy (Liddle 2002a) is a case in point. Conceived as a treatment system rather than a narrowly constructed model of therapy, MDFT was designed for considerable flexibility in its format (e.g. intensity of treatment, number of sessions), service delivery context (e.g. sessions held in clients' homes, clinic, school, court, juvenile detention centers), and target clientele. Specifically, MDFT has been evaluated with adolescents from diverse cultural backgrounds manifesting varying levels and kinds of clinical impairments, including youth presenting with comorbid substance abuse and psychiatric disorders. To maximize its adoption and dissemination potential (Sanderson 2003) several different versions of MDFT have been developed and tested: (1) as a weekly, 12- (3-month) or 16-session (4-month) out-patient therapy that includes a small amount of extrafamilial intervention or case management (Liddle *et al.* 2001; Dennis *et al.* 2004); (2) as an intensive out-patient alternative to residential treatment for dual-diagnosed teens, delivered several times a week over an average of 6 months (Rowe *et al.* 2002); (3) as a prevention approach for teens at high risk of substance abuse but not yet clinically diagnosed (Hogue *et al.* 2002); and (4) as a treatment system designed for integration into existing treatment programs such as day treatment or residential care settings (e.g. see Liddle *et al.* 2002). The successful adaptation and testing of MDFT in a day treatment/partial hospitalization program setting (Liddle *et al.* 2002) is noteworthy, as it demonstrates that individualized treatment tailoring can be achieved. The approach thus actualized

the principle of customization at the level of the individual clinical case and its multiple social contexts, as well as at the level of the model, in terms of the model's adaptability to real world clinical drug treatment settings. The next section specifies the contributions of research on family-based treatment to the youth substance misuse field.

CONTRIBUTIONS TO RESEARCH

A substantial body of research has demonstrated that particular family-based therapy models offer highly effective, and in many cases the most effective means of treating adolescent substance abuse (Stanton & Shadish 1997; Weinberg *et al.* 1998; Williams & Chang 2000). Advances have been made in several areas.

Engagement in treatment

Although it is still not uncommon to hear practitioners and researchers alike voice pessimism about the feasibility of engaging substance-misusing adolescents and their families in treatment, there is considerable evidence to the contrary. The pioneering work of Stanton & Todd (1981) demonstrated the engagement potential of family therapy as well as its effectiveness for a challenging patient population—male heroin addicts and their families. Over time, the structural-strategic orientation of Stanton & Todd (1981) served as the foundation for specialized engagement (i.e. initial participation in treatment program) strategies. Szapocznik *et al.* (1983) showed that 92% of families could be successfully engaged in treatment when a specialized, culturally responsive family-based engagement procedure was utilized versus only a 42% engagement rate for engagement as usual (community clinic). Donohue *et al.* (1998) engaged 89% of the cases using family-based engagement procedures but only 60% using engagement procedures aimed at the parent alone. An intensive version of MDFT compared favorably in a controlled comparison with residential treatment for adolescents with substance abuse problems and comorbid diagnoses. At 3 months post-intake, the out-patient MDFT intervention retained 95% of youth in treatment compared to a 59% retention rate for the residential treatment (Liddle & Dakof 2002). These sample findings, coming from three independent research groups testing different family-based treatments, and working with different patient populations (age ranges, different clinical features and levels of impairment), suggest a robustness to the conclusion that specialized family-based engagement strategies can make a significant difference in the treatment engagement rates of youths and families.

Treatment retention

Retention rates (i.e. completion of full course of prescribed treatment) for family interventions in controlled trials have been high—typically between 70% and 90+%. Retention using intensive forms of family-based therapy has been dramatically higher than ‘treatment as usual’ (TAU) (Henggeler *et al.* 1991, 1996). In a study with juvenile offenders, 57 of 58 cases (98%) assigned to Henggeler’s MST completed a full course of treatment lasting an average of 130 days. Waldron *et al.* (2001) reported that 56 of 59 cases (95%) who received either FFT-only or a combination of FFT plus cognitive-behavior therapy (CBT) were retained in treatment. In a controlled study testing an intensive out-patient version of MDFT versus residential treatment, at 6 months post-intake, MDFT retained 88% of youth (who had referred to residential treatment but had been allocated at random to the experimental condition, the intensive out-patient alternative, MDFT (Liddle & Dakof 2002). Only 24% of youth in the residential treatment remained in treatment at the same 6-month assessment point (Liddle & Dakof 2002). Differences in retention rates between family-based therapies and other well-defined individual and group therapies with specialized engagement strategies of their own have been less pronounced (Henggeler *et al.* 1991; Joanning *et al.* 1992; Azrin *et al.* 1994; Liddle *et al.* 2001). Several studies have found little or no differences in retention between family-based and alternative state of the science, manualized treatments (Liddle *et al.* 2001; Santisteban *et al.* 1996; Waldron *et al.* 2001). For instance, in a study comparing MDFT and group treatment with an early adolescent sample of substance-abusing teens, MDFT retained 95% compared to 88% for the comparison, manual guided group therapy (Liddle *et al.* 2004). These treatment retention/completion rates compare favorably to some recent data. In a study with 3414 adolescents at 37 treatment sites around the United States, although many positive outcomes in community treatment exist, only 28% of comorbid adolescents in out-patient drug counseling complete the prescribed 90 dates of treatment (Hser *et al.* 2001). Non-family-based therapies that use specialized engagement strategies can provide superior engagement and retention to therapy as usual. Addressing one of the toughest clinical challenges in treating adolescents, these studies indicate that most drug-abusing teens can be retained in treatment if the recruitment methods utilize assertive and often labor intensive methods.

