

DRAFT

**WHAT WORKS AND WHY:
PREVENTING DRUG USE AND RELATED
CRIME IN AMERICA**

Prepared for:

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December 17, 1996

Ross Deck
COTR
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Dear Mr. Deck:

Please find enclosed one unbound and one bound copy of the report entitled "What Works and Why: Preventing Drug Use and Related Crime in America." A copy on disk is also enclosed.

If you have any questions concerning this paper, please call Bill Scarbrough or me at the number above.

Sincerely,

A handwritten signature in cursive script that reads "Sherrie S. Aitken".

Sherrie S. Aitken, Ph.D.
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WHAT WORKS AND WHY: PREVENTING DRUG USE AND RELATED CRIME IN AMERICA

Recently, several national surveys have indicated an upsurge in drug use, particularly marijuana use, by youth in America. A closer look at the numbers shows that the trend first began in 1990, when anti-drug attitudes among adolescents initially showed signs of weakening. Each year a multitude of prevention programs attempt to address a wide variety of problems related to drug use at the individual, family, school, peer group, and community levels. Despite the popularity of comprehensive, community-based prevention in the past ten years, many programs still fail to reach those at highest risk of substance abuse, violence, or other criminal activity; for example, chronic truants or school dropouts (Norman and Turner, 1994). The major challenge now facing drug abuse and related crime prevention programs is twofold; first, programs must specifically target youth living in high-risk situations, and second, the effectiveness of prevention programs and the approaches they employ must be firmly established. It is imperative, now more than ever before, to expand the frontiers of drug abuse and related crime prevention, and determine precisely what works, how well, and for whom.

PURPOSE

The purpose of this paper is to (1) examine evaluations of integrated, comprehensive, community-based approaches to drug abuse and crime prevention, (2) identify effective program designs, resource integration initiatives, policy goals, and program integration methods, and (3) offer guidance to researchers, policymakers, and program operators regarding the design and implementation of effective drug abuse and related crime prevention approaches. The "Findings" section sets forth two lists of drug abuse and related crime prevention program approaches. The first list includes program approaches proven by research to work in preventing drug

abuse and related crime. A second list includes program approaches that, in isolation, have proven to be ineffective in preventing drug abuse and related crime. The next section, "Illustrative Programs," offers examples of how effective program approaches are utilized and what the research says about their respective efficacy. The last section, "Conclusions and Recommendations," gives an overview of the current status of effective prevention approaches and offers four recommendations on how to support the development and implementation of effective drug abuse and related crime prevention programs. The study methodology developed to guide this report is presented in Appendix A. Findings from the review of the literature are presented in Appendix B.

FINDINGS

Drug abuse and related crime prevention programs rarely use one prevention strategy exclusively. Indeed, most programs contain a range of prevention approaches and strategies. For example, most school- and community-based prevention programs implemented in the past 5 years include one or more of the following: (1) factual information about drugs, drug use, and related crime; (2) Life Skills Training, including resistance skills training and social and personal skills development; (3) alternative activities to drug use, such as sports, dance, and theater; (4) exercises to increase self-perception and confidence, including self-esteem and locus of control; (5) family development, including parent training and advocacy; (6) individual and peer group counseling; (7) student, school, and community management practices; (8) stress management; (9) spiritual and cultural enhancement; and (10) anti-drug/anti-crime advertisements and media messages (Center for Substance Abuse Prevention [CSAP], 1995; Gerstein and Green, 1993; Minnesota Department of Education, 1992). There is no "magic bullet" for preventing alcohol and other drug (AOD) use and related crime, but there is consensus among professionals in the prevention field that multicomponent programs are likely to produce the most positive

effects for the greatest number of participants, compared with programs that focus on a single problem (Dryfoos, 1992; Logan, 1991).

The following typology includes seven drug abuse and related crime prevention program approaches that have been proven effective by the prevention research literature:

- *Effective Prevention Approaches Typology*

- Multimodal approaches, particularly those with skillbuilding and peer program components (Bangert-Drowns, 1988; Tobler, 1986);
- Life Skills Training, which has been shown to impact an individual's life up to 6 years after the intervention, provided the program is properly implemented and booster sessions are administered in subsequent years (Botvin, Baker, Dusenbury, Botvin, and Diaz, 1995);
- Negative parent/adult attitudes toward drug use and crime (Andrews et al., 1993; Hamburg, Kraemer, and Jahnke, 1975; Hundleby and Mercer, 1987; Podell, 1992);
- Positive parenting (Barrera, Li, and Chassin, 1993; Brook, 1993; Byram and Fly, 1984; Dielman, Butchart, and Shope, 1991; Ensminger, Brown, and Kellam, 1982; Weinberg, Dielman, Mandell, and Shope, 1994);
- Academic tutoring and mentoring (Crum, Helzer, and Anthony, 1993; Thomas and Hsiu, 1993; Wiebusch, 1994);
- Early prevention interventions targeting AOD attitude formation (Grube and Wallack, 1994; McGee and Stanton, 1993; Pfeffer, 1993; Towberman and McDonald, 1993; Whittaker, 1993); and

- Anti-drug and anti-crime advertising (Grube and Wallach, 1994; Van Reek, Knibble, and van Iwaarden, 1993; Zastowony, Adams, Black, Lawson, and Wilder, 1993).

The following typology includes four program elements and strategies that, in isolation, do not prevent or reduce drug use and related crime:

- *Ineffective Prevention Approaches Typology*

- AOD knowledge-only and affective-only programs (Bangert-Drowns, 1988; Botvin, Baker, Dusenbury, Tortu, and Botvin, 1990; Tobler, 1986; in fact, these programs may actually increase use by arousing curiosity, see Montagne and Scott, 1993; Norman and Turner, 1994);
- Fear arousal approach (U.S. Department of Education and U.S. Department of Health and Human Services, 1987; the negative claims frequently are exaggerated causing youth to disbelieve the program and ignore the message, see Norman and Turner, 1994);
- Programs building participant self-esteem, helping youth clarify values, and promoting self-growth (Dryfoos, 1990; Schinke, Botvin, and Orlandi, 1991; Tobler, 1986); and
- Alternatives approach, such as after school sports, drama, and music (U.S. Department of Education, 1987; these activities are associated with increased AOD use when they are of a social nature, see Norman and Turner, 1994).

The vast majority of the drug and related crime prevention efforts implemented in the past 10 years have utilized one or more of the approaches or strategies summarized above. For this report, more than 500 drug and crime prevention programs were reviewed and analyzed. Approximately 5 percent (n=27) of those programs conducted evaluation

studies suitable for accurately attributing success or failure to the prevention approach or strategy implemented. Table 1 summarizes key characteristics of 13 of the 27 programs for which enough information was available to develop a comprehensive description of the program, including target population; program components; setting; prevention approach (corresponding to the lists of prevention approaches described earlier); and research findings. This table shows that multimodal approaches that involve Life Skills Training (n=4 programs) have the most favorable research findings, that multimodal approaches that involve other activities (particularly Academic Tutoring and Mentoring) have the second most favorable research findings and that programs implementing singular or isolated approaches show the least favorable results. To illustrate how these approaches and strategies were used, as well as what the research says regarding their effectiveness, this section presents brief descriptions of the 13 drug abuse and crime prevention programs implementing rigorous evaluation designs. The program components underlined in the descriptions correspond to the approaches listed in the typologies presented on pages 3 and 4.

ILLUSTRATIVE PROGRAMS

One of the most widely recognized and successful comprehensive, community-based programs targeting economically disadvantaged youth living in high-risk environments is the **SMART Moves Program** developed and implemented by the more than 1,600 local Boys & Girls Clubs of America. SMART Moves, a multimodal program using the Life Skills Training model developed by Botvin (1983), focuses on enhancing personal and social competency and teaching resistance skills, along with age-appropriate AOD education. Three tailored programs are offered for youth ages 6 to 9, 10 to 12, and 13 to 15. In addition to SMART Moves, the Boys & Girls Clubs of America provide youth with opportunities for recreation and cultural enrichment, citizenship and leadership development, and health and physical education. SMART Moves research has shown that the

Table 1
Selected Drug and Crime Prevention Programs:
Approaches, Target Groups, Settings, and Research Findings

Program Name	Target Group	Program Components	Setting	Approach/Strategy	Research Findings
SMART Moves	Children aged 6-18 years	-Life Skills Training -Cultural Enrichment -Leadership Training -Physical and Mental Health Services	Community	Multimodal -Life Skills Training -Academic Tutoring and Mentoring	+++
Foundations Program	Children aged 3-9 years	-Life Skills Training -Mental Health Services -Drug Education	School	Multimodal -Life Skills Training -Self Esteem -Drug Education	+++
ADEPT Drug and Alcohol Community Prevention Project	Children aged 6-13 years	-Freeplay and Creative Drama -Academic Assistance -Mental Health Services	School	-Alternatives to Drug -Academic Tutoring and Mentoring -Self Esteem	+
Juvenile Substance Abuse Prevention Project	Children aged 11-18 years	-Academic Assistance -Cultural Enrichment -Parent Drug Education -Sports and Recreation Activities	Community	Multimodal -Alternatives to Drug -Academic Tutoring and Mentoring -Negative Parent/Adult Attitudes For Drug	++
YouthNet	Children aged 11-13 years	-Academic Assistance -Peer Counseling -Extracurricular Activities -Medical Care	Community	-Alternatives to Drug -Academic Tutoring and Mentoring	+
Students Resourceful and Together (STAR)	Children aged 11-13 years	-Life Skills Training -Drug Education -Mental Health	School	Multimodal -Life Skills Training -Self Esteem -Drug Education	+++
Stress Management and Alcohol Awareness Program	Children aged 11-13 years	-Drug Education -Mental Health Services -Group Counseling -Mentoring	School	-Drug Education -Self Esteem -Academic Tutoring and Mentoring	+
Project Success	Children aged 11-18 years	-Academic Assistance -Parenting Skills -Group/Family Counseling -Community Activities	School	Multimodal -Positive Parenting -Alternatives to Drug -Academic Tutoring and Mentoring	++

Table 1 (continued)

Program Name	Target Group	Program Components	Setting	Approach/Strategy	Research Findings ¹
River Region Services Prevention Program	Children aged 5-11	-Life Skills Training -Parenting Skills -Individual and Group Counseling -Family Counseling	School	Multimodal -Life Skills Training -Positive Parenting	+++
South Alabama Youth Services' (SAYS) Drug Education Program	Children aged 11-18 years	-Drug Education -Sports and Recreation Activities -Crime Education	Community	-Drug Education -Alternatives to Drug	+
Adventures in Change Program	Children aged 14-18 years	-Outdoor Adventures -Drug Education -Mentoring -Peer relations	Community	-Alternatives to Drug -Drug Education -Academic Tutoring and Mentoring	+
Operation Brothers and Sisters United Against Drugs	Children aged 6-18	-Drug Education -Peer Counseling -Tutoring -Parenting Skills -Cultural Enrichment	Community	Multimodal -Drug Education -Academic Tutoring and Mentoring -Positive Parenting -Self Esteem	++
Substance Abuse Prevention/ Intervention for Rural Youth	Children aged 11-18	-Drug Education -Public Awareness -Parenting Skills -Peer Support Groups	School and Community	-Drug Education -Antidrug/crime Advertising -Positive Parenting	+

¹ The information in this column represents the following classifications:

- +++ At least one study with largest effect size greater than 0.75
- ++ At least one study with largest effect size between 0.25 and 0.75
- + At least one study with largest effect size smaller than 0.25

program is effective in increasing social and psychological skills, successfully building peer resistance skills, and developing leadership skills among program participants. This research has also shown lower levels of reported drug use, more negative attitudes toward drugs and crime, and fewer incidents of violence or delinquency (St. Pierre, Kaltreider, Mark, and Aikin, 1992).

The **Foundations Program** of Latrobe, Pennsylvania, uses a multimodal approach to provide young children with drug and violence prevention skills. Using the Life Skills Training approach, teachers of preschool and Head Start children focus on developing nurturing friendships, teaching decisionmaking and healthy coping strategies, developing self-esteem and self-confidence, and providing drug education. Research conducted with the program shows significantly higher scores achieved by program children on measures of drug knowledge, coping and decisionmaking skills, and misbehavior when compared to children not receiving the program (CSAP, 1993).

The **ADEPT Drug and Alcohol Community Prevention Project** of New Orleans, Louisiana, targets latchkey children ages 6 to 12 and provides prevention activities in an afterschool setting using alternative activities such as supervised free play and creative dramatics, and academic assistance. In 16 of the 24 schools implementing the program, classes on building self-esteem also are available. Although no effects on self-esteem were found, students who participated in the classes experienced a significant increase in their verbal and math scores and a significant decrease in disruptive behavior compared to students who did not participate in the program (Ross, Saavedra, Shur, Winters, and Felner, 1992).

Using a comprehensive, community-based approach to drug prevention for economically disadvantaged youth, the **Juvenile Substance Abuse Prevention Project** in Miami, Florida, provides a multimodal approach to

drug and crime prevention using academic assistance, alternative activities, building negative parent/adult attitudes toward drugs and crime, and social and mental health treatment services for youth and parents living in county housing developments. Youth receiving these services showed improved self-esteem, knowledge of the dangers of AOD use, cultural awareness and pride, behavior in family relationships, school attendance, and lower dropout rates compared with youth in the control group. Parents' knowledge of the harmful effects of AODs also increased. (Southeast Regional Center for Drug-Free Schools and Communities, 1994).

YouthNet of Kansas City, Missouri, is a comprehensive, community-based prevention program offering outreach, case management, counseling, and alternative and extracurricular activities to youth living in high-risk environments. YouthNet outreach workers and counselors worked with junior high youth to provide necessary services (e.g., tutoring, professional counseling, and medical care) to improve the child's school performance. The program also pairs middle schools with community centers to offer extracurricular activities. Research findings indicate that program youth were more likely than comparison youth to show a change in their attitudes toward drugs and crime, to say that they would try to stop friends from using beer and cigarettes, to have conventional (i.e., nondeviant) friends, and to stay in school (Lucas and Gilham, 1992).

Students Together and Resourceful (STAR) Program of Atlanta, Georgia, is a comprehensive, school-based prevention program for sixth-through eighth-grade children. This multimodal program is designed to teach children about alcohol, alcoholism, and the effects of alcoholism on family relationships, provide Life Skills Training (including decisionmaking, communication, problemsolving, relaxation, and assertiveness) and peer resistance skills. Research on the STAR program has shown that participants report increased peer involvement, greater social support, increased internal control and self-esteem, and decreased loneliness, depression, feelings of being controlled by more powerful others, and acts of

violence. No significant effect on alcohol use was found; however, the number of participants using alcohol was very small at pretest and posttest, so a significant decrease in alcohol use could not be detected (Emshoff and Anyan, 1991).

The **Stress Management and Alcohol Awareness Program** of Phoenix, Arizona, is a comprehensive, community-based program designed to enhance protective factors among children living in substance-abusing families. This program serves fourth- through sixth-grade children, providing them with information on alcoholism, self-esteem enhancement, and coping strategies. In addition to weekly group sessions, which occur over an 8-week period, the children meet 3 to 4 hours per week with a trained college (undergraduate) student, who provides assistance with homework and helps them develop specific competencies of their own choosing. Results of a pilot program found that compared with a randomized control group, participants used more positive coping strategies, reported less fighting with peers, experienced less depression, and were rated more favorably by teachers. Despite the emphasis on enhancing self-esteem, self-esteem remained unchanged (Emshoff and Anyan, 1991).

Project Success, a comprehensive, school-based prevention program in Irvine, California, focuses on seventh- through ninth-grade students and their families (Western Regional Center for Drug-Free Schools and Communities, 1995). This multimodal program provides a variety of services including individual, group, and family counseling; positive parenting classes; alternative community activities; and academic (peer) tutoring. Students referred to the program by teachers or support staff are evaluated to determine each student's particular needs. Students are reassessed after 6 months and may stay in the program for up to 2 years. **Project Success** students experienced small (but statistically insignificant) increases in drug use between seventh and eighth grade. State and local comparison groups, however, experienced large statistically significant increases in drug use during the same period. Participants also improved

their grades, school attendance, and school behavior (as measured by "delinquent acts").

The River Region Services School-Based Prevention Program is a comprehensive, school-based prevention project located in Jacksonville, Florida. This multimodal program targets young children, those in the second- through fifth-grades, who have two or more of the following risk factors: poor academic performance; personal problems (e.g., low self-esteem or conflicts with peers); family problems; behavior problems; medical problems; truancy; or involvement in the criminal justice system. The children attend one individual and two group counseling sessions weekly for 18 weeks. The group sessions provide Life Skills Training (e.g., communication, decisionmaking, and coping strategies). Parents participate in monthly counseling sessions, which focus on parenting skills and family dynamics. Compared with a waiting list control group, children in the program group demonstrated decreases in acting out behaviors (e.g., lying, arguing, disobeying, complaining, and aggressive behavior), distractibility (e.g., restlessness, inability to concentrate, underachieving, and attention seeking), and immaturity (e.g., rejection from peers, nervousness, fearfulness, stealing, and crying easily), as measured by the Walker Problem Behavior Identification Checklist (Reynolds and Cooper, 1995).

The South Alabama Youth Services' (SAYS) Drug Education Program targets first offenders in the juvenile justice system. Using small group sessions, interactive experiences, and individual counseling, the program provides drug education and engages youth in healthy alternatives to AOD use. Although evaluations of the SAYS program did not employ experimental designs (i.e., evaluation designs that include a control or comparison group), multiple research studies indicate that awareness, knowledge, and perception of the negative consequences of AOD use and related crime increased among youth (Southeast Regional Center for Drug-

Free Schools and Communities, 1994). The research also indicates that the program positively affected recidivism rates.

The **Adventures in Change Program** of Denver, Colorado, serves juvenile offenders committed to the State Division of Youth Services. This program, like **SAYS**, provides drug education, academic tutoring, and alternative activities to drug use. The program provides youth with a 15-day wilderness experience that teaches youth about the dangers of drugs and their consequences, assists them with schoolwork, and involves them in other alternative activities with adult volunteers. Research findings indicate that the program increased participants' approval of their friends' prosocial behavior, decreased conflicts with others, and found no increase in AOD use over time. While many consider a "no change" finding for drug use indicative of prevention program failure, Stein and colleagues (1992) argue that without services, incidence of AOD use would increase over time. This claim was supported by comparing drug use and crime reports among juveniles in neighboring cities and counties of the state.

Operation Brothers and Sisters United Against Drugs is a school- and community-based substance abuse prevention program that targets African-American youth ages 7 to 18 living in Washington, D.C. The target youth are considered to be at high risk (e.g., economically disadvantaged or children of substance abusers) of using AODs and engaging in AOD-related crime. This multimodal program is designed to increase resiliency and protective factors among youth, families, and communities to reduce the likelihood of AOD involvement through a variety of interventions including peer counseling training; classroom sessions on interpersonal skills, AOD information and counseling; tutorial services; parenting skills and supportive services for parents; and exposure to alternative lifestyles. The afterschool program was found to improve attitudes toward school, promote positive peer relationships, and increase youth's self-perception (CSR, 1995).

Additionally, parents in the program group reported more examples of positive parenting behaviors than parents in the comparison group.

Substance Abuse Prevention/Intervention for Rural Youth is a community-based drug abuse program targeting youth ages 12 to 19 and their families in Elkins, West Virginia. The community served is almost entirely white, with high rates of high school dropout, unemployment, and poverty. It is in an isolated area where AOD use is increasing. The program offers the following 12 interventions: health services; AOD education; public awareness; training community professionals; "natural helpers" (e.g., peers and adults who refer youth to the program); referral outreach; parent training; counseling services; alternative/support services (e.g., family planning and academic tutoring); peer support groups; and case management services. Research conducted using program and comparison groups indicates that program youth learned more about the dangers and consequences of drug use, had fewer in-school behavior problems and better school attendance, better family relationships, and reported more appropriate conflict resolution strategies than comparison group youth (Jackson, Zahler, and LaVoie, 1996).

CONCLUSIONS AND RECOMMENDATIONS

Research clearly proves the existence of effective strategies for reducing or preventing AOD use and related crime for youth. However, prevention programming has flourished much faster than the research that supports such programming. Without a rigorous body of research to support policy and fiscal rationales for such programs, the prevention field will remain hampered. The greatest challenge now facing prevention specialists is to build a solid base of knowledge regarding the efficacy of various types of programs for different populations. While much more prevention research remains to be conducted, one specific conclusion regarding prevention efficacy can be drawn from the research reviewed in this paper: Multimodal programs using a Life Skills Training approach are effective in changing

drug and crime outcomes. The research reviewed in this paper also suggests the following four general conclusions that are supported and amplified in previous meta-analytic studies of prevention program effectiveness (CSAP, 1994; 1995; GAO, 1991; Minnesota Department of Education, 1992; Bangert-Drowns, 1988; Tobler, 1986):

- Effective prevention programs address a variety of problems at multiple levels, including individual, family, school, peer group, and community;
- Effective prevention programs have, as a base, skillbuilding approaches, such as Life Skills Training, that target an individual's psychological, social, and emotional well-being;
- Effective prevention programs target intermediate or short-term, as well as longer-term, knowledge, skills, and behaviors; and
- Effective prevention programs build and utilize coalitions and partnerships with local health and welfare providers, businesses, schools, religious organizations, and law enforcement agencies.

The evaluation of prevention program effectiveness is crucial to a range of decisionmakers, particularly those at the policy level. Prevention effectiveness information can help to (1) assess which programs work and for which populations, (2) determine which programs are not effective, (3) identify ways to streamline existing programs, and (4) enhance the value of every available funding dollar.

