Family-Focused Substance Abuse Prevention: What Has Been Learned From Other Fields

Karol L. Kumpfer, James F. Alexander, Lynn McDonald, and David L. Olds

INTRODUCTION

Families are the primary institution for raising children who are the future of any society. Family socialization processes are the primary predictors of children's behavior. The importance of family risk and protective processes in the development of drug abuse and dependency is acknowledged in most empirically tested, multicausal etiological models of substance use (Ary et al., in press; Brook et al. 1990; Kumpfer and Turner 1990/1991; Newcomb and Bentler 1989; Swaim et al. 1990). Because of the importance of strong families, more research-based, family-focused interventions are needed in addition to the popular school- and peer-focused interventions.

With increasing breakdown of the family worldwide (Kumpfer 1996), the media, the general public, policymakers, and prevention researchers and practitioners are becoming more interested in supporting family-strengthening interventions. In addition, meta-analyses of prevention efforts with delinquent and drug-abusing youth suggest that the single most effective form of prevention involves working with the total family system. Interventions aimed at youth often have fewer lasting effects than family-focused prevention interventions. Meta-analytic studies suggest that the effect sizes for family interventions are among the largest of all interventions with high-risk and delinquent youth (Andrews et al. 1990; Gordon et al. 1988).

Fear of drug-abusing and violent juveniles has resulted in many Americans curtailing their activities and living in fear. Politicians have responded quickly, but typically with less than effective, short-term solutions, such as increased funding for policing, supply reduction strategies, and incarceration. According to a Peter Hart Research poll, 47 percent of police chiefs want more efforts in substance abuse education, prevention, and treatment compared with

only 21 percent of police chiefs who gave a higher priority to law enforcement strategies. Many prominent corrections specialists, then, agree with prevention specialists that longer term solutions are required to prevent substance abuse and delinquency. Many citizens believe it is critical to strengthen America's families, schools, and communities.

Added to this litany of family problems are impending funding cuts for support services to low-income families. According to a National League of Cities (NLC) survey, called *Critical Needs, Critical Choices: A Survey of Children and Families in America's Cities*, more than 75 percent of all cities say recent changes in Federal and State funding cuts will have a moderate to major negative impact on their municipal agendas for supporting families and children.

PURPOSE OF THIS CHAPTER: INTERDISCIPLINARY COLLABORATION

Because of increasingly nested and tenacious problems facing multiproblem families today (Zucker and Fitzgerald 1996), members of the scientific community must learn from one another's research to make significant strides in creating family-focused interventions powerful enough to diminish these family issues.

The purpose of this chapter is to synthesize the presentations given at the January 25-26, 1996, National Institute on Drug Abuse (NIDA) research meeting on Drug Abuse Prevention Through Family Interventions. These research findings represent results from several disciplines (e.g., psychology, psychiatry, social work, health education, sociology, and pediatrics) and help inform family-focused prevention research and practice.

Unfortunately, although more researchers are attending interdisciplinary conferences and reading journals of other fields, academically based researchers tend to associate with colleagues from similar academic departments. Each discipline tends to view family problems from its own biomedical, psychological, or sociological perspective. Researchers are all examining the multiproblem family, yet insights, findings, and solutions are rarely shared. In such cloistered circumstances,
cross-fertilization of ideas is reduced as is the application of different theories and methodological approaches to solving the growing real-life problems facing families in society.

Additionally, because of the nature of categorical funding, researchers and practitioners specializing in substance abuse rarely interact with prevention researchers specializing in other fields (e.g, delinquency, child abuse and neglect, special education, teen pregnancy, HIV/AIDS, runaway and homeless youth, child welfare, family support, and early childhood education). Sharing of findings across these fields would help advance knowledge of effective interventions for multiproblem youth. More colocation of conferences and incentives for collaboration are needed to bridge this specialty field gap.

Whether medical folklore or reality, the story of how treatments for childhood cancers such as leukemia were developed through multidisciplinary teamwork holds a promising vision of the effectiveness of collaborative research efforts. By dealing with multiple risk factors simultaneously and mounting a major effort across disciplines, oncologists discovered that conducting simultaneous treatments (surgical, radiological, chemotherapeutic, dietary, and psychological) produced synergistic and longer lasting effects with sufficient dosage to cure the problem. To successfully prevent substance abuse, practitioners and researchers from many different fields share knowledge and work together to develop more effective family-focused prevention and treatment interventions, which are producing promising results. Hopefully, by continuing interdisciplinary symposiums on family intervention research and fostering interdisciplinary collaboration, researchers can share their collective wisdom to create even more effective treatments to prevent or reduce developmental psychopathologies in youth often associated with family dysfunction.

Because of the large numbers of youth being raised in dysfunctional families and poverty, researchers' academic rivalry and professional competitiveness must be put aside to allow for collaborative work.

This chapter combines ideas from the data of researchers from different academic disciplines presented within the panel "What Have We Learned From Other Fields, e.g., Juvenile Delinquency, Mental Health, That Can Be Applicable to Drug Abuse Prevention Intervention Research?" The papers, authors, and institutions included:

- "Reducing Risks for Substance Abuse With a Program of Prenatal and Early Childhood Home Visitation"—David Olds and Lisa Pettitt, Department of Pediatrics, University of Colorado and Department of Psychology, University of Denver

- "Family-Based Treatment of Adolescent Delinquency, Conduct Disorder, and Related Patterns of Acting Out: Empirically Informed Recommendations"—James F. Alexander, Department of Psychology, University of Utah

- "Families and Schools Together (FAST) Program: A Substance Abuse Prevention Program Which Clusters Families Under Stress for Social Support"—Lynn McDonald, Department of Psychiatry, University of Wisconsin

This chapter focuses on what can be learned from prevention and treatment intervention research in many different fields addressing problems of families and youth concerning the most effective interventions. The chapter discusses the Institute of Medicine (IOM) (1994) categorical scheme of universal, selective, and indicated prevention programs, based on the suggestions of Gordon (1987).