Reductions in drug use

A recent review (Ozechowski & Liddle 2000) evaluated 13 randomized controlled trials that assessed the impact of several out-patient family-based treatments on levels of

adolescent substance use. All 13 studies measured substance use by means of adolescent self-reports. Six of these studies supplemented the adolescent self-report data with either parent reports or urine drug testing, and one study used all three types of measures. Nine of the 13 studies assessed adolescents’ use of specific drugs including alcohol, cannabis, cocaine and other illicit drugs but none of the reviewed studies reported treatment effects for specific substances other than cannabis. Five studies distinguished between use of ‘soft’ (alcohol and cannabis) versus ‘hard’ (cocaine and other illicit substances) substances, and the other eight studies defined ‘drug use’ as a summary or aggregate index of the use of any illegal or illicit substance.

The consistency in the results obtained was striking, and provided continued strong support for the efficacy of family-based therapy in reducing levels of adolescent substance use (Liddle & Dakof 1995). Significant pre- to post-treatment effects for family-based therapy were obtained in all 13 clinical trials. There were significant reductions in alcohol and cannabis use as well the use of hard drugs including cocaine, heroin and other narcotics (Friedman 1989; Lewis *et al.* 1990; Azrin *et al.* 1994; Henggeler *et al.* 1999; Liddle *et al.* 2001). In seven studies, family-based therapy produced greater reductions in substance use than the alternative treatments that were evaluated, including individual therapy (Henggeler *et al.* 1991; Azrin *et al.* 1994; Waldron *et al.* 2001; Liddle 2002b), adolescent group therapy (Joanning *et al.* 1992; Liddle *et al.* 2001; Liddle *et al.* 2004), and family psychoeducational drug counseling (Lewis *et al.* 1990; Joanning *et al.* 1992; Liddle *et al.* 2001). Family-based therapies were found to be equally effective compared to a parent-training group intervention (Friedman 1989) and a ‘one-person’ family therapy intervention (Szapocznik *et al.* 1983, 1986).

The effects of family-based therapy on adolescent drug misuse endure beyond treatment termination. In six of seven studies in which post-treatment outcomes were assessed, reductions in drug use were maintained for up to a year after termination. For example, Liddle *et al.* (2001) reported sustained reductions in drug use at both 6 and 12 months post-treatment among adolescents receiving MDFT, and these effects were superior to those obtained for adolescents receiving group therapy or a multi-family educational intervention. Similarly, Liddle (2002b) found that adolescent-reported drug involvement (cannabis and harder drugs such as cocaine) continued to decline at 6 and 12 months post-treatment among adolescents in MDFT, whereas decreases in drug involvement leveled off among adolescents in the comparison individual therapy (CBT), a high-quality manualized individual treatment. MDFT studies consistently demonstrate durability of treatment effects. In a controlled trial

comparing MDFT with a manualized peer group therapy for drug-abusing early adolescents (ages 11–15), intake to discharge findings reveal significant treatment effects favoring MDFT in four major risk domains: (a) externalizing symptoms; (b) family cohesion; (c) peer delinquency; and (d) school behavior. Also, MDFT participants showed greater decreases for cannabis and alcohol abuse as well as a trend toward less delinquent behavior than youth receiving the group treatment. In a comparison of an intensive version of MDFT and residential treatment (RT), 12 months after intake, RT participants report increasing their cannabis use after discharge, whereas MDFT participants continue to show gains that had begun during the out-patient treatment.

Several other studies have also found sustained effects for family interventions. Several studies, including Szapocznik *et al.* (1983, 1986) (structural–strategic family therapy), Friedman (1989) (FFT) and Liddle & Dakof (2002) (MDFT) found reductions persisted at follow-up assessments. To date, the longest-term treatment effects have been reported by Henggeler *et al.* (1991), who found that adolescents receiving MST reported fewer drug-related arrests (drug use reductions *per se* were not reported) at 4 years post-treatment compared to adolescents who received treatment as usual.

Overall, empirical evidence supports the efficacy of family-based therapy for reducing levels of adolescent drug abuse. Although not all studies were consistent, the evidence suggests that drug use reductions are frequently more pronounced in family-based therapy than in alternative non-family-based treatments, and that these effects can endure at least 6–12 months beyond the termination of treatment (Stanton & Shadish 1997).

EFFECTS OF FAMILY-BASED TREATMENTS ON OTHER PROBLEMS

Adolescent substance abuse is a multi-determined phenomenon that generally involves impairments in multiple domains of the teen's life. Consistent with this research-derived conceptualization, family-based therapies have developed comprehensive assessment protocols and a menu of individual and systemic interventions targeting a range of functional areas in addition to the core targets of drug use. Hence, from a systemic perspective, it is important to understand how a treatment addresses and changes drug abuse as well as the other correlated problem domains.