Policymakers must be guided by a combination of both process and outcome evaluation results in determining what works and why in preventing drug use and related crime in America. Outcome evaluations are crucial for determining a program's impact; process evaluations reveal important

information regarding the delivery and quality of the program. Finally, process evaluation information serves to explain outcome evaluation results.

Americans are demanding a solution to substance abuse and the parallel increase in violence. In a 1995 survey, citizens rated the dual social maladies as "the most important problems facing this country today" (Gallup Organization, 1995). In an effort to respond to the urgency for a solution, the following recommendations to improve the Nation's capability to prevent drug use and related crime are set forth:

- ***Recommendation 1: Make the inclusion of rigorous evaluation of short-term effects a requirement for receipt of Federal funding.***—Too few rigorous evaluations exist to demonstrate effectiveness. This should not be the case in a field where hundreds of programs already exist and new programs and approaches continually are being developed. It is logical to require systematic evaluation of prevention program effectiveness to avoid wasting precious time and money on ineffective approaches and strategies.
- ***Recommendation 2: Use strict criteria for demonstrated drug prevention program outcomes to determine and report program success.***—Too frequently, programs characterized as exemplary have not been required to demonstrate positive outcomes. Programs should be recognized on the basis of demonstrated positive outcomes versus simple citation of the programmatic criteria, such as the number of clients served, diversity of programming, and perceived strength of an intervention's theoretical model.
- ***Recommendation 3: Fund more longitudinal studies to both determine the long-term effects of AOD prevention strategies and to enhance our understanding of the relationship between reducing specific risk factors and later substance use and delinquent behavior.***—Most contemporary prevention programs focus

on reducing risk factors and building resiliency in youth. Rather than waiting to target AOD behaviors directly once they have occurred, these programs seek to bolster personal and interpersonal competency, improve family relationships and parenting skills, provide social support outside the family, and enhance academic achievement and school bonding. While this approach is grounded in research that has identified the corollaries of substance use, little has been accomplished to determine long-term impact of this approach to delay or reduce AOD use and related crime. Longitudinal studies are essential to determine the true efficacy of interventions that seek to improve personal and social skills, to bolster family relationships, and to increase attachments to conventional institutions such as schools and churches.

- ***Recommendation 4: Replicate only those programs that have been proven effective through rigorous research.***—New prevention programs and approaches are constantly being developed. While there clearly is room for innovation and improvement in the prevention field, unless these new approaches can empirically demonstrate positive outcomes, they provide little added value to the field as a whole. Given the variety of prevention programs that currently exist—and the strong, yet largely unproven, claims of their success—resources may be better used to test, refine, and replicate only proven successful programs. To be fiscally responsible to the taxpayer, prevention program replication should be undertaken only with models that have demonstrated effectiveness at achieving outcomes.

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APPENDIX A
STUDY METHODOLOGY

APPENDIX A: STUDY METHODOLOGY

The methodology for this study involved two major steps: (1) careful review and analysis of the prevention research literature for comprehensive, community-based drug and violence prevention programs with reported effectiveness and (2) classification and synthesis of the prevention strategies and evaluation findings. Step 1 involved conducting multiple searches of online research databases and other available sources (e.g., publications of Government agencies such as the Center for Substance Abuse Prevention that identified "exemplary programs") to locate studies of drug abuse and related crime prevention programs. Major research databases such as ERIC, provided by the Educational Research Information Clearinghouse; PsycInfo; Sociological Abstracts; MEDLINE; and databases maintained by the U.S. Departments of Justice, Health and Human Services, and Education were searched for research articles regarding the effectiveness of comprehensive, community-based drug abuse and related crime prevention programs. The following three primary review criteria were used in the study:

1. Was the program comprehensive in scope?
2. Was the program community-based?
3. Was an evaluation of the program conducted?

Programs that qualified under Criterion 1 addressed more than one problem, that is, the prevention program was designed to address problems at two or more of the following levels: individual youth, family, school, peer group, and community. Programs that qualified under Criterion 2 were managed or coordinated by an existing, identifiable community organization, including local schools, hospitals, business coalitions, and drug abuse treatment facilities. Studies that qualified under Criterion 3 included those that implemented and completed a systematic assessment of the program.

These systematic assessments included experimental and quasi-experimental evaluation studies, case studies, focus group studies, and sample survey studies.

The online database searches and additional literature reviews identified more than 500 studies of drug abuse and related crime prevention programs conducted in the past 10 years. Of those, 304 studies qualified under two or more of the selection criteria outlined above. All 304 studies were reviewed for inclusion in this report. Of the 304 qualified studies, 177 studies were selected because they examined comprehensive (i.e., addressing more than one problem), community-based, drug abuse and related crime prevention programs (see Table 2). Closer review of the studies revealed that 127 of the programs (72 percent) were evaluated on the basis of nonexperimental research designs (e.g., case studies, focus groups, or interviews with program staff). Twenty-three programs (13 percent) reported using pretest/posttest program group-only research designs, and 27 programs (15 percent) reported using experimental designs (i.e., pretest/posttest with randomly selected and assigned program and control groups) or quasi-experimental designs (i.e., pretest/posttest with an available comparison group) designs. In summary, due to the inherent weaknesses of the research designs implemented, 85 percent of the research conducted for this sample of comprehensive, community-based drug and related crime prevention programs could not, scientifically, attribute program success or failure to the strategy or approach implemented.

Table 2
Comprehensive, Community-Based Drug and Related
Crime Prevention Programs

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design ¹
Abbotsford Crime and Drug Prevention Project 308	*	*	*	*	4
Absentee Prevention Program, Monaca, PA 259	*	*	*	*	4
ADEPT Drug and Alcohol Community Prevention Project (ADACPP) 126	*		*	*	1
Adventures in Change 251a	*		*	*	2
Alcohol and Other Drug Program (La Salle University) 168	*		*	*	4
Alcohol Program 281	*		*	*	4
Alcoholism Prevention Program, Licking County, Ohio 251	*		*	*	2
Alternative Activities for Youth 305	*	*	*	*	2
Alternatives 94	*		*	*	4
Alternatives for Teens, Middlebury, VT 260	*		*	*	4
Appleton Wisconsin School District Prevention Program 252	*		*	*	4
Archdiocese Drug Abuse Prevention Program 269	*		*	*	4
Archdiocese of Louisville Alcohol/Drug Program 220	*		*	*	4
Asian Youth Substance Abuse Project, California 254	*		*	*	4
Awareness and Development for Adolescent Males (ADAM) 52	*	*	*	*	4
BABES Community 179 85	*		*	*	1
BABES Curricula, Detroit 246	*		*	*	2
Berkeley Unified School District (USD) 169	*		*	*	4

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design ¹
Billings Public Schools 169	*		*	*	4
Blue Bay Healing Center 14	*		*	*	4
Boise Public School District 169	*		*	*	4
Boys and Girls Clubs 54 118 140 180 190 100i 258 (Stay SMART/Booster)	*	*	*	*	1
California School Based Risk Reduction Program 152	*		*	*	4
Child and Family Options Program 125	*		*	*	1
Children's After School Achievement Program 275	*		*	*	4
Citizens Against Substance Abuse (CASA), Cincinnati 250	*		*	*	2
Citizens Alliance to Prevent Drug Abuse (CAPDA) 226	*		*	*	4
Clark County Nevada Public Schools 169	*		*	*	4
CODA 49	*		*	*	2
Commonwealth Alliance for Drug Rehabilitation and Education (CADRE) 167	*		*	*	4
COSA 28	*	*	*	*	1
Community Organizing for Prevention, Lincoln 257	*		*	*	4
Community Partnership Program 23 32 183	*		*	*	1
Community Policing 148 315 316	*	*	*	*	4
Community Responses to Drug Abuse 188 312	*	*	*	*	3
Community Youth Activity Program 71	*		*	*	4
Community Youth Gang Services Project 200		*	*	*	4

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design
Comprehensive Community Prevention/Cultural Pride Linking Communities 307	*	*	*	*	4
Comprehensive Dropout Prevention Program 64	*		*	*	4
Cook County State's Attorney's Office's Narcotics Nuisance Abatement Unit 186	*	*	*	*	2
COPE of Brevard County, Florida 240	*		*	*	4
COPEs Prevention Program, Kentucky 243	*		*	*	3
Crosswalk, Spokane 101	*		*	*	2
Dade County 92	*		*	*	4
Dare to Be You of Colorado 238	*		*	*	1
DECASA 303	*	*	*	*	4
Department of Education NE Regional Center 19	*		*	*	4
Drug Abuse Research and Education, Inc. (Texas) 230	*		*	*	2
Drug Abuse Resistance Education (DARE) 1 4 25 116 149 166 171 174 176 177 189 207	*	*	*	*	1
Drug Alliance Program 166	*		*	*	4
Drug-Free Schools and Communities 51 66 67 74 87 103 119 120 160	*		*	*	2
Drug Reduction of Probationers 191	*	*	*	*	4
Early Drug Abuse Program, Montpelier 261	*		*	*	4
Families and Schools Together 263	*		*	*	4
Federal Way School District 313	*		*	*	4
Fighting Back Initiative 185 300	*	*	*	*	4

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design ¹
For Kids Sake 297	*		*	*	4
Foundations Program 247	*	*	*	*	1
4-H CARES of Kansas 242	*		*	*	2
Fresno USD 169	*		*	*	4
Fulfilling Our Responsibility Unto Mankind (FORUM)	*		*	*	4
Gang Resource and Intervention Team 197		*	*	*	4
Georgia Life Skills for Mental Health 100 100b	*		*	*	4
Golden Eagles, Minneapolis 1	*		*	*	4
Great Falls Public Schools 169	*		*	*	4
Hampton Intervention and Prevention Project (HIPP) 231	*		*	*	1
Hands Up 203		*	*	*	4
Hawaii State Department of Education 169	*		*	*	4
Head Start 85	*		*	*	4
Healthy Choices 186	*		*	*	4
Healthy for Life 105	*		*	*	1
Help Communities Help Themselves 100f	*		*	*	2
Here's Looking at You 2000 311	*		*	*	4
High-Risk Youth Demonstration Grant Program (OSAP) 118	*		*	*	2
Hispanic American Youth 155	*		*	*	4
Human Development Program 97	*		*	*	4
In Touch Program 283	*		*	*	4
Indian/Flathead 14	*		*	*	4
Integrity House 38	*		*	*	4

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design
Juvenile Substance Abuse Prevention Project 543	*	*	*	*	1
Kansas Alcohol and Drug Prevention System 279	*		*	*	4
Keep a Clear Mind 187a	*		*	*	4
Leadership Project, Westminster VT 262	*		*	*	4
LEAA Family Violence Demonstration Program 211		*	*	*	4
Let's Clean It Up Philadelphia 153	*	*	*	*	4
Life Skills Training 41 124a 130 82 100u	*	*	*	*	1
Long Beach USD 169	*		*	*	4
Los Angeles USD 169	*		*	*	4
Massachusetts Department of Education Bureau of Student Development and Health 121	*		*	*	3
Massachusetts Tenant Assistance Program 144	*	*	*	*	4
Michigan Model for Comprehensive School Health Education 222	*		*	*	2
Mid-Western Prevention Project (MPP) 111 161	*		*	*	1
Mississippi Band of Choctaw Indians' OSAP High Risk Youth Demonstration Program 163	*		*	*	4
NaKeiki O Ka'Aina (Children of the Land) 272	*		*	*	4
NEAT Family Project 295	*		*	*	4
Neighborhood Network Center - Lansing 213	*	*	*	*	3
Neighborhood Resource Team - Dade County 212	*	*	*	*	3
Nevada Prevention Programs 100d	*		*	*	4

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design
New Castle Community Partnership 301	*	*	*	*	3
New Connections 215	*		*	*	4
New Haven Schools Social Development Program	*		*	*	4
Northside Opportunities Project, Youth Emergencies Services, St. Louis 106	*		*	*	4
Oakland USD 169	*		*	*	3
Oklahoma: State and Local Comprehensive School Health Programs to Prevent Important Health Problems and Improve Educational Outcomes 134	*		*	*	4
Operation PAR (Parental Awareness and Responsibility) 104 265	*		*	*	4
Operation POP (Push Out the Pusher) Miami 306	*	*	*	*	3
Operation Brothers and Sisters United Against Drugs 79	*		*	*	1
Operation Snowball 290	*		*	*	4
Oregon State Police Gang Strike Force 197	*	*	*	*	4
OSAP/CSAP Community Partnership Training Program 182	*		*	*	4
Ozaukee County Wisconsin Prevention Consortium 253	*		*	*	4
Parent Educator Program 56	*		*	*	4
Parent Led Prevention Programs 81	*		*	*	3
Parents' Communication Network of Minnesota 224	*		*	*	4
Pasos Adelante 53 77	*		*	*	4
Peer Leader Program, Maine 244	*		*	*	2

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design ¹
Peer Power 52	*	*	*	*	4
Police Assisted Community Enforcement (PACE) - Norfolk 214	*	*	*	*	3
Portland Peers Project 165	*		*	*	4
Portland Public Schools 169	*		*	*	4
Positive Youth Development Program 514	*		*	*	2
Pregnant Teens/Teen Parent Program 298	*		*	*	4
Prevention and Intervention Center for Alcohol and Other Drug Abuse 233	*		*	*	4
Prevention Resource Center 219 287	*		*	*	4
Project ALERT 86 109 117	*		*	*	1
Project Connect, New York 248	*		*	*	4
Project Northland 100g	*		*	*	1
Project Success 12	*		*	*	1
Project STAR 521	*		*	*	1
Project for a Substance Abuse Free Environment (SAFE) - 114	*	*	*	*	3
Project Support 62	*	*	*	*	2
Regional Drug Initiative, Multnomah County, Oregon 122	*	*	*	*	2
Regional Youth/Adult Substance Abuse Project (RYASAP) 144	*	*	*	*	2
Rhode Island Indian Council Peer Assistant Leaders 45	*		*	*	2
RICCA Prevention Services 241	*		*	*	3
River Region Services Program 59	*		*	*	1

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design ¹
Sacramento City USD 169	*		*	*	4
Safe Haven	*		*	*	2
San Diego USD 169	*		*	*	4
San Francisco USD 169	*		*	*	4
San Jose USD 169	*		*	*	4
Say No to Drugs and Alcohol, Tempe, AZ 215	*	*	*	*	4
School of Opportunities I and II 274	*		*	*	4
Seattle Public School District 169	*		*	*	3
Soulbeat 47	*	*	*	*	4
South Alabama Youth Services (SAYS) 129	*		*	*	1
Spokane Public School District 159	*		*	*	4
Sports Teams Organized for Prevention 284	*		*	*	4
Stop Alcohol-related Injury through Voluntary Effort (Rhode Island) 181	*		*	*	3
Straight Inc 198	*	*	*	*	4
Stress Management and Alcohol Awareness Program 100n 100o	*		*	*	1
Students Organized for Developing Attitudes (SODA) 232	*		*	*	3
Students Together and Resourceful (STAR) 206	*	*	*	*	1
Substance Abuse Prevention/Intervention for Rural Youth 245	*		*	*	1
Substance Use Prevention and Education Resource II (SUPER II) 127 271	*		*	*	3

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design ¹
Talking With Your Kids/Students about Alcohol 221	*		*	*	3
Teenage Institute 289	*		*	*	4
Teens Are Concerned of Arkansas 237	*		*	*	4
Teens as Resources Against Drugs (TARAD)	*	*	*	*	4
Tennessee: State and Local Comprehensive School Health Programs to Prevent Important Health Problems and Improve Educational Outcomes 133	*		*	*	4
Texas: State and Local Comprehensive School Health Programs to Prevent Important Health Problems and Improve Educational Outcomes 132	*		*	*	4
TOGETHER! Communities for Drug Free Youth 184	*		*	*	2
VIEW 15	*		*	*	4
Virginia: State and Local Comprehensive School Health Programs to Prevent Important Health Problems and Improve Educational Outcomes 131	*		*	*	4
Vocational Education Cooperative Demonstration Program 72	*		*	*	4
Washoe County Nevada Public Schools 159	*		*	*	4
Weed and Seed 190 314	*	*	*	*	1
Wilmington Cluster Against Drug Abuse	*	*	*	*	4
Within You Inc. 282	*		*	*	4
Women's Alcohol and Drug Education Project, New York 249	*		*	*	4

Table 2 (continued)

Program Name	ATOD Program	Crime/Violence Program	Comprehensive	Community-Based	Evaluation Design ¹
Wyoming Perinatal Substance Abuse Prevention Program 187	*		*	*	4
Youth Educator Program 293	*		*	*	4
Youth Services Technical Assistance Project 294	*		*	*	4
Youth Who Care 218	*		*	*	4
YouthNet 513	*		*	*	1
Youthworks 304	*	*	*	*	2

1. The numbers in this column represent the following evaluation design classifications:

1. Experimental design (i.e., randomly selected and assigned program and control group subjects measured before and after the program is delivered) or quasi-experimental design (i.e., program and control group subjects are comparable but not randomly selected and assigned);
2. Pretest/posttest program group only design;
3. Case-study approach; and
4. Other approaches (e.g., focus groups, interviews, and one-time sample surveys).

APPENDIX B

FINDINGS FROM THE REVIEW OF THE LITERATURE

APPENDIX B: FINDINGS FROM THE REVIEW OF THE LITERATURE¹

Careful review of the prevention research and evaluation literature reveals that there are five major domains that correspond to the levels of problems that prevention programs are designed to address. The five domains are (1) developing individual knowledge, skills, and values; (2) assessing family influences; (3) improving the school environment; (4) peer group influences; and (5) mobilizing the community. The following summarizes the literature on effective comprehensive, community-based prevention program strategies reviewed in this study.

DEVELOPING INDIVIDUAL KNOWLEDGE, SKILLS, AND VALUES

Better approaches to drug abuse and related crime prevention have been developed over the past two decades as more knowledge has been accumulated about what strategies are associated with what changes in human behavior. Traditional approaches to developing individual knowledge, skills, and values have included the information approach, fear arousal approach, affective education approach, alternatives approach, and Life Skills Training approach (Schinke et al., 1991). Recent research has shown that the following four approaches, implemented in isolation, do not affect drug use and related crime (Tobler, 1986; Bangert-Drowns, 1988):

- *Information Approach.*—The information approach is based on the premise that if youth have accurate information about the hazards of drug use and related crime, they will develop negative attitudes toward drugs and avoid using them. This approach provides factual information on the nature, pharmacology, and adverse consequences of alcohol and other drugs (AODs).

¹ Full references for the citations included in this appendix appear in the body of the report.

- *Fear Arousal Approach.*—The fear arousal approach focuses on dramatizing the hazards of AOD use and related crime, portraying grave consequences for anyone who uses drugs (Schinke et al., 1991).
- *Affective Education Approach.*—Affective education does not focus explicitly on substance use but is directed toward psychological factors that place youth at risk of substance use. Programs taking this approach attempt to impact drug use by building participant self-esteem, helping youth clarify their values, and promoting self-growth (Dryfoos, 1990).
- *Alternatives Approach.*—The alternatives approach assumes that providing youth with alternative activities to drug use, such as sports, theater, and away-from-home adventures, will engage and challenge them so they are less likely to use AODs.

One approach, often implemented as a component of a comprehensive drug and crime prevention program, has been shown to affect drug use and related crime. That approach, known as Life Skills Training, is described below:

- *Life Skills Training Approach.*—Terms used in the literature to describe the life skills training approach include the social environmental model, social influence and life skills, social learning model, and personal and social skills training. This report uses the term “life skills training.” Life skills training, designed to develop the personal and social competencies of youth and increase their ability to resist peer pressure, is based on Bandura’s (1977) social learning theory. It emphasizes the influence of peers, parents, and the media on substance use and teaches youth the skills they need to avoid negative influences from these sources. The two primary components of the life skills training approach are resistance skills training and personal and social skills training. Resistance skills training emphasizes the ability of the media, family,

and peers to shape adolescents' perceptions of what is normal and acceptable behavior and teaches youth techniques to recognize, avoid, and resist peer pressure. Students typically role play and practice the skills learned. Personal and social skills training emphasizes teaching youth a broad range of general skills to use in coping with life, including decisionmaking and problemsolving skills, self-control, coping strategies for relieving stress and anxiety, and general interpersonal and assertiveness skills. A combination of instruction, demonstration, rehearsal, reinforcement, and practice is used to teach these skills.

ASSESSING FAMILY INFLUENCES

Effective family approaches generally focus on (1) teaching parenting skills to adults so children are more effectively socialized by the family and better able to develop stronger family bonds (Barrera, Li, and Chassin, 1993; Brook, 1993; Byram and Fly, 1984; Weinberg, Dielman, Mandell, and Shope, 1994) and (2) involving parents in advocacy groups so they become educated about drug use in the community and begin to promote social events for youth, such as drug-free dances and proms (Andrews, Hops, Ary, and Tildesley, 1993; Hamburg, Kraemer and Jahnke, 1975; Hundleby and Mercer, 1987).

IMPROVING THE SCHOOL ENVIRONMENT

Because many prevention programs are school based, researchers have extensively examined school-related risk and resiliency factors. Several of these factors have been shown to be associated with AOD use and related crime among youth. These factors include lack of school bonding (Center for Substance Abuse Prevention [CSAP], 1993); favorable student or staff attitudes toward drug use (CSAP, 1995); poor student management practices (Allensworth, 1994); AOD availability (CSAP, 1993); school failure (Dryfoos, 1990); peer group rejection (Benard, 1990; Thomas and Hsiu, 1993); and lack of academic motivation (Benard, 1990).

PEER GROUP INFLUENCES

Peers are particularly important to youth during adolescence. Peer clusters are one of the primary socialization forces in a youth's life and a major source of deviant norms for youth (Oetting, 1991). Furthermore, research has shown that there is a close relationship between the delinquent acts of a young male and those of his friends (Hirschi, 1969; Elliott, Huizinga, and Ageton, 1985; Farrington, 1986). Program approaches focused on reducing the influence of negative peer behavior (e.g., resistance skills) have been shown to affect drug use and delinquent behavior.

