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# Science, Social Work, Prevention: Finding the Intersections

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Over the past 25 years the science of prevention of adolescent health and behavior problems has matured as a result of longitudinal studies of predictors of these problems and controlled studies of preventive interventions focused on those predictors that have revealed efficacious prevention strategies. This article builds on three Aaron Rosen lectures: Aaron Rosen's call for the use of evidence-based practice in the first lecture in this series, Mark Fraser's call for more intervention research in social work, and Claudia Coulton's explorations of "The Place of Community in Social Work Practice Research." It documents key developments in prevention science over the past 25 years and explores what these developments could mean for social work education and research over the next few years.

KEY WORDS: *evidence-based practice; prevention science; research; social work*

**I**n my early working days, I lived in a rural fishing community off the coast of Washington. I was the county's juvenile probation officer. I had a position subsidized by the state through the intensive probation subsidy program. That program provided money for probation officers in Washington counties to do intensive counseling with reduced caseloads in hopes of sending fewer young people to state institutions.

I mention this here because it was as a probation officer that I first became convinced of the importance of preventing adolescent behavior problems before young people encounter the juvenile justice system. I worked with young people ages 12 to 17 referred for delinquent behavior and drug possession. Over time, I came to see my job as akin to operating an ambulance service at the bottom of a cliff. We were the emergency workers patching up those who fell over the edge. That experience convinced me that we must broaden crime reduction efforts beyond the justice system to include prevention. I will return to the intensive probation program later in this article.

Before 1980 there was little evidence that delinquency or adolescent drug abuse could be prevented. School-based drug prevention programs that were evaluated were found to be largely ineffective (Elmqvist, 1995; Hansen, 1992; Moskowitz, 1989).

Some studies found that school-based drug information programs were associated with increased drug use among teenagers (Tobler, 1986).

In 1980 a review of the delinquency experiments conducted in the United States to that year identified nine well-controlled trials (Berleman, 1980). None of them was effective in preventing delinquency. Perhaps the most notable was the Cambridge Somerville Study, a program of wrap-around services for "high-risk" boys. Dr. Richard Cabot of Harvard believed that the intervention of a friendly, socialized adult with a vulnerable boy when the child was still young might lead the child to a normal nondelinquent life. In 1935 he funded a non-profit foundation that sustained the delinquency prevention study for 10 years. Cabot employed community-based counselors who worked predominantly in the field in this economically disadvantaged community. Services were individualized for each boy and his parents. The model was "case-work with the individual boy" (Berleman, p. 130). Counselors used their practice wisdom to address needs they encountered.

The randomized controlled trial of this intervention showed that the program had no effects on police contacts for delinquency or commitments to state institutions. A long-term follow-up of the program conducted by McCord (1992) found that

youths exposed to the program were more likely than the control group to develop serious behavior problems, alcoholism, and mental health problems over their lives. The Hippocratic oath requires that physicians “never do harm to anyone.” This is our responsibility as social workers as well. Our best conceived interventions could do harm. We must evaluate our ideas to know what outcomes they produce. Twenty-five years ago we did not know how to prevent delinquency, drug abuse, or other mental health or behavior problems. Today this has changed. Studies have shown that these problems can be prevented. Prevention science has emerged as a field with its own journal, *Prevention Science*, and professional society, the Society for Prevention Research (SPR).

## PREVENTION SCIENCE

### Phases of Research

Prevention science is an interdisciplinary endeavor involving five distinct and interrelated phases of research related to prevention practice (Mrazek & Haggerty, 1994):

1. Epidemiology—understanding the prevalence in time and space of well-being and its predictors and of problems and their predictors (Eaton, 1998).
2. Etiology—understanding what causes positive or negative health and behavior outcomes through qualitative studies, longitudinal descriptive studies, and theory development.
3. Efficacy trials—Designing and conducting trials of the effects of preventive interventions under optimal conditions (SPR, 2004).
4. Effectiveness trials—Designing and conducting trials of effects of preventive interventions under real-world conditions (SPR, 2004).
5. Diffusion research—Research on diffusion of tested, effective prevention technologies (Elliott & Mihalic, 2004).

**Epidemiology.** Understanding the prevalence in time and space of well-being and its predictors and of problems and their predictors is the first step in prevention science.

The classic example is John Snow’s work in the London cholera epidemic of the 19th century. At the time it was widely believed that cholera was spread through the air; however, Snow showed that areas of London serviced by a water company tak-

ing water from upstream in the Thames had lower rates of cholera than areas serviced by a company taking water from downstream. He thought, therefore, that cholera must be spread by water. Then in a cholera epidemic, Snow found that cases of cholera clustered around a single water pump at Broad Street. This was epidemiology: understanding the prevalence of cholera in space. He removed the pump handle and the cholera epidemic ended. Understanding epidemiology, the incidence and prevalence of disorder, is fundamental to prevention. Polluted water from that well was the shared risk factor for that epidemic. Removing the handle eliminated the risk (Eaton, 1998).

**Etiology.** Understanding predictors of the problem to be prevented is key to prevention. Prevention science is built on the assumption that predictors of problems and factors that inhibit problems can be identified. The premise of prevention science is that to be effective preventive interventions must be targeted at empirically identified predictors that can be changed. Health and behavior problems can be prevented by identifying and reducing identified predictors of those problems and by identifying and strengthening factors associated with less likelihood of problems (Coie et al., 1993).