Additionally, research on model family programs is covered to provide a variety of examples of different types of family-focused prevention approaches for each of the developmental stages. The model programs include (1) the nurse home visitation program developed by Olds and associates (1986) in pediatrics for prevention of physiological, cognitive, and emotional damage in infancy due to maternal substance use and faulty caregiving; (2) the FAST program developed by McDonald and associates (McDonald et al. 1996) in psychiatry and social work for 4- to 9-year-olds; and (3) the Functional Family Therapy (FFT) program of Alexander and Parsons (1982) in psychology for delinquent youth. The chapter ends with a discussion of issues in developing, testing, and disseminating family intervention for prevention of problems in youth and families.

FAMILY INTERVENTIONS FOR THE PREVENTION OF SUBSTANCE ABUSE

This section provides an overview of the different types of prevention interventions—universal, selective, and indicated prevention strategies—as well as an overview of the effectiveness of the different types of family interventions. The section ends with a discussion of research, intervention, and dissemination issues.

Types of Prevention Interventions

While prevention programs have traditionally been organized into a continuum of primary, secondary, and tertiary prevention programs, the increased emphasis on creating prevention programs that match the risk needs of specific groups or individuals requires a more precise prevention classification scheme. The new prevention continuum adopted by the Institute of Medicine (1994) is based on the terminology recommended by Gordon (1987). It includes a finer breakdown of primary prevention into universal, selective, and indicated prevention interventions. In this scheme, the prevention category is determined by the group or individual for whom the program is designed and their risk factors (Lorion et al. 1989).

Universal interventions are applied to the general population of families and youth. Examples are school-based programs, media campaigns, and community interventions targeting strengthening families to prevent drug use, such as the Preparing for the Drug-Free Years Program (Hawkins et al. 1996), FAST (McDonald 1996), the first phases of the Adolescent Transition Program (Dishion and Kavanagh, in press), and the Iowa Strengthening Families Program (Molgaard and Kumpfer 1995).

Selective prevention interventions, in contrast to universal prevention interventions, target high-risk individuals or families as members of at-risk subgroups. Hence, these families are targeted not because of specific individual needs assessments or diagnoses, but because of epidemiologically or empirically established risk factors, such as (1) demographic risk factors, (2) psychosocial environmental risk factors, and (3) biological genetic risk factors. These family interventions generally last longer, are more intrusive by involving parent and youth in ways to target behavioral changes, and therefore, work with smaller numbers of participants per group. Examples of selective family prevention interventions are the Strengthening Families Program (Kumpfer et al. 1989) for substance-abusing families and other culturally modified versions for high-risk African American families (Aktan 1995; Aktan et al. 1996), Spanish-speaking families, and Asian/Pacific Islander families. (For an overview of all versions see Kumpfer et al. 1996; Kumpfer et al. 1997*a*.)

Indicated prevention programs are designed to address the multiple risk factors in dysfunctional families. The families are typically referred for the family intervention because of some indicated problem in the family. These identified or diagnosed problems may

include school failure, delinquency, noncompliance or drug use in the child or indicators of parenting dysfunction such as child physical or sexual abuse, severe neglect, or other parental pathology. Indicated prevention programs are even more intrusive and longer and can involve inhome therapeutic or family support sessions such as those in family preservation programs and some family services or family case management programs. Often they involve individual rather than group sessions with a highly trained therapist. Discussed in this chapter are the prenatal and infancy nurse home visitation program (Olds et al. 1997*a*) and the FFT program (Alexander and Parsons 1982).

Alexander and Pugh (1996) clarified that many indicated family-focused prevention programs are categorized as both prevention and treatment. For instance, the family therapy programs are considered therapeutic for conduct disorders in the child or for severely dysfunctional parenting. However, they are still categorized as indicated prevention programs if the child is not currently a substance abuser, because they are effective in preventing the developmental progression from conduct disorders to drug abuse. Examples of indicated family interventions include: structural family therapy (Szapocznik et al. 1988) and FFT (Alexander and Parsons 1982), systems behavioral family therapy (Gordon et al. 1988), multidimensional family therapy (Liddle 1995), multitarget ecological treatment (Chamberlain and Rosicky 1995), and multisystemic family therapy (Henggeler and Borduin 1990; Henggeler et al. 1992).

Thus while dichotomizing discussions, funding initiatives, intervention programs, and relevant literatures into categories of prevention and treatment can be useful, it can also be misleading if they are seen not as a continuum but as dichotomous alternatives. The success of FFT in also reducing the offending rates among younger siblings of youth participating because of delinquency records (Klein et al. 1977) demonstrates the difficulty of categorizing programs as prevention or treatment even within a single family.

The next sections highlight three family interventions not discussed in the prior chapters. Each of these substance abuse prevention programs illustrates an effective family-focused approach appropriate for the three major developmental stages of children (i.e., prenatal and early childhood, childhood, and preteen and adolescence). In addition, each of these three programs represents, in order, examples of a universal, a selective, and an indicated approach to prevention. The model programs discussed include (1) the nurse home visitation program developed by Olds and Pettit (in press), (2) the FAST

program developed by McDonald and associates (1996), and (3) the FFT program of Alexander and Parsons (1982).

EARLY CHILDHOOD FAMILY INTERVENTIONS

Greater emphasis is being placed on helping families early when the child is between birth and 5 years of age—even prior to birth. Research has suggested that decreasing tobacco, alcohol, and other drug use in pregnant women can have benefits in reducing later substance abuse in both the mother and the child.

To the extent that pregnant women avoid substance use during pregnancy, such as cigarette smoking, alcohol consumption, and use of illicit drugs, and thus protect their children's health in utero, children's cognitive (especially language) and behavioral functioning are more likely to follow a normal developmental track by the time they are 3 to 4 years old (Lester and Tronick 1994; Olds et al. 1994*b*; Weitzman et al. 1992). Children of women who engage in these behaviors during pregnancy are at risk for neurodevelopmental impairment (Jacobson et al. 1993; Mayes et al. 1995; McGee and Stanton 1994; Olds et al. 1994*a*, *b*; Streissguth et al. 1984, 1995; Weitzman et al. 1992).

Neurodevelopmental impairment in turn is reflected in deficits in verbal and executive functions, such as problem solving, receptive listening, attention span, and impulse control, which are predictors of conduct disorder and substance abuse (Hawkins et al. 1992; Moffitt 1990, 1993; Moffitt and Silva 1988; Pennington and Ozonoff 1996).