Behavioral problems associated with substance abuse

Several studies (e.g. Szapocznik *et al.* 1983, 1986, 1988; Friedman 1989) found family-based therapies to be

equivalent to alternative, and often manualized treatments in terms of reducing problem behavior from pretreatment up to 6–12 months post-treatment. Other studies, however, indicate that family-based therapy yielded superior results. Azrin *et al.* (1994), for example, found that pre- to post-treatment change in parent-reported behavior problems was greater in behavioral family therapy (BFT) than in supportive group counseling. In addition, Henggeler *et al.* (1999) found that from pretreatment to 6 months post-treatment, adolescents in MST had 46% fewer days of incarceration and 50% fewer days in restrictive out-of-home placements than youth in treatment as usual. Liddle (2002b) found that parent reports of externalizing behavior problems and adolescent reports of internalizing behavior problems improved significantly from pretreatment to 12 months post-treatment among adolescents receiving MDFT. By contrast, adolescents in individual CBT showed a leveling off in these gains over the same period. These findings are essentially replicated in another MDFT study. Liddle *et al.* (2004) found that the parents of adolescents receiving MDFT report a gradual decrease in externalizing symptoms up to 12 months following intake.

Comorbidity

Several studies demonstrate the capacity of family-based treatments to decrease comorbid psychiatric symptoms as well as substance misuse. In a study comparing FFT and parent-training group therapy, Friedman (1989) found reductions in adolescent-reported psychiatric symptoms in both treatment conditions. Szapocznik *et al.* (1983, 1986, 1988) similarly found reductions in psychiatric symptoms from pretreatment to 12 months post-treatment for those receiving structural–strategic family systems therapy as well as those receiving a family-based control condition and an innovative, one-person family therapy experimental condition. Differential treatment effects were obtained by Azrin *et al.* (1994) who found large pre- to post-treatment reductions in depressive symptoms in the Behavioral Family Therapy (BFT) condition but no change in depression in the comparison group–supportive group counseling. However, a confound clouds the Azrin results. The mean pretreatment depression scores were more than twice as high in BFT than in supportive group counseling (Azrin *et al.* 1994). Overall, the findings indicate that family-oriented interventions can reduce psychiatric symptoms in samples of drug-abusing teens, although they are not always superior to control conditions, particularly when the latter are also family-based theoretically based, manualized therapies (versus community treatment as usual). One potentially fruitful next research step, given the disappointing treatment outcomes for youth with comorbid disorders

(Grella 2004), concerns the differential effects of empirically supported therapies on comorbid symptomatology (e.g. Rowe *et al.* 2004).

School attendance and performance

Positive changes in school attendance and performance are indicators of improvement in prosocial and developmentally adaptive competencies. Four studies reported the effects of family-based therapy on adolescents' school attendance and performance. In all of them, adolescents in the family intervention conditions showed more improvements in academic functioning than those in alternative treatments. Friedman (1989) found a marginally significant decrease in mothers' reports of their adolescent's school problems among those in FFT compared to the control parent-training group condition. Three other studies used actual school records. Azrin *et al.* (1994) reported that adolescents in BFT evidenced a greater increase in school attendance from intake to termination than those in supportive group counseling. Brown *et al.* (1999) reported that from intake to 6 months post-treatment, the percentage of youth who, according to self reports, parent reports and school records, were regularly attending school increased significantly more among teens in MST than in treatment as usual. Finally, Liddle *et al.* (2002) found that adolescents in MDFT exhibited significantly higher increases in grade point average from intake to 1 year post-treatment, whereas grades did not improve for teens in either of the comparison treatments—adolescent group therapy or multi-family group education.

Family functioning

Family-based interventions can improve family functioning among adolescent substance abusers. In five clinical trials, family-based therapy was as effective as alternative treatments in improving family functioning (Szapocznik *et al.* 1983, 1986; Friedman 1989; Joanning *et al.* 1992; Waldron *et al.* 2001), whereas in two randomized studies family-based therapy was superior to alternative treatments. Azrin *et al.* (1994) found that both parent- and adolescent-reports of satisfaction with the parent-adolescent relationship improved more in BFT than in supportive group counseling. Liddle *et al.* (2001) found that observational ratings of global family health (positive, developmentally adaptive family interactions) improved significantly from pretreatment to 12 months post-treatment among families in MDFT, but not among families in adolescent group therapy or multi-family drug education.

The link between treatment-induced improvements in family functioning and adolescent problem behavior, a

core aspect of family-based therapy theory, has also been studied. Schmidt, Liddle & Dakof (1996) investigated the relationship between changes in parenting behavior and changes in adolescent drug abuse and externalizing problem behaviors. Observational ratings were made of the quality of parenting behavior exhibited during the first three and the last three sessions of MDFT for 29 adolescent drug abuse cases completing 14–16 treatment sessions. Significant improvements in quality of parenting behavior were found in 20 of the 29 cases. Concurrent reductions in adolescent substance use and in adolescent acting-out behaviors were seen in 59% and 50% of the MDFT cases, respectively, both statistically significant associations. A series of studies on Multisystemic Therapy (Mann *et al.* 1990; Randall *et al.* 1999; Huey *et al.* 2000) provide strong support for the causal link between behavioral changes in family functioning and change in adolescent symptomatology. Taken together, the above findings provide support for a central tenet of family-based therapy, namely, that therapeutic changes in family functioning lead to symptom reduction and improved adolescent functioning.