Longitudinal and epidemiologic studies have identified malleable predictors—risk factors, protective factors, and promotive factors—for a wide range of youth health and behavior problems. These studies have found that factors in neighborhoods and communities, families, schools, and peer groups, as well as characteristics of individuals themselves, increase the probability of delinquency, violence, substance abuse, teenage pregnancy, dropping out of school, and other behavior problems in adolescence and young adulthood (Howell, 2003). These are problems that get in the way of success in life. Helen Reinherz, a social work pioneer in this research, has contributed much to our knowledge of the etiology of mental health and behavior problems (Reinherz, Giaconia, Carmola Hauf, Wasserman, & Paradis, 2000; Reinherz, Giaconia, Carmola Hauf, Wasserman, & Silverman, 1999; Reinherz et al., 1993; Reinherz, Paradis, Giaconia, Stashwick, & Fitzmaurice, 2003).

Our efforts to summarize the empirically supported risk factors that influence the development of several health and behavior problems during adolescence are shown in Table 1. The factors listed

**Table 1: Risk Factors for Adolescent Problem Behavior**

<b>Risk Factors</b>	<b>Substance Abuse</b>	<b>Delinquency</b>	<b>Teen Pregnancy</b>	<b>School Drop-Out</b>	<b>Violence</b>	<b>Depression &amp; Anxiety</b>
<b>Community</b>						
Availability of drugs	✓				✓	
Availability of firearms		✓			✓	
Community laws and norms favorable toward drug use, firearms, and crime	✓	✓			✓	
Media portrayals of violence					✓	
Transitions and mobility	✓	✓		✓	✓	✓
Low neighborhood attachment and community disorganization	✓	✓			✓	
Extreme economic deprivation	✓	✓	✓	✓	✓	
<b>Family</b>						
Family history of the problem behavior	✓	✓	✓	✓	✓	✓
Family management problems	✓	✓	✓	✓	✓	✓
Family conflict	✓	✓	✓	✓	✓	✓
Favorable parental attitudes and involvement in the problem behavior	✓	✓			✓	
<b>School</b>						
Academic failure beginning in late elementary school	✓	✓	✓	✓	✓	✓
Lack of commitment to school	✓	✓	✓	✓	✓	
<b>Individual/Peer</b>						
Early and persistent antisocial behavior	✓	✓	✓	✓	✓	✓
Rebelliousness	✓	✓		✓	✓	
Friends who engage in the problem behavior	✓	✓	✓	✓	✓	
Favorable attitudes toward the problem behavior	✓	✓	✓	✓	✓	
Early initiation of the problem behavior	✓	✓	✓	✓	✓	
Constitutional factors	✓	✓			✓	✓

there have been found in two or more high-quality longitudinal or epidemiological studies to predict later health and behavior problems. Identifying these factors is important for prevention because these are potential targets for preventive interventions. These factors are sometimes labeled differently by different researchers, but there is widespread agreement among social scientists about the factors that predict multiple problem behaviors of adolescents (Biglan, Brennan, Foster, & Holder, 2004).

Understanding causation is more than understanding correlation. Risk factors may increase the

probability of negative outcomes, but how? To understand causation requires theory. Theory provides a model of how risk and protective factors work to produce the outcome of interest. Its assumptions should be clearly stated, its hypotheses explicit, internally consistent, and testable. In seeking to design interventions that could prevent delinquent behavior, Richard Catalano, Joseph Weis, and I found that we needed a theory of positive social development. We recognized that we needed to describe how young people develop positive, prosocial behaviors in the normal course of

growing up, to understand the effects of factors that might either interrupt or overwhelm that process of prosocial development (Catalano & Hawkins, 1996; Hawkins & Weis, 1985).

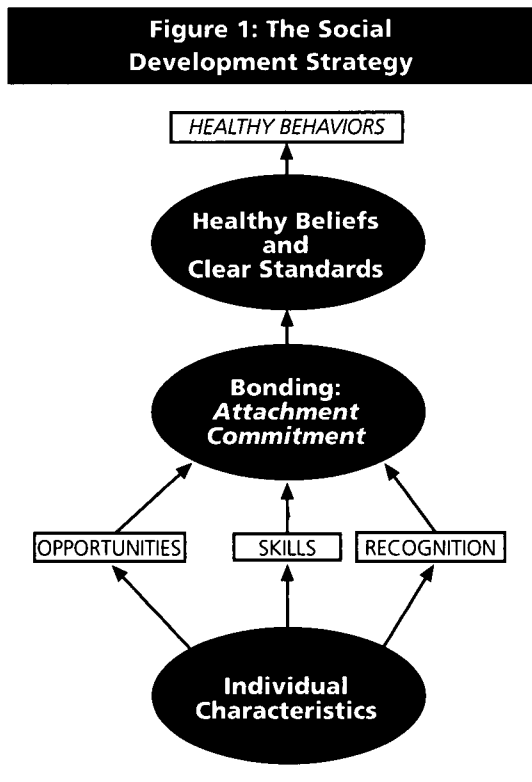
We were seeking to identify what Sameroff and Gutman (2004) have called promotive factors. Promotive factors have positive effects on development regardless of the level of an individual's risk exposure. In developing our theoretical foundation for preventive intervention, the Social Development Model (SDM), we first described the factors that we think need to be in place to promote positive social development. Our theory of how these promotive factors interact to produce healthy behaviors, called the social development strategy, is shown in Figure 1. We think that prevention of health and behavior problems requires, at its foundation, the promotion of the conditions for positive social development.

