Many efficacious behavioral prevention programs have been identified over the past 25 years. While only 14 “certified” behavioral prevention programs existed in 1987 (Price et al., 1988), there are now more than 100 efficacious programs. However, few of these efficacious programs have been disseminated nationally or internationally. This article aims to identify barriers that impede broad dissemination and adoption of efficacious programs into routine practice of community providers and to suggest strategies that could be utilized by prevention researchers to overcome these barriers.

Barriers to broad dissemination and adoption of efficacious prevention programs include the following: investigator-based models of intervention development and dissemination, theoretical models focused mainly on the specific targeted outcome (and inadequate attention to adherence and maintenance of change), and beliefs that replication with fidelity is necessary for successful dissemination and adoption (and inadequate attention to adaptation).

To disseminate programs broadly, a market orientation for product development can be viable strategies for increasing the dissemination of the intervention to the general public. Market principles suggest that the next generation of interventions would be facilitated if interventions are initiated by teams committed to a specific problem and investigators receive training in management; if the acceptability of the program’s design features to consumers, providers, and funding agencies is established prior to the development and evaluation of the program; if data from national marketing surveys are used to tailor intervention designs and delivery formats for different subgroups; if essential ingredients of the intervention are identified to facilitate adaptation of the program; if the program is implemented with a goal to maintain change over extended periods of time; if the implementation plan includes program evolution over time, rather than replication with fidelity; and if interventions are branded and certified by a credible agency. Conclusions: Private enterprise models may be useful; however, investigators are likely to be resistant given a priori biases, potential ethical conflicts of interest, and the challenges presented by new technologies (e.g., the Internet and Human Genome Project). J. Am. Acad. Child Adolesc. Psychiatry, 2003, 42(5):518–526. Key Words: prevention, market orientation.
over time. Each of these characteristics creates challenges to broad dissemination of efficacious programs.

Investigator-Driven. Creative, intuitive clinicians typically design multifaceted programs to change clients’ behaviors. After efficacy is demonstrated, program dissemination usually depends on the persistence and social skills of the principal investigator. For example, of 14 programs selected as efficacious 15 years ago by an American Psychological Association Task Force (Price et al., 1988), only 5 have been disseminated: a visiting nurse program for new parents (Olds et al., 1998), Head Start (Weikart et al., 1970), Life Skills (Botvin, 1985), preventive education for high-risk children (Ramey and Campbell, 1984), and Widow-to-Widow (Silverman, 1969).

In each case, there is a persistent and committed principal investigator who has focused his or her career on the specific program. Each investigator has replicated the initial results with larger samples over longer periods of time. Each devoted a substantial effort to inform political leaders and government administrators of the benefits of the programs and was able to secure a funding stream for their program.

For 9 of 14 efficacious programs, the principal investigator did not pursue this line of research and the program was not replicated or disseminated. Investigators skilled in designing efficacious interventions are not necessarily skilled in disseminating their programs. The prevention intervention “industry” may benefit by forming separate operations for Research & Development and Marketing, rather than counting on investigators who persevere.

Theory-Based. Essentially all efficacious interventions are theory-based; this is usually a prerequisite for the program to be funded and selected for replication. Yet the theories are often (1) not as comprehensive as the programs and (2) silent to the processes by which change occurs.

Many efficacious interventions are more comprehensive than their underlying theories would lead us to expect. To maximize the probability of successful intervention results, many efficacious programs include multiple components delivered over multiple sessions. Those complex program activities are usually broader than the theory dictates, as demonstrated by three examples in the field of human immunodeficiency virus (HIV) prevention. First, the title and activities in the adolescent program Be Proud, Be Responsible (Jemmott et al., 1992) are aimed at building ethnic pride; yet the program is based on the Theory of Planned Behavior, which does not include ethnic pride as a component. Similarly, the Theory of Diffusion (Rogers, 1995) is credited with the results of the Community Popular Opinion Leader Model (Kelly et al., 1994; Sikkema et al., 2000). Yet cognitive-behavioral skill-building is the basis of the program. Diffusion is the recruitment strategy by which to select those to be trained in HIV cognitive-behavioral skills. Finally, Street Smart (Rotheram-Borus et al., 1991) credits social learning theory (Bandura, 1977) as its theoretical basis. However, the intervention addresses “levels of change”: youth’s social scripts, their gender roles, and social identities, issues not addressed by social learning theory.

Dissemination of efficacious interventions into real-world settings may be hampered by inclusion of many activities, techniques, and strategies that go far beyond their underlying theories. Greater correspondence between intervention theory and program activities appears warranted in order to mitigate this barrier.

In addition, social-cognitive theories (Planned Behavior, Reasoned Action, Symbolic Interactions, Health Behavior) identify which characteristics must be changed in order for the target behavior to be altered. However, the theories are typically silent to how those attributes are to be changed. The process of change is under-studied.