In-session processes associated with change

Process–outcome studies play an integral role in treatment development research (Diamond & Diamond 2001). Several process studies have explicated key therapist and client behaviors associated with successful outcomes in family-based therapy. For example, Diamond & Liddle (1996, 1999) explored therapist behaviors associated with successful resolution of in-session parent-adolescent impasses during MDFT treatment. This study found that resolving parent-adolescent impasses in sessions was facilitated by particular therapist behaviors. These included clinician efforts to (a) actively block, divert or work through negative emotions; (b) amplify feelings of sadness, regret and loss; (c) elicit the adolescent's thoughts and feelings; (d) prompt parent-adolescent conversation on important topics; (e) amplify parents' empathic response to the adolescent; and (f) support parents' efforts to cope with adolescent behavior. In another MDFT process study, Diamond *et al.* (1999) identified therapist behaviors associated with improvements in initially poor therapist-adolescent alliances. In comparison to unimproved alliance cases, cases where the alliances improved were characterized more by therapists' close attention to and expression of the adolescents' experiences, helping the youth formulate personally meaningful goals, and clinicians' presentation of themselves as the adolescents' ally. In a third study, Jackson-Gilfort *et al.* (2001) found that engagement of African American male adolescents in MDFT was enhanced by systematic and focused discussion of specific culturally

relevant themes including the youth's feelings of alienation, and, in the teen's own words, his 'journey from boyhood to manhood'. Thus, complex processes that are related to the theory if not the mechanisms of change in family-based therapies can be identified, committed to manuals, replicated and studied and the results of these studies have been fed back into the host treatment development research program for intervention elaboration and refinement.

FUTURE RESEARCH TRENDS, ISSUES AND NEEDS

Integrative therapies

Experimentation with integrative therapy approaches has been productive and this trend appears likely to continue. Accumulating experience in treatment development studies and clinical trials can guide integrative model building. A recent study (Waldron *et al.* 2001) found that the combination of cognitive behavioral individual therapy and Functional Family Therapy yielded better outcomes for adolescent substance abuse problems than either treatment alone. In another study, an integrated family and CBT model was found to be more efficacious than an individual-only intervention (Latimer *et al.* 2003). Thus, although these are promising findings and they support the integrative potential for family and individual CBT models, there are undoubtedly other combinations of individual, group and family-based treatments which can be applied to best effect but research is only beginning in this regard.

Interventions studied as stand-alone treatments or as integrated parts of broader programs

In most studies completed to date, family-based therapy has been implemented as a stand-alone treatment. There are many settings where this strategy may not be feasible. An alternative is to integrate family therapies into existing treatment systems, making them part and parcel of a broad array of services. This approach has been used by Liddle and colleagues in a study of the integration of MDFT into a day treatment drug program for teens (Liddle *et al.* 2002). Integrating family-based therapy models and methods into residential treatment settings is another exciting area for future work. Although there are clinical feasibility issues to resolve, many practitioners who work in juvenile justice and drug treatment residential settings are interested in incorporating work with the teen's family into their regular array of services. More than holding periodic sessions with families, such applications would understand families as an integral part of the support environment to which a teen returns

after treatment. These innovations are ways in which family-based therapies are becoming more integrated into contemporary drug treatment (McLellan *et al.* 1993).

Component analysis

Although several family-based treatments have demonstrated favorable outcomes, we have a limited understanding of how and why these outcomes are achieved. Creative studies are needed that can explicate mechanisms of action and evaluate the relative influence on outcome of the different components of the family-based treatments. However, component analysis studies are complicated by the need to take into account a variety of factors that can directly and indirectly influence outcome, including therapist behaviors, in-session interactions between the therapist and the teen and parents, as well as the pretreatment characteristics of each, and the many social/contextual factors that influence adolescent and family functioning.

Flexible versus structured treatment construction

Manual-guided therapies have permitted an ever greater specification of treatment techniques and concomitant procedures to evaluate therapist adherence. These developments have not been welcomed uniformly. There is concern about whether using treatment manuals makes for a cookbook approach to therapy and limits the flexible tailoring of treatments to individual patients; but some treatments and manuals have demonstrated that prescriptiveness and flexibility are not mutually exclusive. A challenge for the future is to determine which clinical methods require more or less prescriptiveness, and the extent to which different levels of prescriptiveness facilitate or impede desired treatment processes and outcomes (see Jacobson & Revenstorf 1988).

Assessing changes in family interaction

Core to family-based therapies are questions of how family interactions affect and are affected by adolescent problem behaviors such as substance misuse and, following this, how best to target and change family interactions. Measuring changes in families is more often conducted via self-reports of individual family members than via independent analysis of family interactions. When such measures are included they take the form of analyzing in-therapy videotapes or pre- and post-treatment performance on family interaction tasks, both designed to reveal transactional patterns. Although the reasons for this emphasis may simply pertain to research expense, omitting assessments of family interaction via behavioral

ratings represents an inconsistency, given that a major thrust of family-based therapies is changing the family environment and family interaction. Additionally, a decision to not include this data source handicaps the theory testing capacity of these studies. Behavioral ratings of a core development influencing context such as family interactions represent a potentially important source of information about the youth's daily life that is related to the continuation of drug use and other problems.

