Eleven Components of Effective Drug Abuse Prevention Curricula
Linda Dusenbury, Mathea Falco

ABSTRACT: A review of school-based drug abuse prevention programs was conducted for 1989-1994 to identify key elements in effective drug abuse prevention curricula. In addition to a comprehensive literature review, telephone interviews were conducted with a panel of 15 leading experts in prevention research: Gilbert J. Botvin, Director, Institute of Prevention Research, Cornell University Medical College; Richard Clayton, Director, Center for Prevention Research, University of Kentucky; Phyllis Ellickson, Senior Behavioral Scientist and Resident Scholar, RAND; Susan Ennett, Research Health Analyst, Center for Social Research and Policy Analysis, The Research Triangle Institute; Brian Flay, Director, Prevention Research Center, The University of Illinois at Chicago; William B. Hansen, Associate Professor, Dept. of Public Health Sciences, Bowman Gray Medical College; David Hawkins, Director, Social Development Research Group, University of Washington, Karol Kumpfer, Associate Professor, Dept. of Health Education, University of Utah; Joel Moskowitz, Associate Director, Center for Family and Community Health, University of California at Berkeley; Mary Ann Pentz, Associate Professor of Research, Institute for Health Promotion and Disease Prevention Research, University of Southern California; Cheryl Perry, Professor, Division of Epidemiology, School of Public Health, University of Minnesota; Christopher Ringwalt, Research Health Analyst, Center for Social Research and Policy Analysis, The Research Triangle Institute; Steven Schinke, Professor, School of Social Work, Columbia University; Nancy Tobler, Research Consultant; and Roger Weissberg, Professor, Dept. of Psychology, University of Illinois at Chicago.

The interviews, which ranged from 30-60 minutes in length, were organized around two general questions: “What do you think we currently know about what works in drug abuse prevention?” and “What would you say we know about the effective ingredients of drug abuse prevention programs?” In addition, the panel were asked specific questions relating to their own research.

Unless otherwise cited, comments by Gilbert J. Botvin, Richard Clayton, Phyllis Ellickson, Susan Ennett, Brian Flay, William B. Hansen, David Hawkins, Karol Kumpfer, Joel Moskowitz, Mary Ann Pentz, Cheryl Perry, Christopher Ringwalt, Steven Schinke, Nancy Tobler, and Roger Weissberg are based on information gathered during these interviews.

BACKGROUND
A general consensus in the literature on drug abuse prevention suggests certain school-based programs can achieve at least modest reductions in adolescent drug use. This is reflected in several recent literature reviews and is supported by a series of meta-analyses. In addition, with one possible exception, this was the consensus of the panel interviewed for this report. There also is agreement that certain kinds of prevention programs are not effective, namely information dissemination or knowledge-based programs which constitute the traditional approach to drug education.

Evaluations of drug abuse prevention programs increased in rigor over the past 15 years, with larger samples, more sophisticated research designs, more thorough data analyses, greater concern for implementation fidelity and accuracy of assessment measures, and longer follow-ups. In response to methodological criticisms of evaluation studies conducted the past two decades, drug abuse prevention research adopted progressively more demanding methodology. Recently published studies are impressive in their size, scope, and methodological sophistication. However, even more persuasive than findings from these recent studies, with their methodological sophistication, are the replicability and consistency of findings across studies and research groups.

The most exciting finding from the past few years has been that drug abuse prevention programs can produce reductions in drug use that are lasting and meaningful. Botvin et al at Cornell University Medical College, and Pentz et al at the University of Southern California showed in two separate research projects that broad-based programs for young adolescents that include social resistance skills training can reduce drug use through high school and into
young adulthood. In addition, while previous studies had shown an impact on gateway drug use (smoking, drinking, and marijuana use), these long-term follow-ups demonstrate an impact on use of other illicit drugs. Botvin reports effects on hashish, heroin, PCP, inhalants and other narcotics, but not cocaine. Pentz also reports effects of their program on illicit drugs, particularly the use of stimulants, including cocaine.

These large-scale studies reveal effects on other important behaviors as well. For example, the follow-up study by Botvin et al revealed a reduction in risky driving among young people who received the drug abuse prevention program. Most significantly, the follow-up by Pentz et al found a reduction in the need for treatment of drug abuse problems among young adults who had received the drug abuse prevention program during junior high.

