# Promoting and Protecting Youth Mental Health Through Evidence-Based Prevention and Treatment

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*For decades, empirically tested youth interventions have prevented dysfunction by addressing risk and ameliorated dysfunction through treatment. The authors propose linking prevention and treatment within an integrated model. The model suggests a research agenda: Identify effective programs for a broadened array of problems and disorders, examine ethnicity and culture in relation to intervention adoption and impact, clarify conditions under which programs do and do not work, identify change mechanisms that account for effects, test interventions in real-world contexts, and make tested interventions accessible and effective in community and practice settings. Connecting the science and practice of prevention and treatment will be good for science, for practice, and for children, adolescents, and their families.*

*Keywords:* children and adolescents, mental health, treatment, prevention, evidence-based practice

The years just before and after the turn of the millennium have been a time of focus and ferment in regard to youth mental health in America. To a remarkable degree, policymakers have joined with scientists and practitioners in efforts to find the best ways to promote healthy development, reduce risk, and ameliorate youth dysfunction and disorder. As a part of this process, governmental organizations at the national level have endorsed the importance of evidence-based practices and programs (National Advisory Mental Health Council, 2001; President's New Freedom Commission on Mental Health, 2003; U.S. Public Health Service, Office of the Surgeon General, 1999; 2004). In addition, family advocacy groups and patient organizations have become increasingly vocal in advocating for interventions that produce good outcomes plus youth and family satisfaction with the care provided (Allness & Knoedler, 2003; Flynn, 2005; Hoagwood, 2003, 2005), and states have developed initiatives to support the use of effective interventions for children and adolescents (herein referred to collectively as *youth*) and their families (see the Web site of the National Association of State Mental Health Program Directors: www.nasmhpd.org). With attention and energy so sharply focused on evidence-based youth mental health, we believe the time is right to consider linking, both conceptually and empirically, two often separate but clearly complementary approaches to the promotion and protection of youth mental health: prevention[1] and treatment.[2]

In this article, we propose a unified framework linking evidence-based prevention and treatment. We begin the article by sketching some of the history of prevention and treatment, summarizing evidence on the effects of prevention and treatment programs for youth, and presenting a conceptual model within which to link these two potential allies. We then fill in the model, using specific programs to illustrate different forms of effective prevention and treatment, detailing strengths and gaps in the evidence base to date, and noting what we see as important next steps in the research agenda for effective promotion and protection of youth mental health.

## Prevention and Treatment in Historical Perspective

The concepts of prevention and treatment for young people emerged as the concept of youth mental illness took shape,

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[1] Throughout this article, we use the term *prevention* to encompass not only traditional preventive interventions aimed at reducing the occurrence of dysfunction but also programs designed to actively promote mental health through such means as expanding knowledge, strengthening coping skills, and enriching resources for support. The array of promotion and prevention interventions included is elaborated in Figure 1, Table 1, and the related text.

[2] Throughout this article, we use the term *treatment* to encompass various psychotherapies. Psychotropic medications, widely and increasingly used to treat youth mental health problems, cannot be adequately addressed within the scope of this review. Surveys encompassing both psychotherapy and medication can be found elsewhere (e.g., Weisz & Jensen, 1999).



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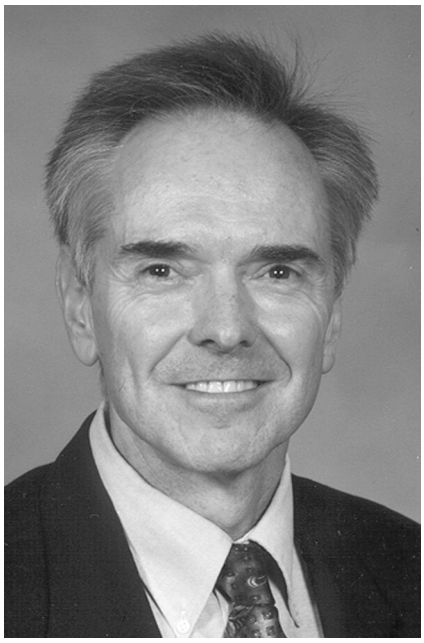

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in the late 19th century. The first concerted efforts at treatment and prevention in the United States did not begin until the first decade of the 20th century, with the mental hygiene movement, social reforms in youth services, and the first child guidance clinics (Levine & Levine, 1992; National Advisory Mental Health Council, 2001). Since then, extensive work has been done to develop beneficial strategies for prevention of problems and disorder and for treatment once problems and disorder have taken shape, but the two bodies of work have followed rather distinct paths.

Contemporary prevention programs for youth have their origins in the 19th- and 20th-century social movements to reduce rates of mental illness in the United States (Caplan, 1969; Spaulding & Balch, 1983). Clifford Beers's (1908) description of his treatment in a mental hospital helped launch the mental hygiene movement to reform the care of the mentally ill, prevent mental illness, and promote mental health. Diverse approaches to prevention and to the promotion of mental health were developed in the first half of the 20th century, including educational programs for parents and teachers, classes for pregnant women, well-baby classes, nursery schools, and school-based programs of education for mental health (Levine & Levine, 1992; Spaulding & Balch, 1983). Prevention and mental health promotion were major objectives of the legislation founding the National Institute of Mental Health (NIMH; National Mental Health Act, 1946), but the field was initially criticized for conceptual fuzziness and a weak scientific base (e.g., Goldston, 1986; Joint Commission on Mental Illness and Health, 1961). In the past two decades, conceptual definitions have been refined, and a new scientifically based approach has emerged (Coie et al., 1993; Cowen, 1983; Durlak, 2000; Mrazek & Haggerty, 1994). By the end of 2002, the literature included over 800 outcome studies on prevention and health promotion and 250 more on drug abuse prevention (see summaries in www.oslc.org/spr/apa/summaries.html).

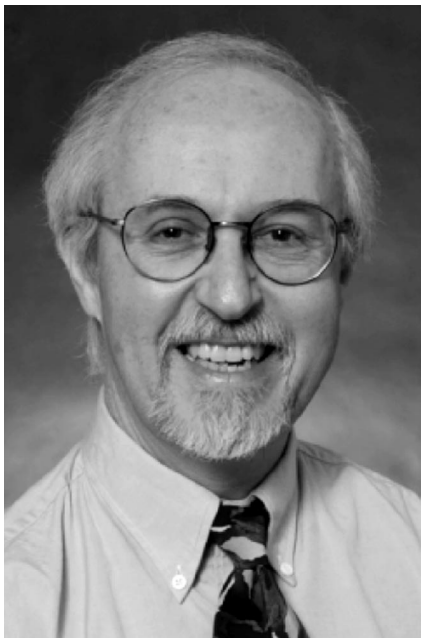
Contemporary youth psychotherapy is often dated to the work of Sigmund Freud (1856–1939), including his treatment of "Little Hans" by consulting with the boy's father. Psychoanalytic work with children was extended into the latter half of the 20th century by Anna Freud and others (e.g., Bornstein, 1949). Alternate models emerged as well, including a radically different behavioral approach; Mary Cover Jones (1924a, 1924b), for example, used modeling and "direct conditioning" to help Peter, a two-year-old, overcome fear of a rabbit. The decades since have seen remarkable diversification, with more than 500 named psychotherapies now practiced with children and teens and a thriving research enterprise including over 1,500 outcome studies (see reviews by Kazdin, 2000; Weisz, 2004; see also www.effectivechildtherapy.com).

## Do Prevention and Treatment Strategies Work? Findings of Meta-Analyses

How well are intervention researchers doing in generating youth treatment and prevention programs? One way to answer the question is to aggregate evidence across multiple prevention and treatment studies to capture the big picture of the evidence through meta-analyses. Meta-analyses are syntheses in which multiple studies are pooled to generate an overall picture of average intervention impact. The hard currency of meta-analysis is the effect size, which in group-comparison outcome studies is usually calculated as the postintervention difference between control group and intervention group, divided by the standard deviation of the outcome measure used. Effect size values thus convey the magnitude of the intervention impact. As a general guideline (following Cohen, 1988), an effect size value of 0.20 is a commonly used benchmark for a "small" effect, 0.50 for a "medium" effect, and 0.80 for a "large" effect. But proper interpretation of a specific effect size value may differ for an intensive therapeutic program versus a broad-based prevention program, and practical significance must be weighed. Even statistically small effects may have a major public health impact if they address an outcome or a risk factor that is highly prevalent (e.g., parental divorce) or highly sinister (e.g., suicide attempts or HIV infection). Procedures for conducting meta-analyses and interpreting their findings are discussed elsewhere (see Cooper & Hedges, 1994; Durlak, Meerson, & Foster, 2002; Lipsey & Wilson, 2001).

### *Findings of Meta-Analyses: Magnitude of Preventive Effects*

Several narrative and meta-analytic reviews have shown that prevention programs for children and adolescents produce significant benefit by reducing the rates of future social, behavioral, and academic problems. A meta-analysis of 177 universal prevention studies found significant



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mean effects ranging from 0.24 to 0.93, depending on program type and target population (Durlak & Wells, 1997). In a review of 130 indicated prevention studies (defined below), mean effects were found to be in the 0.50s (Durlak & Wells, 1998).

Several meta-analytic reviews have focused more narrowly on the prevention of specific problems. For example, beneficial effects have been found in meta-analyses of child abuse prevention programs (Davis & Gidycz, 2000), programs designed to prevent negative consequences of divorce on parents and children (Lee, Picard, & Blain, 1994), and drug abuse prevention programs (Tobler & Stratton, 1997; but see Ennett, Tobler, Ringwalk, & Flewelling, 1994, on the apparent ineffectiveness of the widely promoted Drug Abuse Resistance Education Program for schoolchildren). In a meta-analysis by Wilson, Gottfredson, and Najaka (2001) in which they evaluated studies of school-based interventions to prevent alcohol and drug use, school dropout/nonattendance, or various other target behaviors, the authors concluded that programs were generally effective in each of these areas. Yoshikawa (1995) reported impressive findings regarding the long-term effects of prevention programs that combine preschool intervention with family support; effects on delinquency and antisocial behavior were assessed 8–12 years after the intervention.