Only one theory describes the “process” of how the attributes are to be changed: social learning theory (Bandura, 1977). Many other theories specify attributes or characteristics that must be altered (e.g., ego strength, social identity, or social scripts), but do not describe the process of change. One set of clues to articulating these processes may be to examine the manuals of successful interventions in order to formulate implicit models beyond the social learning theory.

Focus on Changing the Target Behavior. Successful prevention programs specify a target behavior to be changed. Yet there are at least two other critical co-outcomes embedded in each prevention program: adherence to participation in the intervention and maintenance of behavioral changes over time (NIMH Intervention Workgroup, 2001).

Factors that lead consumers to participate in an intervention may be quite different from those that lead to changing behaviors. For example, accessibility (e.g., transportation, affordability, and child care), provider attitudes (Gavin et al., 1998), and consumers’ perception of the setting (Bybee et al., 2000) significantly impact whether a consumer attends the intervention. These factors are not addressed in the social-cognitive theories.
Participants’ attendance in the intervention indicates implicitly their receptivity toward the program and their likely adoption of the program in a nonresearch environment. Acceptability and adoption are critical not only for consumers, but also for the providers charged to implement the program, and the agencies potentially funding the program. These factors are rarely studied.

Similarly, the processes and mechanisms for initially changing a behavior may be quite different from those that maintain a behavior change over time (Marlatt and George, 1998). Most existing interventions focus on making the initial change, rather than on the maintenance of behavior change over time.

Journal articles are often silent to issues of participation and maintenance of behavior change. Yet these issues are critical to broad dissemination of efficacious interventions. The successful delivery of prevention programs must facilitate participation, adherence, and ongoing boosters for maintenance of intervention gains (NIMH Intervention Workgroup, 2001). A plan for maintenance from “cradle through maturity” may be desirable for most prevention programs (Duan and Rotheram-Borus, 1999).

**Implemented With Fidelity Over Time.** Once a program has demonstrated efficacy, should fidelity be maintained or should the program be allowed to evolve over time (i.e., reinvention)? This is a debate with a long history (Bauman et al., 1991; Rappaport, 1977). Researchers who are disseminating programs usually endorse the importance of maintaining fidelity. There is a strong belief that all future implementation of a successful program has to be in the same model as that originally proposed.

However, replication with fidelity does not facilitate identification of essential ingredients for the efficacious interventions, nor does it facilitate adaptation of programs in local settings over time. For example, the visiting nurse program for new parents (Olds, 1984) has always used nurses. With replication in more than 200 counties, we do not know the attributes of nurses that make nurses a key program component: is it their social status, personality type, or perhaps their uniform?

In addition, replication with fidelity also does not allow us to adapt the intervention to local social and environmental conditions, while maintaining the essential ingredients of the intervention. How can the intervention be adapted for delivery in rural settings with no nurses, and still maintain reasonable efficacy? Should the intervention never be mounted in rural settings? With the mantra of “replication with fidelity,” we miss the opportunities to learn how to devise local adaptations effectively (Duan et al., 2002).

The problem of local adaptation is even more severe when one questions the sustainability of an efficacious intervention over time. Over time the context of risk shifts, and if the program is cast in cement, it cannot be responsive to these changes. For example, HIV prevention programs must be altered significantly to respond to increases in the rate and earlier initiation of sexual intercourse or shifts in the “drug of choice.” If effective programs are replicated with fidelity over time and do not evolve to changing social conditions, the program’s efficacy is likely to dissolve.

Thus there are at least four major barriers to broad dissemination of prevention programs: (1) reliance on the perseverance of the principal investigator; (2) utilization of theories for the target behavior only; (3) failure to articulate how the intervention activities directly link to intervention participation and maintenance, as well as changing to theories about the process of change of the target behaviors; and (4) replication with fidelity over time with no clear guidelines for local adaptation of the program.

**Alternative Successful Models of Intervention Dissemination**

While prevention programs from academic researchers have not been broadly recognized and disseminated to the U.S. public, programs created with identified delivery vehicles and private enterprise prevention models have been highly successful in achieving broad dissemination.

First, there is a set of programs that have identified a “vehicle” for reaching communities and families. The Drug Abuse Reduction Education (DARE) program is an example of this model (Bureau of Justice Assistance, 1995). DARE has been implemented nationally to more than 100 million children over the past 16 years (the same period of time that most of the 14 efficacious programs were languishing). The funding level was in the multi-million dollar range with programs for both parents and teens. Of the 12 studies evaluating the program, all have found that the program has few benefits (see Bureau of Justice Assistance, 1995, for a review). Yet, because the program has a vehicle (local police departments and their unions), the program continues to be delivered broadly. Instead of taking an efficacious program and attempting to find a delivery route for the program, an alternative design is to find a program with a vehicle and enhance the program’s efficacy. Two different research teams are
Attempting to achieve this goal with the DARE program (Bosma et al., 2001; Sloboda and Stevens, 2000).