MOBILIZING THE COMMUNITY

Many contemporary, community-based drug prevention programs have moved away from approaches that rely completely on individual participation. Today's community-based prevention approaches focus on involving families and communities to prevent AOD use among youth. Comprehensive, community-based efforts emphasize sending a communitywide "no use" message to youth (Grube and Wallach, 1994; Van Reek, Knibble, and van Iwaarden, 1993). Various sectors of the community (e.g., community leaders, business executives, human service professionals, parents, teachers, and police) come together to devise a community drug use prevention plan that includes (1) teaching resistance skills to youth; (2) training teachers, parents, and other program implementors about AODs and AOD use prevention; and (3) providing ongoing booster sessions for youth and program implementors (Zastowny, Adams, Black, Lawson, and Wilder, 1993).

DRUG-FREE SCHOOLS AND COMMUNITIES INITIATIVES

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■ June 1997 ■

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DRUG-FREE SCHOOLS AND COMMUNITIES INITIATIVES

INTRODUCTION

The Drug-Free Schools and Communities Initiatives is the largest single drug prevention activity sponsored by the Federal Government for the support of comprehensive and coordinated programs to promote safe and drug-free school environments. The purpose of this report is to present (1) the Drug-Free Schools and Communities Act and amendments to the legislation; (2) fiscal year appropriations to support the various programs authorized by statute; and (3) funding for direct prevention programs and activities. Appendix B presents appropriations under both the Drug-Free Schools and Communities Act (DFSCA) and the Safe and Drug-Free Schools and Communities Act (SDFSCA) and allocations authorized by legislation.

LEGISLATIVE HISTORY

The Drug-Free Schools and Communities Act of 1986 (DFSCA), administered by the Department of Education, was designed to assist States, communities, and schools in developing programs to prevent alcohol and other drug use among school-age youth. The Department of Education has been responsible for the implementation of the DSFCA and the distribution of funds, through a formula grant program, to State educational agencies (SEAs), local educational agencies (LEAs) and to the chief executive officers (CEOs) for State programs. Some programs are funded directly with discretionary funds from the Department of Education.

The DFSCA was first enacted as Subtitle B of Title IV of the Anti-Drug Abuse Act of 1986 (P.L. 99-570) on October 27, 1986. The purpose of the legislation was to establish drug abuse education and prevention programs in coordination with related community efforts to provide safe and drug-free schools. It was designed to encourage broadly based cooperation among schools, communities, parents, and government agencies. DFSCA states that funds shall be allocated for the implementation of State and Local programs and National programs. Funds were allocated to the States by using a formula based on school-age population. Of the funds available, an amount equal to 30 percent of the States' allocation was awarded to the CEO for State programs. The remaining 70 percent was made available to

the SEA for carrying out its responsibilities and for grants to local and intermediate educational agencies and consortia for alcohol and drug abuse prevention and education programs and activities.

The DFSCA was amended by the Hawkins-Stafford School Improvement Amendments of 1988 (P.L. 100-297) and reenacted as Title V of the Elementary and Secondary Education Act of 1965. It was further amended by the Anti-Drug Abuse Act of 1988 (P.L. 100-690). Part C of Title V was added authorizing funds for grants to SEAs, LEAs, and institutions of higher education (IHEs) for the establishment, expansion, and enhancement of programs and activities for training teachers. An evaluation component was incorporated under Federal activities to provide for an independent evaluation of a representative sample of programs and to identify successful projects so they could be replicated by other LEAs throughout the Nation.

P.L. 101-226, the Drug-Free Schools and Communities Act Amendments of 1989, was enacted on December 12, 1989. This law helped State programs strengthen communitywide efforts that emphasized the participation of parents groups, community action agencies, community-based organizations (CBOs), and other public entities and private nonprofit organizations as recipients of grants and contracts from funds available under the Governor's program. The legislation authorized the promotion, establishment, and maintenance of drug-free school zones in addition to drug testing programs under the State programs. The Act states that funds from Governor's programs may be used for nondiscriminatory random drug testing programs for students who voluntarily participate in athletic activities in schools that have chosen to participate in such program.

The DFSCA was further amended by P.L. 101-647, the Crime Control Act of 1990. It provides for the use of at least 10 percent of the funds available for Governor's programs for grants to LEAs working with agencies in assisting school districts to provide instruction to kindergarten through sixth grade students to recognize and resist the use of controlled substances.

On October 20, 1994, the President signed into law P.L. 103-382, Improving America's Schools Act of 1994, which reauthorizes the Elementary and Secondary Education Act of 1965 (ESEA), as amended. Title IV of the ESEA reauthorized the DFSCA as the Safe and Drug-Free Schools and Communities Act of 1994. Title IV creates a comprehensive Federal effort that supports National Education Goal Seven by authorizing violence prevention activities and broadening the scope of the DFSCA. The seventh National Education Goal states that, by the year 2000, all schools in America will be free of drugs and violence and the unauthorized presence of firearms and alcohol and will offer a

disciplined environment that is conducive to learning. In addition to responding to the problem of drug abuse, the SDFSCA responds to the crisis of violence in schools. The SDFSCA provides for a comprehensive and coordinated learning environment to ensure that students achieve the highest standards of learning.

The SDFSCA allows States to have more flexibility in targeting resources to areas that have the greatest need for assistance by authorizing SEAs to allocate additional funds to LEAs that are the most seriously affected by drug use and violence. It increases SEAs' responsibilities and emphasizes coordination and collaboration. The SDFSCA also increases accountability by establishing measurable goals and objectives for SEA and LEA programs, as well as methods of assessing programs' progress and success in achieving those goals and objectives.

PREVENTION PROGRAMS AND ACTIVITIES

Information reflecting the total amounts being used for direct prevention activities is not available from the Department of Education. LEAs do not report directly to the Department, and the Department's staff are not aware of SEA requirements for such information from the LEAs. The law requires that monies be used for services that impact and benefit students, teachers, and communities; oftentimes this is translated into curricula development and funding for training teachers.

The DFSCA of 1986 stipulates that 30 percent of the total amount allocated to a State be used by the CEO for State programs and 70 percent be used by the SEA for carrying out its responsibilities and for awarding grants to local and intermediate educational agencies and consortia for programs and activities. The SEAs' allotments to LEAs and consortia may not be less than 90 percent with the remaining 10 percent to be used to carry out State agencies' responsibilities such as training and demonstration projects. A cap of 2.5 percent is established for administrative costs for SEAs.

The original law did not allow the use of funds for administrative costs of the Governor's program. The law was amended by P.L. 100-690 allowing 2.5 percent of the available funds to be used for administrative costs. P.L. 101-226, the Drug-Free Schools and Community Act Amendments of 1989, increased the amount available for SEA administrative costs to 5 percent. The law does not limit administrative expenses for LEAs or National programs.

The Safe and Drug-Free Schools and Communities Act of 1994 amends the allocation distribution, authorizing an amount equal to 80 percent of the amount allocated to a State for use by

SEA and its LEAs for drug and violence prevention activities. It states that SEA may not allocate less than 91% of the amount available to LEAs programs. It also allows a maximum of 4% of the total amount retained by the SEA to carry out its responsibilities for administrative costs.

An amount equal to 20 percent of the total allocated to a State may be used by the CEO of that State for drug and violence prevention programs and activities. The Governor's program may use a maximum of 5 percent of the 20 percent for administrative costs. There is no reference in the law to a limit on administrative costs for National programs nor to a maximum amount allowed to LEAs for administration.

APPENDIX A

**DRUG-FREE SCHOOLS AND COMMUNITIES
INITIATIVES MATRIX**

Drug-Free Schools and Communities Initiatives Matrix

Legislation	Purpose	Programs	Appropriations ¹
<p>Drug-Free Schools and Communities Act (DFSCA), Subtitle B of Title IV of the Anti-Drug Act of 1986 (P.L. 99-570), October 1986</p>	<p>To establish programs for drug abuse education and prevention through the provision of Federal financial assistance to:</p> <ol style="list-style-type: none"> 1. States for grants to local and intermediate educational agencies and consortia to establish, operate, and improve local programs for drug abuse prevention, early intervention, rehabilitation referral, and education in elementary and secondary schools (including intermediate and junior high schools); 2. States for grants to and contracts with CBOs for programs for drug abuse prevention, early intervention, rehabilitation referral, and education for school dropouts and other high-risk youth; 3. States for development, training and TA, and coordination activities; 4. IHEs to establish, implement, and expand programs for drug abuse education and prevention (including rehabilitation referral) for students enrolled in colleges and universities; and 5. IHEs in cooperation with SEAs and LEAs for teacher training programs in drug abuse education and prevention. 	<p>Drug-Free Schools</p> <p><i>State and Local Programs</i></p> <p>Funds were available for Governor's Programs for programs and activities such as:</p> <ol style="list-style-type: none"> 1. Developing and implementing local broadly-based programs for drug and alcohol abuse prevention, early intervention, rehabilitation referral, and education for all age groups; 2. Implementing training programs on drug abuse education and prevention for teachers, counselors, other educational personnel, parents, local law enforcement officials, judicial officials, other public service personnel, and community leaders; 3. Developing and distributing educational materials for public information; 4. Providing TA to help CBOs and local and intermediate educational agencies and consortia plan and implement drug abuse prevention, early intervention, rehabilitation referral, and education programs; 5. Developing activities to encourage coordination between drug abuse education and prevention programs and related community efforts; 6. Developing innovative community-based programs to coordinate services for high-risk youth; and 7. Implementing other drug abuse education and prevention activities. 	<p>FY 1987 - \$200,000,000</p> <ul style="list-style-type: none"> — State and Local Programs, \$161,046,000 — National Programs, \$33,454,000 — Audiovisual materials, \$5,500,000 <p>FY 1988 - \$229,776,000</p> <ul style="list-style-type: none"> — State and Local Programs, \$191,480,000 — National Programs, \$38,296,000

¹ U.S. Department of Education. Safe and Drug-Free Schools and Communities. Appropriations were only available in total amounts for FY 1996 and 1997.

Drug-Free Schools and Communities Initiatives Matrix (continued)

Legislation	Purpose	Programs	Appropriations
		<p>SEAs are responsible for activities such as:</p> <ol style="list-style-type: none"> 1. Providing grants to local and intermediate educational agencies and consortia; 2. Providing training and TA for local and intermediate educational agencies; 3. Developing, disseminating, implementing, and evaluating drug abuse education curricula and teaching materials; 4. Developing and implementing demonstration projects; and 5. Seeking special financial assistance to enhance resources. <p><i>Local Programs</i></p> <p>Funds available to local and intermediate educational agencies to use for developing and implementing drug and alcohol abuse prevention and education programs and activities including the following:</p> <ol style="list-style-type: none"> 1. Elementary and secondary school drug abuse education and prevention curricula; 2. School-based programs for drug abuse prevention and early intervention (other than treatment); 3. Family drug abuse prevention programs, including education for parents to increase awareness about the symptoms and effects of drug use through the development and dissemination of appropriate educational materials; 4. Drug abuse prevention counseling programs for students and parents; 5. Programs for drug abuse treatment and rehabilitation referral; 	

Drug-Free Schools and Communities Initiatives Matrix - (continued)

Legislation	Purpose	Programs	Appropriations
		<p>6. Programs for inservice and preservice training in drug and alcohol abuse prevention for teachers, counselors, other educational personnel, athletic directors, public service personnel, law enforcement officials, judicial officials, and community leaders;</p> <p>7. Programs in primary prevention and early intervention;</p> <p>8. Community education programs and other activities to involve parents and communities in the fight against drug and alcohol abuse;</p> <p>9. Public education programs on drug and alcohol abuse;</p> <p>10. Onsite efforts in schools to enhance identification and discipline of drug and alcohol abusers and enable law enforcement officials to take necessary action in cases of drug possession and supplying of drugs and alcohol to the student population; and</p> <p>11. Special programs and activities to prevent drug and alcohol abuse among student athletes, involve their parents, and use athletic programs and personnel in preventing drug and alcohol abuse among all students.</p> <p><i>National Programs</i></p> <p>Funds were made available to support the following:</p> <p>1. IHEs - Funds available for drug abuse education and prevention programs;</p>	

Drug-Free Schools and Communities Initiatives Matrix (continued)

Legislation	Purpose	Programs	Appropriations
		<ol style="list-style-type: none"> 2. Federal education and prevention activities in conjunction with the Secretary of HHS; coordination with other Federal agencies; provision of information for dissemination by the clearinghouse for alcohol and drug abuse information; appropriate means of communicating the dangers of drug use and alcohol abuse; development and dissemination of materials for drug abuse education and prevention; TA to State, local, and intermediate education agencies and consortia; and identification of research priorities; 3. Programs for Indian youth which will best carry out the purpose of the Title to meet the needs of Indian children. 4. Programs for Hawaiian Natives - Contracts with organizations primarily serving and representing Hawaiian Natives to plan, conduct and administer programs consistent with the Title; and 5. Regional Centers to train school teams to assess problems, develop curricula, mobilize the community, identify and refer high-risk students, institutionalize long-term drug and alcohol abuse programs, provide assistance to SEAs for coordinating and strengthening their programs, and evaluate and disseminate information on effective programs and strategies. 	

Drug-Free Schools and Communities Initiatives Matrix (continued)

Legislation	Purpose	Programs	Appropriations
<p>Hawkins-Stafford Elementary and Secondary School Improvement Amendments of 1988 (P.L. 100-297), April 1988</p> <p>Anti-Drug Abuse Act of 1988 (P.L. 100-690), November 1988</p>	<p>Reauthorized the DFSCA of 1986 for the establishment of programs for drug abuse and prevention.</p> <p>Amendments to the DFSCA of 1986.</p>	<p>State and Local programs and National programs.</p> <p>Authorized under State programs, the establishment of intrastate drug and alcohol abuse centers for providing outreach, consultation, training, and referral services to schools, organizations, and members of the community.</p> <p>Funds available for local programs support the following:</p> <ol style="list-style-type: none"> 1. Outreach activities, drug and alcohol abuse education and prevention programs, and referral services for dropouts; and 2. Guidance counseling programs and referral services for parents and immediate families of drug and alcohol abusers. <p>Provided funding for grants to SEAs, LEAs, and IHEs for teacher training programs.</p>	<p>FY 1989 - \$355,000,000</p> <ul style="list-style-type: none"> — State and Local Programs, \$287,730,000 — National Programs, \$59,770,000 — Salaries and expenses, \$500,000 — Teacher training (Part C), \$7,000,000
<p>Drug-Free Schools and Communities Act of 1989 (P.L. 101-226), December 1989</p>	<p>Amendments to the DFSCA of 1986.</p>	<p>Allocations for Governor's Programs included activities to promote, establish, and maintain drug-free school zones for schools within the State.</p> <p>Funds were made available to the State for drug testing programs.</p> <p>State funding applications should include a plan for providing innovative drug abuse education programs for juveniles in detention facilities.</p>	<p>FY 1990 - \$538,250,000</p> <ul style="list-style-type: none"> — State and Local Programs (Part B), \$460,554,000 — National Programs (Part D), \$63,142,000 — School personnel training (Part C), \$14,554,000

Drug-Free Schools and Communities Initiatives Matrix (continued)

Legislation	Purpose	Programs	Appropriations
<p>Crime Control Act of 1990 (P.L. 101-647), November 1990</p>	<p>Amendments to the DFSCA of 1986.</p>	<p>Authorized the emergency grants program for LEAs with significant need for additional assistance.</p> <p>Provided for the strengthening of the Drug-Free School Zone program.</p> <p>Drug Abuse Resistance Education Program - Not less than 10% of the Governor's funds shall be used for grants to LEAs in consortium with entities experienced in assisting school districts in providing instruction to students in kindergarten through sixth grades to help them recognize and resist pressure to use controlled substances.</p>	<p>FY 1991 - \$606,340,977</p> <ul style="list-style-type: none"> — State and Local Programs (Part B), \$497,702,414 — National Programs (Part D), \$60,913,194 — School personnel training (Part C), \$23,394,691 — Emergency grants, \$24,330,678 <p>FY 1992 - \$623,963,000</p> <ul style="list-style-type: none"> — State and Local Programs (Part B), \$507,663,000 — National Programs (Part D), \$62,133,000 — School personnel training (Part C), \$23,863,000 — Emergency grants, \$30,304,000

Drug-Free Schools and Communities Initiatives Matrix - (continued)

Legislation	Purpose	Programs	Appropriations
			<p>FY 1993 - \$598,227,399</p> <ul style="list-style-type: none"> — State and Local Programs (Part B), \$498,565,312 — National Programs (Part D), \$61,495,879 — School personnel training (Part C), \$13,614,208 — Emergency grants, \$24,552,000 <p>FY 1994 - \$467,162,000</p> <ul style="list-style-type: none"> — State and Local Programs (Part B), \$369,500,000 — National Programs (Part D) \$59,496,000 — School personnel training (Part C), \$13,614,000 — Emergency grants, \$24,552,000

Drug-Free Schools and Communities Initiatives Matrix *(continued)*

Legislation	Purpose	Programs	Appropriations
<p>Safe and Drug-Free Schools and Communities Act (SDFSCA), Title IV of the 1994 reauthorization of the Elementary and Secondary Education Act (P.L. 103-382), October 1994</p>	<p>To support programs to meet the seventh National Education Goal of preventing violence in and around schools and strengthening programs that prevent the illegal use of alcohol, tobacco, and drugs; involve parents; and coordinate related Federal, State, and community efforts and resources, through the provision of Federal assistance to:</p>	<p>Safe and Drug-Free Schools</p> <p><i>State Grants</i></p> <p>Funds available under Governor's programs are for activities such as:</p> <ol style="list-style-type: none"> 1. Disseminating information about drug and violence prevention; 2. Training parents, law enforcement officials, judicial officials, social service providers, health service providers, and community leaders about drug and violence prevention, comprehensive health education, early intervention, student services, and rehabilitation referral; 	<p>FY 1995 - \$481,962,000</p> <ul style="list-style-type: none"> — State grants, \$456,962,000 — National Programs, \$25,000,000

Drug-Free Schools and Communities Initiatives Matrix (continued)

Legislation	Purpose	Programs	Appropriations
	<ol style="list-style-type: none"> 1. States for grants to LEAs and educational service agencies and consortia of such agencies to establish, operate, and improve local programs for school drug and violence prevention, early intervention, rehabilitation referral, and education in elementary and secondary schools (including intermediate and junior high schools); 2. States for grants to, and contracts with, CBOs and other public and private nonprofit agencies and organizations for programs for drug and violence prevention, early intervention, rehabilitation referral, and education; 3. States for development, training and TA, and coordination activities; 4. Public and private nonprofit organizations to conduct training, demonstrations, and evaluations, and to provide supplementary services for the prevention of drug use and violence among students and youth; and 5. IHEs to establish, operate, expand, and improve programs for school drug and violence prevention, education, and rehabilitation referral for students enrolled in colleges and universities. 	<ol style="list-style-type: none"> 3. Developing and implementing comprehensive, community-based drug and violence prevention programs that link community resources with schools and integrate services involving education, vocational and job skills training and placement, law enforcement, health, mental health, community service, mentoring, and other appropriate services; 4. Planning and implementing drug and violence prevention activities that coordinate the efforts of State agencies with efforts of SEAs and LEAs; 5. Developing activities to protect students traveling to and from school; 6. Developing before- and after-school recreational, instructional, cultural, and artistic programs that encourage drug- and violence-free lifestyles; 7. Implementing activities that promote awareness of and sensitivity to alternatives to violence through courses of study that include related issues of intolerance and hatred in history; 8. Developing and implementing activities to reduce and prevent violence associated with prejudice and intolerance; 9. Developing and implementing strategies to prevent illegal gang activity; 10. Coordinating and conducting communitywide violence and safety assessments and surveys; 11. Service-learning projects that encourage drug- and violence-free lifestyles; and 12. Evaluating programs and activities. 	<p>FY 1996 - \$465,978,000</p> <ul style="list-style-type: none"> — State programs, \$440,978,000 — National Programs, \$25,000,000 <p>FY 1997 - \$556,000,000</p> <ul style="list-style-type: none"> — State programs, \$531,000,000 — National Programs, \$25,000,000

Drug-Free Schools and Communities Initiatives Matrix (continued)

Legislation	Purpose	Programs	Appropriations
		<p>SEA and LEA programs include activities such as the following:</p> <ol style="list-style-type: none"> 1. Training and TA concerning drug and violence prevention for LEAs and educational service agencies, including teachers, administrators, coaches and athletic directors, other staff, parents, community leaders, health service providers, local law enforcement officials, and judicial officials; 2. Development, identification, dissemination, and evaluation of the most readily available, accurate, and up-to-date curriculum materials for consideration by LEAs; 3. Making cost-effective programs for youth violence and drug abuse prevention available to LEAs; 4. Demonstration projects in drug and violence prevention; 5. Training and TA and demonstration projects to address violence associated with prejudice and intolerance; 6. Financial assistance to enhance resources available for drug and violence prevention in areas serving large numbers of economically disadvantaged children or sparsely populated areas or to meet other special needs; and 7. Evaluation of activities. 	