With respect to academic outcomes, one cluster of 14 preschool programs studied by Durlak (1997) reduced grade retentions by an average of 33% and special education placements by 48% and increased high school graduation rates by 24% over an average follow-up period of nine years. A Web site jointly sponsored by the American Psychological Association (APA) and the Society for Prevention Research contains information on over 100 reviews of prevention research addressing drug use, pregnancy, child maltreatment, and health promotion (www.oslc.org/spr/apa/summaries.html).

### *Findings of Meta-Analyses: Magnitude of Treatment Effects*

The full body of evidence on youth psychotherapy includes at least 1,500 clinical trials (Durlak, Wells, Cotton, & Johnson, 1995; Kazdin, 2000), and several hundred of these have met inclusion criteria for various meta-analyses. To date, there have been four broad-based youth psychotherapy meta-analyses in which few limits were imposed on which treated problems or types of intervention would be included. Together, these meta-analyses encompassed more than 350 separate treatment outcome studies. In the earliest of the four, Casey and Berman (1985) found a mean effect size of 0.71 for a collection of 75 outcome studies with children ages 12 and younger, and 0.79 for a collection of studies with 4–18-year-olds. Weisz, Weiss, Alicke, and Klotz (1987) found a mean effect size of 0.79 for 106 studies with 4–18-year-olds. Kazdin, Bass, Ayers, and Rodgers (1990), using 223 studies of 4–18-year-olds, found a mean effect size of 0.88 for treatment versus no-treatment comparisons, and 0.77 for comparisons of treatment groups and active control groups. In addition, Weisz, Weiss, Han, Granger, and Morton (1995), pooling 150 studies spanning ages 2–18, found a mean effect size of 0.71. One way to summarize the findings is to note that in all four meta-analyses, averaging across the various outcome measures used, the average treated child was functioning better after treatment than more than 75% of control group children.[3] The effects fall within the range of what has been found in meta-analyses of predominantly adult psychotherapy (e.g., Shapiro & Shapiro, 1982; Smith & Glass, 1977).

Two other meta-analytic results help clarify the treatment evidence. First, findings (Weisz et al., 1987; Weisz, Weiss, et al., 1995) indicate that effects measured immediately after treatment are quite similar to effects measured at follow-up assessments, which average five to six months after treatment termination, suggesting durability of effects within typical follow-up time frames. Second, findings on treatment specificity have shown that effect size means may be about twice as large for the particular problems addressed in treatment as for related problems that were not specifically addressed (Weisz, Weiss, et al., 1995, p. 460). This suggests that the tested youth psychotherapies are not merely producing global nonspecific effects but that many treatments have a rather precise positive impact on the primary focus of therapy.

Complementing the four broad-based analyses just described, some meta-analyses have focused on subsets of

[3] Two caveats warrant comment: (a) Analyses in Weisz, Weiss, et al. (1995) suggest that, with weighting to adjust for sample size and heterogeneity of variance, effect size means may be closer to medium effects than to large effects; and (b) findings by McLeod and Weisz (2004) support the notion that publication bias may have led to inflated estimates of the mean impact of treatment.

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the outcome literature to address more specific questions. For example, meta-analyses focused on cognitive–behavioral therapy (CBT) have found substantial effects on impulsivity, depression, and a broader range of target problems. Other meta-analyses have found respectable effects of family therapy, somewhat higher for individual family members' behavior than for family interaction measures. Moderate positive effects have been found for treatments administered in school settings and for treatments used to prepare youngsters for medical and dental procedures. Taken together, this diverse collection of focused meta-analyses (cited and discussed in Weisz, 2004) points to beneficial effects of diverse treatments for diverse problems (for further reviews of the evidence base on child treatments, see Kazdin & Weisz, 2003; Weisz, 2004).

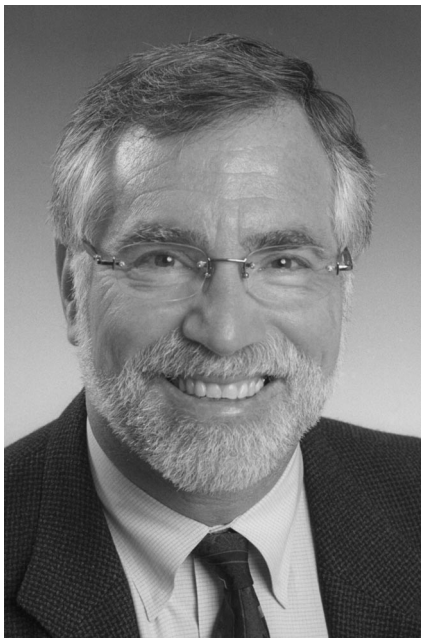
One other point about the summary evidence warrants attention here. Some investigators have searched the literature for studies of treatment as usual in settings in which therapists were able to use their clinical judgment to deliver treatment as they saw fit, not constrained by evidence-based interventions or manuals, and in which there was a comparison of their treatment to a control condition. Meta-analyses of these studies of usual clinical care have found effect sizes averaging about zero (see, e.g., Weisz, 2004; Weisz, Donenberg, Han, & Weiss, 1995), indicating no treatment benefit. Additional evidence suggests that linking multiple treatment-as-usual interventions together within what have been called "systems of care"—an approach tested in the Fort Bragg study (Bickman, 1996; Bickman et al., 1995; Bickman, Noser, & Summerfelt, 1999)—may not be very helpful either. The limited number of studies rules out firm conclusions, of course. Moreover, usual clinical care takes such a wide variety of forms that no findings on one particular study can be generalized very broadly. We do suspect that some usual care interventions have beneficial effects. However, the evidence to date on overall effects averaged across multiple interventions, providers, and settings is not encouraging regarding usual care that has not been derived from empirical research. This further underscores the potential value of evidence-based interventions in improving youth outcomes.

## Prevention and Treatment: A Conceptual Model

As the meta-analytic evidence indicates, decades of work on prevention and treatment have generated intervention programs that, on average, produce substantial measurable benefit. The programs represent an array of different strategies, targeting different aspects of the developmental ecology and designed for implementation in a diverse range of community and clinical settings. We have attempted to convey the heterogeneous yet complementary nature of prevention and treatment programs in the heuristic model shown in Figure 1 (see p. 633). In this figure, we have placed youth, family, and community in the center to emphasize the centrality of individual strengths and supportive social connections in healthy development. These are encircled by a cultural ring to reflect the influence of cultural and ethnic differences in histories, norms, and values of individuals, families, and communities. Such differences require close attention in all societies and certainly in our own nation, where 40% of youth are from ethnic or cultural minority groups (U.S. Census Bureau, 2004). Culture is also used as a linking concept to indicate that utilization and effectiveness of prevention and treatment programs are likely to be enhanced to the extent that those interventions harmonize well with the histories, norms, and values of those the interveners seek to serve (Castro, Barrera, & Martinez, 2004; Hall, 2001; Sue, 2003).

The outer ring of the model shows various intervention strategies (upper semicircle) available to youths, families, and communities and an illustrative range of settings (lower semicircle) within which the strategies can be made available to them. The intervention strategies in the upper semicircle are arrayed from the most universally applicable (i.e., for general population groups not identified as having specific risk factors, problems, or disorders) at the left to the most narrowly focused (i.e., for youths with rarer, persistent, long-term conditions) at the right. The intervention settings in the lower semicircle are arrayed from least restrictive on the left to most restrictive on the right. The particular settings noted here are obviously a mere sampling of the broad range of specific contexts in which interventions might be delivered.

The figure conveys our view of youths, families, and communities of different ethnic and cultural backgrounds (center), encircled by the protection of effective interventions (upper semicircle) within an array of life settings (lower semicircle) ranging from the natural child-rearing settings of home, school, and community to treatment settings that range from the least to the most restrictive. The notion that efforts to promote good mental health,



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prevent dysfunction, and treat problems and disorders can operate in complementary fashion harmonizes well with the perspective of the APA Task Force on Comprehensive and Coordinated Psychological Services for Children (1994).

The four broad strategies shown in wedges at the top left of the figure are often categorized within the *prevention* rubric (Gordon, 1983; Mrazek & Haggerty, 1994); these strategies have in common a focus on individuals not identified as having mental disorders, but they differ from one another in significant ways. *Health promotion/positive development strategies,* shown in the first wedge at the left, target an entire population, with the goal of enhancing strengths so as to reduce the risk of later problem outcomes and/or to increase prospects for positive development. Health promotion was not included in Mrazek and Haggerty's (1994) model of prevention, but a growing sentiment is emerging in the field that enhancement of strengths in individuals, families, communities, and social systems is often associated with prevention of later problems (Cicchetti, Rappaport, Sandler, & Weissberg, 2000; Cowen, 1994; Maton, Schellenbach, Leadbeater, & Solarz, 2004). In addition, evidence indicates that positive youth development programs can have benefits that are valuable in and of themselves (e.g., enhancing interpersonal skills, self-efficacy, quality of adult and peer relationships, academic performance, commitment to school), apart from their potential to prevent mental health problems (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Roth & Brooks-Gunn, 2003).