The general point I am trying to illustrate is that the development of preventive interventions requires the specification of a theory of causation and intervention. The SDM identifies both a positive social development pathway (the social development strategy shown in Figure 1) and a negative social development pathway (Catalano & Hawkins, 1996, 2002). It also specifies where intervention to change development along these pathways could be focused. It is a theory of causation and preventive intervention.

To the degree that a theory is consistent with existing evidence from longitudinal descriptive studies about risk and protective factors for health and behavior problems, it provides a plausible and testable foundation for preventive intervention.

Current research seeks to understand the relative strengths and interactions among risk, promotive, and protective factors in the prediction of behavior to guide the development of increasingly effective preventive interventions (Biglan et al., 2004).

Social work researchers need to extend studies of etiology to include investigations of the interactions of individual biology, behavior, and the environment. Why add biology? One reason is the emerging evidence that behaviors, like persistent binge drinking in adolescence, have later effects on biological outcomes like obesity and high blood pressure (Oesterle et al., 2004). Another reason is that biological characteristics of individuals may interact with environmental risks, like child mal-



treatment, in predicting later outcomes like depression (Caspi et al., 2003). Evidence is also emerging that environmental experiences affect biological processes, including the expression of genes. Michael Meaney's (2001) research has shown that rats licked by their mothers during infancy live longer than rats not licked. Why? The licking stimulates the expression of the gene for long life. It appears that without adequate nurturing in infancy, a promotive factor, the gene for long life does not get turned on in rats. We need to better understand the interactions between environmental factors and individual characteristics in the development of behavior.

Developments in knowledge about incidence, prevalence, and salience of various risk, protective, and promotive factors and their interactions have led to the development of policies, programs, and actions seeking to prevent health and behavior problems and to promote positive development among young people by addressing these predictors (Substance Abuse and Mental Health Services Administration, 2004; U.S. Department of Health and Human Services, 2000).

**Efficacy Trials.** Moving from evidence-based or research-based actions to the development and testing of preventive interventions is the next step in prevention science. In this phase, developers build on evidence, experience, and practice wisdom to create preventive interventions, but, ultimately, what distinguishes this phase of prevention science is the rigorous testing of preventive intervention through trials that minimize threats to internal validity. This is intervention research, specifically, preventive intervention research. Fraser (2004) wrote, "The essence of social work research is the study of intervention – the development and design of systematic change strategies" (p. 210). In the early 1980s, Steven Schinke, Lew Gilchrist, and Ron Feldman were social work pioneers who began testing preventive interventions in controlled experimental trials (Feldman, Caplinger, & Wodarski, 1983; Gilchrist & Schinke, 1984; Schinke & Gilchrist, 1983, 1984).

This is still a major area of need. Many innovators have developed interventions with great promise for preventing adolescent health and behavior problems. But fewer have tested their innovations through rigorous, controlled trials. This needs to become the norm in social work. We must test our ideas to determine whether our preventive programs really produce the outcomes we want.

One of the most important things learned from preventive trials has been what does not work! The evidence indicates that a number of preventive interventions are not effective. These include didactic programs targeted at arousing fear (for example, Scared Straight) (Petrosino, Turpin-Petrosino, & Buehler, 2006); counseling problem students, particularly in a peer context; segregating problem students into separate groups; after-school activities with limited supervision and absence of more potent programming (Sherman et al., 1997); and peer counseling, peer mediation, and shifting peer group norms (U.S. Department of Health and Human Services, 2001). Some of these approaches continue to be used by social workers. Is this information penetrating our field? Are social work practitioners changing behavior as a result of the evidence regarding what does not work?

In 2002, Rosen argued forcefully for evidence-based practice in social work. This field will not progress from an art to an artful science unless we learn from subjecting our theories to empirical tests, unless we become a field engaged in evidence-based practice (Gilgun, 2005).

Efficacy trials over the past two decades have identified prevention programs, policies, and actions that do work. A growing number of preventive and promotive interventions addressing identified risk and protective factors have shown durable positive effects in efficacy trials (for reviews see Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004; Durlak & Wells, 1997; U.S. Department of Health and Human Services, 2001; Wilson, Lipsey, & Derzon, 2003).

The example I know best is the Seattle Social Development Project (SSDP), a prevention trial guided by the SDM. Intervention goals were to promote bonding to school and family by strengthening opportunities for prosocial involvement in these units, children's skills for participation, and recognition provided by teachers, parents, and peers when children were involved in prosocial ways. The intervention involved training for teachers, workshops for parents, and social skills training for children delivered by their teachers (see Table 2).

This quasi-experimental comparison group study included children from 18 public elementary schools serving Seattle's high-crime neighborhoods, of whom 56% were eligible for the federal free lunch program, 45% were white, 25% African American, 22% Asian American, 6% Native American, and 3% from other ethnic backgrounds.

The preventive interventions were delivered to a "full-intervention" group in grades 1 through 6, and to a late-intervention group in grades 5 and 6, but not to controls. We have been following these young people since grade school. When compared with controls, the full-intervention group has shown a number of positive outcomes, including reductions in lifetime violence, heavy alcohol use, and risky sexual behavior, by age 18. The late intervention has been associated with few significant effects (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999).

By age 21, 91% of the full-intervention group compared with 81% of controls had graduated from high school. Fourteen percent of the full-intervention group compared with 6% of the controls had finished at least two years of college by age 21. Those in the full-intervention group were also more likely to report being employed. Full-intervention group participants were significantly less likely to have sold illegal drugs in the past year and to have a criminal record by age 21 (Hawkins, Kosterman, Catalano, Hill, & Abbott, 2005).