Drug-Free Schools and Communities Initiatives Matrix (continued)

Legislation	Purpose	Programs	Appropriations
		<p><i>National Programs</i></p> <p>Programs may include activities such as the following:</p> <ol style="list-style-type: none"> 1. Development and demonstration of innovative strategies for training school personnel, parents, and members of the community, including the demonstration of model preservice training programs for prospective school personnel; 2. Demonstrations and rigorous evaluations of innovative approaches to drug and violence prevention; 3. Provision of information on drug abuse education and prevention to the Secretary of HHS for dissemination by the clearinghouse for alcohol and drug abuse information; 4. Development of curricula related to child abuse prevention and education and the training of personnel to teach child abuse education and prevention to elementary and secondary schoolchildren; 5. Program evaluations; 6. Direct services to schools and school systems afflicted with especially severe drug and violence problems; 7. Activities in communities designated as empowerment zones or enterprise communities that will connect schools to communitywide efforts to reduce drug and violence problems; 	

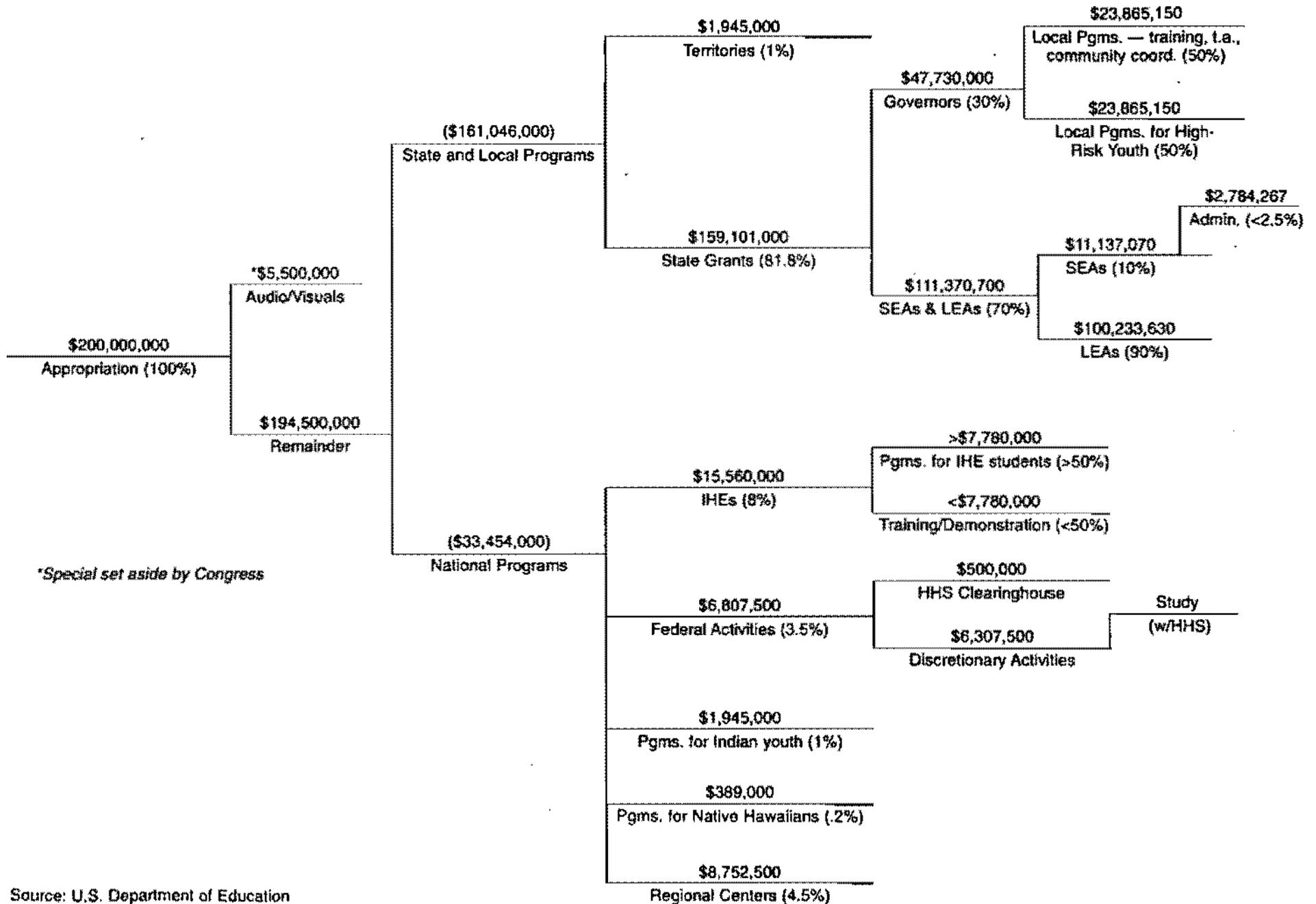
Drug-Free Schools and Communities Initiatives Matrix *(continued)*

Legislation	Purpose	Programs	Appropriations
		<ul style="list-style-type: none"> 8. Development and dissemination of drug and violence prevention materials; 9. Development and implementation of a comprehensive violence prevention strategy for schools and communities that may include conflict resolution, peer mediation, the teaching of law and legal concepts, and other activities designed to stop violence; 10. Implementation of innovative activities, such as community service projects, designed to rebuild safe and healthy neighborhoods and increase students' sense of individual responsibility; 11. Provision of grants to noncommercial telecommunications entities for the production and distribution of national video-based materials that provide young people with models for conflict resolution and responsible decisionmaking; 12. Development of education and training programs, curricula, instructional materials, and professional training and development for preventing and reducing the incidence of crimes and conflicts motivated by hate in localities most directly affected by hate crimes. 	

APPENDIX B

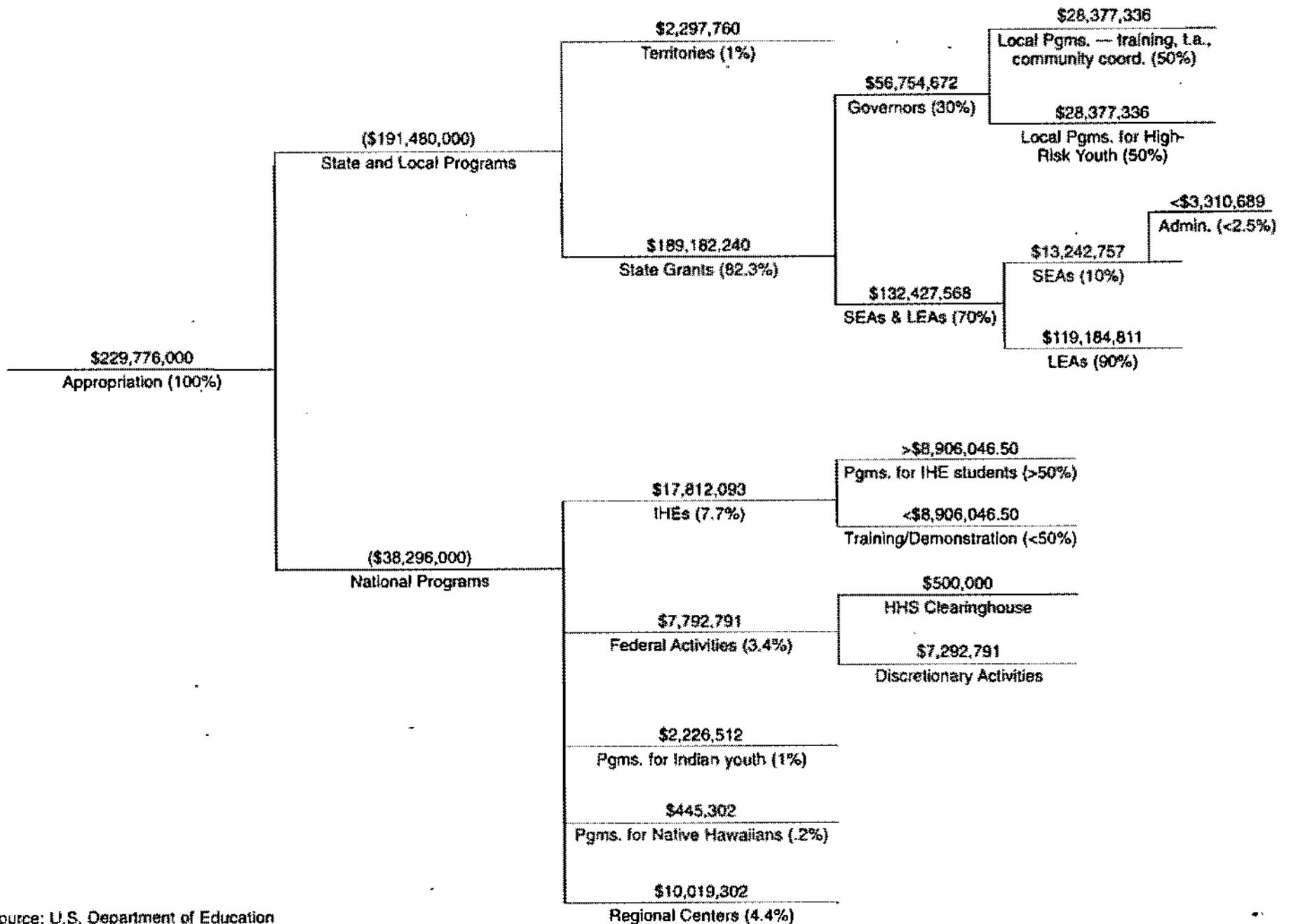
DRUG-FREE SCHOOLS AND COMMUNITIES INITIATIVES APPROPRIATIONS

Drug-Free Schools and Communities Act of 1986 - 1987 Appropriation -

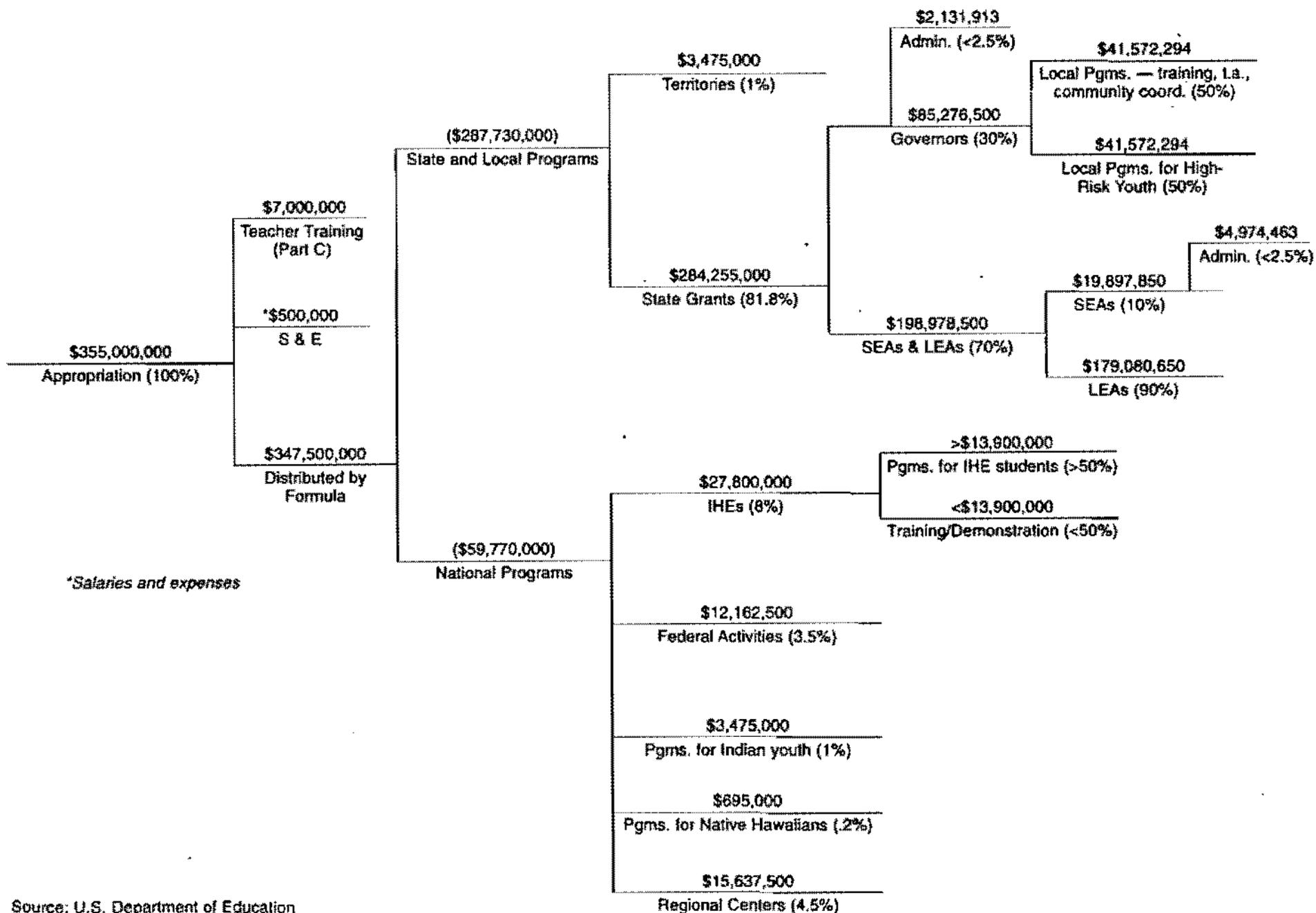


Drug-Free Schools and Communities Act of 1986

-1988 Appropriation-



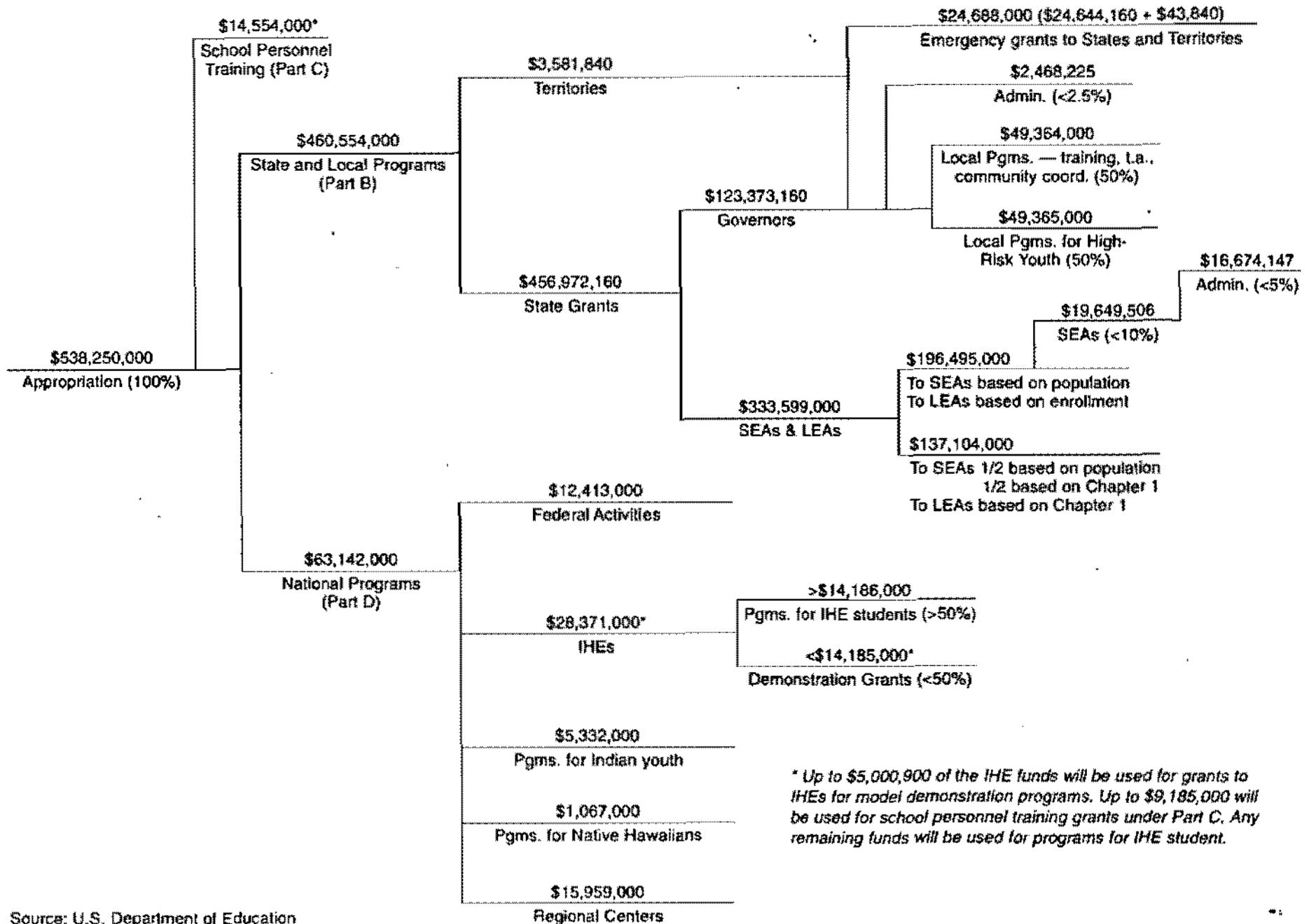
Drug-Free Schools and Communities Act of 1986 – 1989 Appropriation (Including supplemental)–



*Salaries and expenses

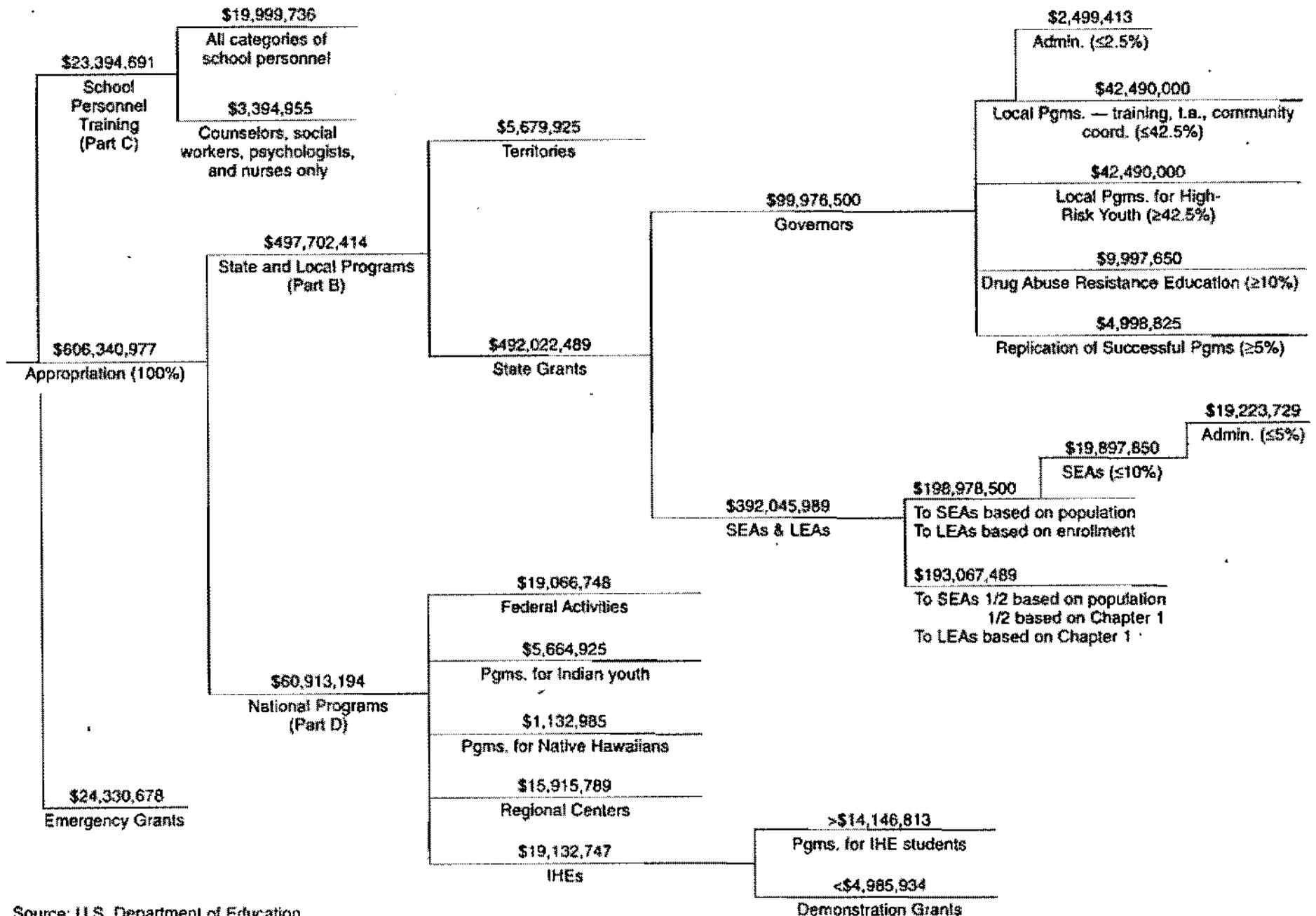
Drug-Free Schools and Communities Act of 1986

-1990 Appropriation (revised 5/25/90)-

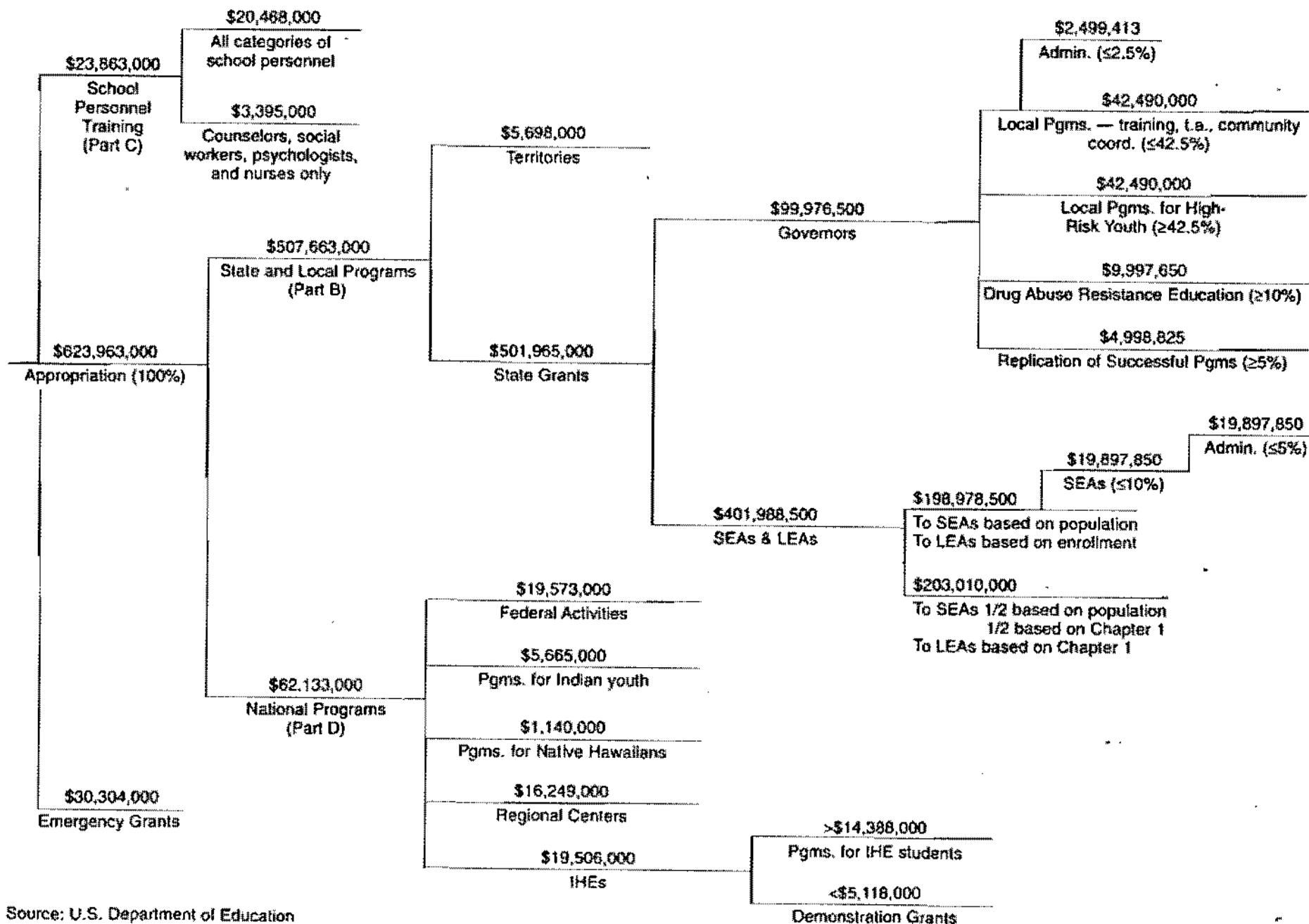


* Up to \$5,000,900 of the IHE funds will be used for grants to IHEs for model demonstration programs. Up to \$9,185,000 will be used for school personnel training grants under Part C. Any remaining funds will be used for programs for IHE student.