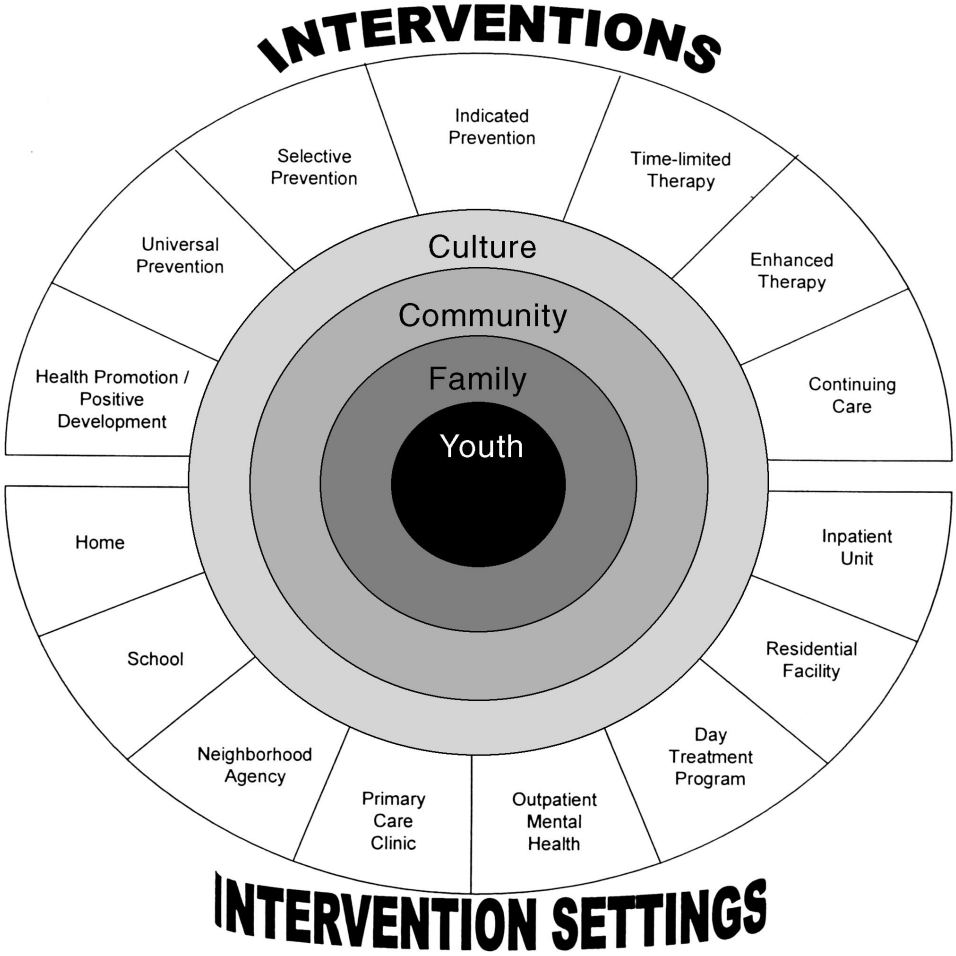
The second wedge in the figure shows *universal prevention strategies,* which are approaches designed to address risk factors in entire populations of youth—for example, all youngsters in a classroom, all in a school, or all in multiple schools—without attempting to discern which youths are at elevated risk. The third wedge, *selective prevention*, is a strategy that targets groups who are identified because they share a significant risk factor and mounts interventions designed to counter that risk. The risks may be identified in a variety of ways, ranging from exposure to specific traumatic events (e.g., death of a parent; Sandler et al., 2003) to familial markers (e.g., parent diagnosed with a depressive disorder; Beardslee, Gladstone, Wright, & Cooper, 2003), but typically do not involve assessment of the child's own problem behaviors. The fourth intervention wedge shows *indicated prevention*, a strategy that entails intervention with those who have significant symptoms of a disorder (e.g., of major depressive disorder; see Clarke et al., 1995) but do not currently meet diagnostic criteria for the disorder.

Treatment interventions, shown in the three wedges at the top right, generally target those who have high symptom levels or diagnosable disorders. *Time-limited therapy* refers to treatments provided in a single episode of care (e.g., 5–30 sessions, or until some criterion of success is attained); in the evidence-based treatment literature, these generally consist of treatment protocols guided by a single manual—by far the most common form of evidence-based care. The line separating time-limited therapy from indicated prevention should be viewed as a permeable boundary. That is, interventions targeting symptomatic but undiagnosed youth are often difficult to place exclusively within one category or the other, and such interventions (e.g., Clarke et al., 1995) are sometimes included in reviews and meta-analyses of both prevention and treatment research.

The second treatment category in Figure 1, *enhanced therapy,* refers to supplemental strategies designed to amplify or extend treatment benefit beyond what can be obtained in a single episode of care. One example of such enhancement strategies is *continuation therapy*—that is, additional doses of treatment beyond the standard protocol, designed to strengthen gains in individuals who did not fully benefit from the standard program or whose recovery seems fragile (see discussion in Weissman, 1994). Another enhancement approach, often labeled *relapse prevention* or *prophylactic treatment,* frequently takes the form of booster sessions designed to prevent recurrence of disorder in individuals who have completed a standard treatment protocol (e.g., Clarke, Rohde, Lewinsohn, Hopps, & Seeley, 1999).

The third treatment category shown in the figure, *continuing care,* encompasses the array of strategies used in an ongoing way over extended periods to support effective living in individuals diagnosed with persistent, long-term conditions. Examples include multimodal interventions that combine such elements as youth skill-building, parent and family training and support, and close interaction with school, community, and medical resources to optimize functioning in youths who confront such challenges as bipolar disorder (e.g., Fristad, Goldberg-Arnold, & Gavazzi, 2003), eating disorders (e.g., Robin, 2003), and autism (e.g., Lovaas & Smith, 2003).

**Figure 1**
*An Integrative Model for Linking Prevention and Treatment Research*




*Note.* Primary strengths reside in youths, families, communities, and cultures (center), supported and protected by effective interventions (examples in upper semicircle) delivered within an array of life settings (examples in lower semicircle). Intervention strategies are arrayed from most universally applicable (i.e., for general population groups not identified as having specific risk factors, problems, or disorders) at the left to narrowly focused (i.e., for youths with rarer persistent, long-term conditions) at the right. Intervention settings are arrayed from least restrictive on the left to most restrictive on the right. The upper portion of the figure is adapted from "Reducing Risks for Mental Disorders: Frontiers for Preventive Intervention Research" (p. 23), by P. J. Mrazek and R. J. Haggerty, 1994, Washington, DC: National Academies Press. Copyright 1994 by National Academies Press. Adapted with permission.

The various intervention strategies shown in the figure have the potential to complement one another in that they address mental health concerns at different stages of problem development and with populations that are identified in quite different ways. Each intervention strategy can be seen as a necessary but not sufficient element of a comprehensive system for promoting and protecting youth mental health. The treatment strategies that address serious problems and disorders are complemented by preventive strategies that address risk before it has evolved into debilitating forms. Treatment strategies applied precisely to the small subsets of the population who enroll in therapy are complemented by prevention strategies applied to larger portions of the population, including those who might never seek therapy. Treatments that may carry the risk of labeling and stigma are complemented by universal promotion and preventive interventions that require no label and are relatively stigma free. In addition, treatments that typically require extensive professional clinical infrastructure to deliver are complemented by preventive interventions that can be delivered more flexibly and with fewer professional trappings.

Because treatment and preventive strategies are so complementary in so many respects, their combination offers the promise of reaching a particularly broad range of youths and families, targeting both risks and existing problems and disorders and providing protection within the formal clinical care system as well as in systems of stan-

dard socialization such as schools and child-care and health care systems. An additional benefit is suggested by Cicchetti and Hinshaw (2002) in their introduction to a special issue of *Development and Psychopathology* titled "Prevention and Intervention Science: Contributions to Developmental Theory." These authors noted that the study of intervention impact can provide a window on developmental pathways to competent adaptation in the context of stress and adversity. In our view, to the extent that intervention science encompasses and integrates the full range of strategies, from prevention to treatment, the potential to enrich developmental theory will be magnified.

The bottom portion of Figure 1 shows examples of settings in which interventions are commonly delivered. Because the array of such settings is virtually unlimited, the figure shows only a sample of settings in which interventions have been applied, omitting many others (e.g., work sites); we aim only to illustrate various natural child-rearing and youth care contexts and the range from least restrictive to most restrictive clinical or institutional settings. Although prevention and treatment are often construed as occurring in separate settings, this does not have to be the case. Schools, so often the settings for prevention programs, are also common contexts for both treatment trials (e.g., Weisz, Thurber, Sweeney, Proffitt, & Legagnoux, 1997) and everyday treatment (see Rones & Hoagwood, 2000). Home-based prevention programs (e.g., Olds et al., 1998) are now complemented by treatment programs that put the therapist in the home and in other community settings (e.g., Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). Prospects for synchronous operation of prevention and treatment programs obviously improve to the extent to which both strategies can be embedded within the same settings.

## Specific Prevention and Treatment Programs That Work: Task Force Findings

It is useful to consider the model shown in Figure 1 in light of efforts by various professional groups to identify specific empirically supported prevention and treatment programs. On the prevention front, several work groups have taken up this challenge (see, e.g., Greenberg, Domitrovich, & Bumbarger, 2001; Mrazek & Haggerty, 1994; http://preventionpathways.samhsa.gov/nrepp/adv_search.cfm). The reviews carried out by these groups have generally emphasized methodological features of investigations that increase confidence in the results—for example, random assignment to conditions, large-enough sample sizes to ensure adequate power, psychometrically sound outcome measures, and clear specification of intervention procedures. Because these work groups have proceeded independently of one another and different experts do not always agree on criteria and standards, the groups have used somewhat different rules for judging the acceptability of studies and the merits of specific prevention programs. Thus, not every list contains the same prevention programs, and beneficial programs are identified with varying category descriptors such as "exemplary," "model," or "promising" programs (see, e.g., Kumpfer, 1999).