**Table 2: Seattle Social Development Project Interventions**

Teacher Training in Classroom Instruction and Management

Proactive classroom management

- Establish consistent classroom expectations and routines at the beginning of the year
- Give clear, explicit instructions for behavior
- Recognize and reward desirable student behavior and efforts to comply
- Use methods that keep minor classroom disruptions from interrupting instruction

Interactive teaching

- Assess and activate foundation knowledge before teaching
- Teach to explicit learning objectives
- Model skills to be learned
- Frequently monitor student comprehension as material is presented
- Reteach material when necessary

Cooperative learning

- Involve small teams of students of different ability levels and backgrounds as learning partners
- Provide recognition to teams for academic improvement of individual members over past performance

Child Social and Emotional Skill Development

Interpersonal problem-solving skills

- Communication
- Decision making
- Negotiation
- Conflict resolution

Refusal skills

- Recognize social influences to engage in problem behaviors
- Identify consequences of problem behaviors
- Generate and suggest alternatives
- Invite peers to join in alternatives

Parent Training

Behavior management skills

- Observe and pinpoint desirable and undesirable child behaviors
- Teach expectations for behaviors
- Provide consistent positive reinforcement for desired behavior
- Provide consistent and moderate consequences for undesired behaviors

Academic support skills

- Initiate conversation with teachers about children's learning
- Help children develop reading and math skills
- Create a home environment supportive of learning

Skills to reduce risks of drug use

- Establish a family policy on drug use
- Practice refusal skills with children
- Use self-control skills to reduce family conflict
- Create new opportunities in the family for children to contribute and learn

We have found that some effects were strongest for specific groups in the study. For example, by age 21, only 7% of the African Americans in the full-intervention group had experienced a sexually transmitted disease compared with 34% of the African American controls in the study (Lonczak, Abbott, Hawkins, Kosterman, & Catalano, 2002).

Today, important studies on the efficacy of newly developed preventive interventions led by social workers are underway. Jeff Jenson's trial of Discovery Education's Youth Matters curriculum is one example. This is a collaborative study with the Denver public schools involving 28 schools and 64 classrooms randomly assigned to intervention and

control conditions conducted by social work researchers independent of the developers (Jenson, Dieterich, & Rinner, 2004).

Fraser (2004) has reviewed advances in methodology in recent years that make it possible to estimate effects of intervention from such efficacy trials with increasing confidence. It is noteworthy that prevention scientists have reached consensus on the scientific criteria that must be met by an efficacy trial for its results to be deemed sufficiently valid for the preventive intervention to be called tested and effective. These standards of evidence, developed by SPR, are available at SPR's Web site, [www.preventionresearch.org](http://www.preventionresearch.org). Social work researchers and students should understand and apply these standards as they conduct and review reports from efficacy trials.

Application of economic analysis methods to intervention trials data has begun to produce a new generation of studies of the costs versus the benefits of prevention and early intervention. Recent cost-benefit studies have increased confidence that some tested and efficacious prevention programs have greater benefits than costs to society. Cost-benefit studies have shown that a number of tested and effective preventive interventions are a good investment (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004; Greenwood, Terry, Utley, Montagna, & Walker, 1993). This makes them appealing as policy options. Here are some examples from the work of Aos and his colleagues at the Washington Institute for Public Policy.

There is strong evidence from more than 30 studies that high-quality early childhood education for children ages three to five from low-income families pays off in better school readiness and, ultimately, in higher rates of high school graduation, lower rates of criminal behavior, and lower rates of child abuse and neglect. This will translate into more than \$17,000 in benefits to society over the lifetime of each child who participates. These benefits come from savings to the justice system from averted crimes, to the child welfare system from reductions in child abuse and neglect, and to these young people themselves in terms of better earnings over their lifetimes as a result of graduation from high school. The cost of these programs, when implemented well, is under \$7,500 per child. The net benefit to society for each child who participates is \$9,500.

Another example, focused on pregnant teenage girls from low-income families having their first

baby, provided the girls with David Olds' Nurse Family Partnership program of home visitation by an Olds-trained public health nurse during pregnancy and the first two years of their child's life. It is not inexpensive to do this. The cost per teenage mom is more than \$9,000. But the results from replicated trials are remarkable. Substantially fewer of these mothers will abuse or neglect their children, the mothers and their children will commit fewer crimes, and their children will do better in school. As a result, the benefits to society and these children together are more than \$26,000 per child. These include costs savings to the child welfare system, the juvenile and criminal justice systems, and victims of crime and higher earnings over these people's lives—a net benefit of more than \$17,000 for every \$9,000 invested.

The SSDP, described earlier, cost more than \$4,500 per student over the six years of the program. The monetary value of the benefits of the program to society and to participants themselves was more than \$14,000 per student.

What about providing workshops on parenting for parents of young people transitioning into their teenage years? The costs per family of the Strengthening Families 10 to 14 Program is \$850. The benefits in reductions in drug misuse are worth more than \$6,650, for a net benefit of \$5,800 for each family that participates.

Big Brothers Big Sisters mentoring is another example. That program has resulted in improved test scores and delayed initiation of drug use and delinquency. If you include the mentor's time as a cost, that program produces about the same benefit as its cost. But if you treat the mentors as volunteers, whose time is donated, the program produces more the \$2,700 in benefits to taxpayers over its cost (Aos et al., 2004).