Other vehicles are available for delivery of interventions. For example, religious organizations routinely reach vast segments of the population on a weekly basis and shopping malls serve huge segments of the U.S. population. Academic researchers rarely design their programs anticipating the delivery sites for broad dissemination of their interventions (Duan and Rotheram-Borus, 1999).

Adopting a “marketing approach” is a second option for the dissemination of prevention programs. There is substantial evidence that the public is willing to pay for preventive services. Self-help books demonstrate the potential for prevention to be successful commercially. There are more than 63 million self-help books sold annually for a total of more than $1.5 billion (American Association of Publishers, 2002; American Booksellers Association, 2002). In addition, more than 2 million persons are members of Alcoholic Anonymous, typically involving donations of about $2,000 per member (Alcoholics Anonymous, 1998). A large range of self-help groups (Overeaters Anonymous, Narcotics Anonymous, Sex Addicts Anonymous) are found in almost all cities. Venture capitalists support between 10,000 and 30,000 Web sites that are aimed at preventive behaviors (e.g., weight control) or education programs for health behaviors (Elsberry, 2000; Wiley, 1999). Private entrepreneurs invest and count on the public’s willingness to pay for preventive services. Yet researchers do not tap this market.

Weight Watchers is a model that demonstrates the successful utilization of an academic/business partnership that approached prevention by using a private enterprise model. Weight Watchers provides easy access to preventive services; programs are offered in almost all communities. The program is delivered by paraprofessionals practicing fairly independently, rather than highly trained clinicians under intensive monitoring and supervision. Finally, the services are delivered on a drop-in basis, so that there is flexibility in attending the program. The principles on which the program was founded emerged when Richard Stuart, a leading behavior therapist, designed the program for Jean Nidetch (Weight Watcher’s first CEO and founding member) (Stuart, 1971). Positive outcomes are highly valued in the program. Reinforcement principles (e.g., reduced fee for those who routinely attend) and cost-contingency contracts are routine elements of the Weight Watchers program.

However, a key element in Weight Watchers’ success has been its ability to evolve over time. Initially, consumers weighed food; from this system, a balanced approach of preparing meals occurred. Currently, a point system is used to understand food choices and balance. Over the past 30 years of the program’s existence, however, marketing research, segmentation of the target markets, and effective advertising (e.g., using Princess Fergie as a spokesperson) have been key attributes of the Weight Watchers program. Weight Watchers represents a blending of academic research with a market orientation that has resulted in a realistic program that has been sustained for 40 years and has evolved over time. Even if weight loss is not maintained consistently over the long term (Stuart and Guire, 1978), there are short-term benefits that lead 675,000 people to attend groups weekly (www.weightwatchers.com). Many Americans appear to find the program useful and cost-effective. It is difficult to think of another model of a behavioral preventive intervention that has so successfully utilized scientific principles in its design and implementation.

Thus there are two models of prevention programs that took their intervention to scale, neither of which was based on efficacy data or a phase I–IV biomedical model. The success of these programs suggests a potential avenue for the design and development of new interventions: adopting a market orientation and basing programs on business principles.

Market Orientation for Prevention Programs

If academic researchers adopted a market orientation to disseminate and to refine their interventions through a private enterprise model, a paradigm shift would occur. This shift may accelerate the dissemination of efficacious interventions nationally and worldwide. Similar to businesses, prevention researchers want the public to buy their products (adopt healthier behaviors and lifestyles) and to make this happen in the most cost-effective manner possible. We hope for a large market share (for the greatest possible percentage of the public to adopt our products). If we were able to refine our product over time to capture market share, we would anticipate that the good of the country would be enhanced. Adopting such strategies has implications in four major areas: (1) the role of the principal investigator and the organization of research teams, (2) outcomes to be targeted within intervention design, (3) the evolution of programs over time, and (4) a method of identifying efficacious prevention products.
1. The Role of the Investigator and the Organization of Research Teams. If the design of preventive interventions was a business, changes would be needed in two areas: (1) it would be mandatory for principal investigators to be good managers, and (2) there would be a role for organizations or research teams committed to a research area or accomplishment of a strategic goal.

The business community often equates organizational and management skills with the bottom-line product (Di Benedetto, 1999) (in this case, creating and disseminating effective interventions). Yet management and business skills are typically divorced from scientific productivity by social, behavioral, and biomedical scientists. The national research budget for social and behavioral studies is well over $2.3 billion annually (Kobor et al., 2001). Scientists are managing huge resources and have rarely received any formal training in leadership development, management, budget oversight, organizational theory, or strategic planning. In fact, scientists are often groomed with a disdain for attending to these details of management and business. Yet, for researchers to build systems to have the capacity to take preventive interventions to scale, they will need to acquire skills to manage large organizations or to partner effectively and routinely with those who have management skills (e.g., large corporations or management consultants). Perhaps designing interventions may be the purview of researchers, but the dissemination of the programs may benefit from a marketing organization linked to the research team (similar to a Research & Development Division and a Marketing Division within a business setting). There has been little openness to this model historically.