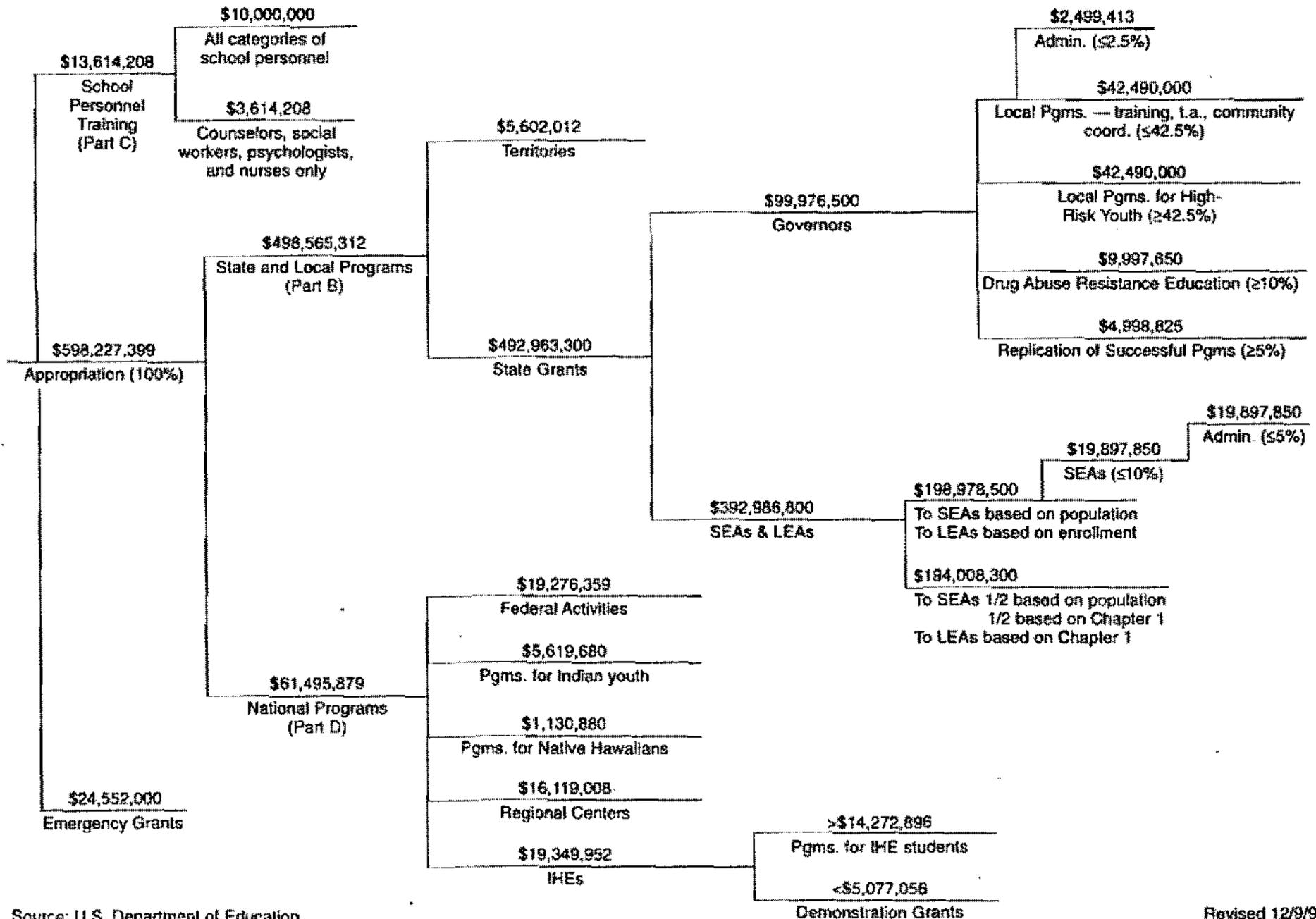
Drug-Free Schools and Communities Act of 1986
- 1991 Appropriation (revised to reflect Sequester order of April 25, 1991) -



Drug-Free Schools and Communities Act of 1986 — 1992 Appropriation —

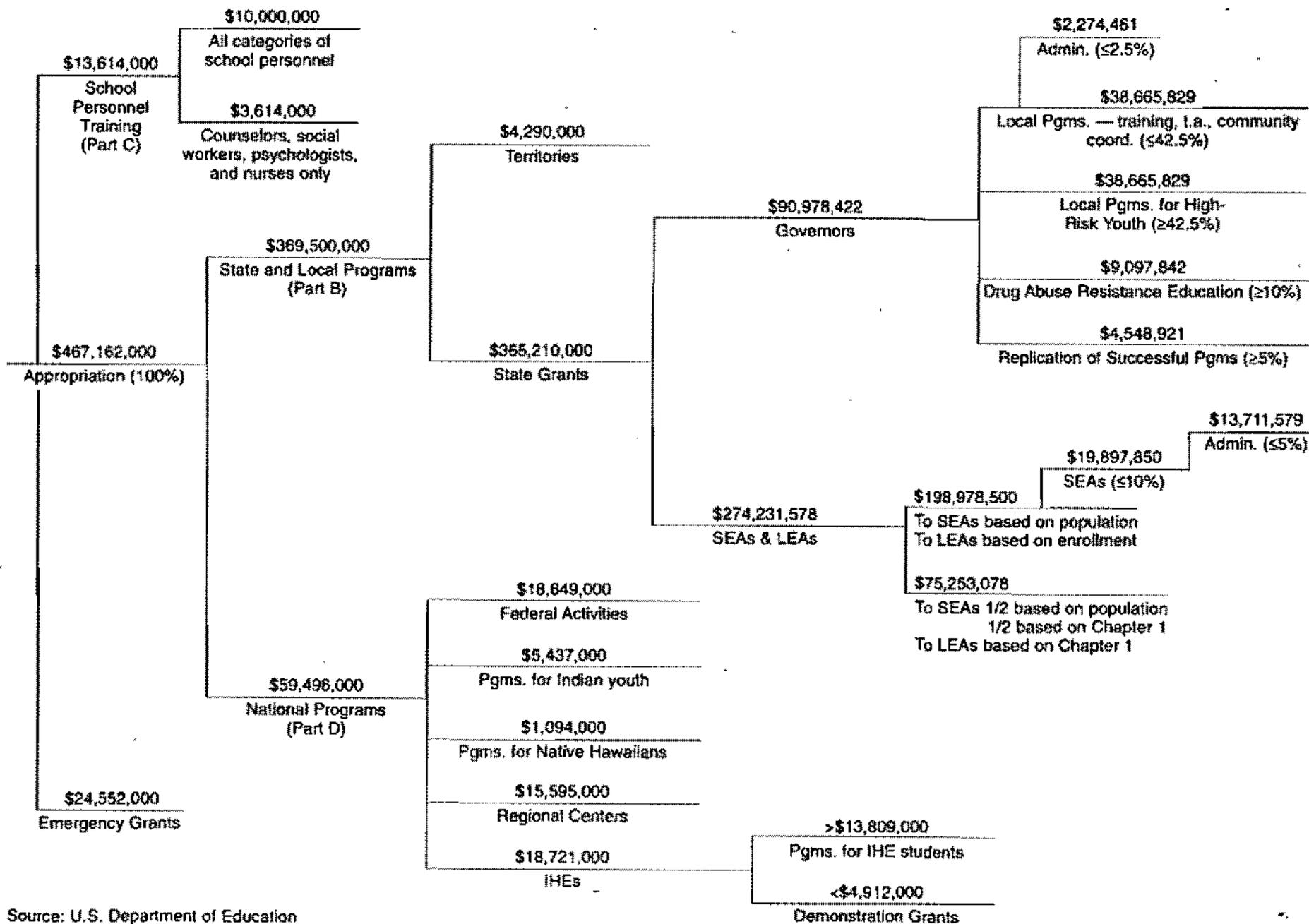


Drug-Free Schools and Communities Act of 1986 - 1993 Appropriation -



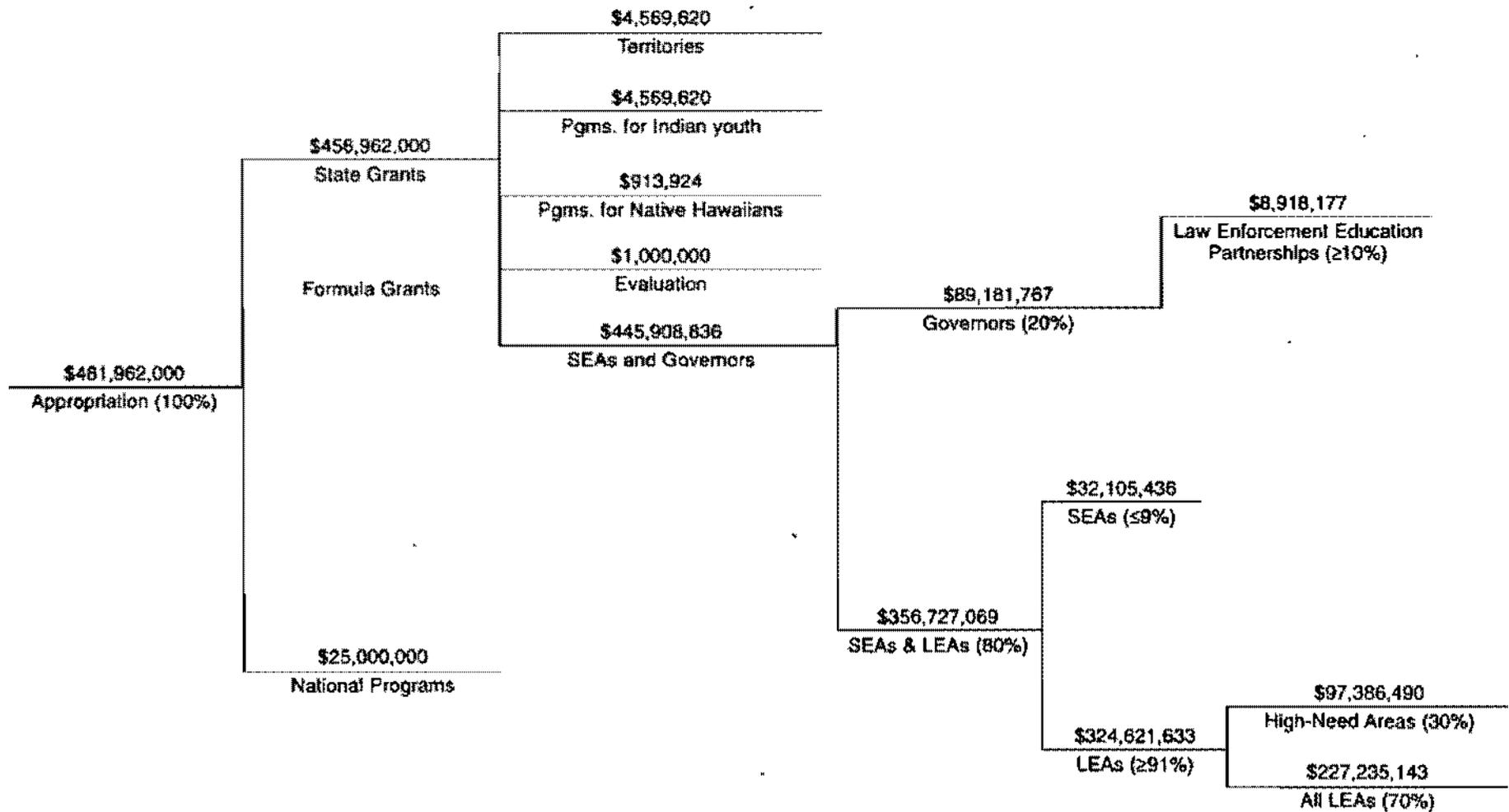
Drug-Free Schools and Communities Act of 1986

--1994 Appropriation--



Source: U.S. Department of Education

**Safe and Drug-Free Schools and Communities Act of 1994
 – FY 1995 Appropriation –**



NOTE: Amounts for SEAs, Governors, and LEAs will increase slightly if less than \$1 million is reserved for evaluation.

FINAL REPORT

EFFECTIVENESS OF ALCOHOL, TOBACCO, AND OTHER DRUG PREVENTION PROGRAMS IN REDUCING RISK

Prepared for:

Executive Office of the President
Office of National Drug Control Policy
750 17th Street, N.W., Fifth Floor
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■ August 1997 ■

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12	Correlations of Various Explanatory Variables with Current and Early Substance Use
13	Correlations of Various Explanatory Variables with Perceived Risk
14	Correlations Among Explanatory Variables
15	Regression Models

EXECUTIVE SUMMARY

The 1997 National Drug Control Strategy specifies five important goals for reducing illegal drug use and the harm it causes. The number one goal is to "Educate and enable America's youth to reject illegal drugs as well as alcohol and tobacco." This is the first goal of the 1997 Drug Control Strategy because despite the overall declining trend in drug use among Americans over the past 15 years, drug use among teenagers continues to rise. Furthermore, recent national data regarding youth attitudes toward alcohol, tobacco, and other drugs (ATODs) show that fewer youth in 1996 perceived the danger of ATODs compared with youth in 1995 and earlier. The primary objective of this study was to develop and test a method for estimating the impact of Federal, State, county, and local funds received by school districts and schools on adolescent ATOD attitudes and behaviors. The study was based on the responses to surveys completed as part of an evaluation of school-based ATOD programs in a Western state. Univariate (means and percentages), bivariate (correlations) and multivariate (linear regressions) statistical analyses were used to examine the data. These analysis indicated 1) a population with changing ATOD use and attitudes with increasing grade level; 2) substantial relationships among indicators of ATOD use and attitudes and between ATOD indicators and various indicators of risk and protective factors; and 3) indications of the value of statistical models for linking ATOD program interventions, funding, risk and protective factors, and outcomes.

An examination of the data revealed a youth population whose ATOD use increased with grade level, with alcohol the substance most used by students at any grade level. Nearly half (46%) the twelfth-graders indicated frequent use of alcohol; almost a fourth (21%) indicated frequent use of cigarettes; one out of eight (13%) frequent use of marijuana. Almost one-third (29%) of twelfth graders and one-fifth (20%) of tenth graders reported recent binge drinking. Over half (53%) the twelfth graders reported having had their first full drink (a can of beer, a full glass of wine, or a mixed drink) before the age of 15, and nearly one-half (46%) of twelfth graders reported having smoked their first cigarette before the age of 15.

Executive Summary

There also appeared to be other grade-related differences. Perceptions of the risk of cigarettes, heroin and cocaine increased from grades eight to twelve, while perceptions of the risk of alcohol remained about the same and perceptions of the risk of occasional marijuana use decreased slightly. At each grade level alcohol use was perceived as risky by the smallest percentage of students (35% of eighth graders, 38% of tenth graders, and 39% of twelfth graders) and cocaine by the largest percentage of students (51 % of eighth graders, 62% of tenth graders, and 67% of twelfth graders).

This study found a number of patterns among indicators of ATOD use, attitudes and other relevant variables. Some of these patterns were stronger than others, yet with few exceptions patterns were consistent and support some general statements about the relationships at the school level among substance use, perceptions of risk, and other factors. Based on these correlational patterns, we can make the following general statements:

- **Use indicators were positively associated with each other:** Schools where students showed a tendency to use one substance were schools where students tended to use other substances, and to have more students indicating heavy use of substances;
- **Perceptions of risk tended to be positively associated, one with another:** Schools where students tended to perceive great risk of using a particular substance were schools where students tended to perceive great risk of using other substances;
- **Perceptions of risk were negatively associated with use:** Schools where students tended to perceive great risk of substance use were schools where students tended to lesser use of substances;
- **Parental attitudes favoring use were positively associated with use:** Schools where students believed their parents approved or at least did not disapprove of alcohol use and occasional marijuana use were schools where students had greater substance use;

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- **Parental attitudes favoring use were negatively associated with perceived risk:** Schools where students believed their parents approved or did not disapprove of alcohol use and occasional marijuana use were schools where students were less likely to perceive great risk of substance use;
- **School-based drug prevention was negatively associated with use:** Schools where more students indicated having learned most about the dangers of drugs and drinking from school were schools with lesser substance use; schools where more students recalled having learned various components of the drug prevention curricula in school (facts, how to say no, life decisions, feeling good about oneself, or healthy alternatives) tended to be schools with less use.
- **School-based drug prevention was positively associated with perceived risk:** Schools where more students indicated having learned most about the dangers of drugs and drinking from school were schools where more students perceived great risk of substance use; schools where more students recalled having learned various components of the drug prevention curricula in school (facts, how to say no, life decisions, feeling good about oneself, or healthy alternatives) tended to be schools where more students perceived great risk of substance use.
- **Learning about drugs outside school was positively associated with use and negatively associated with perceived risk:** Evidence suggested that schools where students indicated having learned most about the dangers of drugs and drinking from non-school sources (family, other kids, church or temple, or tv, movies or newspaper) tended to be schools with greater substance use and fewer students perceiving great risk of substance use.
- **Negative associations between school counseling programs and substance use and positive associations between counseling programs and perceptions of risk were found:** Evidence indicated that student awareness of drug-related school counseling services was negatively associated with substance use and positively associated with perceptions of risk. Awareness of support groups, however, was positively associated with substance use.

- **Participation in activities was negatively associated with use and positively associated with perceived risk:** Schools where more students indicated participation in activities (extra-curricular, sports teams or non-school activities) were schools where fewer students indicated substance use, and more students indicated perceptions of great risk of substance use.
- **Changing schools during the year was positively associated with use and negatively associated with perceptions of risk:** Schools where many students indicated having changed schools at least once in the past year were schools where students tended to greater substance use, and lesser perception of the risk of substance use.
- **Median income and average per pupil funding were negatively associated with one another, and there were no clear associations of either with substance use or perceptions of risk:** Schools in communities with greater median incomes tended to be the schools with lower levels of funding.

While these correlations do not indicate cause and effect, and do not provide us with infallible predictions of substance use given a particular profile of explanatory values, they do tell us that there are school- and perhaps community-based patterns in ATOD use and perceptions of ATOD risk. Although the smaller individual correlations are not sufficiently significant to permit confident statements about relationships when considered alone, as part of a consistent pattern including correlations of greater size and significance, they contribute strength to statements about the relationships among use, perceived risk, and related variables. These correlational analyses provide a basis for the next step of the analyses: the development of statistical models.

The results of the analysis of this study of a drug prevention survey suggest that statistical models based on a few explanatory variables could be powerful enough to serve as the basis for an econometric model describing the relationship of Drug Free Schools and Communities Act (DFSCA) programs, relevant community parameters, and substance use outcomes and attitudes. However, preparing a decision/flow model, followed by development of an econometric model for the DFSCA program would require the availability of the following information: (1) the manner in which grant

funds are distributed among DFSCA activities, (2) sources of the funds, (3) specification of the anti-drug intervention model(s), and (4) measurement of the outcomes of each program. The sources available at this time could not provide this information.