Complexity of transporting empirically supported therapies

Encouragement to transport empirically supported therapies into diverse clinical settings is coming from many directions (Sanderson 2003). Knowledge about therapist and context characteristics (e.g. organizational, reimbursement and billing issues and financial incentives, case-loads, training and supervision) that facilitate clinic and therapist adoption is accumulating, and guidelines have been developed to facilitate the transportation process (Backer 2001; Solarz 2002). Nonetheless, knowledge of how best to adapt science based treatments to real-world settings is only beginning to emerge (Godley *et al.* 2000; Najavits *et al.* 2004), and many challenges to the successful adoption of research-based therapies by community practitioners remain.

It may be the case that not all science-based therapies are equally amenable to successful transportation into regular clinical environments, but several aspects of family-based interventions make them well suited for adoption in non-research clinical settings. First, there is the empirical support of different versions of family-based therapy. This is an important prerequisite for the policy makers and third-party payers who will determine which therapies to import, and financially support. Secondly, these therapies are well developed not only in the treatment manuals but also in the corresponding training procedures and materials. Thirdly, although some of these treatments have already been delivered in community settings, prototypes describing the adaptation process and empirical evidence about implementation outcomes are at an early stage of development. Case studies would help a great deal in this regard.

Moving empirically supported therapies to non-research settings is complex. Should therapy approaches be transported in their entirety and is this feasible given the possible lack of fit of the therapy model's requirements and the host setting's realities? Which post-training supports and resources are needed to sustain the application of research based therapies in practice? What tools and new technologies (web-based learning/supervision and training, interactive CD ROMs) and training tools are useful in transporting family-based therapies in diverse clin-

ical facilities? Not dissimilar from the kind of treatment development frameworks that have been advanced to systematically design and test new interventions (e.g. Onken, Blaine & Battjes 1997; Kazdin 2001), conceptual frameworks for technology transfer efforts have been developed (Liddle *et al.* 2002; Rogers 1995; Solarz 2002; Price 2003) and in some cases, tested (Simpson 2002).

The multiple systems conceptual framework that has dominated theorizing and assessment and intervention development in family-based therapies (Liddle 2002b) can also guide treatment diffusion efforts. This conceptual framework can articulate and map the complex processes of multi-level thinking, including the interaction of systems components relative to each other (e.g. administrative and organizational changes in a clinic might relate to changes in clinician practice patterns, which might be hypothesized predictors of improved client outcomes). Thus, the same systems thinking that formed the basis of family treatment models can also be used to conceptualize the transportation and testing of these same treatments in non-research settings (Liddle *et al.* 2002; Price 2003).

Subgroups and typologies

As advances in the basic science of adolescent substance abuse continue, these findings will continue to have important implications for therapy development and treatment science (e.g. see Randall *et al.* 1999; Flory *et al.* 2004; Rowe *et al.* 2004). One example is the work on comorbidity and the specification of adolescent substance abuse typologies. A fine prototype in this regard, Zucker's (1986) alcoholism subtypes framework suggests that as the kinds and nuances of developmental dyfunctions are discovered, current treatments can be revised accordingly. For example, the issue of subgroups/typologies is subsumed under the broader issue of the heterogeneity of substance abusers, which many researchers now see as the rule not the exception. How to best capture this heterogeneity is a future challenge, made somewhat easier by the development of new statistical models and methods (e.g. HLM-type techniques, new cluster analyses) that permit the identification and study of individual/subgroup change trajectories (Muthén 2004). Other ways of understanding the heterogeneity of adolescent substance abuse disorders have also been articulated. Among the most prominent of these are gender and cultural variations.

Intervention design: the influence of drug-using and delinquent peers

As its name indicates, family-based treatment seeks to change families; but as research on the known determi-

nants of substance abuse and related problems expands, the scope of these therapies has expanded as well. Family-based therapies have become increasingly multi-systemic in orientation. A major part of this change has been in the way that these therapies have taken the adolescent's peer world into account. Altering family interactions, while difficult, is more straightforward than changing the peer's relationship network. Although certain kinds of peer interactions (affiliation with drug using peers) constitute a well-established risk factor for adolescent alcohol and drug misuse, and should also be an intervention target, attaining the same degree of access to this risk factor as to the family environment is difficult.

Adolescent group treatment is meant to change the youth's peer relationship functioning in the same way that family therapy was meant to change the adolescent's family relationship functioning, but there are major differences between these intervention systems. Family therapy presents a proximal aspect of the natural ecology of the teenager; attempting to engineer changes within that natural ecology by focusing directly on individual members (e.g. social cognitions) and interactional patterns. By contrast, direct access to the actual day-to-day peer world of teens is limited. Family-based therapies work to change the youth's peer system indirectly. For example, therapists facilitate changes in parental monitoring which in turn can influence a teen's affiliation with peer networks (Dishion & McMahon 1998). Clinicians work individually with a teen relative to their peer relationships as well (Liddle 2002a). These pathways of influence have yielded favorable outcomes—family-based therapies have resulted in change in the deviant peer connections of clinically referred substance-misusing youth. However, as with other target behaviors, there are different routes to change the same behaviors and it is an empirical question if there are more effective routes, by which antisocial and drug-supporting peer systems can be influenced given that the therapist's direct access to the peer network is limited.