Taken together, the different work groups have identified over 125 specific empirically supported mental health and drug abuse prevention and health promotion programs. Examples of these are shown in Table 1. The examples were selected not because they are superior to all other programs but because they encompass the four forms of preventive intervention shown in our model (see Figure 1), and they illustrate the diversity of preventive approaches in the field. *Health promotion/positive youth development* is illustrated by programs that focus on building social skills through such means as teacher, parent, and youth training (Lonczak, Abbott, Hawkins, Kosterman, & Catalano, 2002) and a social skills curriculum focused on building and maintaining a caring community (Battistich, Schaps, Watson, & Solomon, 1996). *Universal prevention* is illustrated in the table by programs that address risk factors in broadly defined population groups (e.g., all children in a particular grade or age range, in multiple schools) through such means as behavior management training for teachers (Ialongo, Poduska, Werthamer, & Kellam, 2001) or implementation of antibullying class rules and improved recess supervision (Olweus, 1994). Illustrating s*elective prevention* in the table are the Olds et al. (1998) intervention, in which nurses visit young, unmarried, and economically disadvantaged pregnant women to promote healthy behavior during and after pregnancy, and the Wolchik et al. (2002) program, in which sessions with mothers and children focus on improved parenting and coping following divorce. Examples of *indicated prevention* include a CBT program for youths with symptoms of depression (Clarke et al., 1995) and a home- and school-based intervention focused on disruptive boys in kindergartens located in low-income urban neighborhoods (Tremblay, Pagani-Kurtz, Mâsse, Vitaro, & Pihl, 1995).

On the treatment front, a variety of task forces and review teams have been formed, some focusing on specific clusters of disorders or problems and others encompassing a broader array of treatment foci. Several of these efforts have followed the general approach developed by the APA's Division 12 Task Force on Promotion and Dissemination of Psychological Procedures (see Chambless et al., 1998). This task force grouped empirically supported treatment programs into two levels of support: *probably efficacious* (criteria included treatment outcomes superior to a wait list control group) and *well established* (criteria included treatment outcomes superior to medication, a psychological placebo condition, or an alternate treatment or equivalent to an already established intervention, as well as replication of findings by an independent researcher or team). Using these criteria, a child specialist task force (Lonigan, Elbert, & Johnson, 1998) identified well-established and probably efficacious youth treatments for anxiety and fears (reviewed by Ollendick & King, 1998), depression (Kaslow & Thompson, 1998), conduct problems (Brestan & Eyberg, 1998), and attention-deficit/hyperac-

**Table 1**
*Examples of Intervention Programs Spanning the Promotion/Prevention–Treatment Continuum*

| Program/authors | Selection criteria | Examples of outcomes |
|---|---|---|
| | **Health promotion/positive youth development** | |
| **Seattle Social Development Program** (Lonczak et al., 2002). Teacher training, parenting classes, child social skills training. | Students in high-crime area public elementary schools | *At post:* Improved school attachment, achievement<br>*At 11-year follow-up:* Less sex, pregnancy, delinquency, higher achievement |
| **Child Development Project** (Battistich et al., 1996). Classroom, schoolwide, and school–home–relationship curriculum to foster a caring community. | Students from urban, suburban, and rural elementary schools | Improved peer relations, reduced drug use and delinquency |
| | **Universal prevention** | |
| **Baltimore Prevention Project** (Ialongo et al., 2001). Curriculum enhancements, behavior-management training for teachers, child social skills and problem-solving training. | 1st graders in 9 Baltimore public schools | *At post:* Better school performance, less aggression<br>*At 4–6 year follow-up:* Less conduct disorder, smoking |
| **Bullying Prevention Program** (Olweus, 1994). "Whole school" program to improve school-recess supervision, establish antibullying class rules, talk individually to bullies, victims, and parents of both. | 11–14-year-olds in Norwegian primary and junior high schools | Reduced bullying, vandalism, fighting, theft |
| | **Selective prevention** | |
| **Nurse Home Visitation Project** (Olds et al., 1998). Multiple visits to promote healthy behaviors in pregnancy and early years of child's life, competent child care, and mother's personal development, and linking families to services and social supports. | Pregnant women with no prior live birth, low SES, <19 years old or unmarried | *At post:* Better maternal functioning, less child maltreatment<br>*At 15-year follow-up:* Less drug use, sex, antisocial behavior, maltreatment |
| **New Beginnings Program** (Wolchik et al., 2002). Multiple sessions to help mothers improve discipline and relationship with child, reduce interparent conflict, and to help youths learn coping skills, reduce negative thoughts, improve relationship with mother. | Families of 9–12-year-olds whose parents had divorced | *At post:* Improved child rearing and family functioning<br>*At 6-year follow-up:* Reduced rates of clinical disorders |
| | **Indicated prevention** | |
| **Coping With Stress Program** (Clarke et al., 1995). CBT group sessions emphasizing techniques to identify and challenge negative or irrational thoughts. | 9th–10th graders with depression symptoms but not disorder | *At 1-year follow-up:* Lower rate of affective disorder than control group |
| **Montreal Prevention Experiment** (Tremblay et al., 1995). Home-based parent training plus school-based social skills training for children. | Disruptive boys in kindergartens in low-income, inner-city neighborhoods | *At post:* Improved adjustment<br>*At 1–5-year follow-up:* Better school performance, less delinquency |

***(table continues)***

**Table 1 (*continued*)**

| Program/authors | Selection criteria | Examples of outcomes |
|---|---|---|
| | **Time-limited therapy** | |
| **Coping Cat** (Kendall et al., 2003). Individual CBT sessions emphasizing understanding and altering fear-related arousal, cognitions, and avoidance. | 8–13-year-olds with generalized anxiety disorder, separation anxiety disorder, or social phobia | Reduced rates of anxiety disorders, improved scores on self-report and parent-report anxiety scales |
| **Incredible Years BASIC Parent Training Program** (Webster-Stratton & Reid, 2003). Video-guided group sessions providing positive parenting and behavior management skills training to parents. | Parents of children ages 3–8 diagnosed with oppositional defiant disorder or conduct disorder | Improved parent–child interactions, reduced criticism and violent discipline, reduced child conduct problems |
| | **Enhanced therapy[a,b]** | |
| **Coping With Depression Course for Adolescents—Booster sessions** (Clarke et al., 1999). 1–2 meetings posttreatment, focused on using skills learned in standard treatment to address current problems. | Adolescents with depressive disorders who had received CBT for depression | Acceleration of depression recovery in adolescents who had not responded to standard treatment[a] |
| **CBT Continuation Treatment[a]** (Kroll et al., 1996). Six months of continued CBT focused on using skills learned in prior CBT to identify and cope with stress. | Adolescents whose major depressive disorder had remitted | Reduced depression relapse rates |
| | **Continuing care[b]** | |
| **Young Autism Project** (Lovaas & Smith, 2003). Discrete trial training (DTT) for children; training parents to use DTT, promote peer interaction, and coordinate with schools and teachers. | Preschool children diagnosed with autism | Improvement in language, cognitive skills, home, and school adaptation |
| **Multifamily Psychoeducation Groups** (Fristad et al., 2003). Group meetings with parents and children (separately and together) to increase knowledge of the disorder and its treatment, improve symptom management, improve family coping and communication skills, increase social support. | Families of 7–12-year-olds diagnosed with early-onset bipolar disorder | Improved knowledge of the disorder, smarter use of mental health services, parents and children feel more empowered and supported |

*Note.* Refer to the reviews and Web sites cited in the text for more complete details regarding studies, intervention procedures, and outcomes assessed. CBT = cognitive–behavioral therapy; SES = socioeconomic status.

[a]The terminology used to refer to forms of enhanced therapy has shifted across studies, sometimes conflicting with the definitions we have offered in this article. We refer to *continuation therapy* as that used with individuals who had not responded fully to a standard treatment protocol and to booster sessions as a form of *relapse prevention* to prevent recurrence of disorder in individuals who had responded well to a standard protocol. Thus, the intervention Kroll et al. (1996) referred to as "continuation therapy" would be classified in our nomenclature as a form of relapse prevention, because it focused on those who had recovered during standard treatment. And the intervention referred to as "booster sessions" by Clarke et al. (1999) was designed to have relapse prevention effects, but its actual measured impact turned out to be accelerated improvement in teens who had not responded to standard treatment (i.e., a continuation therapy effect).

[b]Enhanced therapy and continuing care are included to highlight the need for these categories in the continuum of care for youths and families, but neither form of treatment has been the subject of a large number of controlled trials. Accordingly, no systematic review has identified a list of "evidence-based treatments" within these two categories. The treatments used to illustrate each category in the table have, however, shown evidence of beneficial effects in outcome research.

tivity disorder (ADHD[4]; Pelham, Wheeler, & Chronis, 1998). Findings of the reviews are summarized in the Web site www.effectivechildtherapy.com, and an update and expansion of the reviews (encompassing anxiety, depression, conduct, ADHD, autism, eating problems and disorders, trauma exposure, substance use, elimination disorders, coping with medical problems, and treatments for children of color) is now underway, destined for publication in the *Journal of Clinical Child and Adolescent Psychology* in 2006.

The 1998 task force review (Lonigan et al., 1998) identified 27 treatments as either well established or probably efficacious. This number will grow substantially in the next iteration of the task force report. Table 1 provides examples of treatment programs, selected not because of superiority to all other programs but rather to illustrate the diversity of treatment approaches and to encompass the three forms of treatment presented in our model (see Figure 1). Viewed from the perspective of our model, most treatments identified by the task force fall within the time-limited therapy wedge. One example shown in Table 1 is the Coping Cat program (Kendall, Aschenbrand, & Hudson, 2003), in which children with anxiety disorders learn, through 14–16 individual therapy sessions, to change their fearful cognitions and behavior. The second example of time-limited therapy in the table is the Incredible Years BASIC Parent Training Program (Webster-Stratton & Reid, 2003), in which parents learn, through 13–14 sessions of video examples and guided discussion, to use behavior management principles with their oppositional or disruptive children.