These cost-benefit studies have also shown that some interventions are not worth the investment. Recall that I got into this work as a probation officer in the juvenile intensive probation supervision program. The Washington State Institute for Public Policy's cost-benefit analysis showed that there was no net benefit of intensive probation supervision over usual probation services, although it cost an additional \$1,482 per youth served (Aos et al., 2004). What my contemporaries and I were doing, our best efforts based on our best thinking at the time, did not reduce juvenile crime. It is sobering to see this, but it is a lesson in the danger of not

subjecting our good ideas to intervention tests. It underscores the importance of ensuring that the human capital we are currently allocating to reduce crime is invested in effective interventions.

How much of this progress has permeated social work practice? To what extent are we training social workers for effective practice in positive youth development and prevention?

A generation ago, it was not clear what such training would entail. Practice wisdom was the foundation of social work education in youth and family services. It is difficult to identify effective practice when outcomes are not measured and indicators of success are not based on outcomes produced but measured primarily by numbers served and hours or days of services delivered. This is changing. The emphasis on test scores in education exemplified by "No Child Left Behind" signals the increasing focus on accountability in government spending. Outcome or results-based policy and programming will likely become the norm in government-funded policies and programs over the next decade. Those who spend public funds should want measured improvements that are worth the investment: more children graduating from high school, fewer teenagers becoming pregnant, fewer young people committing crimes or using drugs. We should prepare social workers to seek and recognize prevention approaches that have been tested and shown to work. We should prepare social workers to implement tested and effective preventive interventions.

**Effectiveness Trials.** To move to effectiveness trials, all the requirements of efficacy trials must be met, but more is needed. Effectiveness trials help to determine whether it is reasonable to expect that programs can be taken to scale with desired effects. Replication is particularly important in answering this question—that is, repeating an intervention or prevention program at multiple sites to determine whether the results will be the same. Whereas a positive outcome from a single study has a 1 in 20 probability of being due to chance, a replication that produces the same outcomes lessens the probability that such results occurred by chance to 1 in 400.

As the move toward the identification and use of tested and effective programs continues, standards increasingly call for replication as an essential element. SPR's standards of evidence include replication as a criterion (SPR, 2004). The 11 model prevention programs identified by the Blue-

prints for Violence Prevention Program at the Center for the Study and Prevention of Violence at the University of Colorado are replicated prevention programs that have shown positive effects in at least two well-controlled trials ([www.colorado.edu/cspv/blueprints](http://www.colorado.edu/cspv/blueprints)).

Replication is a major area of needed research. The drive for discovery can create bias against funding and publishing replication studies. It is important that replication studies are funded by federal and state institutes and agencies.

In replication studies a minimal degree of implementation fidelity must be met in order to say that the program was the same program when offered the second time. Implementation fidelity is key to effectiveness. A transferable intervention requires a manual or guide describing how to implement the intervention as well as training for implementers in skills needed to implement. Program developers must describe their programs sufficiently well so that the fidelity of their implementation in replications can be assessed.

Fidelity should be assessed and achieved on key dimensions. First is adherence, the degree to which the intervention process was implemented as the program developer intended (Dusenbury, Brannigan, Falco, & Hansen, 2003). Adherence fidelity assessment asks, "Did the implementer deliver the content as specified by the developer?"

The second dimension of fidelity involves dosage, the completeness of delivery of a program as it was intended by its developers (Dusenbury et al., 2003; Mihalic & Irwin, 2003). How much of the complete program did the implementer deliver? How many of the intended lessons in a prevention curriculum were delivered?

Another dimension of fidelity is quality, the degree to which the intervention was delivered competently, with enthusiasm, in an engaging way. Finally, fidelity may be assessed through participant responsiveness, the degree to which participants in an intervention are engaged or involved in the intervention.

Elliott and Mihalic (2004) achieved high fidelity in both adherence and dosage in seven of eight of the Blueprints for Violence Prevention programs they helped 42 community replication sites across the nation install. With adequate resources, tested and effective programs for preventing violence and substance abuse can be put in place across the United States with fidelity.

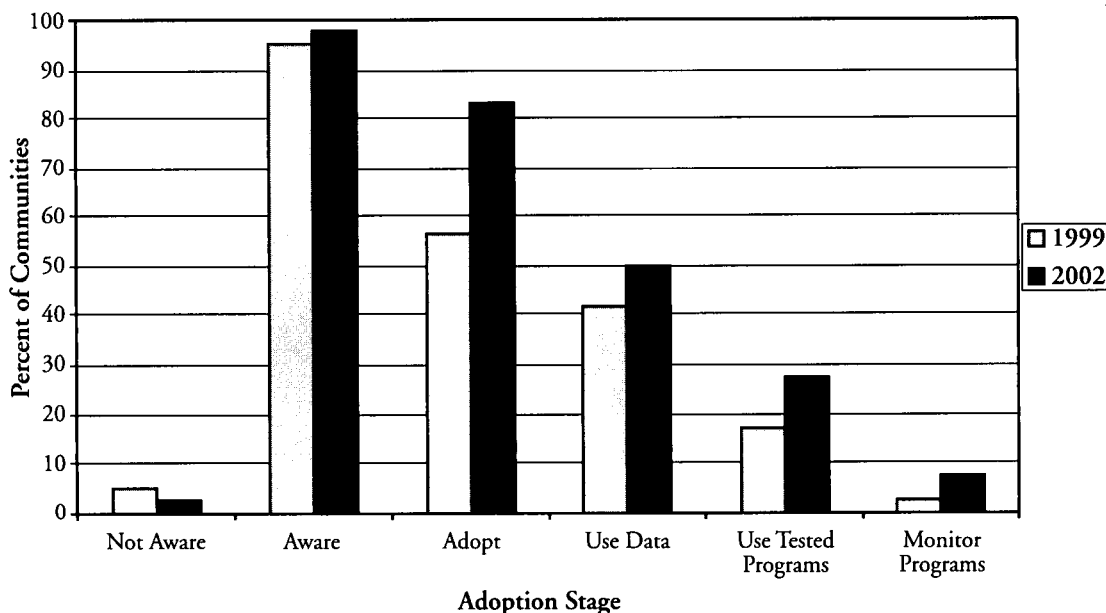
**Diffusion Research.** Prevention science now faces new questions. What are the best methods for dissemination, diffusion, or distribution of the new effective technologies coming from efficacy and effectiveness trials? Tested and effective programs are available, but how can they be taken to scale in states and communities, service organizations, and schools? If effective programs are to be taken to scale, the capacity to disseminate with fidelity is essential. Beyond this, demand must be created for tested and effective policies and programs in communities.