Key Components of Effective Curricula

From the literature, and from interviews with experts, 11 critical components of drug abuse prevention were identified.

1. Research-based/Theory-driven. Effective curricula are based on current understanding of the theory and research in drug abuse prevention. According to Hawkins, in the past five years a shift has occurred in prevention research, toward a more etiological approach which explores the causes of drug use. This shift is important since it provides a more solid theoretical basis for the development of preventive interventions.

To this point, Hawkins asserts, research in drug abuse prevention has tended to focus on only two risk factors: attitudes favorable to drug use (norms), and friends' use. Most research in drug abuse prevention has not focused on other risk or protective factors, although Hawkins’ own research helped broaden the range of risk and protective factors by focusing attention on the role of schools and parents in protecting adolescents. In addition, Botvin broadened the range of risk and protective factors considered important in understanding the etiology of drug use by focusing on an intervention on a number of personal and social skills. As researchers broaden their focus to consider new risk and protective factors, prevention programs are likely to become increasingly appropriate and effective.

2. Developmentally Appropriate Information about Drugs. Effective drug abuse prevention programs recognize that children and adolescents are more interested in concrete information, and here and now experience, than they are on information about possibilities in the distant future. Effective curricula contain information about drugs that is accurate and relevant — information that emphasizes short-term and negative social consequences of use. Extensive information about the types and effects of drugs is not necessary, and may be counterproductive, according to Botvin.

3. Social Resistance Skills Training. Programs most successful at reducing drug use are school-based social resistance skills training programs. These programs help prepare students to identify pressures to use drugs, and give junior high school-aged students the skills they need to resist peer pressure to use drugs while maintaining their friendships.

4. Normative Education. Social resistance skills training often includes normative education, which teaches adolescents that most people do not use drugs. In an experimental manipulation, Hansen and Graham found that normative education was a critical ingredient in reducing drug use. Some experts, such as Hansen and Hawkins, are convinced that normative education is critical to the long-term success of drug abuse prevention programs. However, Botvin found that while normative education is important to drug prevention, it is not sufficient to reduce drug use, and that resistance skills training continues to be necessary.

5. Broader-based Skills Training and Comprehensive Health Education. Social resistance skills training is sometimes presented within the context of broader personal and social skills training including comprehensive health education. Types of skills covered in these broader programs include decision-making skills, goal-setting, stress management, communication skills, general social skills and assertive skills. Some evidence suggests these broader-based programs produce slightly larger reductions in drug use than social resistance training alone. Many of the panelists interviewed for this review, including Ellickson, Kumfer, Perry, and Weissberg, endorsed the concept of broader-based comprehensive health education which would provide students with general personal and social skills training. Objectives of these programs would be to promote social and academic competence, and prevent a range of risky behaviors including substance use, premature sexual involvement, and delinquency.

6. Interactive Teaching Techniques. Social resistance skills approaches rely on interactive teaching techniques such as role-playing, discussions and small group activities. Unlike more didactic techniques such as lecture, interactive techniques promote active participation of students. It is difficult to discern the relative effects of teaching strategy and program content; indeed, social resistance training tends to use interactive techniques, while knowledge based programs tend to rely on didactic teaching strategies. However, Tobler reports that programs designed to prevent drinking and driving have used both types of teaching techniques, and the ones that were effective used interactive teaching techniques. Unfortunately, some teachers are less comfortable using interactive teaching techniques, and these teachers will be less likely to effectively implement promising prevention programs.

7. Teacher Training and Support. Results from a series of studies reveal that drug prevention programs are most successful when teachers receive training and support from program developers or prevention experts. Much research remains to be done to determine optimal length of teacher training, the most effective teacher training strategies, as well as the most critical content areas to be covered in teacher training such as the theory behind a prevention program, evaluation studies concerning prevention programs, classroom management issues, guidelines for using a particular curriculum. However, a major emphasis of teacher training should be interactive teaching techniques, given their apparent importance in promising prevention curricula, according to Tobler. To help teachers become familiar with and comfortable using interactive teaching techniques, teacher trainers should model these behaviors during training sessions. In addition, teachers should be given ample opportunity to practice these new skills, as well as feedback and reinforcement during practice sessions. Ideally the initial training session should be

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followed by booster sessions.