Recent work, including the positive youth development movement, specifies new ways by which prosocial skills can be facilitated (e.g. Catalano *et al.* 2004). Another option that may deserve consideration is the inclusion of peers from the teen's natural and current network directly in the multiple systems-focused treatment (Selman, Watts & Schultz 1997). This procedure is different than the usual way of targeting peer interaction. In the standard group therapy, the youth's peers are strangers (at the outset at least) and each youth in the group is not part of the natural ecology of the others. Some family-based therapies have experimented with the inclusion of peers nominated by and brought to treatment by the focal adolescent but not on a consistent basis. This alternative procedure directly targets a critical

aspect of the youth's social ecology—a piece of his or her social network—for inclusion in treatment. Human subjects research issues (i.e. informed consent, definitions about who can be included in research study treatment protocols) will have to be solved if the youth's actual peers (essentially adolescents who have not asked for nor consented to treatment) are to be included in therapy.

Policy

The most underdeveloped area in the adolescent substance misuse specialty concerns how treatment research can influence public policy. The role of research is only one piece of the complex network of activities involved in changing therapist practice patterns and the transportation of science-based therapies in community settings. Some work in this area is being led by private foundations, such as Drug Strategies (2002) and the Robert Wood Johnson Foundation (2001) but much more work is needed. Drug Strategies, a Washington, DC-based foundation, worked with exemplary treatment providers and research and treatment experts to identify the most effective empirically supported therapies and outstanding treatment programs for adolescents. The Drug Strategies report, *Treating Teens: A Guide to Adolescent Drug Programs*, characterized the state of contemporary adolescent substance abuse treatment in the United States. After analyzing exemplary treatment programs and research literature, nine program elements, including family involvement in treatment, were identified as critical elements of effective programs.

Work of this nature taken up by foundations federal/national, state and local government agencies have the potential to change service patterns and policies, to set priorities and issue guidelines for funding young persons' substance misuse treatment. Synthesizing the state of a field can reveal gaps in thinking, clinical work or the very infrastructure of a specialty. This is happening as fundamental issues such as work-force development are addressed (Kraft *et al.* 2004).

Already we have seen how the adolescent specialty has expanded due largely to the tremendous increase in federal funding across government institutes. Sometimes this funding is tied to adolescent specific initiatives, such as the call for proposals on research on family therapy with adolescent substance abusers from National Health Service (Health Technology Assessment 2003), the Cannabis Youth Treatment Multisite Study [Dennis *et al.* 2002 (<http://www.chestnut.org>)] or NIAAA's RFA AA-98-003 Treatment for Adolescent Alcohol Abuse and Alcoholism. Funding increases also follow from an increase in applications in the adolescent specialty generally. Certainly it is safe to assume that unless funding levels remain at current levels or are increased, the kind

of critical mass needed to change policies related to teen treatment will not be achieved.

Adherence–competence–outcome links

Treatment manuals and adherence procedures for family-based therapies are now widely available. Adherence studies indicate that family-based treatments can be delivered per the manual and reliably differentiated from non-family-based therapies (Hogue *et al.* 1998). However, less well studied is the skill with which therapists deliver treatment—the putative link between therapist competence and outcome has received little empirical scrutiny.

Change

Perhaps there is no more important puzzle in the field to solve than the one pertaining to the nature of human change. A contextual stance toward change facilitation includes multiple components, systems and processes. We know that substance misuse is connected not only to the teen's present social circumstances but that these problems grew out of a set of past social circumstances. How these circumstances, past and present, relate to each other and to the alteration of a substance-abusing life-style is less clear. There has been strong and increasing empirical support for the contribution of individual variables (e.g. temperament, emotion regulation and neurocognitive deficits), peer relationships (e.g. connection to deviant and antisocial friends) and family factors (e.g. conflict, emotional disengagement of parents and teens) to adolescent substance misuse and related problems. Yet the precise formulae that could take into account the sequential or cumulative influence or relative contribution of these variables to dysfunction and adaptation remains unknown. Is it possible to develop an algorithm of change? Can we develop an empirically supported system that could account for different kinds of change (i.e. change in different domains of functioning), decreases in symptoms and increases in adaptive functioning by understanding the relationship of changes within and between the presumed key intervention areas of the individual youth, the parent, the family interaction system, the peer network and the social context (e.g. school or jobs)?

One step in this process might be to build a typology of change patterns and forms. Ingredients in the change puzzle include answers about the requisite intensity, scope and comprehensiveness of an intervention program. Although most treatments have some flexibility built into them, our knowledge base is still insufficient to allow for anything close to an optimal patient–treatment-matching system. Effective matching may follow if we

can discover more about the features, variations and conditions of change (e.g. Rowe *et al.* 2001). Complex issues such as whether there are sequences of change, and how important, relatively speaking, changes in one or another area of impairment are await further inquiry.

The longevity of therapy-induced change has always been a topic of considerable interest and import, but like the previously specified content questions, long-term outcomes and the attendant dynamics of same also remain to be fully explored or understood. Perhaps one reason for the paucity of long-term follow-up studies, in addition to the extraordinary effort involved in conducting them, concerns the lack of clarity about how findings from a study on treatment's long-term results should be interpreted. The client characteristics in adolescent studies include considerable and ongoing developmental change. The disentanglement of clinically induced change from the normative (non-treatment) context of expected developmental change, a challenge to assess over many years, has not been achieved.