To expedite the development of an econometric model relating DFSCA funding and ATOD outcomes, we make the following recommendations:

- (1) The grant proposal should thoroughly describe and define the intervention model that is to be used, together with supporting program theory;
- (2) The grant proposal should present appropriate flow and event diagrams demonstrating how the intervention will be implemented and how it will operate during ongoing periods;
- (3) Methods for measuring program outcomes should clearly be presented; and
- (4) DFSCA funds should be kept in line-item accounts separate from other funding sources, with a clear audit trail of the manner in which these funds are used. This accounting separation should be maintained even in those instances where funds come from a variety of sources.

Final Report: Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk

The 1997 National Drug Control Strategy specifies five important goals for reducing illegal drug use and the harm it causes. The number one goal is to "Educate and enable America's youth to reject illegal drugs as well as alcohol and tobacco." This is the first goal of the 1997 Drug Control Strategy because despite the overall declining trend in drug use among Americans over the past 15 years, drug use among teenagers continues to rise. For example, 34.7 percent of high school seniors were estimated to have used marijuana in 1995, as compared to 30.7 percent of 1994 high school seniors (Johnston, O'Malley, and Bachman, 1996)¹, and about 140 million young people aged 12 and older, including about 73 percent of all high school seniors, were estimated to have used alcohol in 1995¹. Furthermore, recent national data regarding youth attitudes toward alcohol, tobacco, and other drugs (ATODs) show that fewer youth in 1996 perceived the danger of ATODs compared with youth in 1995 and earlier.

INTRODUCTION

To reduce adolescent substance use and abuse, Federal, State, county, and local governments and the private sector fund prevention activities. These government agencies and the private sector together contribute several hundred million dollars annually to substance abuse prevention programs. Among the most significant contributors to drug prevention efforts among children is the Safe and Drug Free Schools and Communities (SDFSC) program sponsored by the U.S. Department of Education. The primary objective of the SDFSC funding program is to promote school-based programs directed at reducing student risk of using or abusing ATODs. Essentially, this entails reducing the appeal of using drugs, thereby reducing ATOD use by those who have already experimented with ATODs, and preventing youth from experimenting with ATODs. It is of interest to funding organizations to determine whether drug prevention programs are using funds effectively. To this end the present study addresses issues related to whether drug prevention programs have positive results, what kinds of programs are effective with various populations, and what costs are associated with various aspects of prevention programs.

The ATOD prevention literature has reported mixed results for drug prevention programs (Botvin, 1995, Research Triangle Institute, 1994, Botvin, 1990, Tobler, 1986)^{2,3,4,5}. Measures of outcomes have not always substantiated anecdotal reports of program effectiveness, immediate positive effects of programs appear to fade with time, and there are questions regarding the effectiveness of programs across populations.

To explain these mixed results, researchers have proposed a model in which the adolescent is viewed as a vulnerable individual subject to forces that encourage substance use on the one hand, and forces that discourage substance use on the other hand. Recently a growing body of the ATOD literature has focused on the concepts of risk and protective factors as two dimensions of this model (Dewit, et al, 1995, Benard, 1991)^{6, 7}. Risk and protective factors refer to conditions that serve to promote or deter substance use. They may be internal or external to the individual, and may function at the individual, family, school, peer group, or community level. For example, susceptibility to peer pressure, or living in a community or going to a school where substance use is the norm may serve as risk factors, while a positive relationship with parents and having a sense of purpose or future may serve as protective factors. Increasingly, the consensus among ATOD prevention researchers is that these factors must be considered in planning prevention programs⁸.

The role of the school-based prevention program is to enhance protective factors and alleviate or compensate for risk factors. However, planning and evaluation of prevention programs must also consider other factors that may affect program effectiveness and the validity of findings. To the extent possible these factors should be understood and explicitly stated. The following statements illustrate some of these factors.

1. Influences may affect different individuals in different ways. Indeed, the same individual may respond differently to the same influence at different developmental stages. Thus, what is effective for one group may not be effective for another. For example knowledge of drugs and the dangers of drug use may cause younger students to avoid or discontinue substance use, but may cause older students to want to explore use;

2. Self-reported attitudes are affected by a variety of conflicting influences. In some cases, the respondent may be consciously providing a socially acceptable response that is not a true reflection of the respondent's attitude or behavior; and
3. Even if users become convinced that substance use is a dangerous and risky behavior, they may nevertheless continue ATOD use due to the presence of other risk factors, such as peer pressure, or the absence of critical protective factors, such as a positive relationship with their parents.

Furthermore, because school-based programs are often directed toward groups of young people with varying degrees of risk for substance use, as well as individuals or sub-groups at high-risk for substance use, program planners and evaluators must take into consideration population characteristics, including prevalent risk and protective factors, and provide programs appropriately tailored in intensity and content to these needs.

To provide an adequate assessment of the effectiveness of prevention programs requires a systematic examination of ATOD prevention interventions that identifies and documents (1) population characteristics, including an assessment of ATOD prevention needs; (2) appropriate interventions to serve the needs of the population; (3) intervention costs; and (4) multiple measures of outcomes to improve validity.

OBJECTIVES, SCOPE, AND METHODS

The primary objective of this study was to develop and test a method for estimating the impact of Federal, State, county, and local funds received by school districts and schools on adolescent ATOD attitudes and behaviors. The scope of the study is defined by the sources of data available for analysis. The data include annual funding for all statewide substance abuse prevention programs, aggregate results of three statewide sample surveys of student perceptions of the dangers of ATODs, and self-reported substance use for 304 school districts in a western state.

One of the primary methodological challenges for the study is to relate youth ATOD outcomes (i.e., attitudes and behavior) to programmatic data (e.g., level of funding and number and type of

program services) and related demographic data (e.g., race/ethnicity, age, and sex of the target population). These relational analyses are key for estimating the influence of funding on youth's attitudes, how risks are perceived by youth, and substance use behavior. Estimating the effects of Federal, State, county, and local funding on ATOD attitudes and behavior requires accounting for all sources of program funds for each school district and school building, enumerating the prevention services delivered, measuring youth attitudes and behavior, and analyzing all of this information using a model that is unbiased and efficient.

The relationship implicit in drug abuse prevention policies implemented in the public schools is that increased resources applied to prevention programs will result in increased awareness among youth regarding the dangers of drug use and either decrease drug use or prevent initiation of drug use and related risk-taking behavior. Analytically, the model can be expressed as:

$$P = A + B_1X + B_2I + B_3Z$$

where the proportion (or percentage) of youth displaying desired attitudes and/or behavior (P) is a combination of program resources per youth (X); characteristics of program services, such as intervention type, intensity, and duration (I); and other factors, such as economic conditions and target population characteristics (Z) that enhance or suppress base measure of the attitude or behavior (A). It is important to include these other factors because they influence youth attitudes and behavior independently of the prevention interventions themselves. When data are available for several time periods and several localities, each vector (P, X, I, or Z) has implicit subscripts representing time period (t) and location (i):

$$P_{it} = A + B_1X_{it} + B_2I_{it} + B_3Z_{it}$$

The effects of program resources can be isolated from those of time and locality by representing each time period and location with a dummy variable. Given this scenario, a generalized least squares regression analysis will yield estimates that are both unbiased and efficient.

REVIEW OF PRELIMINARY FINDINGS

In the first phase of this study³ we conducted three stages of analyses: (1) univariate analyses of all variables contained in the master database; (2) bivariate analyses among key funding, student characteristic, and program outcome variables; and (3) generalized least squares and logistical regression analyses to test hypotheses.

Univariate analyses included percentages of sixth, eighth, tenth, and twelfth graders reporting that they had learned about the dangers of drugs in school. Examination of percentages revealed a positive relationship between the increase in per pupil prevention intervention expenditures (1988 - 1992) and an increase in percentage of sixth, eighth, and tenth grade students who reported learning most about the dangers of ATODs in school.

The bivariate analyses included zero-order correlations among the key funding, student characteristic, and program outcome variables. For these analyses students were grouped by sex and race within district. According to these analyses there were higher per pupil expenditures in less populated areas, in areas with higher unemployment, in districts with larger numbers of students indicating that they learned the most about drug abuse in school, in districts with more youth perceiving greater risk of harm caused by smoking and alcohol, and in districts with higher percentages of youth reporting that they do not use alcohol. However, higher per pupil expenditures were not found to be significantly related to lower percentages of students reporting reduced or no use of marijuana, cocaine, heroin, or other illicit drugs. Furthermore, there appeared to be no clear relationship between increased per pupil expenditure and decreased ATOD use among youth surveyed.

Generalized least squares and logistical regression analyses were performed to test hypotheses regarding relationships between learning most about drugs in school and per pupil expenditures; ATOD use and per pupil expenditures; ATOD use and learning most about drugs in school; ATOD use and perceived risk of ATOD use. Results were mixed.

The preliminary analyses raised a number of questions. Among the most important were:

1. What other factors influence drug use among the youth surveyed?
2. How do school districts allocate funding for ATOD prevention among their elementary, middle, and high schools?
3. How can the difference in average per pupil expenditures among districts with similar student outcomes be explained?

The following sections explain our approach to addressing these questions in the final phase of the study, present relevant findings, and discuss our conclusions and recommendations.

FINAL ANALYSIS

Our goal for this portion of the study was to examine in greater depth the relationships among ATOD use, perceptions of risk, other programmatic information available from the surveys and the state drug prevention program records, and demographic data available from other sources.

Based on a conceptualization of the ATOD problem as community-based, we determined school to be the appropriate unit of analysis for this part of the study. With this in mind, we decided that, while surveys for the years 1988, 1990, and 1992 were available for this study, the survey samples for the years 1988 and 1992 included substantially fewer schools than the survey sample for the year 1990, and consequently, that the analyses for this phase of the study would use only the 1990 survey data. Sample sizes for schools for the 1990 survey ranged from 1 to 1300 for schools in the eighth grade cohort, 1 to 929 for those in the tenth grade cohort and 1 to 811 for the twelfth grade cohort. Schools with six or fewer respondents were omitted from analyses because they appeared to have some extreme responses, and probably did not truly represent their school populations[†]. Seventy-four schools were included in the eighth grade analyses, 71 in the tenth grade analyses, and 70 in the twelfth grade

[†] For example, the sample for one high school in a district with a total enrollment of over 13,000 consisted of five students, all of whom indicated having changed schools at least once in the previous year. It did not seem plausible that this sample accurately represented the school district.

analyses were based on the responses of 12,691 eighth graders, 12,532 tenth graders and 9,863 twelfth graders.

The 1990 survey included a variety of drug-related questions (77 in all) regarding ATOD use, perceptions and education, and questions that differentiated students on the basis of other attitudes or expectations. Survey questions addressed the following concerns:

- *Use:* Frequency or level of use of alcohol, tobacco, marijuana, or cocaine; sources of alcohol or cigarettes; drug-related behaviors of the respondent and of the respondent's close friends; situations in which drugs and/or alcohol were used; problems arising from ATOD use; age of first use of alcohol or cigarettes;
- *Perceptions:* Perceptions of risk of drug use and drug-related behavior; perceptions of parental attitudes toward ATOD use; perceptions about the ease of obtaining cocaine or marijuana;
- *Education:* Sources of drug education; content of school drug prevention programs; available drug-related school services;
- *Other:* Expectations regarding college, attitudes toward suicide and dropping out of school; participation in extracurricular, non-school and school sports activities; regularity of school attendance; number of times the respondent had changed schools in the past year.

From these survey items we derived a set of variables relevant to the study questions. These variables were chosen because of their value as indicators of ATOD use or perceptions of the risk of ATOD use, or because of their potential value as explanatory variables in modeling ATOD use or perceptions of risk of use. The selected variables were consistent with the theory of teen substance use as described in the ATOD literature, in particular with the constructs of risk and protective factors. Descriptions of the variables used in the study can be found in Appendix 1.

In addition to survey data, analyses included estimates of population and median household income for school districts supplied by the National Center for Education Statistics (NCES), and average per pupil drug prevention program funding, derived from funding records.

The methods used in analyzing these variables included univariate analyses to develop a profile of the ATOD habits of the survey respondents; bivariate analyses to establish relationships among use, risk, and explanatory variables; and multivariate analyses to explore the potential for developing statistical models of ATOD use and risk variables.

Developmental differences, such as life experiences, cognitive capabilities, and social organization, may result in qualitatively different populations and outcomes during the teen years. Such differences between students at different grade levels and between schools with different grade levels may obscure within grade differences among students or schools. For this reason, separate analyses were done for each grade level. The following discussions address the findings of these analyses.

Summary of Student Responses

Univariate analyses included the calculation of the percentages of students with selected responses for each variable. An examination of these percentages revealed a youth population whose ATOD use increased with grade level. For the sixth grade cohort, drug use was minimal: fewer than 2% of the sixth-graders indicated frequent use⁷ of smoking tobacco, beer, or marijuana. For this reason, sixth graders were omitted from further analyses. Percentages of eighth, tenth, and twelfth grade students responding positively to the items selected for analyses are displayed in Appendix 2. The percentage of students reporting frequent use of cocaine, opiates, depressants or derbisol, methamphetamine, tranquilizers, other illegal stimulants, and over the counter drugs were under 2%, and for hallucinogens and inhaled substances under 5%. Because of such low rates of usage, these substances were omitted from further analyses.

Alcohol was the substance most used by students at any grade level. Nearly half (46%) the twelfth-graders indicated frequent use of alcohol; almost a fourth (21%) indicated frequent use of cigarettes; one out of eight (13%) frequent use of marijuana. Almost one-third (29%) of twelfth graders and one-fifth (20%) of tenth graders reported recent binge drinking. Over half (53%) the twelfth graders

⁷In this report "frequent use" refers to monthly, weekly or daily use.

reported having had their first full drink (a can of beer, a full glass of wine, or a mixed drink) before the age of 15, and nearly one-half (46%) of twelfth graders reported having smoked their first cigarette before the age of 15.

Sources of alcohol and cigarettes changed with age. By far, the most common source of alcohol at any age was friends, and the proportion of students indicating this alcohol source increased with grade level. Almost half (44%) the eighth graders who specified a source of alcohol[†] and nearly two-thirds of twelfth graders (62%)^{††} indicated that they usually got alcohol from friends. The second most common sources of alcohol differed for the three grades, changing from home, with parent's knowledge for eighth graders to getting alcohol from an adult or buying it themselves for twelfth graders. For tenth graders these two were equal as the second most common sources of alcohol.

While over half (56%) of those eighth graders who smoked indicated that their source of cigarettes was friends^{†††}, by twelfth grade this group had dropped to about one quarter (24%) of the smoking population^{††††}. A store as the source of cigarettes increased with grade level from one out of six (16%) eighth grade smokers to two-thirds (67%) of the twelfth grade smokers.

There also appeared to be other grade-related differences. Perceptions of the risk of cigarettes, heroin and cocaine increased from grades eight to twelve, while perceptions of the risk of alcohol remained about the same and perceptions of the risk of occasional marijuana use decreased slightly. At each grade level alcohol use was perceived as risky by the smallest percentage of students (35% of eighth graders, 38% of tenth graders, and 39% of twelfth graders) and cocaine by the largest percentage of students (51 % of eighth graders, 62% of tenth graders, and 67% of twelfth graders).

[†] 15 percent of all eighth graders.

^{††} 43 percent of all twelfth graders.

^{†††} 14 percent of all eighth graders.

^{††††} 9 percent of all twelfth graders.

Student perceptions of parental approval of substance use was consistent across grade levels. One exception was that the proportion of students reporting perceptions of parental approval or lack of disapproval of attending parties where alcohol was served increased with grade level (12% of eighth graders to 36% of twelfth graders). The proportion of students perceiving parental attitudes favorable toward heavy or frequent use of alcohol and occasional marijuana use remained fairly small (under 15%) for each grade.

Fewer older students indicated having learned about the dangers of drugs and drinking from school than younger students (58% of eighth graders and 49% of twelfth graders). The same trend was observed for recollections of having experienced various kinds of school drug prevention programs. Students in all grades recalled having learned how to say no more than other school drug prevention experiences. While the same percentage of students indicating that school counselors were available at each grade level (74% of students in each grade), awareness of other school-based treatment services increased with grade level, from under one-fourth of eighth graders (21%) to over one-third of twelfth graders (35%) aware of ATOD support groups, and from nearly one-half of eighth graders (45%) to nearly two-thirds of twelfth graders (60%) aware of peer counselors.

There were also differences among subgroups of students. For example, there were differences in use between those who perceived great risk of substance use and those who did not. While over one-fourth of those twelfth grade students who had used alcohol before the age of 15 and did not perceive great risk in smoking marijuana occasionally indicated frequent use of marijuana (28%), fewer than one-tenth of the early alcohol users who perceived great risk of marijuana use reported frequent marijuana use (7%). Proportions for early cigarette users were nearly identical, while the proportions of students who had not used alcohol before the age of 15 were much smaller¹.

Approximately one-fourth of twelfth graders who had learned most about drugs in school (28% of frequent marijuana users and 22% of those who were not frequent users) were not aware that their

¹For those who had not used alcohol before the age of 15, 6% of those who did not perceive great risk of marijuana use were frequent users, while 1% of those who perceived great risk of marijuana use were frequent users.

school had a counselor available for drug-related problems. The proportion was somewhat greater for those who had not learned most about drugs at school, and of these, the proportion of frequent marijuana users who were not aware of the availability of school counselors (34%) was greater than for those who were not frequent marijuana users (28%). A similar pattern was found for awareness of the availability of peer counselors¹, but not for awareness of availability of support groups.

The substance use problem among youth in this state can be summarized by the following statement from a Substance Abuse Grant Application:

“While narcotic use is still around in our area, our number one substance abuse problem with school age children is still alcohol. Many of our high school age students still see the passage into adulthood as being a procession of ‘keggers’. Many parents are still horrified to think that their son or daughter might use marijuana but will still offer them a beer in their presence.”

Relationships Among Use, Risk and Explanatory Variables

Bivariate analyses for the study consisted of calculations of correlations among indicators of substance use, perceptions of great risk of substance use and several potential explanatory variables. In this section we will discuss these correlational findings. Since these correlations were based on the percentage of students in each school that indicated the relevant behavior or attitude, findings should be interpreted as tendencies of schools, not individuals.

Current Substance Use

Indicators of current substance use are the primary outcomes of interest in studies of current substance use. Correlations among various indicators of substance use were computed (see Appendix 3).

¹47% of twelfth grade students who used marijuana frequently and had not learned the most about drugs in school were unaware of the availability of a peer counselor in their school, as compared to 34% of those who were not frequent users. Of those who had not learned the most about drugs in school 42% of those who were not frequent marijuana users and 55% of those who were frequent users were not aware of the availability of a peer counselor.

All but one of the correlations among use indicators were statistically significant at the 0.01 level or higher¹. The largest of these was a correlation of 0.85 between 30 day use of alcohol and frequent use of alcohol for the tenth grade cohort. Other large correlations included correlations between 30 day use of cigarettes and frequent use of marijuana for the tenth graders (0.81); correlations between 30 day use of marijuana and recent binge drinking for tenth graders (0.76) and also for twelfth graders (0.74); between 30 day use of cigarettes and 30 day use of marijuana for eighth graders (0.74), tenth graders (0.75), and twelfth graders (0.78); and between 30 day use of marijuana and 30 day use of alcohol at the twelfth grade level (0.72). It is clear that schools where many students are using one substance tend to be the schools where many students are using other substances. Because of the high correlations among these variables, four indicators of current use (frequent use of alcohol, frequent use of marijuana, 30-day use of cigarettes, and recent binge drinking) were selected for further analyses and discussion in this report.

Early Substance Use

The age at which individuals first use a substance is also of interest in studies of teen substance use because early use is an important predictor of later use. Two indicators of early substance use (first use of alcohol before the age of 15 and first use of cigarettes before the age of 15) were examined in this study. The correlations between first use of cigarettes before the age of 15 and first use of alcohol before the age of 15 were large (0.67 for eighth graders, 0.77 for tenth graders, and 0.72 for twelfth graders)¹¹, indicating that schools where students reported early alcohol use were schools where students reported early cigarette use.

Indicators of early substance use were positively correlated with current use variables (see Appendix 3). Significant correlations between early use and current use ranged from 0.33 for eighth grade correlations between early alcohol use and 30-day use of cigarettes and between early alcohol use

¹ A correlation of 0.28 between frequent use of marijuana and 30 day use of alcohol at grade eight was significant at the 0.10 level.

¹¹ It should be remembered when dealing with these indicators of early substance use that for eighth graders, use before the age of 15 is virtually synonymous with lifetime use.

and frequent use of marijuana, to a correlation of 0.79 between early use of alcohol and 30-day use of alcohol for the tenth grade cohort.

Perceived Risk

Perceived risk of substance use as an indicator of attitudes toward drug use is usually included in studies of ATOD use. The ATOD literature indicates that the relationship between perceived risk and substance use is not well understood. This study examined responses indicating perceptions of great risk of these ATOD behaviors: having five or more drinks once or twice each weekend, smoking marijuana occasionally, smoking one or more packs of cigarettes a day, smoking marijuana occasionally, trying heroin once or twice, and trying cocaine once or twice.

Among variables indicating perceptions of risk of ATOD use, the correlations were positive, but generally not large (see Appendix 4). All but one were statistically significant at the 0.10 level or better⁴. Correlations between perceived risk of heroin and perceived risk of cocaine were very high (0.78 for eighth grade, 0.83 for grade ten, 0.77 for grade 12). For eighth graders correlations between perceiving great risk of alcohol and perceiving great risk of cigarettes (0.60) and between perceptions of risk of marijuana use and risk of heroin use (0.59) were also high, as was the twelfth grade correlation between perceived risk of marijuana use and perceived risk of cocaine use (0.58). Thus schools where more students believed that use of one substance was of great risk tended somewhat to be the schools where students believed that other substances were of great risk. While this relationship appeared to be consistent across substances and grades, the tendency was not dramatic.