8. Adequate Coverage and Sufficient Follow-up. Many drug abuse prevention programs tend to be brief. They often offer fewer than 10 sessions the first year, and fewer than five in the second year. Flay observed, “Realistically, the interventions we are doing are puny compared to the myriad of other influences kids are exposed to that are ongoing.” The brevity of drug abuse prevention interventions may help to explain recent findings that prevention effects decay over time. Given the brevity of interventions, none of the experts interviewed were surprised that effects would decay. A critical element of effective prevention programming, then, is sufficient and continued follow-up.

9. Cultural Sensitivity. A series of studies by Botvin et al. suggest that broader based personal and social training approaches which include social resistance skills training are generalizable to urban minority populations. Tobler reports that social resistance skills training appears to be effective at reducing drug use in urban, rural, and suburban populations. However, experts interviewed for this review agreed that drug abuse prevention strategies must be sensitive to the ethnic and cultural backgrounds of the youth they target if they are to be successful.

While drug abuse prevention programs have proven effective for certain populations, designing interventions that are culturally relevant and appropriate is a difficult task, due to the heterogeneity of cultures in the U.S., according to Botvin and Schinke. Indeed, in any classroom setting there are likely to be multiple cultures represented. For example, the U.S. Black population has numerous cultures, including populations descended from African countries as well as from Caribbean countries. Blacks from the southern regions of the U.S. have a different cultural experience from those from northern regions of the country. There also are cultural differences for rural and urban Blacks. Similarly, among Latino populations in the U.S., there are those of Mexican descent, Cuban descent, Puerto Rican descent, etc. Many Latinos in this country are of mixed descent such as a Puerto Rican father and a Dominican mother. There also are important cultural differences for Latinos depending on how long their families have lived in the U.S.

The heterogeneity of cultures in this country presents a major challenge to drug abuse prevention curricula that are nationally disseminated. One solution may be to develop curriculum materials that would enable well-trained teachers to tailor the curriculum activities to the cultural experience of their students. In this type of curriculum, teachers would elicit from students information about their own cultural experience, and create a classroom environment respectful of cultural diversity, according to Botvin. For example, teachers might ask students, “What are some situations in which you expect you might feel pressure to smoke or drink?” then use examples in role plays to practice peer resistance skills.

An alternative way to meet the challenge of heterogeneity of cultures, according to Schinke, would be to have prevention professionals work in close partnerships with school personnel or community members to develop curricula specifically appropriate and relevant to the cultural experience of a particular school or community. The difficulty with this second approach is that it involves building prevention programs from the ground up, which is an extensive process, and requires extensive evaluation to test program effectiveness.

10. Additional Components. While much research remains to be done, general agreement exists in the literature and among the panelists that family components, community components, media components, and components for special populations would be expected to enhance the effectiveness of drug abuse prevention. For example, large projects by three different research groups suggest there may be value in broadening school-based approaches to include family, community, and media components. However, a definitive study of the relative contribution of additional components to the efficacy of drug abuse prevention curricula has yet to be done.

11. Evaluation. An important question for any drug abuse prevention curriculum is whether it can be demonstrated to have an impact on drug use behavior. The quality of evaluation studies must be assessed, as well, to know how confident one can be in the findings. At a minimum, evaluation designs should include pretest and post-test and a control group, as well as outcome measures of substance use behavior (in addition to smoking).

Numerous evaluations conducted over the past five years using sound research designs and focusing on drug use behavior in addition to smoking suggest the promise of drug abuse prevention curricula including STAR, Life Skills Training, the Seattle Social Development Program, Project Northland, the Alcohol Misuse Prevention Program, and the Teenage Health Teaching Modules. These programs are listed in Figure 1.

Many researchers of promising drug abuse prevention curricula also have a financial interest in the curricula they evaluate, in terms of royalties and income from grants or contracts which involve these curricula. While large scale, long term follow-up evaluations of state-of-the-art prevention programs by totally independent investigators might be a desirable goal, they are rare. At this point, researchers usually acknowledge grant and contract support in their research papers. An additional measure might be to have researchers also disclose royalties and consulting fees associated with a curriculum.