Family-focused preventions being tested to prevent problems in newborns to 5-year-olds include nurse home visitation trials (Olds et al. 1997*a*), family services and family support (Yoshikawa 1994), family paraprofessional case management programs (Kumpfer et al. 1995), infant stimulation, toy making, and language development support in the home by trained staff and programs to reduce conduct problems in 3- to 5-year-olds (Maguin et al. 1994; Nye et al. 1995). Despite the popularity of these programs, because of the newness of this approach, the research evidence is still accumulating concerning the effectiveness of these complex and often multicomponent programs. Overall, the results to date look very promising (Yoshikawa 1994). One of the programs with the strongest results is the nurse home visitation program developed by Olds and associates (Olds et al. 1997*b*).

UNIVERSAL PREVENTION: THE NURSE HOME VISITATION PROGRAM

The nurse home visitation program was developed by Olds and associates to reduce biological damage during prenatal development and infancy due to exposure to toxins such as tobacco, alcohol, and other drugs resulting in fetal alcohol or drug syndrome or effect (Streissguth et al. 1984, 1995), poor maternal nutrition, accidents and head trauma, and maternal stress. The program studied in the Elmira and Memphis trials consisted of nurse home visits at least once every 2 weeks at first, which are phased out over time. In the Memphis site, a paraprofessional home visitor model was also tested against the professional nurse model.

The nurse home visitation program model has resulted in reduced rates of dysfunctional caregiving, as reflected in reduced rates of State-verified cases of child maltreatment (reduced from 10 to 4 percent in experimental families with nurse visits to 2 years) and healthcare encounters for injuries and ingestion (Olds et al. 1986, 1995*a*, *b*), in women's greater involvement with their children, and in indicators of mothers' use of consistent discipline techniques. Moreover, during the 2-year period after the program ended, children from nurse-visited families overall were much less likely to be seen in the physician's office for injuries, ingestions, or social problems and had 35 percent fewer visits to the emergency department. The nurse-visited parents were more involved and attuned to their children's needs and created safer home environments for them (Olds et al. 1997*c*).

The nurse-visited women were observed to be more involved with their children during in-home observations at the third year of the child's life and engaged in more appropriate, coherent punishment of their children. This improved the child's adaptive functioning and lessened severe punishment leading to physician visits for injuries during the fourth year (Olds et al. 1994*a*).

Evidence from randomized trials of prenatal and early childhood nurse home visitation indicates that nurse home visitation can reduce prenatal cigarette smoking and alcohol consumption and that intellectual impairment among 3- and 4-year-olds associated with prenatal cigarette smoking can be eliminated (Kitzman et al. 1997; Olds et al. 1994*b*). In addition, these findings suggest that this

program can reduce one's risk for lifecourse-persistent conduct disorder and substance abuse because of its success in reducing the rates of adverse prenatal health-related behaviors, such as smoking and alcohol consumption, while simultaneously improving prenatal diet (Kitzman et al.1997; Olds et al. 1986, 1995*a*).

This improvement in intellectual functioning was not explained by the reduction in preterm delivery or improvement in birthweight of infants whose mothers smoked during pregnancy (Olds et al. 1986), but rather appeared to be connected directly to the reduction in cigarette smoking and improvement in diets of mothers (Olds et al. 1994*b*).

Rates of subsequent pregnancy were 43 percent lower, participation in the workforce was 84 percent higher, and dependence on Aid to Families with Dependent Children (AFDC) was lower in low-income, unmarried women. Preliminary analyses of the first 75 percent of the Elmira
15-year followup sample indicate continued reductions in AFDC dependence and family size for nurse-visited, low-income, unmarried women (Olds et al. 1997*c*). These women were also less likely to be in relationships with men who were unemployed, in contrast to their comparison-group counterparts.

In the Memphis study, where the sample was 92 percent African-American, 97 percent unmarried, and all low income, nurse-visited women had 26 percent fewer repeat pregnancies and 9 percent fewer live births by the time the first-born children were 2 years of age. Nurse-visited women with high levels of psychological resources (highest tertile in IQ, mental health functioning, and active coping styles) reported 29 percent fewer months on AFDC than did their counterparts in the comparison group.

Based on this effectiveness in supporting healthy development in early childhood, the nurse home visitation program has been selected (along with other well-researched programs) for dissemination by an Office of Juvenile Justice and Delinquency Prevention (OJJDP) expert panel of the Strengthening America's Families technology transfer initiative. Two other programs include McDonald's FAST program for elementary school children and Alexander and Parsons' FFT. Each of these model family interventions is discussed below.

SELECTIVE PREVENTION: THE FAST PROGRAM

The FAST program was created in 1987 in response to a request for proposal (RFP) issued by the United Way of Dane County to reduce the increasing numbers of children who were having problems with substance abuse and community violence in their local area. This selective prevention program was designed to address prevention issues for high-risk youth early, creatively, and effectively before problems became too big.

The program sought to decrease the likelihood of long-term adolescent problems in 5- to 9-year-old children whom teachers identified as being at risk for school failure or suspension, involvement with the court system because of conduct disorders, or addiction to alcohol or other drugs. FAST also sought to have more intermediate impact on more proximal outcomes, such as reductions in behavior problems at school, including conduct disorder, motor excess, short attention span, and anxiety or withdrawal. Family objectives included increased family closeness and decreased social isolation.

Originally FAST was developed for 5- to 9-year-olds (and their families), but it was modified for Head Start/preschool children and their families with universal referrals (i.e., whole classrooms) and with high-risk, middle-school youth and their families with selective acceptance (i.e., FAST can refuse a referral).

The three phases of the FAST program are (1) outreach recruitment with home visits, (2) eight weekly 2_-hour multifamily meetings with a graduation at the last meeting, and (3) 2 years of monthly multifamily meetings run by FAST parents for maintenance and social support networks. These sessions provided a meeting for the whole family unit as well as separate sessions for adults and youth. Families participated in experiential programming with direct practice. Program components (activities) developed or expanded behavioral repertoires so parents became more in charge of their children. There were no formal presentations. Families had fun, communicated more effectively, and made positive inquiries, and parents were coached to block conflict or criticism. Family members made new friends at a peer level. The sessions were run by a team of representatives from the school, mental health agency, substance abuse prevention agency, and the parent/consumer constituency.