In this study significant correlations between perceived risk and current use were small, and only about one-fifth were significant at the 0.01 level (see Appendix 5). However, over half were significant at the 0.10 level, and all correlations were negative. This consistency suggests that there was a tendency for schools where more students perceived great risk of substance use to be the schools where more students reported less substance use.

⁴ One exception was that perception of great risk of heroin and perception of great risk of alcohol at the twelfth grade level were uncorrelated. In other words, schools where more students perceived great risk of using heroin were not necessarily schools where students perceived great risk of using alcohol.

Correlations between perceptions of risk and early use were also negative, but tended to be greater than those for current use¹. The largest of these was the correlation between perceiving great risk of cigarettes and 30 day use of cigarettes for grade twelve (-0.62). This correlation was quite different from the tenth grade correlation between the same variables (0.36). It would be interesting to understand the nature of this difference: does this reflect a developmental change in perceptions of risk or in the impact of risk perceptions on use, or is there perhaps some other explanation?

School-Based ATOD Programs

One objective of this study was to examine the relationship between school drug prevention programs and ATOD use and attitudes. Students were asked (1) where they had learned most about drugs and the dangers of drug use, and (2) what they had learned in school drug prevention programs. There was an interesting pattern in the correlations between substance use (both current and early) and where students reported having learned most about the dangers of drugs and drinking (see Appendix 6). Significant correlations, while generally not large, were negative for substance use and having learned most about drugs in school, but positive for substance use and having learned most in other places. The largest of these correlations were two correlations at the tenth grade level: one between recent binge drinking and having learned most from the family (0.56), and one between recent binge drinking and having learned most from school (-0.50). These correlations suggest that schools where students learned most about drugs in school prevention programs tended to be the schools where fewer students reported substance use; schools where more students learned most about drugs from other sources tend to be schools where more students reported substance use.

This correlational pattern was reversed for where students learned about drugs and perceived risk of substance use (see Appendix 7) having learned most about the dangers of drugs and drinking in school was positively correlated with perceptions of great risk of substance use, while having learned

¹ However, for the eighth grade cohort, first use of cigarettes before the age of 15 was uncorrelated with the perceived risk of use of any substance.

most from other sources was negatively correlated with perceptions of risk¹. The largest of these correlations was the one between having learned most about drugs from other kids and perception of risk of marijuana at the tenth grade level (-0.51).

Correlations between what was learned in school and current substance use were generally small; early substance use was generally uncorrelated with what was learned in school (see Appendix 8). Fewer than half of these correlations were statistically significant at the 0.10 level; most were negative². However, a correlational pattern was evident for the eighth grade cohort, where more than 75% of the correlations were significant at the 0.10 level or better, especially for correlations between what was learned in school and frequent use of marijuana. This pattern was reversed for perceptions of risk (see Appendix 9). What was learned tended to be positively correlated with perceived risk, especially for perceptions of the risk of marijuana for the twelfth grade. These patterns lend additional support to statements that learning about drugs in schools is associated with less drug use, especially for marijuana. However, this study provides no evidence indicating that one kind of program is more highly associated with lower drug use than another program.

In addition to ATOD prevention programs, many schools offer ATOD treatment programs. Students were asked whether their school provided a school counselor, support group or peer counselor for ATOD problems. The percentage of students indicating their school provided these services varied considerably. Awareness of the availability of school counseling and peer counseling services seemed to be lower among at-risk students (i.e. those with frequent ATOD use or lower perception of the risk of substance use) than those not at risk, especially in those schools where fewer students indicated having learned most of what they know about drugs in school. However, at-risk students appeared to be equally as aware of support group services as other students. It may be that at-risk students are more familiar

¹ One exception was a small, but significant positive correlation between having learned most from church/temple and perceived risk of marijuana for the eighth grade. However, it should be noted that only one percent of eighth graders indicated having learned most about drugs and the dangers of drug use from church/temple.

² Exceptions were positive correlations (0.36 for Grade 10 and 0.22 for Grade 12) between having learned how to say no in school and frequent binge drinking, and a positive correlation (0.22) between having learned facts and 30-day use of cigarettes for tenth grade.

with support group services than with counseling services. However, survey questions did not provide information regarding utilization of specific services.

We also examined the relationship between availability of school-based treatment services and ATOD use (see Appendix 10) and attitudes (see Appendix 11). There were some significant negative correlations between awareness of having a school counselor or peer counselor and substance use, especially at the twelfth grade level, and some positive correlations between awareness of having a school counselor or peer counselor and perceptions of great risk of substance use at all grades. However, there were significant positive correlations between awareness of support groups and use, and both positive and negative correlations between awareness of support groups and perceived risk, providing further evidence that support groups may be utilized by students with ATOD problems, more than school and peer counselor services.

Other Risk and Protective Factors

The survey provided other information of possible relevance to substance use and attitudes. Three of these areas were strongly associated with substance use and attitudes: participation in activities, perceptions of parental attitudes toward substance use, and whether or not the respondent had changed schools in the previous year. This section discusses the correlations between these factors and indicators of substance use and perceived risk of substance use (see Appendix 12 and Appendix 13).

Participation in at least one activity correlated negatively with use (see Appendix 12) and positively with perceptions of risk in most instances¹ (see Appendix 13). The largest correlations for this variable were two tenth grade correlations: one between extra-curricular activities and 30-day use of cigarettes (-0.66) and the other between extra-curricular activities and frequent use of marijuana (-0.71).

Over 80% of the correlations between perceived parental attitudes toward excessive substance use and indicators of substance use (see Appendix 12) (both early and current use) and perceived risk were significant at the 0.01 level or better (see Appendix 13). Parental approval or lack of disapproval toward

¹ One exception was a negative correlation between participation in sports teams and perceived risk of alcohol at the twelfth grade level (-0.32).

daily alcohol use, attending parties where alcohol was served, binge drinking every week or two, and occasional marijuana use were positively correlated with substance use and negatively correlated with perceived risk of use. Large correlations included those between parental attitude toward daily alcohol use and bi-weekly binge drinking at the tenth grade level (0.73), between parental attitude toward binge drinking and 30-day use of cigarettes at the twelfth grade level (0.72), between parental attitude toward attending parties where alcohol is served and first use of cigarettes before the age of 15 at the twelfth grade level (0.68), and between parental attitude toward bi-weekly binge drinking and recent binge drinking at the twelfth grade level (0.67). It was evident that schools where students perceived their parents to be tolerant of excessive substance use tended to be the schools where students engaged in greater substance use.

Changing schools during the school year is undoubtedly a stressful event in the life of the individual student, one that could conceivably be a risk factor. At the school level, many students changing schools during the school year, may indicate instability in the school as well as the community. In this study having changed schools at least once in the past year was positively correlated with substance use (see Appendix 12) and tended to be negatively correlated with perceptions of the risk of substance use (see Appendix 13). The largest of these correlations were those with 30-day use of cigarettes for twelfth graders (0.78) and also for tenth graders (0.63).

Median Income and Average Funding

The incomes of the population in a school district and the public funding available for school-based ATOD programs may have an impact on the program effectiveness. According to DFSCA policy some funding is linked to the income of the community, as well as the level of ATOD problems in the district. Median income and average per pupil DFSCA funding for each school in the study were considered for possible relationships with ATOD use and attitudes. The correlations between median household income and average per pupil funding were large (-0.50 for eighth grade, -0.63 for tenth grade, and -0.65 for twelfth grade), suggesting that funds do tend to go to schools in poorer communities. Consistent with these large negative correlations, significant correlations between each of these two variables and other variables tended to be in opposite directions (see Appendix 12). There were some small positive correlations between average funding and substance use, and some small

negative correlations between median income and substance use.¹ However, a correlation of 0.42 between median income and early use of alcohol suggests that schools with greater ATOD problems received more money, in accord with granting criteria. Correlations between average funding and perceptions of risk were small and negative, while correlations between higher median household incomes and perceptions of risk were small and positive.

Intercorrelations Among Explanatory Variables

In addition to considering the relationships between explanatory variables and indicators of substance use and attitudes, we examined the correlations among explanatory variables (see Appendix 14). Some of the more notable patterns of correlations among these variables included the following: (1) there were large, positive correlations among indicators of parental attitudes toward substance use, and parental attitudes favorable to substance use were positively correlated with learning most about substance use from the family and negatively correlated with learning most in school; (2) large negative correlations between school-based drug education and family-based or media-based learning; (3) school counselor programs were negatively correlated with parental attitudes favorable to substance use at the tenth grade, and to some degree at the twelfth grade; (4) having changed schools in the past year was positively correlated with parental attitudes favorable to substance use, but generally uncorrelated with where drug education occurred or what was learned in school-based programs; and (5) correlations between participation in extra-curricular activities and participation in sports teams were large and positive, but neither of these appeared to be correlated with participation in non-school activities; (6) school treatment programs (school counselor, group counseling, and peer counseling) were positively correlated with each other, indicating some tendency for schools with one program to have the other programs as well.

Summary of Bivariate Analyses

One must proceed with caution when interpreting correlations. When considering the results of this study, it might be tempting to infer causal relations. Correlations, however are statements of

¹ However, there was a small positive correlation (0.26) between median income and frequent use of marijuana at the twelfth grade level.

association and not cause and effect. It would be erroneous, for example, to infer, based on correlations, that binge drinking results in marijuana use. While this is possibly true, it is likely that both behaviors are indicators of some common underlying pattern of risk and protective factors.

In addition correlations indicate tendencies, and do not rule out instances that do not conform to the pattern. For example, for twelfth graders, recent binge drinking was highly correlated with frequent alcohol use (0.82). While most students who had recently engaged in binge drinking probably also indicated frequent alcohol use, there were probably some students who frequently used alcohol, but not to the extent of the binge drinkers. At the school level, while the correlation indicates a tendency for schools where more students engage in binge drinking also to be the schools where more students engage in frequent alcohol use, there might be some schools that have higher proportions of binge drinking students, but lower proportions of students drinking alcohol frequently. However, the size of this correlation means that it is highly unlikely that a school with very high incidence of binge drinking would be a school with a very low incidence of frequent alcohol use.

This study found a number of patterns among indicators of ATOD use, attitudes and other relevant variables. Some of these patterns were stronger than others, yet with few exceptions patterns were consistent and support some general statements about the relationships at the school level among substance use, perceptions of risk, and other factors. Based on these correlational patterns, we can make the following general statements:

- **Use indicators were positively associated with each other:** Schools where students showed a tendency to use one substance were schools where students tended to use other substances, and to have more students indicating heavy use of substances;
- **Perceptions of risk tended to be positively associated, one with another:** Schools where students tended to perceive great risk of using a particular substance were schools where students tended to perceive great risk of using other substances;

- **Perceptions of risk were negatively associated with use:** Schools where students tended to perceive great risk of substance use were schools where students tended to lesser use of substances;
- **Parental attitudes favoring use were positively associated with use:** Schools where students believed their parents approved or at least did not disapprove of alcohol use and occasional marijuana use were schools where students had greater substance use;
- **Parental attitudes favoring use were negatively associated with perceived risk:** Schools where students believed their parents approved or did not disapprove of alcohol use and occasional marijuana use were schools where students were less likely to perceive great risk of substance use;
- **School-based drug prevention was negatively associated with use:** Schools where more students indicated having learned most about the dangers of drugs and drinking from school were schools with lesser substance use; schools where more students recalled having learned various components of the drug prevention curricula in school (facts, how to say no, life decisions, feeling good about oneself, or healthy alternatives) tended to be schools with less use.
- **School-based drug prevention was positively associated with perceived risk:** Schools where more students indicated having learned most about the dangers of drugs and drinking from school were schools where more students perceived great risk of substance use; schools where more students recalled having learned various components of the drug prevention curricula in school (facts, how to say no, life decisions, feeling good about oneself, or healthy alternatives) tended to be schools where more students perceived great risk of substance use.
- **Learning about drugs outside school was positively associated with use and negatively associated with perceived risk:** Evidence suggested that schools where students indicated having learned most about the dangers of drugs and drinking from non-school sources

(family, other kids, church or temple, or tv, movies or newspaper) tended to be schools with greater substance use and fewer students perceiving great risk of substance use.

- **Negative associations between school counseling programs and substance use and positive associations between counseling programs and perceptions of risk were found:** Evidence indicated that student awareness of drug-related school counseling services was negatively associated with substance use and positively associated with perceptions of risk. Awareness of support groups, however, was positively associated with substance use. Students at-risk for ATOD use apparently were less aware of counseling programs than other students, but equally as aware of support groups.
- **Participation in activities was negatively associated with use and positively associated with perceived risk:** Schools where more students indicated participation in activities (extra-curricular, sports teams or non-school activities) were schools where fewer students indicated substance use, and more students indicated perceptions of great risk of substance use.
- **Changing schools during the year was positively associated with use and negatively associated with perceptions of risk:** Schools where many students indicated having changed schools at least once in the past year were schools where students tended to greater substance use, and lesser perception of the risk of substance use.
- **Median income and average per pupil funding were negatively associated with one another, and there were no clear associations of either with substance use or perceptions of risk:** Schools in communities with greater median incomes tended to be the schools with lower levels of funding.

While these correlations do not indicate cause and effect, and do not provide us with infallible predictions of substance use given a particular profile of explanatory values, they do tell us that there are school- and perhaps community-based patterns in ATOD use and perceptions of ATOD risk. Although

the smaller individual correlations are not sufficiently significant to permit confident statements about relationships when considered alone, as part of a consistent pattern including correlations of greater size and significance, they contribute strength to statements about the relationships among use, perceived risk, and related variables. These correlational analyses provide a basis for the next step of the analyses: the development of statistical models.

Multivariate Analyses of Use, Risk and Explanatory Variables

Regression analysis is a statistical method that allows one to develop a model of the behavior of one entity (the dependent variable) as a function of the behaviors of other entities (the independent variables). The model then can be used to predict the behavior the dependent variable based on selected values of the independent variables. For example, in our study, a model of frequent alcohol use as a function of early use of alcohol and perceived risk might allow us to predict the proportion of students in a school that would indicate frequent alcohol use, based on the proportion of students indicating early alcohol use and perception of great risk of alcohol use.

We examined a variety of regression models to determine the how effective selected independent variables would be in explaining the variation in selected indicators of substance use, and perceptions of risk of substance use. In this section we will discuss the models examined and the extent to which explanatory factors accounted for the variation in selected dependent variables.

Regression Models

The dependent variables selected in this analysis were four indicators of current substance use, two variables indicating early substance use, and three variables indicating perceived risk of substance use. The explanatory variables included indicators of student participation in activities, parental attitudes, perceived risk of substance use, early initiation to substance use, community stability as measured by the percentage of students having changed schools at least once in the previous year, and source and content of drug education. In addition to the survey data, average per pupil funding, and

median household income were available for all schools¹. The regression models based these variables are presented in Appendix 15.

R-square values, which indicate the percentage of variance accounted for by the model, are generally used to determine the statistical value of a regression model. R-squares for the models developed in this study ranged from 0.42 for perceived risk of alcohol in Grade 8, and 0.43 for perceived risk of cigarettes in Grade 12 to 0.87 for 30-day use of cigarettes in Grade 10. In general, models for indicators of substance use did the best job and models for indicators of perceived risk, worst.

When interpreting regression models, it should be noted that when many of the explanatory variables are correlated, there are trade-offs between the power to account for variance, and the power to explain. When correlated variables are added to a model, they may refine the model mathematically, increasing the power of the model to account for variation. At the same time they may obscure the interpretability of the model. Models including uncorrelated variables, although they may account for less variation, may be more clear and easier to understand. For example, our model for recent use of alcohol at the grade 10 level includes nine variables, most of which are correlated with the other variables in the model; it accounts for 73% of the variance. A much simpler model composed of two uncorrelated variables (first use of alcohol before the age of 15, and having learned to say no in school drug prevention programs) is more meaningful, but accounts for only 48 percent of the variance.

Models including very different sets of variables may account for similar amounts of variation. The models reported here were chosen to demonstrate the amount of variation that might be explained, and are not necessarily the only models that could be used.

¹ Population statistics were available for all but two schools. However, population estimates had limited, minimal impact, and the missing data made it difficult to determine whether benefits to the models were due to the addition of the population values, or the loss of two schools. Consequently, analyses including population statistics have been excluded.

Implications for the Development of an Econometric Model

The analyses in this phase of the study addressed questions regarding factors that account for differences in ATOD behaviors and attitudes at the district level. The results of the correlations and regression analyses revealed patterns that suggest a strong explanatory and predictive basis for ATOD use and attitudes.

The analyses described in this report support the constructs of risk and protective factors, extending them to the community level. Specifically, learning about drugs and drinking in school, participation in activities, and perception of risk emerged as protective factors, and learning about drugs outside school, a lack of clear parental disapproval of substance use, and changing schools, an indicator of community instability as risk factors.

Further refinement of the regression models to show the specific relationships of DFSCA funds to ATOD use and attitude would require more detailed information with more precise definitions linking monies to interventions and outcomes. The strength of the correlations and regression models would benefit from the refinement of further econometric modeling involving more specific programmatic information.

SUPPORTING DOCUMENTS AND REPORTS

One goal of this phase of the study was to gather information from the Washington State Office of the Superintendent of Public Instruction that we believed would provide the data base for answering most, if not all, the research questions. CSR received several documents, including several reports, program reviews, and grant applications. Each of the documents was reviewed against the following criteria:

- a) detailed descriptions of programs and interventions funded by the DFSC program;
- b) quantifiable and auditable results or projected results expected from DFSC funds expenditures; and,

- c) traceability of DFSC funds to the program implementation level.

While these documents explained general outcomes, described proposed program goals, objectives, and details about program implementation, and individual budget information classified by a number of functions, they provided no way to link DFSCA monies to specific programmatic activities and interventions. Further inquiry led us to conclude that current accounting practices are directed toward documenting the flow of money in ways that are probably adequate for other purposes, but the needs of the study are such that the design and implementation of a separate accounting system would most likely be necessary.

CONCLUSIONS AND RECOMMENDATIONS

The goal for this study was to examine, in greater depth, the relationships among ATOD use, perceptions of risk, other programmatic information available from state surveys and drug prevention program records, and demographic data available from other sources. Based on a conceptualization of the ATOD problem as community-based, and subject to developmental influences, analyses were done separately for each grade, with school as the unit of analysis.

Statistical methods included univariate analyses to develop a profile of the ATOD habits of the survey respondents; bivariate analyses to establish relationships among use, risk, and explanatory variables; and multivariate analyses to explore the potential for developing statistical models of ATOD use and risk variables. The results revealed an adolescent population in which alcohol was the predominant substance used, with use of tobacco and marijuana also common. Grade-related differences were apparent, and included a changing developmental pattern in usage and perceptions of risk, and interactions between the two. Correlational analyses pointed to risk factors including early substance use, learning about drugs outside school, changing schools during the year, and the lack of clear parental disapproval of substance use, and protective factors including learning about drugs in school, perceptions of great risk of substance use, and participation in activities. The results of regression analyses suggested that statistical models based on a few explanatory variables could be powerful enough to serve as the basis for an econometric model describing the relationship of DFSCA programs, relevant community parameters, and substance use outcomes and attitudes.

However, the analyses were limited by the lack of information that would have permitted relating specific programs and funding to outcomes. For example, while analyses supported the conclusions that school-based treatment programs were positively related to desired ATOD substance use and perceptions about ATOD substances, and that school-based support groups were successful to some extent in reaching at-risk students, the study was not able to determine precisely which programs were offered by different schools, which students received these services, the intensity of available services or the related funding amounts.

This report shows that preparing a decision/flow model, followed by development of an econometric model for the DFSCA program, would require the availability of the following information: (1) the manner in which grant funds are distributed among DFSCA activities, (2) sources of the funds, (3) specification of the anti-drug intervention model(s), and (4) measurement of the outcomes of each program. The sources available to this study could not provide this information.

In order to effectively examine the relationship of DFSCA funding and ATOD outcomes, we make the following four recommendations:

- (1) The grant proposal should thoroughly describe and define the intervention model that is to be used, together with supporting program theory;
- (2) The grant proposal should present appropriate flow and event diagrams demonstrating how the intervention will be implemented and how it will operate during ongoing periods;
- (3) Methods for measuring program outcomes and measures of alternative explanations should clearly be presented; and
- (4) DFSCA funds should be kept in line-item accounts separate from other funding sources, with a clear audit trail of the manner in which these funds are used. This accounting separation should be maintained even in those instances where funds come from a variety of sources.

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APPENDIXES

Appendix I
Descriptions of Variables Used in Study

Indicators of current substance use

- Frequent use of smoking tobacco
- Frequent use of any alcohol (beer, wine/coolers, hard liquor)
- Frequent use of marijuana/hashish
- Frequent use of cocaine
- 30-day use of cigarettes (any)
- 30-day use of alcohol (any)
- 30-day use of pot (any)
- 30-day use of cocaine (any)
- Recent binge drinking

Indicators of early substance use

- First full drink before the age of 15
- First cigarette before the age of 15

Perceive great risk of

- Smoking one or more packs of cigarettes a day
- Smoking pot occasionally
- Trying heroin once or twice
- Trying cocaine once or twice
- Binge drinking once or twice a weekend

Learned most about the dangers of drugs and drinking from

- Family/people I live with
- School
- Other kids
- Church or temple
- TV, movies or newspapers

Learned a lot in classes at school about

- Facts: Types of drugs and what drugs do to people
- How to say "no" to kids who want you to use drugs or alcohol
- How to make good decisions in life
- How to feel good about yourself
- Healthy alternatives to taking drugs or drinking alcohol

School provides

- Counselor or other school staff to discuss alcohol or drug problems
- Support group (or rap group) of students with similar concerns
- Peer counselors (students to talk to who have been trained to assist students with problems and to refer them to help)

Appendix 1
Descriptions of Variables Used in Study
(continued)

Participate in

- At least one extra-curricular activity
- At least one non-school activity
- At least one sports team

Parents approve or do not disapprove

- Some use of marijuana
- One or two daily drinks
- Binge drinking once or twice a weekend
- Attendance at party where alcohol is available

Changed schools at least once in the past year

Where do you usually get the beer, wine, or liquor you drink?