Prevention researchers have begun to investigate the degree of penetration of tested and effective preventive interventions across the country. For example, in 2001, we surveyed teachers in schools in 41 incorporated towns across seven states about their use of prevention curricula. We found that 70% of the schools in the study reported using the DARE program, which has not shown positive effects in controlled studies, whereas only 18% reported using the Second Step curriculum and only 11% reported using the Life Skills Training curriculum, both curricula that have been tested and shown to be effective in controlled studies.

Others have reported similar findings (Gottfredson & Gottfredson, 2002; Hallfors, Pankratz, & Sporer, 2001; Ringwalt et al., 2002). Currently, effectiveness, whether the program results in demonstrably better outcomes, does not appear to be a major determinant in the selection of school-based prevention programs in U.S. communities.

We have also been investigating the degree to which the 41 communities we are studying have adopted a science-based approach to guide their prevention efforts. Using interview data from community leaders and prevention workers, we have characterized each community at two points in time, 1999 and 2002. Figure 2 indicates that virtually all prevention leaders in these 41 communities are aware of the risk- and protective-focused approach to prevention and that an increasing proportion of these communities had adopted a science-based approach to prevention between 1999 and 2002. But note that by 2002 prevention leaders in fewer than 30% of these communities were reporting that their community had actually installed tested and effective preventive interventions to address their prevention needs.

**Figure 2: Prevention Leader Ratings of Community Adoption of Science-Based Prevention in 41 Communities, 1999 and 2002**



Demand for tested and effective prevention programs is not great in U.S. schools and communities. Yet, healthy successful development of young people is a local responsibility. It depends on the actions of families, teachers, neighbors, and community members and leaders.

Working with community is an essential element of social work that distinguishes it from other professions (Coulton, 2005). Coulton suggested that community may be the agent of change, the target of change, or the context for change. I am suggesting that if effective prevention is to become a widespread reality in our society, we must find ways to empower communities to become the agents of their own change.

The idea of community coalitions that bring together diverse stakeholders to promote health is now widely advocated. Yet, to date, this approach has not produced positive findings in preventing substance abuse or teenage pregnancy (Hallfors, Cho, Livert, & Kadushin, 2002; Klerman, Santelli, & Klein, 2005). The Robert Wood Johnson Foundation invested heavily in the Fighting Back Initiative, but the evaluation of Fighting Back did not find positive effects of that coalition investment (Hallfors et al., 2002). Why? Perhaps because no system, structure, or technology for organizing the work of the community coalition to achieve desired outcomes was provided.

Prevention must be designed and operated at the community level because communities are different from one another. Different communities have different populations, and those populations are exposed to different risk and protective factors. Even in the same city, children in different neighborhoods are exposed to different levels and constellations of risk. Sampson and Lauritsen (1994) showed that neighborhoods within large cities vary in levels of predictors of violence. We have found the same with regard to risk factors for substance abuse (Hawkins, Catalano, & Arthur, 2002). Furthermore, differences in community levels of risk and protection exposure are associated with differences in community levels of drug use and delinquency (Hawkins & Catalano, 2004). These findings suggest that different interventions are likely to be needed in different communities and neighborhoods.

The challenge for community prevention is to address those risk factors most prevalent in a community with tested effective programs that reduce those risk factors and to address those protective

factors most depressed in a community with tested effective programs that strengthen those protective factors.

Involvement of all sectors of the community is needed to choose which risk and protective factors to address. Community stakeholders should be involved in deciding on which risks to focus and what protections to emphasize. If this participation facilitates a focus on weak protective factors and elevated risks in that community, outcomes should be enhanced. Community involvement in decisions regarding the goals of prevention efforts should also increase the sense of commitment to the new efforts and, therefore, the likelihood of implementation of new programs or policies. Different predictors may need to be addressed, depending on a community's profile. People who control the resources needed to address those predictors must be at the table. If a community needs nurse home visitors, the Public Health Department must be at the table. If a community needs early childhood training in emotional self-regulation, Head Start providers must be involved. If the need is to teach emotional self-regulation skills in elementary schools, then schools must be at the table. Always, parents and community stakeholders should be there.

Community stakeholder involvement is also needed to ensure selection of interventions addressing elevated risks that can be successfully implemented given the community's culture and population. The community's knowledge is needed to ensure the selection of preventive interventions that can be successfully implemented.