Attending to management processes is likely to significantly improve the efficiency and quality of scientific endeavors, similar to those in the other industries. However, academic research is a business that often pretends not to be one. Researchers are trained in the scientific method, believing that how the science is conducted is dictated by that method. In contrast to these assumptions, science is not executed unless the scientist is able to create a program of research, provide leadership to the research teams, manage their university environments, and strategically build future projects (Rotheram-Borus and Flannery, unpublished, 2002). It is likely that academic training programs will need to include training in management and marketing, as well as behavioral theories.

As demonstrated in the few exemplar models of taking preventive interventions to scale, a long-term commitment to programmatic research is required. Programmatic research implies an ongoing series of studies are initiated around a specific topic or issue.

There has been a strong bias to fund individual researchers generating their own primary data (Green and Mercer, 2001; Olden et al., 2001). The preference has been to limit the allocations to individual researchers to a small business model of no more than $250,000–$375,000 per investigator (Kaiser, 2001). In the business world, 60.5% of small businesses fail after 6 years (U.S. Small Business Administration, 2002). It is likely that researchers experience similar failure rates. The sustenance of programmatic investigations requires a manager with a vision that can attract funding, attract staff, and produce high-quality deliverable products over time. It also requires a long-term commitment to a particular problem (often not valued by academics).

An alternative structure for generating effective preventive interventions could be the establishment of organizations founded to solve or address a prevention area. For example, the Alan Guttmacher Institute (http://www.agi-usa.org/) is perhaps one of the most prestigious groups of researchers in the area of adolescent sexual risk behaviors. The Institute is committed to a mission and has a strong set of values and orientations that form the basis of the groups’ research agenda. Faculty who organize center grants in particular areas are typically making a long-term commitment to a specific area and attracting a critical mass of researchers. While there are models of organizing teams around issues, there is great professional ambivalence about this strategy (Kaiser, 2001). Nationally disseminated programs require large, effectively managed organizations with nonambivalent leaders.

2. Designing Programs Acceptable to Multiple Audiences. Many efficacious interventions are never implemented in community settings. The programs are too expensive or require intensive training of the clinicians, high adherence by consumers, or more sessions for a longer duration than is consistent with existing funding streams. Dissemination demands that programs be both acceptable and salient for consumers, providers, and funding agencies. Consumers are those whose behaviors we are trying to change. Providers are those who deliver the intervention. Funding agencies provide the resources for program implementation (typically government and private foundations). In particular, providers and funding agencies are often ignored by investigators designing new prevention programs. When academics design prevention
programs (Weisz, in press; Weisz et al., 1995) without considering the consumer, provider, and funding streams, their programs will be unused or ineffective if dissemination is attempted.

Given that all programs must be acceptable to consumers and providers in order to be used, the preferences and limitations of consumers and providers should be included in the design of interventions. Market research could inform the design of programs. Currently, when a new intervention program is being designed, researchers conduct focus groups with the target population. Perhaps a series of studies of risk and protective factors based on the researchers’ theoretical models are also conducted. However, broad surveys of the providers who are anticipated to implement the program and the consumers who are expected to use the program are not conducted, particularly regarding aspects of intervention delivery format and maintenance. Even more ignored are the potential funding streams for sustaining the implementation of a program that has been designed.

In contrast, when the manufacturing industry develops a new product, it is routine for the product development team to conduct extensive market surveys regarding consumer’s preferences, optimal sites for product placement, timing of ads to secure the highest visibility, and color preferences of different segments of the market. Market segments are not necessarily defined on the basis of sociodemographic preferences (e.g., ethnicity or age), but on motivational states or “purchase propositions” that are likely to distinguish those likely to be interested in a particular intervention (Thomas, 1998). For most manufacturing sectors (e.g., media), annual survey data are available to all product marketers who want to know about the preferences, tastes, and spending habits of consumers. For example, there are specialized market research firms in the information technology industry, such as Harte-Hanks Market Intelligence (http://hartebanksmi.com/), and CommerceNet (http://www.commerce.net/), that regularly conduct national consumer surveys. Product designers buy these survey results and do not have to mount their own surveys. While the content of efficacious intervention programs may be based on social-cognitive theoretical models, market research should shape the manner, the style, the presentation, and the placement, timing, and differentiation of the program tailored to market segments.