Also uncommon are theoretical or speculative papers and hypothesis-generating studies aimed at illuminating how change occurs in adolescent substance abuse treatment. A notable exception and model in this regard would be Miller's (2000) recent contribution in which he speculates, using unexpected empirical findings as a stimulus for conceptual creativity, on how an intervention such as motivational interviewing achieves its effects. Even more rare are empirical papers that address different aspects of the change puzzle. An exception in this regard includes the work of Maisto *et al.* (2001) who found that a stress and coping model enhances our understanding of the course of youths' clinical and developmental outcomes after substance abuse treatment (also see Brown *et al.*'s 1999 finding that post-treatment substance misuse is negatively related to adolescent functioning in social, school, family and psychiatric domains).

There are other aspects of change needing amplification and empirical investigation. One of these involves the limits of change. Consider Tarter & Vanyukov's (1994) propositions about how change theories could be made more complex by including individual variations.

Limits are attached to the capacity to influence the magnitude of change that can be expected for a given individual. For example, for a child with Down syndrome environmental stimulation has limitations with respect to augmenting intellectual ability. In the same manner, with respect to the alcoholism phenotype, there are limits regarding the magnitude of change that can be accomplished. Hence, for some individuals it may not be possible to shift the liability phenotype into the normative range as, for example, those individuals at the extreme end of the distribu-

tion of affected cases (Tarter & Vanyukov 1994, p. 1097).

One implication of Tarter & Vanyukov's position would be in the expectation set we bring to a therapeutic situation. Family therapists generally have been trained to be optimistic about the change potential of even entrenched and chronic clinical situations. Thus the very topic of the limits of change may present disequilibrium in a therapist's mind set. Although many clinicians may read Tarter & Vanyukov's position as unduly pessimistic, it need not be interpreted only in this light. As the basic science of adolescent substance abuse continues to advance, and process studies accumulate more detail on the circumstances and varieties of change, it is work of this nature that will elaborate and ultimately test Tarter & Vanyukov's ideas about the limits of change.

Another important aspect of the change puzzle might be the conditions under which change is most likely to occur, and the circumstances that make change unlikely. Family-based therapies focus on family relationships and other important domains of functioning as well. Although research has shown that certain aspects of family relationships, including parenting practices and family cohesion can change, we are not yet able to rank the most important factors and aspects of the change process in families.

Stages of change in family therapy is another important topic needing empirical scrutiny. DiClemente & Prochaska's (1998) work has demonstrated that the value in assessing the stage or readiness for change as well as the stages through which one progresses in achieving and maintaining different kinds of change is valuable; but much more work is required to unravel the complexities of movement within and across stages of change and to identify variations in and components of different change sequences (e.g. microsequences of change: small change sequences, stages or steps within molar level stages of change; Diamond & Liddle 1999).

On the topic of developing a suitably complex notion about change:

The picture that emerges is that of a two stage treatment process, requiring different interventions. One set of interventions is optimal in changing drinking behavior itself, in bringing about abstinence or moderation . . . Another set of interventions aims primarily at environmental contingencies and other life problems, attempting to bring about changes that will help to maintain sobriety. Neither set of interventions may be sufficient in itself to bring about lasting change (Miller & Hester 1986, p. 162).

Relative to our current discussion, these ideas specify two propositions. The first has to do with dysfunction-

specific interventions and the second refers to the ordering of those interventions in a particular sequence. Although connected, they deserve individual attention and empirical work as well. The notion that treatment should proceed through stages is not new. In 1976 one of family therapy's pioneers, Jay Haley, offered an outline of therapy stages and concomitant therapist behaviors, but more work needs to be conducted to develop a detailed articulation, a map, of the processes of change. This blueprint may vary according to dysfunction characteristics, level of impairment or developmental factors. Treatment development and process studies have addressed some of these issues if not on a generic, then certainly on a model-specific basis (Liddle 1999). In the MDFT research program, for instance, studies have focused on core therapy processes in the all-important engagement stage of treatment (Diamond & Liddle 1996; Jackson-Gilfort *et al.* 2001), when alliances between the therapist and adolescent and between the therapist and parent(s) are formed. Relative to the *stages within stages* idea, these process studies have articulated the preferred sequence of therapist behavior to facilitate optimal beginning stage outcomes such as engagement in therapy (Diamond & Liddle 1999; Diamond *et al.* 1999).

Another aspect of Miller & Hester's (1986) model concerns the particular kinds of interventions that are best for changing certain kinds of problems. This coincides with Howard and colleagues' stages of change model (Howard *et al.* 1993). They maintain, as do Miller & Hester, that specific change processes and classes of interventions will be appropriate for different therapy phases. Engagement interventions and studies (discussed in this paper) exemplify this thinking. Certain tasks have to be accomplished before others can be. For instance, therapeutic relationships are established before change strategies are employed.