Increasingly, preventive interventions are being tested with diverse populations. Webster-Stratton found that her parent-training program for Head Start mothers is equally effective with African American, Hispanic, Asian American, and white mothers (Reid, Webster-Stratton, & Beauchaine, 2001). Botvin's life skills program has been tested with African American, Hispanic, and white adolescents with positive effects (Botvin, Griffin, Diaz, & Ifill-Williams, 2001; Griffin, Botvin, Nichols, & Doyle, 2003). This is important work that must be extended and expanded.

But given the increasing diversity of U.S. society, it is unlikely that any program will be tested with adequate power with every possible ethnic or immigrant group. Even if a program has been tested with several different groups or populations, there

is no guarantee that it will be compatible with the culture of any specific community, given the people who live there now.

That means each community must look at new tested and effective programs to determine the degree to which each is compatible with the community's culture. In addition to looking at the evidence of the program's effectiveness and the populations from which that evidence has been derived, the community needs to be involved in the decision that a program is appropriate for its own population. This should be part of the process of introducing new tested and effective programs into communities. This is an important part of developing ownership for sustainability. Finally, community ownership and oversight helps ensure that chosen interventions are fully implemented with fidelity.

In sum, community activation or mobilization is important, but success requires a system for organizing the work. The mobilization of communities should be guided by an approach to youth development in which key stakeholders use data on the predictors of well-being and predictors of problems of children in their community to identify youth development needs. Mobilized communities should use their social capital and private and public resources to fill gaps in policies, programs, and actions with interventions that have been tested and found effective in producing better outcomes for young people. Effective prevention technology should be locally owned and operated if it is to work successfully.

In the future, communities will routinely monitor the well-being of their children over time and bring to bear the resources they can to ensure that the community's children are thriving. This has already begun in some communities (Coulton, 2005). SPR's monograph on community monitoring systems provides examples at [www.preventionresearch.org](http://www.preventionresearch.org).

### **COMMUNITIES THAT CARE SYSTEM**

In the late 1980s, Rick Catalano and I began to develop a system for guiding community prevention planning and action called Communities That Care (CTC) (Hawkins et al., 2002). The CTC system provides training, technical assistance, and print and Web-based materials to guide community stakeholders through a five-step process of activation, assessment, policy and program selection, imple-

mentation, and evaluation. The CTC system provides a structure and process to activate local choice and control to build ownership, maintain support, and increase sustainability; match each community, school, or neighborhood's profile of risk and protection with tested, effective actions; and focus on outcomes to ensure accountability.

The CTC Youth Survey (Arthur, Hawkins, Polard, Catalano, & Baglioni, 2002) is an important tool in the CTC system. This survey, designed for students in grades 6 through 12, measures, in 50 minutes, 25 risk factors and 13 protective factors, as well as drug use and behavior outcomes. The survey results and data from existing records provide a profile for each community of the levels of risk and protection experienced by the community's youths. These data are used by the CTC board to identify elevated risk factors that should be addressed in the community and protective factors that should be strengthened. CTC boards then conduct a resource assessment of policies, programs, and actions already in place to address these identified priorities. From these assessments, CTC boards develop a plan to fill gaps with tested and effective preventive interventions selected from the CTC Prevention Strategies Guide (Hawkins & Catalano, 2004). Implementation and evaluation of the newly selected policies and programs and their outcomes follow. In the CTC system, the process of reassessment, reprioritization, policy and program revision to fill gaps, implementation, and evaluation is repeated every two years.

Available evaluation data indicate that the CTC process leads communities to select tested and effective programs for implementation (Arthur, Ayers, Graham, & Hawkins, 2003; Harachi, Ayers, Hawkins, Catalano, & Cushing, 1996; Jenson, Hartman, Smith, Draayer, & Schurtz, 1997). Positive changes in youth outcomes associated with implementation of CTC have also been found in nonrandomized studies (Feinberg, Greenberg, Olson, & Osgood, 2005; France & Crow, 2005; Jenson et al., 1997).

A big question still remains. Does using the CTC system make a significant difference in youth outcomes when tested in a randomized experimental trial? To answer that question in 2003, my colleagues and I began an efficacy trial of the CTC operating system called the Community Youth Development Study (CYDS). This is a five-year group randomized trial supported by the National Institute on

Drug Abuse, National Institute of Mental Health, National Cancer Institute, National Institute on Child Health and Human Development, and Center for Substance Abuse Prevention. It is a collaboration with the state and local prevention and substance abuse agencies in seven states: Colorado, Illinois, Kansas, Maine, Oregon, Utah, and Washington. The aim of the study is to test the effectiveness of CTC in reducing levels of risk, increasing levels of protection, and reducing health and behavior problems in early adolescence. This study involves 24 of the 41 communities we studied earlier, selected because the evidence from these 24 communities indicated that none had come to the point of implementing effective prevention programs to address their identified prevention needs. Twelve of the communities were randomly assigned to receive the CTC intervention and 12 serve as "treatment as usual" controls.