It is inefficient for researchers working on related intervention studies to mount separate market research surveys of consumers, providers, and funding agencies. Researchers would be able to accomplish economies of scale (similar to other sectors) by mounting a common market research survey that serves their common needs. For example, one survey on preferences could inform all child researchers about all family-related preferences for children aged 0–18 years. Each researcher could also conduct additional specialized surveys to address specific issues. However, drawing upon the experience from the private sector, we believe our field needs to develop specialized programs in market research to serve our collective needs regarding behavioral interventions based on social-cognitive principles. If the product designers in our field (i.e., talented clinicians) have access to high-quality national survey data on the preferences and capabilities of our consumers and providers, we would be in a much stronger position to design more successful and marketable intervention programs that can be disseminated broadly with less time in the design phase. We also avoid the waste of developing programs that are efficacious but not marketable.

The next generation of prevention programs needs to be informed by a series of marketing research surveys. The creation of such a database could be a resource to all researchers in the United States and would adopt a greater orientation to the market in the design of the next generation of programs. If market research were to be available for researchers and policymakers, it would be necessary to obtain information from worksites, teachers, community-based providers, parents, youth, extended family members, policymakers, and government administrators. While theories will still direct the components of the interventions, the identification of “market segments” and the optimal delivery strategies for each segment is key information that surveys would provide.

Adoption of a market orientation would also serve to encourage innovation in delivery formats. Rather than focusing on developing only one format for the delivery of an intervention (as is typically done to retain fidelity in program delivery), it is necessary to think of persons who may prefer to access interventions over the Internet, others who may need in-person contact, and others who may not want to use the telephone. Rather than thinking of the psychologist’s or public health researcher’s model of the optimal intervention, the consumers’ preferences would guide the delivery strategy.

3. Evolution of Programs Over Time. Two types of problems are associated with the principle of replication with fidelity: (1) refining and identifying essential ingredients
of an intervention and (2) adaptation to local conditions and changes over time in the contexts.

If we conceptualize an intervention as a “product,” the process of product refinement would be far different from the current biomedical model of testing safety (phase 1), identifying benefits (phase 2), efficacy (phase 3), and effectiveness (phase 4). Flexibility in the delivery format and tailoring to different market segments begins to move away from program “fidelity” as being the key component of the intervention. However, the primary benefit of perceiving flexibility in program implementation is to identify the essential ingredients of the intervention. When products are developed in the private sector, the product development staff anticipates that the consumer does not read the instructions, use the product in the correct manner, or learn any complex features of the product. Through an iterative process of multiple product refinements, the production team adapts the product to make it foolproof (user-proof) and to heighten attractiveness of the product.

Typically, researchers with efficacious interventions develop a “package” and are not sure which components are the key ingredients for changing and sustaining the changes in outcomes over time. The early perinatal intervention program of Olds (1984) does not know what makes “nurses” good providers of the product. If we knew what was the essential ingredient, we may be able to generate consistent, lower costs and higher-quality strategies for delivering the “essential ingredients.”

There are at least 20 to 30 design features of each efficacious intervention: delivery setting, number of sessions, change agents, timing of sessions, key skills, rhythm of session, delivery format, etc. To test each of the possible combinations of features for one efficacious program would take more than one lifetime for an entire team of researchers, especially with randomized controlled trials. An alternative to this model is efficacy trials that vary multiple design features simultaneously within one trial using factorial designs and conjoint analysis (Duan and Rotheram-Borus, 1999).

The concept of cookie-cutter replications of efficacious interventions also does not allow efficacious programs to evolve over time. Weight Watchers is again a good example of the ways in which the key components of the program are retained, while the marketing strategy shifts repeatedly over time to retain product loyalty. As noted above, there has been an evolution over time in the way in which the program recommends implementation of the principle of reducing calorie intake (weigh food, count points, buy meals), selects a series of celebrity sponsors (e.g., Princess Fergie), and has extended its products into a line of frozen foods and accessories. However, the principles of reinforcing desired behaviors (e.g., reducing costs once reaching the target goal weight), imposing costs for undesirable behaviors (e.g., missing meetings), and providing ongoing social support for maintenance of behavioral changes have been retained over time. The core program elements are constant, even though there is considerable variation in the characteristics aimed to attract and retain consumers (Bauman et al., 1991).

Successful businesses change over time and evolve, just as intervention programs must evolve. Businesses identify the robust program components typically through a series of marketing studies. Once an efficacious intervention is identified, continuous quality improvement (Imai, 1986) can be applied to refine and tailor the intervention, through multiple studies conducted over time.

Adapting to local conditions is a second type of program evolution. To respond to this challenge, Duan et al. (2002) proposed “evidence farming” as a paradigm to utilize the evidence available in local settings. Although clinicians are implementing programs on the front-line on a daily basis, they have little input to the design and dissemination process for preventive interventions; their experiences do not shape the refinement and deployment of efficacious interventions (Weisz, in press). This does not need to be the case. There are untapped resources in the thousands of patient records that could potentially inform the refinement of interventions, particularly after a program has been disseminated to the field. Failure to adapt and tailor programs to the local conditions will have the long-term impact of limited program adoption.