FAST Results

There has been continuous evaluation of the FAST program since 1988 with United Way and Center for Substance Abuse Prevention (CSAP) funding. Standardized measures include a family measure including FACE II (Family Adaptability and Cohesion Evaluation Scales version 2), Abidin Social Isolation Scale, and Epstein Parent Involvement Scale. Only a very small sample (N = 9) was a part of this initial experimental design study, but FAST received NIDA funding for a full-scale clinical trial. The findings revealed clinically significant but not statistically significant improvements in FAST children compared with controls. Repeated implementation across diverse settings showed a similar pattern. Nationally, 58 sites in 20 States have replicated FAST. In 30 sites in Wisconsin, analyses showed statistically significant improvement pre- and post-FAST by teacher and parent reports on standardized, valid, and reliable instruments. Clinical amount of change was an improvement of 25 percent. Overall, 80 percent of children improved over the 8 weeks. The FAST program followed parent graduates longitudinally for 2 to 4 years after involvement and found ongoing improvement on a standardized instrument of mental health called the Revised Behavior Checklist (RBPC). Parent empowerment practices affected parent involvement in school, self-referral to counseling or substance abuse treatment, returning to work or school, and becoming community leaders.

INDICATED PREVENTION: FFT

The FFT model was developed over the past 25 years as an empirically grounded, family-based intervention program for acting-out and delinquent youth. As such, this family therapy model was an example of an indicated prevention program for substance abuse (Institute of Medicine 1994). Several meta-analyses have shown that family therapy produced consistently moderate to large effect sizes (Hazelrigg et al. 1987). The FFT approach, which combines behavioral and cognitive social learning and family systems concepts, was developed and tested with “soft” delinquents (first-time status offenders) by Alexander and Parsons (1982). Using FFT, recidivism was cut in half (or better) (Alexander and Parsons 1973), and siblings showed half the recidivism rates (Klein et al. 1977).

Research suggests that families of delinquents have more defensive and less supportive communication patterns (Alexander 1973). A major goal of FFT was to improve family communication and supportiveness. Other goals were to help family members identify

what they desired from each other and possible solutions to family problems.

The model was originally designed to provide intervention and treatment to middle-class families with delinquent and predelinquent youth. Much of the work included multiethnic, multicultural populations in both urban and rural populations.

The FFT family intervention model had five phases: (1) introduction/ impression, (2) motivation (therapy), (3) assessment, (4) behavior change, and (5) generalization (more focused multisystem) (Alexander and Parsons 1982). The intervention involved a strong cognitive/attributional component, which was integrated into systematic skill training in family communication, parenting skills, and conflict management skills. The program was conducted by family therapists working with each individual family in a clinic setting, which was standard for most family therapy programs.

Research Results

The FFT model received its first formal, comparative evaluation in 1971 (Alexander and Parsons 1973). Additional, well-controlled outcome evaluations have been performed at the Utah site. The model's effectiveness also was independently demonstrated with a between-groups design, and its impact was assessed at additional performance sites. FFT demonstrated a significant reduction in recidivism when compared with alternative treatments and no-treatment conditions. With less serious offenders, reductions ranged from 50 to 75 percent, and with very severe cases FFT was associated with a
35-percent reduction in reoffense rate. Of particular interest to the prevention field is that the offense rate of younger siblings was also significantly reduced (Klein et al. 1977). In addition to outcome evaluations, FFT focused on in-session therapist characteristics and family interaction processes, which were predictive of positive change. Most notable process changes appeared to be in family communication patterns, especially negative/blaming communication patterns (Alexander et al. 1976; Robbins et al. 1996). Process and outcome data demonstrated that therapists must be both relationally sensitive and focused as well as capable of clear structuring to produce significantly fewer dropouts and lower recidivism.

Home-Based FFT Results

FFT was also effectively applied to serious multiple offenders using a home-based approach. Using the FFT home-based approach with serious ("hard core") delinquents who had been incarcerated for various felonies, Barton and associates (1985), found at 15-month followup a significantly lower recidivism rate (60 percent) in the FFT group compared with 93 percent recidivism at 15 months in the comparison group consisting of group home delinquents. At a 21-month followup, Gordon and colleagues (1995) likewise found a low (30 percent) recidivism rate in a group of serious multiple offenders released from State institutions compared with an expected 60 to 75 percent in a statistical comparison group. Another study of Appalachian economically disadvantaged offenders by Gordon and associates (1988) found a very low (11 percent) recidivism rate for FFT compared with 67 percent in a probation-only group.

A cost-benefit analysis (Gustafson and Cooper 1985) demonstrated that the direct costs of FFT were significantly lower than the cost of probation only. In another study, Gordon (1995) reported an even lower recidivism rate of 9 percent in a group of rural, low socioeconomic status delinquents compared with a 41 percent rate for probation only after a 60-month followup period, despite the fact that the FFT group had higher risk cases at baseline.

Hence, the FFT model targeted a wide range of adolescent behavioral problems, ranging from mild or noncriminal to severe offenses. Twenty-five years of research and evaluation of this model have demonstrated that the intervention must include a major focus on changing emotional and attributional components of family interaction.

DRUG ABUSE AND OTHER YOUTH PROBLEMS ARE PREVENTABLE

As stated by NIDA Director Dr. Alan I. Leshner, "Drug abuse is a preventable behavior, and drug dependence is a treatable disease." In addition, the prevention of drug abuse and associated youth problems are cost effective. The cost of treating a drug abuser is estimated to be about $64,000 per year, and the cost of incarcerating and treating a delinquent juvenile is conservatively estimated at $34,000 to $64,000 per year (Camp and Camp 1990; Cohen 1994). Likewise, many drug-abusing youth become involved in delinquency, and a young adult's (ages 18 to 23) serious criminal career is estimated at $1.1 million (Cohen 1994). Substance abuse results in family

disruption, lost productivity, unemployment, financial problems, accidents, crime, and legal problems (Liddle and Dakof 1995).

In contrast, Head Start intervention programs that also involve parents and teach them how to improve their parenting skills are effective in reducing predictors of substance abuse such as school academic failure for as little as $4,300 per year. Unfortunately, few prevention programs have calculated their costs and benefits, but programs have shown cost-benefit ratios in the range of 8 to 1 (Kim et al. 1995).