Compared with time-limited therapy, the *enhanced therapy* and *continuing care* categories in our model have not been a very significant focus of treatment research or of task force review to date. The examples of these latter categories that are provided in Table 1 are thus intervention programs that have been the focus of empirical testing but have not been classified in large-scale task force reviews to date as being empirically supported or evidence based. The enhanced therapy category in Table 1 includes the one to two booster sessions sometimes added to the standard adolescent version of the Coping With Depression Course (Clarke et al., 1999) to support recovery in teens who have completed a standard program of treatment. In addition, the table includes a more extended version—that is, Kroll, Harrington, Jayson, Fraser, and Gowers's (1996) six-month continuation program, added at the end of standard CBT for teen depression to consolidate the use of coping skills learned in the program. *Continuing care* is illustrated in Table 1 by the Young Autism Project (Lovaas & Smith, 2003), in which parents are trained to implement behavioral, social, and educational interventions so that these can continue as a complement to or a replacement for formal professional intervention. Continuing care is also illustrated in the table by the multifamily psychoeducational groups through which Fristad et al. (2003) guide ongoing care of youths diagnosed with bipolar disorder.

A number of the treatment and prevention programs listed in Table 1, and others identified by various task force and work group reviews, are multimethod in nature; many involve youths plus significant others (e.g., parents, teachers, peers), and some address multiple settings (e.g., home, school, neighborhood). Such multifaceted approaches fit paradigms in developmental psychopathology and youth development that stress how multiple factors at the level of the individual youth, family, community, and culture can interact to affect functioning and how each class of factors thus warrants attention in intervention (Durlak, 1997).

## The Evidence Base on Youth Prevention and Treatment: Strengths, Gaps, and Future Directions

The evidence on youth intervention across the prevention–treatment spectrum shown in Figure 1 reveals a number of strengths as well as some gaps in our knowledge, suggesting useful directions for future work.

### *Complementary and Overlapping Strengths*

The evidence base on treatment and prevention shows substantial benefit generated by both approaches to intervention. Examination of program methods reveals considerable overlap in the techniques used (e.g., psychoeducation, behavioral parent training, cognitive–behavioral approaches). But the two genres have differed in the populations targeted, the points in the problem or disorder trajectory at which intervention is applied, the outcomes assessed, and the time course of follow-up. For example, treatment programs have most often focused on relief and recovery from current serious problems or diagnosed disorder, assessed at posttreatment and over relatively short follow-up periods. For prevention programs, markedly longer follow-ups are usually required to document that unwanted outcomes have indeed been prevented. Across various assessment periods, as illustrated in Table 1, treatment and prevention programs have shown beneficial effects both on specifically targeted outcomes and on important collateral outcomes.

Another encouraging development is the array of creative and potentially complementary intervention delivery models used. On the treatment front, the traditional weekly office visit model still predominates, but investigators have also developed approaches geared to school breaks and summer camp programs (see, e.g., Pelham et al., 1996), ways of embedding skills training in videotaped vignettes (e.g., Webster-Stratton & Reid, 2003), techniques to provide behavioral training and support to foster parents (see Chamberlain & Smith, 2003), treatment supplements in the form of posttherapy booster sessions (see Clarke et al.,

[4] Although behavioral treatments for ADHD can be beneficial, their acute effects may be more modest than the effects of stimulant medication (MTA Cooperative Group, 1999; Pelham et al., 1998). However, because some estimates suggest that up to 20% to 30% of youngsters with ADHD do not respond well to stimulants (Swanson, McBurnett, Christian, & Wigal, 1995), some youths experience unwanted side effects, and some parents may object to drug treatment for their children, efforts to identify effective psychosocial alternatives to pharmacotherapy are potentially quite valuable to many children and families.

1999), and a peripatetic therapist-in-the-youth's-environment model (see Henggeler et al., 1998). A wide range of delivery mechanisms has also been used to effect prevention, including group sessions to build specific skills (Wolchik et al., 2002), visiting home nurses to work with high-risk first-time mothers (Olds et al., 1998), expansion of classroom instruction in which teachers teach affect management skills (Conduct Problems Prevention Research Group, 1999), and a coordinated set of school-level changes to reduce bullying (Olweus, 1994).

The range of delivery models has expanded to encompass all of the key participants and intervention foci shown in the center of our model (see Figure 1). The array of participants across the various interventions now includes youths seen individually (e.g., Kendall et al., 2003) and in groups (e.g., Clarke et al., 1995); family members seen individually (e.g., Olds et al., 1998), as a family unit (e.g., Alexander, Pugh, Parsons, & Sexton, 2000), with extended family members included (e.g., Henggeler et al., 1998), and sometimes in multifamily groups (e.g., Fristad et al., 2003); and diverse elements of the community, including neighbors, school teachers and staff, clergy, police, and social services personnel (e.g., Henggeler et al., 1998; Ialongo et al., 2001; Lonczak et al., 2002; Lovaas & Smith, 2003; Olds et al., 1998).

In regard to the intervention settings shown in our model (see the lower semicircle in Figure 1), all are represented in the collection of evidence-based interventions now available, although representation is far from uniform across the settings. As noted previously, a substantial proportion of the empirically tested programs within the health promotion, universal prevention, selective prevention, indicated prevention, and time-limited therapy categories were originally designed to be implemented in schools, and for many this continues to be the preferred venue (see reviews by Berryhill & Prinz, 2003, and Shepard & Carlson, 2003). Many treatment programs within the time-limited category have been designed for and tested within outpatient mental health clinics (e.g., Kendall et al., 2003). There are also some examples of well-tested prevention and treatment programs designed (in full or in part) for home and neighborhood agency implementation (e.g., Henggeler et al., 1998; Olds et al., 1998). Included, but much less evident currently, are interventions designed for use in conjunction with primary care, day treatment programs, residential facilities, and inpatient units. Attention to these latter settings, and to others not listed in Figure 1, remains a target for future research on evidence-based intervention. Nonetheless, the evidence to date does point to substantial progress in preventing youth dysfunction in many forms, treating dysfunction that has not been prevented, and delivering interventions in diverse and creative ways to those who need them.

## Gaps in the Prevention and Treatment Evidence Base, and Directions for the Future

Though encouraging in many respects, the evidence base reveals certain limitations in what is known and can be accomplished in regard to treating and preventing dysfunction. These limitations, in turn, suggest potentially profitable directions for the future.

***Contexts for intervention.*** The array of settings in which beneficial interventions have been based shows a healthy diversity but does not fully represent all the contexts within which prevention and treatment might benefit youths and their families. Of those settings shown in Figure 1, five are poorly represented among the evidence-based treatment interventions: primary care clinics (but see recent primary care work by Asarnow et al., 2005), day treatment programs, residential facilities, family courts, and inpatient units. A variety of other settings not noted in the figure (e.g., boys and girls clubs, after-school programs, teen social centers, sports teams, volunteer centers, and summer job settings) might also be targeted in efforts to take prevention or treatment interventions into the places where youths and families live their lives.

***Coverage across the range of problems and disorders.*** Many of the most prevalent and significant risks, problems, and disorders of children and adolescents can now be addressed through empirically supported programs, but significant gaps in coverage remain. For example, eating disorders pose sinister risks: The annual mortality rate in 15–24-year-old females diagnosed with anorexia is more than 12 times the rate in this Age × Gender group from any other specific cause (Sullivan, 1995). Although progress has been made on the prevention front (see Stice & Shaw, 2004), treatment science has moved more slowly, with relatively few investigators focusing on eating disorders (e.g., Robin, 2003). Also, with few exceptions (e.g., Borduin, Henggeler, Blaske, & Stein, 1990), the field lacks successes in the treatment or prevention of sex offenses by youth. Despite attempts by several research teams, interventions for suicidal youth that clearly reduce the risk of further attempts are still lacking; a recent review of youth suicide intervention research concluded that, "in general, control conditions are just as effective at reducing suicidal behavior as experimental conditions" (Miller & Glinsky, 2000, p. 1131). Finally, most of the success with parent training for youth with ADHD and conduct problems has been with preadolescents, not teenagers; some parent-training experts even caution against using their programs with adolescents (see, e.g., Barkley, 1997, p. 5). Limited success of psychosocial treatments with ADHD in teens could make stimulant medication the evidence-based treatment of choice, by default. To appreciate the scope of the challenge that comprehensive coverage poses, consider the fact that well over 100 disorders in the current *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994) can be applied to children and adolescents; our list of beneficial treatment and prevention programs encompasses only a small percentage of these.

***Coverage of co-occurring conditions.*** Concerns about limited coverage are also relevant to comorbidity and co-occurring problems. Extensive evidence (e.g., Angold, Costello, & Erkanli, 1999) shows that for many youth, problems do not come in one-diagnosis units but rather in heterogeneous combinations; moreover, even co-

occurring problems that fall short of a formal diagnosis may warrant clinical attention. Rates of co-occurrence are striking in community samples and are markedly higher in clinical samples (Angold et al., 1999). Some of the empirically supported treatment programs do focus on youths with rather extensive comorbidity. For example, comorbidity is substantial and is certainly addressed in some of the treatments for juvenile offenders and substance abusers—treatments such as multisystemic therapy (Henggeler et al., 1998), functional family therapy (Alexander et al., 2000), multidimensional family therapy (Liddle et al., 2001), and multidimensional treatment foster care (Chamberlain & Smith, 2003). For some other treatment programs, samples have been selected for diagnostic homogeneity, and thus little is learned through the research about whether treatment outcomes differ as a function of the presence or absence of disorders and problems other than those targeted in treatment.