DISSEMINATION OF EFFECTIVE PROGRAMS

Quite a lot currently is known about the effective ingredients of promising prevention curricula. It is therefore discouraging to note that most of the money spent in this country on drug education has not been spent on promising programs. For example, a 1991 Government Accounting Office report estimated that a quarter of the $500 million spent annually on drug education was spent on curricula, but Hansen, Rose, and Dryfoos report that most of that money is spent on aggressively marketed programs that have not been evaluated, or worse, have been shown not to work.

DARE, QUEST, and Here's Looking at You, 2000 are the three largest marketed programs. Other aggressively marketed programs include BABES, Project Charlie, Ombudsman, and Project Adventure. Of the aggressively marketed curricula, only DARE has been adequately evaluated. And while DARE has been extremely successful at diffusion and dissemination according to Clayton, evaluations, including a recent meta-analysis, suggest that
DARE is not any more effective at reducing substance use behavior than standard curricular approaches. Why is it that promising programs are not more widely used? One obvious reason is that schools have been given large amounts of money to spend on drug prevention, but very little guidance in terms of how to spend it. In addition, developers of the most promising prevention programs have tended to be researchers, who have not felt that it also was appropriate in their role as objective scientists to promote their programs. Meanwhile programs that may not have been evaluated adequately have been marketed aggressively.

Another reason for under-utilization of promising programs may be that state-of-the-art programs are more difficult for teachers to implement. As discussed in the section on key ingredients of prevention curricula, effective programs use interactive teaching techniques, which may be less familiar to many teachers. Traditional approaches to drug education rely more on didactic teaching strategies, which some teachers may be more comfortable using.

It is instructive when considering the under-utilization of promising programs to examine programs that have been successfully disseminated and institutionalized. While there are questions about the effectiveness of DARE, for example, its success at dissemination is unquestionable, and deserves careful study to identify successful dissemination strategies. DARE provides a powerful example of how a curriculum can be disseminated effectively, when community agencies and policymakers get behind a program, and when mass marketing techniques are used. A major factor in DARE's success has been the 10% virtual set-aside funding provided by the Drug Free Schools and Communities Act amendments; this legislation provided states with tens of millions of dollars in block grants to be

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<tr>
<th>Curriculum Name</th>
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<tr>
<td>Alcohol Misuse Prevention Project</td>
<td>Deborah Kloksa, AMPS Project 1016 Catherine St, Ann Arbor, MI 48104-1620 313/998-7255</td>
<td>Middle/junior high school</td>
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<td></td>
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<td>Focus is on prevention of alcohol misuse</td>
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<tr>
<td>Life Skills Training</td>
<td>Gilbert Botvin, Institute for Prevention Research, Cornell University Medical College 411 E. 69th St, New York, NY 10021 212/746-1270</td>
<td>Middle/junior high school</td>
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<td>Focus is on prevention of gateway substance use</td>
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<tr>
<td>Seattle Social Development Program</td>
<td>Sally Christie, Developmental Research and Programs 130 Nickerson St, Suite 107 Seattle, WA 98109 800/736-2630</td>
<td>Elementary school</td>
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<td></td>
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<td>Focus is on gateway substance use; includes a family component</td>
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<tr>
<td>Project STAR</td>
<td>Luanne Rohrbach, USC/IPR 1540 Alcazar St, Suite 210H CHP Building Los Angeles, CA 90033 213/342-2636</td>
<td>Middle/junior high school</td>
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<td></td>
<td>Focus is on prevention of gateway substance use; includes media, community, and family components</td>
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<tr>
<td>Teenage Health Teaching Modules</td>
<td>Lynn Watkins, Educational Development Center 55 Chapel St, Newton, MA 02160 800/229-4276</td>
<td>Grades 7-12</td>
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<td>Focus is on prevention of gateway substance use; comprehensive health education</td>
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<tr>
<td>Project Northland</td>
<td>Cheryl Perry, University of Minnesota Division of Epidemiology School of Public Health 1300 Second St, Suite 300 Minneapolis, MN 55455 612/624-4186</td>
<td>Middle school</td>
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used for DARE.