According to a meta-analysis of delinquency prevention programs by Lipsey (1992), a California delinquency prevention program saved law enforcement and juvenile justice systems $1.40 for every $1 spent on the program. Program evaluations of substance abuse and delinquency prevention programs highlighted in *Substance Abuse Prevention Theory and Research-Based Programs: What Works* (Kumpfer et al. 1997*b*) and *What Works: Promising Interventions in Juvenile Justice* (Office of Juvenile Justice and Delinquency Prevention 1995) suggest there are effective family programs that can reduce substance abuse as well as precursor risk factors.

As mentioned earlier in this chapter, meta-analyses of prevention efforts with drug-abusing youth suggest that the effect sizes of family interventions are greater than other prevention approaches (Andrews et al. 1990; Gendreau and Ross 1980; Gordon 1987).

A cost-benefit analysis conducted on the home-based FFT program by Gustafson and Cooper (1985) found the direct costs for FFT were significantly lower than the cost of probation only.

Effectiveness of Family Approaches

Research summarized in this monograph and by Bry (1983) on family-focused approaches indicates that family interventions are effective in reducing drug use in adolescence. The major precursors of drug use and abuse can be decreased by participation in family intervention programs. Family-focused programs have been found to significantly reduce all the major risk domains and increase protective processes (Kumpfer 1996). High-risk families and even those with indicated "hard-core" problems in the family and adolescent can benefit from family-strengthening strategies. Despite widespread myths that high-risk families cannot be recruited for parenting or family programs, and if recruited that they will not benefit, there are

tested strategies (Kumpfer 1991; Szapocznik et al. 1988) for engaging and retaining such families with positive effects. Family strengthening programs have also been found effective in reducing family risks and increasing resilience in youth to drug use in multiethnic families (Kumpfer and Alvarado 1995). There is some evidence that, by improving parenting and reducing behavioral and emotional problems in the children of substance-abusing mothers, these women can significantly decrease their own substance abuse without treatment (Kumpfer et al. 1997*a*). Hence, parenting and family programs can serve as a useful adjunct to substance abuse treatment and possibly can help reduce relapse during aftercare.

DISSEMINATION ISSUES

There are cost-effective strategies that can prevent substance abuse and delinquency by successfully reducing risk factors and strengthening protective factors in the lives of at-risk children. The problem is transferring this technology of "what works" to practitioners. Researchers from the different disciplines in universities often have little time to disseminate their findings except in research articles or book chapters read primarily by other researchers.

For this reason, a major goal of NIDA is to promote the dissemination of research-based substance abuse prevention programs to the policymakers, program planners, and implementers in the field. NIDA has conducted several technology transfer conferences on prevention and commissioned the development of a technology transfer package (National Institute on Drug Abuse, in press) that includes five monographs and the videotape Coming Together on Prevention, which is available from the National Clearinghouse for Alcohol and Drug Information. Within this package, those items of particular interest for family-based approaches are:

- *Drug Abuse Prevention: What Works* (Kumpfer et al. 1997), which provides an overview of the research on the most effective prevention programs including family-focused programs
- *Selective Prevention for Children of Substance-Abusing Parents: The Strengthening Families Program Resource Manual* (Kumpfer et al. 1997*a*), which covers family-focused programs with selective populations

Other reviews of the prevention literature that include family-focused approaches for the prevention of substance abuse and delinquency include:

- *Strengthening America's Families: Exemplary Parenting and Family Strategies for Delinquency Prevention* (Kumpfer et al., in press), which reviews model family intervention programs and is available through the University of Utah Medical Library Web site (http://www-medlib.med.utah.edu/healthed/ojjdp.htm)

- *Family-Centered Approaches To Prevent Substance Abuse Among Children and Adolescents*, Prevention Enhancement Protocols System (PEPS) (Grover 1998), which provides a literature review of family risk and protective factors, brief summaries of the major research studies on family approaches with an analysis of what works, program development and delivery issues, and emerging areas of research and practice, such as resilience- and family strength-focused programs

- *Guide for Implementing the Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders* (Howell 1995), which covers effective strategies for delinquency prevention, including substance abuse

CONCLUSION

To be effective, family programs must be tailored to the age, gender, and cultural needs of the children and their families (Kumpfer and Alvarado 1995). There is no one best family intervention; hence, an armamentarium of strategies for prevention is needed. Different strategies are appropriate for universal, selective, and indicated approaches to strengthening families. Dissemination of research-based models to practitioners has always been problematic. Many of the highly commercialized parenting and family programs have little research evidence of effectiveness as discovered after a thorough review of the research literature for the CSAP family-focused PEPS initiative (Grover 1998) by an expert panel cochaired by Drs. Kumpfer and Szapocznik. Clearly, more research is needed on effective models to meet diverse family needs as well as on how to disseminate these exemplary programs. NIDA has issued a special RFP for family-focused interventions for prevention of substance abuse, and more family intervention research is being funded.

While etiological research on substance abuse is making great strides in determining the most salient risk and protective factors and processes in families, equal efforts are needed to move beyond "black box," single experimental group designs to systematically explore in more depth critical component and content variables as well as different recruitment, retention, and measurement strategies in family-focused research.

The major strengths of a family-focused approach to substance abuse prevention is improving the ways that parents care for and socialize their children (Klein et al. 1977). Also, the beneficial effects in improved behaviors and social acceptance help to reduce many different problem behaviors such as dropping out of school, teenage pregnancy, delinquency, and conduct disorders (Ary et al., in press).

REFERENCES

Aktan, G. Organizational framework for a substance use prevention program. *Int J Addict* 30:185-201, 1995.

Aktan, G.; Kumpfer, K.L.; and Turner, C. The Safe Haven program: Effectiveness of a family skills training program for substance abuse prevention with inner city African American families. *Int J Addict* 31:158-175, 1996.

Alexander, J. Defensive and supportive communications in normal and deviant families. *J Consult Clin Psychol* 40(2):223-231, 1973.

Alexander, J.F.; Barton, C.; Schiavo, R.S.; and Parsons, B.V. Behavioral intervention with families of delinquents: Therapist characteristics and outcomes. *J Consult Clin Psychol* 44(4):656-664, 1976.

Alexander, J.F., and Parsons, B.V. *Functional Family Therapy*. Monterey, CA: Brooks/Cole, 1982.

Alexander, J.F., and Parsons, B.V. Short-term behavioral intervention with delinquent families: Impact on family process and recidivism. *J Abnorm Psychol* 81:219-225, 1973.