Howard *et al.*'s and Miller & Hester's ideas map onto the MDFT process study research. For example, in an alliance study, researchers identified therapeutic methods that can create a therapeutic alliance with a substance-abusing teenager. Diamond *et al.* (1999) identified core therapist behaviors, which are applied sequentially, that contribute to the reversal of initially poor therapist-teen alliances. This study exemplifies Howard *et al.*'s assertion that there is value in focusing on specific therapeutic tasks in specific therapeutic phases, to achieve specific therapeutic effects.

A major issue that has not been addressed sufficiently concerns the expectations that we bring to our attempts to help teens and families change problems such as conduct disorder and drug abuse. Many voices in the field recommend changing the very mind-set we bring to this work. This orientation cautions against treatment offering a narrow focus on the teen's drug use per se to a broader

focus on related behaviors, problems and the social contexts in which they developed and are maintained.

Clinical problems vary in the extent to which they affect and encompass diverse aspects of the child's life. Some problems may be relatively circumscribed and can be focused on directly with circumscribed or highly focused interventions. Other problems by their very nature are quite broad, and virtually all areas of functioning are encompassed. Antisocial child behavior has a broad impact on child functioning, as reflected in behaviors at home and at school, interactions with adults and peers, multiple behaviors and cognitive processes and academic performance (Kazdin 1982).

Thus, for Kazdin, '... in the light of the range of deficits and pervasiveness of the dysfunction that conduct disorder represents, the scope of most treatments may not be sufficiently broad' (Kazdin 1982).

As part of this broader conceptualization, serious child and adolescent problems such as substance abuse and conduct disorder need to be viewed as potentially chronic conditions, and be treated as such. Although intuitively appealing, this perspective has not caught on. The inoculation or cure paradigms of therapy maintain their hold on the field. Kazdin's position, 'it may be useful to conceive of treatment as a routine and ongoing part of everyday life' (Kazdin 1994, p. 585), and its practical extension, 'the approach might be likened to the more familiar model of dental care, in which individuals are checked every six months; an intervention is provided if, and as needed based on these periodic checks' (Kazdin 1994, p. 586), has not yet found its audience among treatment providers or researchers. The administrators of the current systems of care and the funders of such systems are perhaps the real non-responders to this perspective. Part of the problem may be the unrecognized heterogeneity that is hidden in diagnosis of adolescent substance abuse disorder. The heterogeneity has to do with configuration of the clinical phenomena (e.g. comorbidity) as well as trajectory patterns and dynamics (see Moffitt 1993). Thus, the conceptualization of substance abuse as a chronic condition might be relevant and accurate for some youth and not for others.

CONCLUSION

The area of family-based adolescent substance abuse treatment research has evolved significantly over the past 20 years. These developments have contributed to the wider specialty of adolescent substance abuse in several ways. Family-based interventions have provided a

developmentally and contextually oriented conceptual framework and corresponding set of therapies. A significant increase in the number of funded studies has occurred. Family-based therapies are the most tested approach for adolescent drug misuse (Crits-Cristoph & Siqueland 1996). The results of these studies have encouraged investigators, clinicians, funders and policy makers alike. Family-based therapies can reduce drug abuse and correlated problem behaviors and can change multiple areas of functioning related to the genesis and continuation of drug problems, including connection to deviant peers, school-related difficulties and dysfunctional family environments. Process studies have found evidence for particular theory-based aspects of family oriented treatment, such as the mechanism that links changes in family environment to changes in drug problems, and outcome studies have been conducted which increasingly exemplify the highest standards for conducting controlled trials. Process studies are also illuminating therapy's interior and pointing to probable in-session and in-treatment processes that associate with desired short- and longer-term outcomes. The many advances made in this formative developmental period have established family-based treatment as a viable, indeed a needed option for treatment providers in a variety of settings.

Yet we are far from realizing the benefits of these many positive developments. Barriers to widespread dissemination and adoption of effective family-based treatments are in no short supply (Backer 2001). Most clinicians have no access to training in empirically supported therapies (ATTC 2000), their original training was most likely to be individually oriented and insufficiently focused on the role of the social context, including families, in the development and continuation of alcohol and drug problems. In Babor's terms, this previous generation of interventions focused more on etiology rather than ecology (Babor 2002). Although the interventions themselves may not be optimally constructed for transportation (Fals-Stewart & Birchler 2002), current data on existing services for adolescents present a gloomy picture. In the most comprehensive study of contemporary adolescent drug treatment, Grella (2004) notes that the greatest gap in needed and received services occurs in the family intervention area. For instance, among non-comorbid youth in the US-based DATOS Adolescent study, 79% of adolescents expressed a need for family services and only a third 33% received them. Clinician work-force development remains a fundamental but virtually neglected area (Kraft *et al.* 2004). Although studies are emerging and templates are being produced that can guide our actions, we know too little about the training methods and circumstances that are optimal to helping thera-

pists learn and practice empirically supported treatments. Powerful systemic factors, most notably reimbursement schemes that effectively block clinicians from conducting family-based interventions (Miller 2003), must also be changed for progress to be made. The adolescent substance abuse specialty faces many challenges, not the least of which is researcher workforce development (Follette & Beitz 2003; Liddle 2003)—the settings in which a new generation of intervention scientists will learn their craft. Skills in systems conceptualization, assessment and intervention, hallmarks of family-based therapies, can be instrumental allies in developing a strategic plan to launch the needed changes within the multiple, interconnected domains that constitute the adolescent substance abuse field.

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