4. Recognizing Efficacious Interventions. For many years, the Good Housekeeping Seal of Approval indicated to consumers that the product met some basic standards. Efficacious behavioral programs have been identified by the American Psychological Association (Price et al., 1988); the U.S. Department of Education, Office of Special Education Programs (2002); the Office of Juvenile Justice and Delinquency Prevention (2001); Sociometrics Corporation (2002); the National Mental Health Association (2002); and the Centers for Disease Control and Prevention (2000). Review articles have also identified efficacious secondary prevention programs for a variety of disorders (e.g., special issue of the Journal of Clinical Child Psychology 1998, volume 27). Soon there will be proliferation of reg-
istries of efficacious programs. Consumers access health and preventive information on the Internet, where there are no standards for access or proliferation of information. Which of these registries warrants or stands as the Good Housekeeping Seal of Approval? A gold standard is the need to establish a system that encourages entrepreneurship and a method of identifying quality and efficacy. If business principles were to be adopted in generating efficacious programs, a certifying body would need to be identified (similar to the Food and Drug Administration) for behavioral research and efficacious prevention programs.

The Future: Embracing the Enemy?

Academic researchers have long divorced themselves from the market and private enterprise. A set of presumptions about the intentions, motives, and impact of market-driven forces has led many researchers to be wary of collaborations and partnerships with the private sector. In particular, there are many potential conflicts of interest (Bowie, 1994). As a group most social science researchers endorse liberal positions on a variety of social science issues; for example, 74% are Democrats and only 5% are Republicans (Redding, 2001). Despite researchers’ values, a market orientation has been the basic driving principle of American society (Cross, 2002). Environmental groups, unions, and advocacy groups adopt business principles to advance their causes. It may be time to reconsider the benefits of a market orientation without aiming to exploit consumers, but to act in the public’s interest.

Since prevention researchers have often thought of themselves as opposed to business principles, their work can become marginalized within a capitalist society. In general, prevention programs have not gathered the information to demonstrate their cost-effectiveness to society. When threats to the economy emerge, accountability leads us to question programs without demonstrated cost-effectiveness. In tight fiscal times, funds for improving the quality of life of disenfranchised persons can quickly be eliminated. To ensure sustainability of prevention activities, consideration of economic benefits of prevention programs must become routine. This is a major challenge for prevention researchers, since the benefits of prevention programs are often long-term in nature, and thus cost-effectiveness is more difficult to establish.

A few research teams are beginning to cope with the ethical challenges and complex role relationships when adopting a marketing orientation: multisystemic therapy (Brown et al., 1997), Communities That Care (Hawkins and Catalano, 1992), Life Skills (Botvin, 1985), and smoking interventions (Hansen and Evans, 1982). As increasing numbers of efficacious programs emerge, there is a need to develop a set of guidelines and to distinguish the benefits and cost of the market orientation in taking interventions to scale. The challenges facing prevention programs will become much greater over the next 10 years, as new technologies (e.g., the Human Genome Project and the Internet) lead to potential identification of those at risk for a broad range of psychiatric and behavioral disorders: attention deficit disorder, schizophrenia, obesity, and substance abuse. To be prepared for these challenges, we must begin the dialog about potential models now.

For many, the adoption of a market orientation violates researchers’ role definition. As the perspective becomes legitimized, new partnerships are being forged among academics and the business community. Future researchers must consider a priori whether the intervention they conceptualize has the possibility of being cost-effective, useful, realistic, evolving, and sustainable (i.e., CURES). A new generation of research designs will be needed that can inform the field about adoption and acceptability, as well as efficacy (Duan et al., unpublished, 2002). A paradigm shift needs to occur within the field of prevention research. How long will we wait to begin the change?

Note: See related letter, this issue, p. 513.

REFERENCES

In effect, this article flicks a deft glove in the face of traditional research approaches that proceed in lock-step fashion from early proof-of-concept studies to small pilot studies and controlled investigations, eventually culminating in large-scale tests across multiple communities. But before either picking up or ignoring Rotheram-Borus and Duan’s (2003) gauntlet, let us examine the merits of their arguments.

The justification undergirding their argument is that “efficacious” interventions most often are not disseminated, a problem likely to worsen as more interventions are developed. No argument here, and their concerns mirror those of many others, including the Surgeon General (U.S. Public Health Service, 2000).