Alexander, J.F., and Pugh, C.A. Oppositional behavior and conduct disorders of children and youth. In: Kaslow, F.W., ed. *Handbook of Relational Diagnosis and Dysfunctional Family Patterns*. New York: John Wiley and Sons, 1996.

Andrews, D.A.; Hoge, R.D.; and Robinson, D. Patterns of child and parenting problems within six family types. *Can J Behav Sci* 22(2):99-109, 1990.

Ary, D.V.; Duncan, T.E.; Biglan, A.; Metzler, C.W.; Noell, J.W.; and Smolkowski, K. *Development of Adolescent Problem Behavior*. *J Abnorm Child Psychol*, in press.

Barton, C.; Alexander, J.F.; Waldron, H.; Turner, C.W.; and Warburton, J. Generalizing treatment effects of Functional Family Therapy: Three replications. *Am J Fam Ther* 13(3):16-26, 1985.

Brook, J.S.; Brook, D.W.; Gordon, A.S.; Whiteman, M.; and Cohen, P. The psychosocial etiology of adolescent drug use: A family interactional approach. *Genet Soc Gen Psychol Monogr 116* (Whole No. 2). Ithaca, NY: May 1990.

Bry, B.H. Empirical foundations of family-based approaches to adolescent substance abuse. In: Glynn, T.J.; Leukefeld, C.G.; and Ludford, J.P., eds. *Preventing Adolescent Drug Abuse: Intervention Strategies*. National Institute on Drug Abuse Research Monograph 47. DHHS Pub. No. (ADM)83-1280. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983. pp. 154-171.

Camp, G.M., and Camp, C.G. *Corrections Yearbook: Juvenile Corrections*. South Salem, NY: Criminal Justice Institute, 1990.

Chamberlain, P., and Rosicky, J.G. The effectiveness of family therapy in the treatment of adolescents with conduct disorders and delinquency. *J Marital Fam Ther* 21:441-459, 1995.

Cohen, M.A. "The Monetary Value of Saving a High-Risk Youth." Paper prepared for the National Institute of Justice. Washington, DC: The Urban Institute, 1994.

Dishion, T.J., and Kavanagh, K. *Adolescent Problem Behavior: A Family-Centered Assessment and Intervention Sourcebook*. New York: Guilford Press, in press.

Gendreau, P., and Ross, R.R. Effective correctional treatment: Bibliotherapy for cynics. In: Ross, R.R., and Gendreau, P., eds. *Effective Correctional Treatment*. Toronto: Butterworth and Co., 1980. pp. 13-36.

Gordon, D.A. Functional Family Therapy for delinquents. In: Ross, R.R.; Antononwicz, D.H.; and Dhaliwal, G.K., eds. *Going Straight: Effective Delinquency Prevention and Offender Rehabilitation.* Ottawa, Ontario, Canada: AIR Training and Publications, 1995.

Gordon, D.A.; Arbuthnot, J.; Gustafson, K.E.; and McGreen, P. Home-based behavioral-systems family therapy with disadvantaged juvenile delinquents. *Am J Family* 16(3):243-255, 1988.

Gordon, D.A.; Graves, K.; and Arbuthnot, D.A. The effect of Functional Family Therapy for delinquents on adult criminal behavior. *Crim Just Behav* 22(1):60-73, 1995.

Gordon, R. An operational classification of disease prevention. In: Steinberg, J.A., and Silverman, M.M., eds. *Preventing Mental Disorders*. Rockville, MD: U.S. Department of Health and Human Services, 1987.

Grover, P.L., ed. Preventing Substance Abuse Among Children and Adolescents: Family-Centered Approaches. Practitioners Guide. Prevention Enhancement Protocols System (PEPS). Substance Abuse and Mental Health Services Administration. Center for Substance Abuse Prevention, DHHS Pub. No. (SMA)3224-FY98, 1998.

Gustafson, J.P., and Cooper, L. Supervision in a group: An application of group therapy. *Clin Supervisor* 3(2):7-25, 1985.

Hawkins, J.D.; Catalano, R.F.; and Miller, J.Y. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychol Bull* 112:64-105, 1992.

Hawkins, J.D.; Olsen, J.A.; Catalano, R.F.; and Chappell, P.J. *Preparing for the Drug Free Years*. Developmental Research and Programs, Inc. 130 Nickerson Street Suite 107, Seattle, WA 98109, 1996.

Hazelrigg, M.D.; Cooper, H.M.; and Borduin, C.M. Evaluating the effectiveness of family therapies: An integrative review and analysis. *Psychol Bull* 101:428-442, 1987.

Henggeler, S.W., and Borduin, C.M. *Family Therapy and Beyond: A Multisystemic Approach to Treating the Behavior Problems of Children and Adolescents*. Pacific Grove, CA: Brooks/Cole, 1990.

Henggeler, S.W.; Melton, G.B.; and Smith, L.A. Family preservation using multisystemic therapy: An effective alternative to incarcerating serious juvenile offenders. *J Consult Clin Psychol* 60(6):953-961, 1992.

Howell, J.C., ed. *Guide for Implementing the Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders.* Washington, DC: Office of Juvenile Justice and Delinquency Prevention, U.S. Department of Justice, May 1995.

Institute of Medicine. New directions in definitions. In: Mrazek, P.J., and Haggerty, R.J., eds. *Reducing Risks for Mental Disorders:*

Frontiers for Preventive Intervention Research. Washington, DC: National Academy Press, 1994.

Jacobson, S.W.; Jacobson, J.L.; Sokol, R.J.; Martier, S.S.; and Ager, J.W. Prenatal alcohol exposure and infant information processing ability. *Child Dev* 64:1706-1721, 1993.

Kim, S.; Coletti, S.D.; Crutchfield, C.C.; Williams, C.; and Helper, N. Benefit-cost analysis of drug abuse prevention programs: A macroscopic approach. *J Drug Educ* 25(2):111-127, 1995.

Kitzman, H.; Olds, D.L.; Henderson, C.R. Jr.; Hanks, C.; Cole, R.; Tatelbaum, R.; McConnochie, K.M.; Sidora, K.; Luckey, D.W.; Shaver, D.; Engelhardt, K.; James, D.; and Barnard, K. Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing: A randomized controlled trial. *JAMA* 278:644-652, 1997.