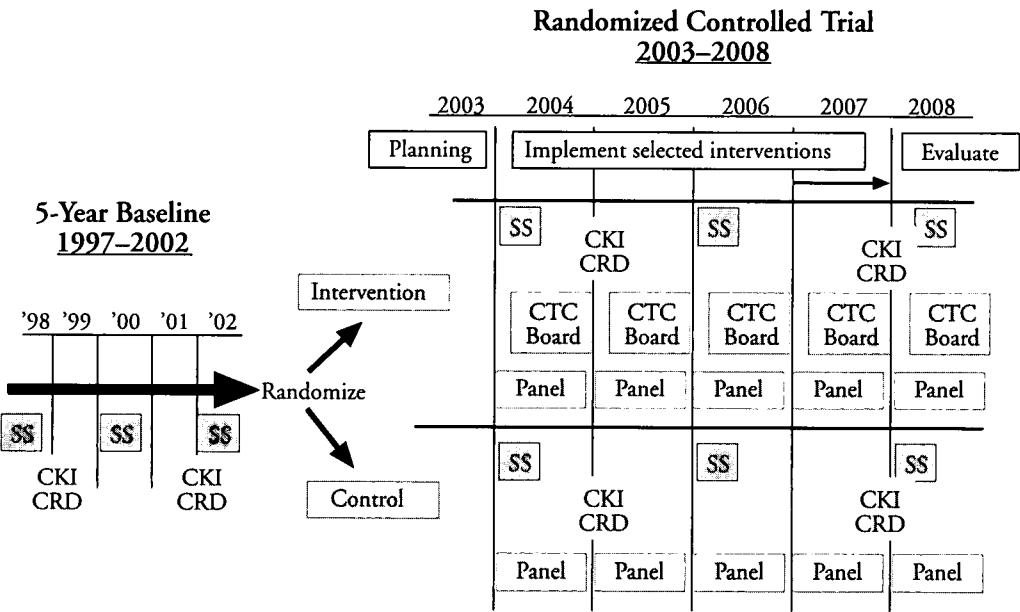
The study design for the CYDS project is shown in Figure 3. Building the study on the foundation of the earlier project has provided three baseline assessments of youths in participating communities prior to intervention, allowing assessment of levels

and growth (decline) in risk, protection, and drug use and other youth behavior outcomes over time prior to intervention. Similarly, baseline measures of community readiness for prevention, community collaboration, and existing community prevention resources are available from two time points prior to random assignment of communities to intervention and control conditions. Note that the study also includes a longitudinal panel of fifth-grade students first surveyed in 2004 who are tracked and surveyed annually through the study.

Before random assignment of communities to conditions, the mayors or city managers, the lead law enforcement officer, and the superintendent of schools of all 24 communities provided signed letters agreeing to random assignment of their communities to the conditions in this study and to participate in the data activities required by the study. The communities were then randomly assigned to receive the CTC intervention or to the control condition, and the CTC intervention began in the spring of 2003 in intervention communities.

To date, in the intervention communities, CTC boards representing diverse community sectors have

**Figure 3: Community Youth Development Study Design**



Notes: SS = Student Survey of 6th-, 8th-, 10th-, and 12th-grade students using the CTC Youth Survey; CKI = Community Key Informant Interview; CRD = Community Resource Documentation measuring effective prevention programs and policies in the community; CTC = Communities That Care.

been created. All 12 CTC boards completed the first four phases of the CTC process within a year, developing prevention action plans specifying tested and effective preventive programs that are being implemented during the study. Current data collection efforts include monitoring the implementation of the new programs with regard to recruitment and retention of participants, adherence to program content, amount or "dosage" of the program actually provided, and quality of program delivery.

The CYDS requires significant human and financial resources, but this kind of study is necessary if policy is to be guided by evidence. This study will answer this question: Can the CTC system significantly strengthen community protection and reduce community levels of risk, adolescent drug use, and related problem behaviors?

The kind of community development work I have been describing opens new opportunities and responsibilities for social workers in line with the roots of social work in community organizing and mobilization.

Community organizing is fundamental. Now it needs to be data driven and evidence based. Community coordinators are an essential element in community development using systems like CTC. Are we training social workers to do this kind of work? Coordinators need all the mobilization skills of the traditional community organizer, skills in knowing how to activate and empower community residents by finding a "handle" or issue that the community cares about; skills in helping people take successful concrete small steps to encourage the belief that change is possible. But even more skills than these are needed if the advances of prevention science are to be used to guide community youth development and prevention efforts to more positive outcomes.

### IMPLICATIONS FOR SOCIAL WORKERS

Community social workers need to be able to collect, understand, and use epidemiological data on outcomes and on risk and protective factors to help guide decision making about where to focus and on what to focus preventive efforts in their communities. This is the data-driven part. We need to teach social work students to do good assessments at the community level.

Social workers also need to understand and use the standards of evidence required in adequate tri-

als of the efficacy of preventive interventions. Well-prepared social workers can distinguish prevention approaches that work from those that do not or have not been adequately tested. They can test interventions that show promise but are yet untested.

To function effectively in community-based preventive systems, social workers need to be able to design and implement systems for participant recruitment. They need to be able to facilitate collaboration among service agencies. They need skills to monitor the fidelity of preventive interventions selected by the communities they serve. They need to be able to work with local media to achieve community activation and to educate the community regarding prevention efforts and progress. We need to look at our curricula to ensure that we are helping our students develop the skills they need to empower communities to become agents of their own change.

### CONCLUSION

As a result of the progress of prevention science, we now have an opportunity to help communities reinvent themselves as protective environments for the positive development of all children. It is possible to promote the development of communities that care enough to ensure that **all** children are bonded to family, school, and community and are committed to the highest standards and healthy values for their own futures, free from the threat of violence and drug abuse. Our responsibility, as social work researchers, is to rigorously test community-focused strategies for achieving these goals. **SWR**

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