Rotheram-Borus and Duan suggest that our failure to disseminate interventions rests with four principal barriers: (1) dependence of successful disseminations upon efforts of persistent investigators (which most investigators are not, from the authors’ dissemination perspective); (2) failure to specify all theories and behavior change ingredients embedded in the intervention; (3) failure to consider the necessary steps to secure consumers’ participation in the intervention, as well as other factors needed to sustain the intervention over time; and (4) problems related to intervention fidelity, worsened by the absence of clear guidelines as to what kinds of adaptations are allowed to fit an intervention to a community. As the authors intimate, these four problems are interrelated. I address each in turn, pointing out where in my view the authors’ claims may have “gone too far,” stopped short, or hit the mark.

1. Dependence of Successful Disseminations Upon Persistent Investigators. While at first blush the authors’ point seems sensible, I am unaware of any formal studies of investigators’ persistence. What we do not know is how many of the nine investigator teams were just as persistent as the lucky five! It is quite possible that among the successful disseminations, the five investigators were in fact no more persistent than the unlucky nine, who may have encountered overwhelming obstacles. Or perhaps the intervention models of the five were simply better than those of the other nine, and success had nothing to do with persistence at all? Indeed, dissemination depends upon many factors, propitious and adverse. Many factors are not under investigator control, such as the serendipitous appearance of a passionate policymaker who seizes upon an idea that comes across his/her desk just at a time when a family member has been affected by the intervention-targeted problem! Or sometimes an intervention is simply more acceptable to consumers from the outset, or costs less than alternatives, or appears to solve a problem perceived by those who have the power to spend public monies. At any rate, more formal study—why some interventions are adopted while others are not—is urgently needed.

The notion of intervention marketing departments, separate from research and development departments, as a partial solution to this problem, is attractive. However, to the extent that its viability depends upon the assumption that lack of investigator persistence is a major cause of failure to disseminate, it may ultimately prove disappointing. Witness the fact that the federal government has already set up all kinds of “marketing departments” to facilitate the dissemination of interventions, including evidence-based preventive efforts (e.g., the Office of Juvenile Justice and Delinquency Prevention’s “Blueprints” project, see http://www.colorado.edu/cspv/blueprints/index.html; activities of the Office of Disease Prevention and Health Promotion, see http://odphp.osophs.dbhs.gov/; dissemination efforts of the Center for Substance Abuse Prevention, see http://www.samhsa.gov/centers/csap/csap.html). Despite such efforts (including demonstration grants, technical assistance centers, etc.), penetration of even the most successful interventions rarely surpasses 1% of any target population. So while we cannot underestimate the importance of good marketing efforts, the problem of dissemination of psychosocial interventions is likely to be much more complicated, and contingent upon many more factors than good communications strategies—or investigator persistence.
2. Failure to Explicate Fully the Critical Theories and Treatment Ingredients of an Intervention. The authors rightly point out that in most intervention programs, investigators do not spell out the links between their many program elements and their corresponding theories. More importantly, even when links are drawn between an intervention and its theory base, only rarely do investigators explicitly identify the particular theory-postulated necessary change processes that must be present (and in what dose) for an intervention to be effective. For example, if one wants to disseminate a cognitive-behavioral therapy (CBT) intervention for children at risk for depression, which aspects of CBT are essential? Its cognitive restructuring components? Problem-solving and coping? What are the specific behaviors of the therapists, which, if not done, will undercut the intervention’s efficacy? Getting the answers to these questions is not merely an academic exercise: unless the actual change processes are identified, persons wanting to adapt the intervention to their own circumstances will not know if they are actually fiddling with core aspects of the intervention (thereby undercutting its efficacy), or if they are merely making necessary accommodations to fit the intervention to their community.

In the same way, designers of medications distinguish between the drug delivery vehicle versus the actual active molecule. Depending upon the drug and disease in question, it may not matter if the drug is taken as a pill, a liquid, an aerosol, an injection, a patch, or a suppository, as long as it gets into the body and to the target end organ. In many instances the fact that there is a choice of vehicles constitutes a useful accommodation that allows the physician to work with patients’ preferences, swallowing ability, fear of needles, side effects, ease of administration, etc. Changing the proven-efficacious molecule, or substituting it with an inert substance, is not an acceptable option, of course. But for psychosocial interventions, unless we can distinguish among the intervention’s core efficacious elements and its delivery vehicles, efforts toward wide-scale dissemination, adaptation, and adoption will likely not be successful.

3. Failure of Interventions to Address Adherence and Maintenance Issues. Absolutely correct! Using different terms, Whalen and Henker (1991) described such intervention characteristics as the necessary “-abilities” of a successful (and disseminable) treatment: applicable to the person, disorder, and setting in question; compatible with the patients’ needs; communicable and understandable to the subject, family, and treatment team; available and provisible across a large array of settings; feasible across settings in which the child interacts; and palatable to patients and families. To this already long list I would add affordable and trainable as essential intervention characteristics. All these factors together constitute what helps make an intervention disseminable, even though the presence of all of these “-abilities” still does not guarantee such.