Klein, N.; Alexander, J.F.; and Parsons, B.V. Impact of family systems on recidivism and sibling delinquency: A model of primary prevention and program evaluation. *J Consult Clin Psychol* 45(3):469-474, 1977.

Kumpfer, K.L. How to get hard-to-reach parents involved in parenting programs. In: Pines, D., ed. *Parent Training is Prevention: Preventing Alcohol and Other Drug Problems Among Youth in the Family*. DHHS Pub. No. (ADM)91-1715. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1991. pp. 87-95.

Kumpfer, K.L. "Selective Prevention Approaches for Drug Abuse Prevention: The Strengthening Families Program." Paper presented at the National Institute on Drug Abuse Family Research Symposium, Gaithersburg, MD, January 1996.

Kumpfer, K.L., and Alvarado, R. Strengthening families to prevent drug use in multi-ethnic youth. In: Botvin, G.; Schinke, S.; and Orlandi, M., eds. *Drug Abuse Prevention with Multi-ethnic Youth*. Newbury Park, CA: Sage Publications, 1995. pp. 253-292.

Kumpfer, K.L.; Baxley, G.B.; and Drug Control Policy Group. *Drug Abuse Prevention: What Works*. National Institute on Drug Abuse Prevention Package. NIH Pub. No. 97-4110. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1997.

Kumpfer, K.L.; Bellamy, N.D.; Alvarado, R.; and Kendall, K. *Strengthening America's Families: Exemplary Parenting and Family Strategies for Delinquency Prevention*. Office of Juvenile Justice and Prevention, U.S. Department of Justice, Washington, DC, in press.

Kumpfer, K.L.; DeMarsh, J.P.; and Child, W. *Strengthening Families Program: Children's Skills Training Curriculum Manual, Parent Training Manual, Parent Handbook, Children's Skill Training Manual, Children's Handbook, and Family Skills Training Manual*. (Prevention Services to Children of Substance-Abusing Parents). Salt Lake City: Social Research Institute, Graduate School of Social Work, University of Utah, 1989.

Kumpfer, K.L.; Molgaard, V.; and Spoth, R. Family interventions for the prevention of delinquency and drug use in special populations. In: Peters, R.D., and McMahon, R.J., eds. *Preventing Childhood Disorders, Substance Abuse and Delinquency*. Thousand Oaks, CA: Sage Publications, 1996. pp. 214-263.

Kumpfer, K.L.; Rigby, D.; Walsh, E.; and Sorensen, S. *Substance Abuse Prevention Theory and Research-Based Programs: What Works!* In: National Institute on Drug Abuse, *Drug Abuse Prevention: What Works*, Drug Abuse Prevention Package. NCADI Pub. No. PREVPK. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1997*b*.

Kumpfer, K.L.; Sasagawa, M.; and Harrison, S.L. *Asian Association of Utah Evaluation Report.* Department of Health Education, University of Utah, Salt Lake City, UT, 1995.

Kumpfer, K.L., and Turner, C. The Social Ecology Model of Adolescent Substance Abuse: Implications for prevention. *Int J Addict* 25(4A):435-463, 1990/1991.

Kumpfer, K.L.; Williams, M.K.; and Baxley, G. *Selective Prevention for Children of Substance-Abusing Parents: The Strengthening Families Program Resource Manual*. In: National Institute on Drug Abuse, *Drug Abuse Prevention for At-Risk Groups*, Drug Abuse Prevention Package, NCADI Pub. No. BKD201. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1997*a*.

Lester, B.M., and Tronick, E.Z. The effects of prenatal cocaine exposure and child outcome. *Infant Ment Health J* 15:107-120, 1994.

Liddle, H.A. Conceptual and clinical dimensions of a multidimensional, multisystems engagement strategy in family-based adolescent treatment. *Psychotherapy* 32:39-58, 1995.

Liddle, H.A., and Dakof, G.A. Family-based treatment for adolescent drug use: State of the science. In: Rahdert, E., and Czechowicz, D., eds. *Adolescent Drug Abuse: Clinical Assessment and Therapeutic Interventions.* National Institute on Drug Abuse Research Monograph 156. NIH Pub. No. 95-3908. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1995. pp. 218-254.

Lipsey, M.W. Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. In: Cook, T.D.; Cooper, H.; Cordray, D.S.; Hartmann, H.; Hedges, L.V.; Light, R.J.; Louis, T.A.; and Mosteller, F., eds. *Meta-Analysis for Explanation*. New York: Russell Sage Foundation, 1992. pp. 83-127.

Lorion, R.P.; Price, R.H.; and Eaton, W.W. The prevention of child and adolescent disorders: From theory to research. In: Shaffer, D.; Philips, I.; and Enzer, N.B., eds. *Prevention of Mental Disorders, Alcohol and Other Drug Use in Children and Adolescents*. Office for Substance Abuse Prevention Monograph 2. DHHS Pub. No. (ADM)90-1646. Rockville, MD: Office of Substance Abuse Prevention, 1989. pp. 55-96.

Maguin, E.; Zucker, R.A.; and Fitzgerald, H.E. The path to alcohol problems through conduct problems: A family based approach to very early intervention with risk. *J Res Adolesc* 4:249-269, 1994.

Mayes, L.C.; Bornstein, M.H.; Chawarska, K.; and Granger, R.H. Information processing and developmental assessments in 3-month infants exposed prenatally to cocaine. *Pediatrics* 95:539-545, 1995.

McDonald, L. Families Together with Schools. In: *Promising Programs for Safe Schools*. Washington, DC: American Psychological Association, 1996.

McDonald, L.; Billingham, S.; Dibble, N.; and Payton, E. Families and Schools Together (F.A.S.T.). Madison, WI: Family Services, Inc., 1996.

McGee, R., and Stanton, W.R. Smoking in pregnancy and child development to age 9 years. *J Paediatr Child Health* 30:263-268, 1994.

Moffitt, T.E. Juvenile delinquency and attention deficit disorder: Boys' developmental trajectories from age 3 to age 15. *Child Dev*
61:893-910, 1990.

Moffitt, T.E. The neuropsychology of conduct disorder. *Dev Psychopathol* 5:135-151, 1993.