Will a treatment program designed for youth depression work well with youngsters who also have serious conduct problems or ADHD? Can a single intervention program address all three problems concurrently? For at least some of the intervention programs represented in the model shown in Figure 1, we cannot answer such questions yet because co-occurring conditions have not been fully sampled or their impact fully examined. Such work is apt to be needed for each treatment program as a part of the transition from efficacy to effectiveness research, and ultimately to real-world dissemination, given the high rates of comorbidity in effectiveness trials and in real-world practice. It seems clear that intervention programs that have been tested in the context of naturally occurring comorbidities will, on average, be better equipped for application to everyday clinical cases, in which comorbidity and co-occurrence are so common.

The issue of comorbidity takes a somewhat different form in prevention. Because prevention targets factors involved in the hypothesized etiologic chain before the onset of any disorder, programs may be expected to reduce the incidence of multiple disorders as well as adaptation problems. For example, risk factors such as parental divorce (Amato, 2001) and single parenthood combined with low income (Olds et al., 1998) are associated with multiple problems and disorders. Ideally, prevention programs in these situations will reduce rates of multiple problem outcomes; some prevention trials are beginning to show these effects (Olds et al., 1998; Wolchik, et al., 2002). For example, a program for divorced families led to a reduction in multiple problems six years later, including lower prevalence of diagnosed mental disorder, reduced alcohol and drug use, reduced high-risk sexual behavior, and improved grades (Dawson-McClure, Sandler, Wolchik, & Millsap, 2004), Similarly, prevention programs that promote strengths of children, parents, and schools may lead to multiple positive outcomes over time, including reduced mental health problems, substance use, and high-risk sexual behavior (Hawkins, Kosterman, Catalano, Hill, & Abbott, 2005; Lonczak et al., 2002).

***Coverage of intervention models and strategies.*** Figure 1 and Table 1 note three broad treatment strategies needed to encompass the range of youth dysfunction, but only one of the three, time-limited therapy, has received much attention in clinical trials. The limited research attention given to enhanced therapy (e.g., Clarke et al., 1999) and continuing care (e.g., Fristad et al., 2003) means that researchers currently have relatively little to offer practitioners who seek evidence-based ways of changing trajectories for treatment nonresponders, warding off relapse in those who did respond, or improving day-to-day management of long-term, persistent clinical conditions. Even among the many studies of time-limited therapy, meta-analyses (e.g., Kazdin, Bass, et al., 1990; Weisz et al., 1987, Weisz, Weiss, et al., 1995) have revealed a heavy emphasis on tests of behavioral and cognitive–behavioral treatments, with nonbehavioral approaches (e.g., psychodynamic, client-centered, eclectic) tested in only 18%–26% of the studies sampled. The nonbehavioral approaches are more representative of the treatment models most widely used in clinical practice (see, e.g., Kazdin, Siegel, & Bass, 1990; Morrison, Bradley, & Westen, 2003; Weersing, Weisz, & Donenberg, 2002).

It seems appropriate, then, for researchers to broaden the range of models encompassed in their tests in order to include more of the approaches that service providers use and trust. Failure to expand research in this way may help perpetuate the perception by practitioners that research lacks relevance to their work (see, e.g., Havik & Vanden-Bos, 1996). In a similar vein, much of the prevention research base focuses on programs quite different from those more widely practiced in the community (see Gottfredson & Gottfredson, 2002). Broadening both treatment and prevention research to test intervention models that are commonly used in practice will present a challenge. The researchers who design such tests may not know the popular treatment models well enough to create the fairest representation of those models. Thus, the best research is likely to require an active collaboration between investigators and the community practitioners who employ these intervention models.

***Identifying necessary and sufficient intervention elements.*** Many of the current interventions alluded to in the upper ring of Figure 1 are best described as *omnibus* in style, with multiple procedures combined and multiple skills taught as a package. Despite a long tradition of *dismantling* research, in which different elements of a treatment program are tested separately and in various combinations, researchers have barely begun to identify which components of the multisession, multiconcept, multiskill treatment and prevention programs are actually necessary for good outcomes and to test whether more streamlined versions are sufficient to produce ample benefit. Meanwhile, the multicomponent nature of the programs makes them rather bulky, and they are often a poor fit to the current emphasis on efficiency and cost containment. There is almost certainly some excess in some programs—that is, elements that do not actually contribute substantially to the benefits achieved. Researchers need to

make interventions sufficiently lean and efficient that they will be usable in the world outside universities and research centers. Of course, it is also possible that for some programs, effects will not be found at the level of one component or a subset of them but that benefit will depend instead on delivery of the full program with high fidelity. In principle, dismantling research can help identify such programs as well as those that can be made more efficient without loss of benefit.

***Understanding for whom, and under what conditions, interventions work.*** In regard to the center portion of Figure 1, we emphasize that for each intervention that works, researchers need to know as much as possible about the range of youth, family, and community characteristics within which benefits accrue and outside of which benefits diminish. In regard to the outer ring at the bottom of the circle in Figure 1, for each intervention that works, researchers need to know what settings and conditions an intervention works within. Even the best supported programs are apt to be beneficial for some treated groups (defined by age, gender, socioeconomic status, or other person characteristics) but not for others, and in some conditions or settings but not in others. Understanding person and condition factors that moderate intervention effects is essential to researchers' understanding of how, and with whom, to apply various prevention and treatment programs. With some exceptions in the prevention realm (see, e.g., Dawson-McClure et al., 2004; Ialongo et al., 2001; Olds et al., 1998) and in the treatment realm (see, e.g., Kazdin, 2003; Webster-Stratton & Reid, 2003), the research to date has left us rather poorly informed about such moderator-based constraints. Even such a commonly recorded youth demographic characteristic as age has rarely been used to identify age boundaries defining the effective range of interventions. This seems particularly important because so many youth interventions are downward adaptations of programs originally designed for adults (see Weisz & Hawley, 2002); thus, there may well be age levels below which the cognitive and other requirements of such programs would make them a poor fit for children. The classic work of Baron and Kenny (1986) set the stage for more refined thinking about strategies for assessing moderation in intervention outcome (Kraemer, Wilson, Fairburn, & Agras, 2002), which nicely positions researchers to address important questions in the future about the boundary conditions within which interventions work and outside of which they do not.

***Understanding the role of race, ethnicity, and culture.*** One class of potential youth and family moderators warrants special attention here: race, ethnicity, and culture—factors whose pervasive influence on communities, families, and youth is represented in Figure 1 by the culture ring. Because both the consumers and the providers of intervention carry norms, beliefs, and values derived from their respective cultures, effective intervention may well require either compatible norms, beliefs, and values or an ability to understand, respect, and work with differences (Sue, 2003). Evidence indicates that cultural and ethnic differences are associated with differences in parents' beliefs about children's problems, the pathways that lead youngsters into mental health care, the kinds of referral problems identified by parents when they do seek help, and the kinds of interventions preferred by parents for those problems (see, e.g., McMiller & Weisz, 1996; Weisz, McCarty, Eastman, Suwanlert, & Chaiyasit, 1997).

Such findings suggest that responses to preventive and treatment interventions may well differ as a function of ethnicity and culture. Experts on culture and ethnicity have stressed that the findings of most current clinical trials may not be generalized to minority populations (Bernal, Bonilla, & Bellido, 1995; Bernal & Scharron-Del-Rio, 2001; Hall, 2001; Sue, 1998), and many have expressed concern about the dearth of interventions known to benefit ethnic minority populations (see, e.g., Gray-Little & Kaplan, 2000; Miranda, Azocar, Organista, Munoz, & Lieberman, 1996; Sue, Zane, & Young, 1994; Tharp, 1991). Leaders of the original APA task force on empirically supported treatments noted that they did not know of psychotherapy treatment research that met the criteria needed to demonstrate efficacy for ethnic minority populations (Chambless et al., 1996); a review of clinical trials used to generate professional guidelines found that none had tested treatment efficacy by ethnicity or race (U.S. Public Health Service, 2001). More recent reviews provide somewhat more encouraging news regarding inclusion of ethnically diverse samples as well as tests of intervention effects with minority youth.

We focus first on ethnic representation in prevention research. Meta-analyses of primary prevention (Durlak & Wells, 1997) and indicated prevention (Durlak & Wells, 1998) studies conducted before 1991 indicate that 20%–25% of the targeted samples contained either a majority of non-Caucasian participants or a relatively equal proportion of Caucasians and non-Caucasians. The extent to which minorities have been included in meta-analyses has depended to some extent on the focus of the meta-analysis. For example, over half the studies in MacLeod and Nelson's (2000) review of promotion programs for low-income families involved either predominantly minority group participants or samples of mixed ethnicity. It is noteworthy that meta-analyses are now available that focus specifically on Asian Americans (Kawashima, 2004; 38 studies included) and African Americans (Yuen, 2004; 41 studies).

How effective are prevention programs with minority participants? A review of the model prevention programs identified on the Substance Abuse and Mental Health Services Administration's (SAMHSA) Web site for the National Registry of Effective Programs and Practices (see www.mentalhealth.samhsa.gov) shows that 91% of those (prevention) programs (i.e., 58 of the 64 programs listed) identify multiple ethnic groups as their target population. However, this may not necessarily mean that there is direct evidence of effectiveness with minority groups for all of these programs. Some investigators have focused attention directly on the impact of ethnicity and culture on both implementation and effectiveness of prevention programs (see, e.g., Castro et al., 2004; Roosa, Dumka, Gonzales, &

Knight, 2002). There is some evidence that adapting programs for specific ethnic groups leads to small increments in program effectiveness (Botvin, Schinke, Epstein, Diaz, & Botvin, 1995; Harachi, Catalano, & Hawkins, 1997) and larger increments in family utilization of programs (Kumpfer, 2002). Particularly relevant evidence comes from the recent meta-analyses by Kawashima (2004) and Yuen (2004) focused on programs for Asian American and African American participants, respectively. These two meta-analyses showed mean effect sizes of 0.35 and 0.37, respectively, comparable to effect sizes obtained in other meta-analyses not focused on minority populations.