What made DARE so appealing to legislators? Politically, DARE may have had appeal because it involved law enforcement in prevention of drug use. In addition, it may be that DARE offered a concrete focus for the public and political energy generated by the Reagan Administration's War on Drugs. However, the staying power of DARE in the face of waning public attention reflects a masterful dissemination strategy.

The DARE example suggests important characteristics of programs that are likely to be utilized and institutionalized. DARE appears to have wide appeal with both students and teachers. Informal discussions with school district drug abuse prevention coordination from around the country suggest that a major consideration of school personnel when selecting a drug abuse prevention curricula is whether it will be appealing to students. A related issue is whether the curriculum will appeal to teachers. Prevention coordinators report that curriculum materials such as videos, games, and even hand puppets can be particularly useful because they capture the attention of students. While systematic comparisons of the features of different abuse prevention curricula are limited, it may be that programs that have been successfully mass marketed have developed more appealing curriculum materials, compared to programs that were developed in research laboratories. For example, in DARE, students enjoy the unusual opportunity to meet and work with a police officer, while overworked teachers appreciate that someone else is responsible for delivering the program.

CONCLUSION

Drug abuse prevention curricula can be effective, and a significant knowledge base exists about the critical ingredients of promising curricula. A literature review from the past five years, and interviews with a panel of 15 leading prevention experts, identified 11 key components of promising prevention curricula. Effective prevention programs were found to be based on a sound theoretical or research foundation. They included developmentally appropriate information about drugs, social resistance skills training, and normative education. Broader based personal and social skills training appeared to enhance program effects. Effective programs used interactive teaching techniques and teacher training, and provided adequate coverage and sufficient follow-up. Cultural sensitivity to the target population was found to be critical to program success. Additional program components were expected to enhance curriculum effectiveness. Finally, panelists agreed that adequate evaluation of prevention curricula was critical.

For prevention to work, institutionalization of promising prevention programs must occur. A variety of strategies could be used to promote use of promising prevention curricula. To begin, promising prevention curricula must become more readily available. Successful institutionalization of the DARE curriculum also suggests it may be important to develop more appealing features and packaging for promising programs, and to promote the state-of-the-art programs using aggressive marketing techniques. In addition, if promising programs are less appealing because they rely on interactive teaching techniques, changes will be needed in the way teachers are educated and trained. Finally, an important way to promote the utilization of promising curricula would be to give schools more guidance as to how they should spend their funds for drug abuse prevention.

References


35. Botvin GJ, Schinke SP, Epstein JA, Diaz T. Effectiveness of culturally focused and gender specific skills training approaches to alcohol and drug abuse prevention among minority youth. Psychol Addict Behav. 1994;8:116-127.


Job Opportunities

Department Chair: The Dept. of Health Science Education, College of Health and Human Performances, University of Florida, invites nominations and applications for the position of chairperson. Candidates should possess a doctoral degree in health education, a strong record in scholarly production, proven success in securing external funding, a commitment to development of activities and promotion of relationships with alumni, the ability to develop interdepartmental research and teaching linkages, and successful administrative experience. Responsibilities include administration of the department (which includes the Florida Center for Health Promotion), research, teaching, and supervision of doctoral candidates. This is a tenure-track position at the full professor level; salary will be commensurate with experience and qualifications. Candidates should send a letter with their curriculum vitae and names and addresses of three references to: Search Committee, Chair, Dept. of Health Science Education, P.O. Box 118210, FLG-5, University of Florida, Gainesville, FL 32611-8210. Applications received by February 15, 1996 are assured consideration. The University of Florida is an equal employment opportunity affirmative action employer. Women and minorities are encouraged to apply.

Assistant Professor, Health Ed/Public Health. Tenure-track. Doctorate required. Expertise in three of the following: public health, health education, health administration, research methodology, multicultural health. Proficiency in instructional technology required. Salary $35,668 - $45,216 AY, start Aug. 19, 1996. Letter with teaching and research interests, vita, three letters of recommendation, and documentation of teaching effectiveness or potential to: Dr. Roland Lamarine, Faculty Recruitment, California State University, Chico, CA 95929-0505. Review applications, Feb. 8: position open until filled. EO/AA Employer. Email HCSV@oavax.csuchico.edu or telephone 916/898-6661 for information.