Moffitt, T.E., and Silva, P.A. Self-reported delinquency, neuropsychological deficit, and history of attention deficit disorder. *J Abnorm Child Psychol* 16:553-569, 1988.

Molgaard, V., and Kumpfer, K.L. *The Iowa Strengthening the Families Program for Families with Pre- and Early Teens*. Iowa State University, Ames, IA, 1995.

National Institute on Drug Abuse. *Drug Abuse Prevention: What Works*, National Institute on Drug Abuse Prevention Package. NCADI Pub. No. PREVPK. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1997.

Newcomb, M.D., and Bentler, P.M. The impact of late adolescent substance abuse on young adult health status and utilization of health services: A structural-equation model over four years. *Soc Sci Med* 24:71-82, 1989.

Nye, C.; Zucker, R.; and Fitzgerald, H. Early intervention in the path to alcohol problems through conduct problems: Treatment involvement and child behavior change. *J Consult Clin Psychol* 63:831-840, 1995.

Office of Juvenile Justice and Delinquency Prevention. *What Works: Promising Interventions in Juvenile Justice*. Pittsburgh, PA: National Center for Juvenile Justice, 1995.

Olds, D.; Henderson, C.R.; Kitzman, H.; and Cole, R. Effects of prenatal and infancy nurse home visitation on surveillance of child maltreatment. *Pediatrics* 95:365-372, 1995*b*.

Olds, D.L.; Eckenrode, J.; Henderson, Jr., C.R.; Kitzman, H.; Powers, J.; Cole, R.; Sidora, K.; Morris, P.; Pettitt, L.M.; and Luckey, D. Long-term effects of home visitation on maternal life course and child abuse and neglect: 15-year follow-up of a randomized trial. *JAMA* 278:637-643, 1997*c*.

Olds, D.L.; Eckenrode, J.; Kitzman, H.; Cole, R.; and Powers, J. "The Long-Term Efficacy of the Elmira Prenatal/Early Infancy Project: A Progress Report." Paper presented at the meeting of the American Public Health Association, San Diego, CA, October 29-November 2, 1995*a*.

Olds, D.L.; Henderson, C.R.; and Kitzman, H. Does prenatal and infancy nurse home visitation have enduring effects on qualities of parental caregiving and child health at 25 to 50 months of life? *Pediatrics* 93:89-98, 1994*a*.

Olds, D.L.; Henderson, C.R.; and Tatelbaum, R. Intellectual impairment in children of women who smoke cigarettes during pregnancy. *Pediatrics* 93:221-227, 1994*b*.

Olds, D.L.; Henderson, C.R.; Tatelbaum, R.; and Chamberlin, R. Improving the delivery of prenatal care and outcomes of pregnancy: A randomized trial of nurse home visitation. *Pediatrics* 77:16-28, 1986.

Olds, D.L.; Kitzman, H.; Cole, R.; and Robinson, J. Theoretical foundations of a program of home visitation for pregnant women and parents of young children. *J Community Psychol* 25:9-25, 1997*b*.

Olds, D.L.; Pettitt, L.M.; Robinson, J.; Henderson, Jr., C.; Eckenrode, J.; Kitzman, H.; Cole, B.; and Powers, J. Reducing risks for antisocial behavior with a program of prenatal and early childhood home visitation. *J Community Psychol* 26(1):65-83, 1997*a*.

Pennington, B.F., and Ozonoff, S. Executive functions and developmental psychopathology. *J Child Psychol Psychiatry* 37(1):51-87, 1996.

Robbins, M.S.; Alexander, J.F.; Newell, R.M.; and Turner, C.W. The immediate effect of refraining on client attitude in family therapy. *J Fam Psychol* 10(1):28-34, 1996.

Streissguth, A.P.; Bookstein, F.L.; Sampson, P.D.; and Barr, H.M. Attention: Prenatal alcohol and continuities of vigilance and attentional problems from 4 through 14 years. *Dev Psychopathol* 7:419-446, 1995.

Streissguth, A.P.; Martin, D.C.; Barr, H.M.; Sandman, B.M.; Kirchner, G.L.; and Darby, B.L. Intrauterine alcohol and nicotine exposure: Attention and reaction time in 4-year-old children. *Dev Psychol* 20:533-541, 1984.

Swaim, R.C.; Oetting, E.R.; Edwards, R.W.; and Beauvais, F. Links from emotional distress to adolescent drug use: A path model. *J Consult Clin Psychol* 57:227-231, 1990.

Szapocznik, J.; Perez-Vidal, A.; Brickman, A.; Foote, F.H.; Santisteban, D.; Hervis, O.; and Kurtines, W.H. Engaging adolescent drug abusers and their families into treatment: A strategic structural systems approach. *J Consult Clin Psychol* 56:552-557, 1988.

Weitzman, M.; Gortmaker, S.; and Sobol, A. Maternal smoking and behavior problems of children. *Pediatrics* 90:342-349, 1992.

Yoshikawa, H. Prevention as cumulative protection: Effects of early family support and education on chronic delinquency and its risks. *Psychol Bull* 115:28-54, 1994.

Zucker, R.A., and Fitzgerald, H.E. "Drug Abuse Prevention Through Family-Based Intervention: Lessons for Programming and Evaluation from Developmental and Etiological Studies." Paper presented at the National Institute on Drug Abuse Research Meeting on Drug Abuse Prevention Through Family Interventions, Washington, DC, January 25-26, 1996.

AUTHORS

Karol L. Kumpfer, Ph.D.*
Director
Center for Substance Abuse Prevention
Substance Abuse and Mental Health Services Administration
Rockwall II Building, Ninth Floor
5600 Fishers Lane
Rockville, MD 20857

James F. Alexander, Ph.D.
Professor
Department of Psychology
University of Utah
1329 BEH S
Salt Lake City, UT 84112

Lynn McDonald, Ph.D.
FAST Program Founder
University of Wisconsin - Madison
Center for Educational Research
128 East Olin Avenue
Madison, WI 53713

David L. Olds, Ph.D.
Professor of Pediatrics
University of Colorado Health Sciences Center
Director
Prevention Research Center for Family and Child Health
303 East 17th Avenue, Suite 200
Denver, CO 80203

*When this meeting was held, Dr. Kumpfer was Associate Professor in Health Education, Department of Education, University of Utah, Salt Lake City, UT.

Click here
to go to
next section