But Rotheram-Borus and Duan, like Whalen and Henker, stop short, apparently forgetting a whole category of obstacles underpinning dissemination failures. Consider that many obstacles to dissemination lie well outside the scope of control of patients, consumers, and providers. For example, how can providers effectively learn and apply a new intervention, if at an organizational level, no supportive structures (such as training, quality assurance procedures, incentives, and equitable insurance provisions) are present to sustain the intervention? How can parents access an intervention if time off the job is not allowed, or if pronounced stigma accompanies the intervention?

Yes, as the authors suggest, interventions must be developed with the perspectives of patients and treatment providers fully in mind. But sustained adoption of an intervention requires the systematic handling of obstacles at a third level: barriers lying within the larger societal, contextual, systems, and policy spheres. All three areas (patients/families, providers, and health care organizations/systems/policy) require targeted effort and study, if we are to improve our dissemination of effective interventions. For example, evidence exists that at the systems and policy level, interorganizational factors may exert deleterious influences to decrease the effectiveness and uptake of an otherwise efficacious intervention (Glisson and Himmelgarn, 1998; Schoenwald and Hoagwood, 2001).

A complex problem indeed, with the nesting of obstacles within obstacles! In essence, we need an evidence base of effective methods for disseminating evidence-based interventions! Figure 1 offers one way to conceptualize these layers of issues and obstacles. Much like an electric current wired in series (rather than parallel) fashion, failure to address obstacles at any one of the three levels cuts the current for the entire circuit and thwarts an otherwise valiant effort to deploy an efficacious intervention. To make our task even more challenging, others have suggested that the representation of health care systems and policy as a single level in the figure may understate its complexity, with this domain actually composed of as many as five levels (Pincus et al., 2001).

Copyright © American Academy of Child & Adolescent Psychiatry. Unauthorized reproduction of this article is prohibited.
4. Difficulties for Replication With Fidelity Over Time. A natural tension exists between intervention developers who wish to ensure that their intervention remains untouched in order to ensure effectiveness, versus those who want to adapt the intervention to fit local needs and resources. This tension is made especially thorny to the extent that intervention developers do not specify the necessary factors associated with change, such as the “dose,” “intensity,” and “duration” of intervention according to their particular model. Just as drug developers conduct dose-ranging studies to determine how their new compound is associated with blood levels, and determine how blood levels relate to symptom change, so too are similar efforts needed by developers of preventive interventions. How much “tweaking” and local adaptation is too much?

Implications

Rotheram-Borus and Duan have identified several key challenges now facing the prevention field. However, these same issues apply to all kinds of psychosocial interventions, and in many instances to pharmacological interventions as well. For example, effective dissemination of new medication treatments will be hampered to the extent that would-be disseminators do not consider that optimal pharmacotherapy must attend to the nature and quality of the doctor–patient encounter, must address patient concerns about taking medications, and even must consider the larger context of how medications are viewed in the general public. As a simple thought experiment to test this hypothesis, consider what would be the dissemination impact of legislation in all 50 states (instead of only the current two, Colorado and Connecticut) banning discussions of ADHD medications between teachers and parents!

As the authors and others have suggested (Hoagwood et al., 1995), to address our current knowledge needs, future studies (prevention and treatment alike) must increasingly focus on external validity, constructing and testing interventions that are likely to have the requisite “-abilities” (feasible, palatable, affordable, sustainable, etc.) to serve the very populations for which they were intended. As recommended by one of my college teachers (who, not surprisingly, also taught in the business school), “Begin with the end in mind.” Or, given that the authors’ title invokes “the next generation,” we will do well to remember what my own children tell me when I start off on a path likely to yield a nonworkable solution in their world: “Don’t even go there!”

Heeding this advice, and using some of the strategies advocated by Rotheram-Borus and Duan, we must retool our methods to ensure that interventions are shaped up front by the critical stakeholders whose help we need, if our interventions are to be accepted, adopted, and disseminated over time (Schoenwald and Hoagwood, 2001). Given the likelihood that greater accountability for public benefit will be needed to justify future research dollars, Rotheram-Borus and Duan’s arguments—that next-generation researchers will need more managerial, leadership, and advocacy skills—seem on target, if not a bit late, in view of how little of our current science has been put to work (U.S. Public Health Service, 2000). As they suggest, we must begin now to form practical research partnerships with scientific and business professionals who know how to sample opinions from various groups, how to “segment a market,” how to “position a product” to meet the needs of a particular group, and how to “take a product to market.” Likewise, up-front partnerships with communities, advocacy groups, and policymakers will be critical, if our interventions are to be supported.
over the long term (Jensen et al., 1999). Too many obstacles exist to thwart our success, and too much is at stake to relegate these critical issues to last-step status, much less to the next generation.

REFERENCES