On the treatment front, evidence on ethnic representation in outcome studies comes from an analysis of published randomized trials of interventions for conduct problems, ADHD, anxiety, and depression (Weisz, Jensen Doss, & Hawley, 2005)—a study collection that overlaps heavily with the youth treatment meta-analyses cited previously. This analysis found that those studies *in which authors reported race/ethnicity of their samples* included an average of 27% Black youths, 5% Latino youths, and 9% other ethnic groups. These figures suggest diversity in the study samples that approximates that of the current general population (cf. 40% minority youth; U.S. Census Bureau, 2004); less encouraging, however, was the fact that more than half of the articles simply did not report the race/ethnicity of their samples. In general, the more recent the study, the more likely it is that ethnicity is reported.

What is known about the effects of research-tested treatments with minority youths? In what appears to be the most recent relevant review, Huey (2005) found "well-established" treatments for African American youth with anxiety disorders, conduct problems, and trauma-related disorders (i.e., sex-abuse-related posttraumatic stress disorder); "probably efficacious" treatments for Latino youth with anxiety disorders, depression, and conduct problems and for Asian/Pacific Islander youth with mixed behavioral/emotional problems; and "promising" treatments for African American and Latino youth with ADHD or drug-use problems and for suicidal African American youth. Moreover, Huey found evidence that empirically supported treatments in general were about equally effective for minority and European American youth. Huey also found little evidence that culturally responsive strategies, per se, led to improved outcomes. The studies involved, however, have not uniformly focused on youths with low levels of acculturation or English language skill, both of which may be significant obstacles to intervention effectiveness. Certainly much work remains on the ethnicity and culture front, but Huey's review suggests that strategies have been developed, progress is being made, and prospects for identifying effective treatments for minority youth are improving.

In sum, the evidence suggests that both preventive and treatment interventions can have beneficial effects on ethnic minority youths. However, the evidence base does not begin to capture the rich cultural and ethnic heterogeneity of the United States or the world, or the broad array of forms that dysfunction and disorder may take. Moreover, researchers are just beginning to probe the effects of developing or adapting prevention and treatment programs for specific cultural and language groups. Such work should be central to the research agenda for our multicultural world, in this decade and beyond.

***Investigating change processes that mediate outcome.*** Another part of the research agenda for the interventions represented by the upper ring of Figure 1 is identification of change mechanisms that account for beneficial outcomes. At present, we know much more about what outcomes are produced by our interventions than about what actually causes those outcomes (Shirk & Russell, 1996). A generation of research testing hypothesized mediators of outcome is needed in order to understand how the interventions actually work. The raw material may also exist in many clinical trial databases. A review by Weersing and Weisz (2002) focusing on treatment trials for youth anxiety, depression, and disruptive behavior concluded that 63% of the studies included measures of potential mediating mechanisms in their designs but that only six studies included any attempt to use the measures in formal mediation tests. In one mediation test example from treatment research, Huey, Henggeler, Brondino, and Pickrel (2000) found that decreased affiliation with delinquent peers mediated reductions in delinquent behavior among youths treated with multisystemic therapy. In an example from prevention research, improved parenting was found to mediate the effects of a prevention program for families following the experience of parental divorce (Tein, Sandler, MacKinnon, & Wolchik, 2004).

We need more such analyses testing hypothesized mediators of change, and we need tests built on the strategy of repeated assessment—of both proposed mediators and outcomes—across the duration of an intervention trial to maximize inferential power. The dearth of such tests limits the field in a very significant way, creating a vacuum that may be filled by faulty assumptions about the nature and causes of change.

An increased understanding of processes underlying improvement can be valuable both theoretically and practically. At a theoretical level, understanding mediation could greatly enrich models of human behavior change. At a practical level, understanding mediation could improve intervention in a variety of ways. For example, knowledge about what participant changes are actually linked to outcome could inform decisions about program content and duration, thus enhancing efficiency in program design. In addition, training and supervision might be enriched by a focus on what change processes interveners need to set in motion rather than simply what manualized procedures they should use. An understanding of the change processes needed for success may also help interveners discern what is missing when an intervention has stalled or simply fails to work with certain individuals or groups. In these and other ways, the design and effective delivery of interventions could be enhanced by an understanding of what actually makes them work.

To generate the information needed for such gains, one could make a case for the sequential strategy proposed

by Kraemer et al. (2002). In this strategy, an initial step is the identification of a strong mediator in exploratory analyses of one clinical trial. A second step is formal testing, in subsequent trials, of the a priori hypothesis that adjusting treatment by altering the mediator in appropriate ways will enhance intervention effects. Application of such a strategy over time could have a useful cumulative effect on our understanding of what makes successful interventions work and how to magnify their impact.

***Best practices versus model programs.*** An emerging debate centers on the merits of promoting full "model programs" based on the complete protocols described in intervention manuals versus promoting "best practices," that is, the separate elements or skills (e.g., self-calming through relaxation) that are typically combined within full protocols (Mayer & Davidson, 2000). Many professionals outside the world of research object to the idea of standardized intervention protocols with a series of sessions in a predetermined sequence (see Addis & Krasnow, 2000; Addis, Wade, & Hatgis, 1999; Havik & VandenBos, 1996). We should note that manuals come in a variety of forms and formats and that the manuals for some of the best-tested treatments (e.g., multisystemic therapy; Henggeler et al., 1998) emphasize treatment principles and guidelines, not a lockstep sequence of session topics, and clinicians have considerable flexibility to use their own creativity and judgment to achieve desired clinical outcomes.

However, for some professionals, full treatment protocols of any kind may not be appealing. For these clinicians, a more appealing application of evidence-based interventions may involve incorporating new practice elements into their work selectively, using their own experience and skills to decide which elements are worth trying rather than replacing their traditional approaches wholesale. This conflicts with the extant evidence base, in which empirically supported interventions have almost always come in the form of full manualized programs and in which some evidence from both prevention and treatment research (e.g., Durlak, 1998; Huey et al., 2000) indicates that fidelity to the manual enhances outcomes. Thus, a case can be made that, at this time and for a number of interventions, the most evidence-based practice involves the application of full programs in the specific forms tested in research trials.

In principle, though, it seems possible that certain elements of these programs, combined in ways that fit distinctive characteristics of individuals targeted for intervention, might produce genuine benefits. The problem is that the research to date provides little guidance on how to extract specific best practices from full protocols and leaves us uninformed as to which specific practices—alone or in combination—might lead to good outcomes. To compile such knowledge in the most systematic way will require that researchers find reliable ways to identify separable elements of treatment protocols, logically and theoretically sound ways of turning these elements into separate modules, and clinically sensitive ways of selecting modules and combinations to fit various individuals and groups targeted for intervention.

At least one approach to these steps has been documented, and a resulting "modular protocol" created, to encompass intervention for youth anxiety, depression, and/or conduct problems (see Chorpita, Delaiden, & Weisz, 2005; Chorpita & Weisz, 2004). Tests of the resulting modular protocol will begin in 2005. It seems likely that many years of refinement and testing lie ahead, for this particular protocol and for others, before researchers can begin to assess whether separating best practices and organizing them in modular fashion will match or improve on standard manuals as they are now known. The questions of interest include not only what kinds of outcomes the modular treatments produce but also what their prospects are for dissemination to, and effective implementation by, practitioners in real-world clinical practice, where standard manuals face very significant challenges.

## Bridging the Divide Between Intervention Science and Practice

A particularly important challenge for psychologists is strengthening the connection between science and practice to increase the chance that the best-tested interventions will reach the youths who need them most. It is no secret that the products of prevention and treatment science have not spread rapidly outside the university research community. We conclude with some thoughts about why this is the case and offer some ideas about how to address the problem.

***Natural time course of the science to practice transition.*** One reason so little of intervention science has made its way into general use is that there is a rather sluggish natural time course for movement from research findings to practice implementation. Many years must pass for an intervention idea to become a program, for the program to be tested, and for the test to be published; the cycle must be repeated for a body of evidence to build, and more years will pass before significant dissemination can be organized. A sweeping overhaul may not be likely, but incremental changes may be possible. The emergence of electronic review and e-journals may shorten the grant and journal review processes and publication cycles, leading to more timely reporting of findings. In addition, the lag in dissemination efforts could be addressed by adjustments in funding priorities (see, e.g., National Institutes of Health Guide, 2002). The natural time course may be shortened by such changes but certainly not eliminated.

***Lack of expert consensus on what "evidence based" means and which interventions qualify.*** Even if the time course were expedited, progress would be slowed by another challenge: lack of consensus—both within and across disciplines—as to what criteria should be used to identify beneficial interventions and what interventions meet the standards. The problem can be seen in the ever-growing number of Web sites and books identifying evidence-based treatment and prevention programs; the lists of programs included in these sites and books differ, sometimes markedly, in part because of differences in the review criteria and standards of evidence

used. Beyond the list of programs, perspectives also differ as to the most appropriate way to present conclusions—for example, whether as research-based lists of "empirically supported treatments" (e.g., Ollendick & King, 1998) or as "practice guidelines" (e.g., American Academy of Pediatrics, 2000) or "practice parameters" (e.g., American Academy of Child & Adolescent Psychiatry, 1997) that combine evidence with clinical judgment. Given this state of affairs, professionals who want their work to be guided by the scientific evidence and parents who seek the best supported interventions for their children may well find it very hard to know which programs warrant emphasis.

To tackle this problem may well require significant bridge building, both within and across professional boundaries and with input from consumers and the general public. The professional expert consensus problem is addressed for pharmaceutical interventions by the Food and Drug Administration (FDA) approval process, which applies common standards that cut across professional disciplines and which represents the "final word" on what medical interventions should and should not be used in practice. Some aspects of the FDA approach may warrant close attention. However, the FDA process has problems of its own (see Weisz & Jensen, 1999) and may not be the best model for psychological interventions. Leaders in prevention have recognized that different kinds of evidence may be needed at different stages of testing, including evidence on program effects under optimal conditions (i.e., efficacy), on program effects under natural conditions of delivery (i.e., effectiveness), and on program sustainability over time and when delivered to large populations (Kellam & Langevin, 2003). The complexity of these issues and the number of different stakeholders involved (e.g., families, providers, policymakers, researchers) calls for a major effort at consensus building within and across the mental health professions to develop a shared understanding of appropriate evidence and a shared approach to communication with the public. If we as psychologists want to help science and practice work together, we need to clarify what message science has to impart.

***Skill and funding requirements for dissemination.*** Even if there were broad agreement among researchers as to which programs are well-supported empirically, that information might not be readily available to professionals and parents. Large-scale dissemination efforts have not been central to the agenda of intervention developers. Those who do the research typically have little training, and sometimes little competence, in dissemination, promotion, or advertising. Because there are no large industry profits to be made from psychological interventions, psychologists lack the potent dissemination engine (with drug representatives, academic detailing, TV advertising, etc.) that the pharmaceutical industry uses so effectively to spread the word about new drugs to practitioners and the public. Industry has taught that widespread promotion and dissemination can dramatically alter public and professional views and practices. Indeed, some researchers are now highlighting what business models can teach psychologists about how to disseminate psychological interventions (Rotheram-Borus & Duan, 2003). Whatever the model, it is clear that effective dissemination requires real expertise and real funding. More of both may be needed if psychologists are serious about spreading the word to the public and professional communities about psychological interventions.

***Learning requirements.*** Even if public and professional awareness were expanded in this way, psychologists would still confront the fact that their system for building professional expertise is poorly matched to the complexity of most tested interventions. The interventions can involve 10–20 sessions or more, guided by lengthy therapist or leader manuals and requiring distinctive professional skills that may require new learning—for example, Socratic reasoning with children about their cognitions, or designing and calibrating an exposure task for anxiety coping. Learning the manualized procedures and perfecting the professional skills can be time-consuming and costly for practitioners, requiring not only initial training but subsequent case supervision as well. As a point of comparison, consider the physician's relatively simpler task of learning to prescribe a new medication appropriately; for that learning task, pharmaceutical companies provide abundant opportunities and incentives, including "academic detailing," in which company representatives teach by shadowing physicians throughout their workday. In the absence of such support, nonmedical professionals may well find the task of learning tested interventions quite daunting—even off-putting.

The "industry standard" approaches for nonmedical professionals, which range from 2 hours of in-service trainings to 12 hours of continuing education (CE) courses, are not a good match to the learning requirements of most programs to which this article refers. But the CE mechanism does provide a potentially useful foundation on which to build. In some states, CE credits of up to 36 hours every two years are required for credential renewal; 36 hours might well provide sufficient time for initial training plus some subsequent supervision (e.g., via session videotapes) in one or more intervention programs, such that proficiency could be developed—and all within the framework of CE requirements that are already a part of many professionals' routine career planning. All that would be required for this to happen would be a redesign of standard procedures for the allocation and organization of required training time.

***Incentives and disincentives for adding new skills.*** Even if science could speak with one voice in identifying the best evidence-based interventions, if those interventions were widely recognized by the public and professionals, and if appropriate professional training procedures were put in place, the prevailing incentive system for professionals might still present a problem. It is certainly true that influential government entities ranging from NIMH to the President's New Freedom Commission on Mental Health have strongly advocated using evidence-based interventions in practice settings and that SAMHSA together with the three National Institutes of Health behavioral institutes are collaborating to support movement of tested interventions into practice. However, for profession-

als and practitioners who face declining income under managed care and productivity pressures from employers, the prospect of reallocating professional time off (and losing income) to learn new methods may not be a very attractive one. For many professionals, the costs and hassles of new skill acquisition simply outweigh the benefits under the current system.

In general, despite increased government interest and activity, government agencies, managed care companies, private providers, and schools do not offer (a) payment for the cost of training, (b) enhanced reimbursement rates for use of the newly learned skills, or even (c) targeting of referrals to fit the new skills just learned. Such changes, however, are all possible if increased funding were targeted appropriately; these changes could certainly be brought about through the action of those government agencies that are now so active on the evidence-based intervention front.

***Assessing the impact of changes in public policy and funding in the mental health domain.*** In discussing government policy, we do not mean to sketch a straight line from policy and funding to outcome. As we all know, the impact of changes in public policy is often quite difficult to predict, and unintended effects are common. An instructive example in the mental health field is the Fort Bragg program, to which we referred earlier, in which millions of dollars were spent by the U.S. Army to provide access to an extensive system of care for the children of military employees in North Carolina. As a result of this program, service use increased sharply, and so did cost, relative to youths who had no system of care. But there was no reliable difference, in clinical or functional outcomes, between youngsters who did and who did not have the system of care (Bickman, 1996; Bickman et al., 1995, 1999).

The good news about this program is that it was evaluated, so that we know it did not have the desired effect. The bad news, more generally, is that many government programs and policy initiatives lack such an evaluation and thus provide little opportunity for learning and improvement. The status of mental health promotion and protection might be markedly better today if funding for every public program and policy initiative were accompanied by funding for an impartial evaluation of whether its goals were achieved. Without such an emphasis, there is the risk of a continuing proliferation of policy shifts with no real information on what effects they have on intervention practice and on outcomes among children, adolescents, and families.

***Research–practice mismatch and the models that guide intervention development.*** Finally, we consider a basic issue that must be addressed if intervention science and practice are to be brought closer together: Many professionals find many of the current tested interventions a poor fit to their professional goals, practice settings, or clientele. The specific concerns are diverse, but among those frequently mentioned are that (a) the use of manual-guided, empirically tested programs may limit professionals' opportunities for creativity and innovation; (b) manual adherence will constrain the professional's ability to individualize intervention to fit particular youths' needs; and (c) most of the treatments have been tested under "efficacy trial" conditions with carefully screened youths and families, intervention providers, and conditions that are unlike those of actual practice (for details on some of these arguments, see Addis & Krasnow, 2000; Addis et al., 1999; Havik & VandenBos, 1996). These concerns do not all fit the manual-guided programs equally well, but we believe it would be unwise for researchers to simply dismiss all the concerns as invalid. Some of the points may fit some intervention programs rather well; other points can enrich our understanding of views that hamper research–practice collaboration; and collectively the concerns can help focus needed attention on the model that has guided most intervention development, a topic we now consider.

It is certainly true that there are numerous differences between the characteristics of many intervention clinical trials and the characteristics of everyday intervention practice—differences in (a) characteristics of the individuals targeted, (b) characteristics of their families, (c) reasons why individuals receive the intervention, (d) settings in which the intervention takes place, (e) kinds of people who provide the intervention, (f) incentive systems for the interveners and the youths, and (f) conditions under which the intervention is delivered. It is possible that these differences between research test conditions and professional use conditions are too pronounced to be bridged by simply moving directly from experimental efficacy trials to everyday intervention practice. That, at least, is the premise of a recent *deployment-focused model* of intervention development and testing (Weisz, 2000, 2004; Weisz, Jensen Doss, & McLeod, 2005).

A core idea of the model is that, to create interventions that work well in the crucible of everyday professional use, developers should focus a very substantial portion of their adaptation and testing on precisely the kinds of individuals, interveners, and contexts for which the interventions are ultimately intended. An underlying assumption is that interventions that fare well in efficacy trials may have the potential for benefit in a professional practice context but that potential may best be realized if the treatment has undergone subsequent adaptation to everyday intervention conditions. This deployment-focused model, like a similar prevention service development model developed for prevention (Sandler, Ostrom, Bitner, Ayers, & Wolchik, 2005), has two goals that are particularly relevant to the thesis of the present article: (a) to create interventions that fit well into the world of everyday practice and (b) to create an evidence base on the impact of the adapted treatments in everyday practice contexts—precisely the kind of evidence many nonresearchers must have in order to gauge the value of these interventions for them.

Efforts to build interventions that work well in everyday practice will clearly require active, ongoing collaboration among researchers, practitioners, and consumers, a process likely to benefit all three groups. Clearly, we need some approach to bridging science and practice if we are to build programs that can transition well from research tests

to professional use. The challenge in each instance will be to retain elements and principles that are central to the intervention and essential for beneficial effects while introducing the adaptations needed to make the intervention work in real-world settings.

## Conclusion: Promoting and Protecting Youth Mental Health

Taken together, the evidence surveyed in this article provides a substantial foundation for the model depicted in Figure 1 of youth mental health promotion and protection. The evidence points to an array of beneficial and richly complementary programs for promoting adaptive behavior and positive mental health, preventing dysfunction, and ameliorating distress and disorder. Despite the scientific support for such programs, most youths in the world outside university trials still have little access to the programs, in part because of gaps in the evidence base and in part because a marked divide between research and practice persists. We have proposed several steps toward filling these gaps and breaking down this divide. In our view, taking such steps to link the science and practice of prevention and treatment will be good for science, good for practice, and good for children, adolescents, and their families.

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