- From home, my parents know
- From home, my parents don't know
- From friends
- Ask adults or buy myself

Where do you usually get the cigarettes you smoke?

- From adults
- From friends
- From a vending machine
- From a store

Perceive great risk of getting aids form a shared needle

Believe substance is fairly easy to get:

- Marijuana/hashish
- Cocaine

Thought about dropping out of school in the past year

Appendix 2
 Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Percent of All Students Indicating Various Responses

	Grade 8 (N=12691)	Grade 10 (N=12532)	Grade 12 (N=9863)
Substance Use			
Frequent Use of Alcohol	15	32	46
30 Day Use of Alcohol	27	42	53
Recent Binge Drinking	10	20	29
30 Day Use of Cigarettes	10	16	21
Frequent Use of Marijuana/Hashish	3	9	13
30 Day Use of Marijuana/Hashish	5	12	16
Early Substance Use			
Alcohol	43	57	53
Cigarettes	37	46	46
Perceive Great Risk of Use of			
Alcohol	35	38	39
Cigarettes	45	57	67
Marijuana	48	47	43
Heroin	45	56	63
Cocaine	51	62	67
Learned Most About Dangers of Drugs and Drinking From			
Family	24	21	21
School	58	56	49
Other Kids	4	7	9
Church/Temple	1	1	1
TV/Movies/Newspaper	12	15	19
Learned in School			
Facts	45	37	30
How to Say No	59	43	30
Life Decisions	43	35	28
Feel Good About Self	40	31	23
Healthy Alternatives	46	33	24
Drug-Related School Services			
School Counselor	74	74	74
School Support Group	21	32	35
Peer Counselors	45	58	60
Participate in At Least One Activity			
Extra-curricular	74	76	74
Sports Teams	67	68	59
Non-School	67	64	63
Parents Approve/Do Not Disapprove			
Daily Alcohol Use	5	6	6
Alcohol at Party	12	22	36
BiWeekly Binge Drinking	5	8	12
Occasional Marijuana Use	4	5	7
Changed Schools At Least Once in Last Year	17	22	13
Usual Source of Alcohol			
From Home, My Parents Know	10	9	8
Home, Parents Don't Know	6	5	2
From Friends	15	33	43
Ask Adults or Buy Myself	3	8	16
Usual Source of Cigarettes			
From Adults	5	4	2
From Friends	14	14	9
From a Vending Machine	2	1	1
From a Store	4	13	25
Perceive Great Risk of Getting Aids			
From Shared Needle	75	79	84
Believe Substance is Fairly easy to get			
Marijuana/Hashish	25	37	39
Cocaine	15	27	33
Thought About Dropping Out of School in Last Year	22	30	33

Appendix 3

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
Correlations Among Indicators of Substance Use

	Grade	Frequent Use of Alcohol	30 Day Use of Alcohol	Recent Binge Drinking	30 Day Use of Cigarettes	Frequent Use of Marijuana	30 Day Use of Marijuana
Frequent Use of Alcohol	8		0.57 ³	0.75 ³	0.50 ³	0.50 ³	0.57 ³
	10		0.85 ³	0.51 ³	0.52 ³	0.56 ³	0.50 ³
	12		0.74 ³	0.55 ³	0.34 ³	0.52 ³	0.34 ³
30 Day Use of Alcohol	8	0.57 ³		0.59 ³	0.35 ³	0.28 ²	0.51 ³
	10	0.85 ³		0.63 ³	0.50 ³	0.45 ³	0.59 ³
	12	0.74 ³		0.82 ³	0.59 ³	0.55 ³	0.72 ³
Recent Binge Drinking	8	0.75 ³	0.59 ³		0.57 ³	0.53 ³	0.67 ³
	10	0.51 ³	0.63 ³		0.58 ³	0.38 ³	0.76 ³
	12	0.55 ³	0.82 ³		0.70 ³	0.45 ³	0.74 ³
30 Day Use of Cigarettes	8	0.50 ³	0.35 ³	0.57 ³		0.62 ³	0.74 ³
	10	0.52 ³	0.50 ³	0.58 ³		0.81 ³	0.75 ³
	12	0.34 ³	0.59 ³	0.70 ³		0.57 ³	0.78 ³
Frequent Use of Marijuana	8	0.50 ³	0.28 ²	0.53 ³	0.62 ³		0.68 ³
	10	0.56 ³	0.45 ³	0.38 ³	0.81 ³		0.70 ³
	12	0.52 ³	0.55 ³	0.45 ³	0.57 ³		0.68 ³
30 Day Use of Marijuana	8	0.57 ³	0.51 ³	0.67 ³	0.74 ³	0.68 ³	
	10	0.50 ³	0.59 ³	0.76 ³	0.75 ³	0.70 ³	
	12	0.34 ³	0.72 ³	0.74 ³	0.78 ³	0.68 ³	
Early Substance Use Alcohol	8	0.58 ³	0.68 ³	0.67 ³	0.33 ³	0.33 ³	0.53 ³
	10	0.60 ³	0.79 ³	0.51 ³	0.53 ³	0.41 ³	0.52 ³
	12	0.54 ³	0.69 ³	0.59 ³	0.50 ³	0.45 ³	0.65 ³
Cigarettes	8	0.50 ³	0.29 ¹	0.61 ³	0.46 ³	0.43 ³	0.55 ³
	10	0.60 ³	0.68 ³	0.52 ³	0.68 ³	0.49 ³	0.58 ³
	12	0.39 ³	0.59 ³	0.60 ³	0.70 ³	0.48 ³	0.61 ³

- Not statistically significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 4

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing
 Interrelations of Perceived Risk of Substance Use

Perceive Great Risk of Use of	Grade	Perceived Great Risk of Use of		
		Alcohol	Cigarettes	Marijuana
Alcohol	8		0.60 3	0.42 3
	10		0.30 2	0.29 2
	12		0.31 3	0.44 3
Cigarettes	8	0.60 3		0.23 1
	10	0.30 2		0.42 3
	12	0.31 3		0.21 1
Marijuana	8	0.42 3	0.23 1	
	10	0.29 2	0.42 3	
	12	0.44 3	0.21 1	
Heroin	8	0.41 3	0.37 3	0.59 3
	10	0.44 3	0.32 3	0.45 3
	12	-	0.25 2	0.53 3
Cocaine	8	0.44 3	0.36 3	0.40 3
	10	0.37 3	0.47 3	0.35 3
	12	0.24 2	0.34 3	0.58 3

- Not Significant

- 1 p < 0.10
- 2 p < 0.05
- 3 p < 0.01

Appendix 5

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Correlations of Perceived Risk of Substance Use With Current and Early Substance Use

Perceive Great Risk of Use of	Grade	Current Substance Use						Early Substance Use			
		Frequent Use of Alcohol		Recent Binge Drinking		30-Day Use of Cigarettes		Frequent Use of Marijuana		Alcohol	Cigarettes
Alcohol	8	-0.33	3	-0.32	3	-0.29	2	-	-0.44	3	-
	10	-0.39	3	-0.31	3	-0.32	3	-0.25	2	-0.48	3
	12	-0.29	2	-0.30	2	-	-	-	-0.33	3	-0.27
Cigarettes	8	-	-	-0.20	1	-	-	-	-0.25	2	-
	10	-	-	-0.40	3	-0.36	3	-	-0.43	3	-0.33
	12	-	-	-0.43	3	-0.62	3	-	-0.29	2	-0.40
Marijuana	8	-0.23	2	-	-	-0.44	3	-0.28	2	-0.20	1
	10	-0.24	2	-0.43	3	-0.38	3	-0.38	3	-0.53	3
	12	-0.34	3	-0.31	3	-0.42	3	-0.46	3	-0.39	3
Heroin	8	-0.32	3	-0.27	2	-	-	-0.24	2	-0.39	3
	10	-	-	-0.25	2	-	-	-	-	-	-
	12	-	-	-0.29	2	-0.27	2	-	-	-	-0.30
Cocaine	8	-	-	-	-	-	-	-	-0.21	1	-
	10	-	-	-0.23	1	-	-	-	-0.20	1	-
	12	-	-	-0.21	1	-0.34	3	-	-	-	-0.34

- Not Significant

1 p < 0.10

2 p < 0.05

3 p < 0.01

Appendix 6

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk

Correlations of Where Students Learned About Drug Use with Indicators of Current and Early Substance Use

Learned Most About Dangers of Drugs and Drinking From	Grade	Current Substance Use						Early Substance Use	
		Frequent Use of Alcohol	Recent Binge Drinking	30-Day Use of Cigarettes	Frequent Use of Marijuana	Alcohol	Cigarettes		
Family	8	-	0.19 ¹	0.35 ³	0.19 ¹	-	-		
	10	-	0.56 ³	0.34 ³	-	0.26 ²	0.25 ²		
	12	-	0.41 ³	0.35 ³	-	0.31 ³	0.30 ²		
School	8	-0.22 ¹	-0.36 ³	-0.41 ³	-0.32 ³	-	-		
	10	-0.25 ²	-0.50 ³	-0.27 ²	-0.27 ²	-0.24 ²	-		
	12	-0.22 ¹	-0.30 ²	-0.37 ³	-0.23 ¹	-0.29 ²	-0.31 ³		
Other Kids	8	0.29 ²	0.33 ³	0.32 ³	0.31 ³	-	0.23 ¹		
	10	0.31 ³	-	0.29 ²	0.45 ³	0.29 ²	-		
	12	0.31 ³	-	-	-	0.23 ¹	-		
Church/Temple	8	-	-	-	-	-	-		
	10	-	0.23 ²	-	-	-	-		
	12	0.23 ¹	-	-	-	-	-		
TV/Movies/Newspaper	8	0.21 ¹	0.31 ³	0.22 ¹	0.25 ²	-	-		
	10	-	-	-	-	-	-		
	12	-	-	-	-	-	-		

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 7

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Correlations of Where Students Learned About Drug Use with Perceived Risk

Learned Most About Dangers of Drugs and Drinking From	Grade	Perceive Great Risk of Use		
		Alcohol	Cigarettes	Marijuana
Family	8	-	-	-
	10	-0.21 ¹	-0.43 ³	-0.29 ²
	12	-	-0.35 ³	-0.21 ¹
School	8	0.27 ²	0.29 ²	-
	10	0.38 ³	0.25 ²	0.41 ³
	12	-	0.24 ²	0.45 ³
Other Kids	8	-	-	-0.21 ¹
	10	-0.23 ²	-	-0.51 ³
	12	-	-	-0.27 ²
Church/Temple	8	-	-0.42 ³	0.22 ¹
	10	-	-0.22 ¹	-
	12	-	-	-
TV/Movies/Newspaper	8	-0.24 ²	-0.26 ²	-
	10	-0.23 ¹	-	-
	12	-	-	-0.24 ²

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 8

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
Correlations of What Was Learned in School with Current and Early Substance Use

Learned in School	Grade	Current Substance Use				Early Substance Use	
		Frequent Use of Alcohol	Recent Binge Drinking	30-Day Use of Cigarettes	Frequent Use of Marijuana	Alcohol	Cigarettes
Facts	8	-0.42 ³	-0.35 ³	-0.28 ²	-0.35 ³	-	-
	10	-	-	0.22 ¹	-0.25 ²	-	-
	12	-	-	-	-	-	-
How to Say No	8	-0.31 ³	-0.44 ³	-0.25 ²	-0.31 ³	-	-
	10	-0.27 ²	0.36 ³	-	-0.27 ²	-	-
	12	-	0.22 ¹	-	-	-	-
Life Decisions	8	-	-	-0.33 ³	-0.26 ²	-	-
	10	-0.24 ²	-	-	-	-	-
	12	-	-	-	-	-0.23 ¹	-
Feel Good About Self	8	-	-	-0.21 ¹	-0.34 ³	-	-
	10	-0.25 ²	-	-	-	-	-
	12	-	-	-	-	-	-
Healthy Alternatives	8	-0.19 ¹	-0.26 ²	-	-0.31 ³	-	-
	10	-0.36	-	-	-	-0.22 ¹	-0.27 ²
	12	-	-	-	-	-	-

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 9

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
Correlations of What Was Learned in School with Perceived Risk

Learned in School	Grade	Perceive Great Risk of Use		
		Alcohol	Cigarettes	Marijuana
Facts	8	0.28 ²	0.31 ³	0.23 ²
	10	0.38 ³	-	-
	12	0.22 ¹	0.22 ¹	0.30 ³
How to Say No	8	0.22 ¹	0.36 ³	-
	10	-	-0.34 ³	-
	12	0.24 ²	-	0.41 ³
Life Decisions	8	-	0.24 ²	0.50 ³
	10	-	-	-
	12	-	-	0.49 ³
Feel Good About Self	8	-	0.27 ²	0.41 ³
	10	-0.21 ¹	-0.24 ²	-
	12	-	0.22 ¹	0.43 ³
Healthy Alternatives	8	0.22 ¹	0.28 ²	0.46 ³
	10	-	-	-
	12	0.23 ¹	-	0.59 ³

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 10

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Correlations of Drug-Related School Services with Current and Early Substance Use

Drug-Related School Services	Grade	Current Substance Use				Early Substance Use	
		Frequent Use of Alcohol	Recent Binge Drinking	30-Day Use of Cigarettes	Frequent Use of Marijuana	Alcohol	Cigarettes
Counselor	8	-	-	-	-	-	-
	10	-	-0.41 ³	-	-	-	-
	12	-	-0.31 ³	-	-	-0.22 ¹	-0.26 ²
Support Group	8	0.21 ¹	-	-	-	-	-
	10	-	-	0.33 ³	0.24 ²	0.31 ³	0.21 ¹
	12	-	-	-	-	-	0.20 ¹
Peer Counselor	8	-	-	-	-	-	-
	10	-	-	-	-	-	-
	12	-	-0.22 ¹	-	-	-	-

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 11

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing
 Correlations of Drug-Related School Services with Perceived Risk

Drug-Related School Services	Grade	Perceive Great Risk of Use		
		Alcohol	Cigarettes	Marijuana
Counselor	8	0.21 ¹	-	-
	10	-	0.39 ³	0.23 ²
	12	0.45 ³	0.34 ³	-
Support Group	8	-	-	-
	10	-	-	-0.20 ¹
	12	0.22 ¹	-	-0.23 ¹
Peer Counselor	8	-	-	-
	10	0.23 ¹	-	-
	12	0.41 ³	0.24 ²	-

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 12

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
Correlations of Various Explanatory Variables with Current and Early Substance Use

	Grade	Current Use			Frequent Use of Marijuana	Early Substance Use	
		Frequent Use of Alcohol	Recent Binge Drinking	30-Day Use of Cigarette		Alcohol	Cigarettes
Participate in At Least One Activity Extra-curricular	8	-0.28 ²	-	-0.35 ³	-0.35 ³	-	-
	10	-0.36 ³	-	-0.66 ³	-0.71 ³	-0.27 ²	-0.34 ³
	12	-0.25 ²	-0.23 ¹	-0.47 ³	-0.51 ³	-	-0.27 ²
Sports Teams	8	-0.34 ³	-0.20 ¹	-	-0.22 ¹	-	-0.27 ²
	10	-	-0.21 ¹	-0.59 ³	-0.47 ³	-0.21 ¹	-0.32 ³
	12	-	-	-0.38 ³	-0.31 ³	-	-0.20 ¹
Non-School	8	-	-0.37 ³	-0.22 ¹	-0.26 ²	-0.30 ³	-0.41 ³
	10	-0.31 ³	-0.23 ²	-0.25 ²	-0.39 ³	-0.46 ³	-0.28 ²
	12	-	-	-	-0.34 ³	-0.32 ³	-0.25 ²
Parents Approve/Do Not Disapprove Daily Alcohol Use	8	0.21 ¹	0.40 ³	0.42 ³	0.36 ³	0.32 ³	-
	10	-	0.46 ³	0.38 ³	-	-	0.30 ²
	12	-	0.57 ³	0.58 ³	0.36 ³	0.35 ³	0.43 ³
Alcohol at Party	8	0.27 ¹	0.40 ³	0.49 ³	0.39 ³	0.30 ²	0.29 ²
	10	0.22 ¹	0.73 ³	0.44 ³	-	0.42 ³	0.45 ³
	12	0.29 ²	0.54 ³	0.57 ³	0.36 ³	0.58 ³	0.68 ³
BiWeekly Binge Drinking	8	0.38 ³	0.63 ³	0.55 ³	0.47 ³	0.40 ³	0.36 ³
	10	-	0.58 ³	0.48 ³	-	0.40 ³	0.46 ³
	12	-	0.67 ³	0.72 ³	0.34 ³	0.50 ³	0.61 ³
Occasional Marijuana Use	8	-	0.50 ³	0.38 ³	0.33 ³	-	0.24 ²
	10	0.23 ¹	0.47 ³	0.45 ³	0.31 ³	0.26 ²	0.30 ²
	12	0.25 ²	0.55 ³	0.60 ³	0.51 ³	0.48 ³	0.47 ³
Changed Schools At Least Once in Past Year	8	0.27 ²	0.22 ¹	0.41 ³	0.39 ³	-	0.33 ³
	10	0.25 ²	0.54 ³	0.63 ³	0.49 ³	0.34 ³	0.45 ³
	12	0.22 ¹	0.58 ³	0.78 ³	0.51 ³	0.39 ³	0.51 ³
Average Per Pupil Funding	8	-	-	-	-	0.26 ²	-
	10	-	0.22 ¹	-	-	0.27 ²	-
	12	0.25 ²	0.20 ¹	-	-	0.29 ²	-
Median Household Income	8	-	-0.21 ¹	-	-	-0.42 ³	-
	10	-	-0.26 ²	-	-	-0.28 ²	-0.19 ¹
	12	-	-	-	0.26 ²	-	-

- Not Significant

1 p < 0.10

2 p < 0.05

3 p < 0.01

Appendix 13

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Correlations of Various Explanatory Variables with Perceived Risk

		Perceive Great Risk of Use		
		Alcohol 8	Cigarettes 8	Marijuana 8
Participate in At Least One Activity Extra-curricular	8	-	-	-
	10	0.20 ¹	-	-
	12	-	-	0.37 ³
Sports Teams	8	-	-	-
	10	-	-	0.29 ²
	12	-0.32 ³	-	0.21 ¹
Non-School	8	0.35 ³	0.38 ³	-
	10	0.51 ³	0.40 ³	-
	12	0.47 ³	0.30 ²	-
Parents Approve/Do Not Disapprove Daily Alcohol Use	8	-0.30 ²	-0.21 ¹	-0.22 ²
	10	-	-0.41 ³	-
	12	-0.20 ¹	-0.38 ³	-0.45 ³
Alcohol at Party	8	-0.39 ³	-0.34 ³	-0.28 ²
	10	-	-0.42 ³	-0.42 ³
	12	-	-0.34 ³	-0.55 ³
BiWeekly Binge Drinking	8	-0.34 ³	-	-0.20 ¹
	10	-	-0.48 ³	-0.31 ³
	12	-0.29 ²	-0.56 ³	-0.40 ³
Occasional Marijuana Use	8	-	-	-
	10	-	-0.20 ¹	-
	12	-	-0.30 ²	-0.60 ³
Changed Schools At Least Once in Past Year	8	-	-	-
	10	-	-0.32 ³	-0.35 ³
	12	-	-0.41 ³	-0.36 ³
Average Per Pupil Funding	8	-	-0.31 ³	-
	10	-0.33 ³	-	-
	12	-0.23 ¹	-	-
Median Household Income	8	0.31 ³	0.33 ³	-
	10	0.22 ¹	0.27 ²	-
	12	0.32 ³	-	-

- Not Significant
¹ p < 0.10
² p < 0.05
³ p < 0.01

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
Correlations Among Explanatory Variables

	8	10	12	8	10	12	8	10	12	8	10	12
Learned Most About Dangers of Drugs and Drinking From												
Family	-0.80	-0.50	-0.50	-0.83	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
School	-0.80	-0.50	-0.50	-0.83	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Other Kids	-0.50	-0.25	-0.25	-0.24	-0.42	-0.24	-0.24	-0.42	-0.24	-0.24	-0.42	-0.24
Church/Temple	0.30	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
TV/Video/Newspaper	0.30	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Learned in School	-0.20	-0.33	-0.33	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
How to Stay No	-0.24	0.31	0.31	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Like Doctors	-0.40	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Felt Good About Self	-0.31	0.25	0.25	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Healthy Alternatives	-0.20	0.20	0.20	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Drug-Related School Services	-0.41	-0.50	-0.50	-0.41	-0.50	-0.50	-0.41	-0.50	-0.50	-0.41	-0.50	-0.50
Counselor	-0.41	-0.50	-0.50	-0.41	-0.50	-0.50	-0.41	-0.50	-0.50	-0.41	-0.50	-0.50
Support Group	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22
Peer Counselor	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
Participate in At Least One Activity	-0.30	-0.30	-0.30	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Extra-curricular	-0.30	-0.30	-0.30	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Sports Teams	-0.30	-0.30	-0.30	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Non-School	-0.30	-0.30	-0.30	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Parents Approve/Do Not Disapprove	0.30	0.30	0.30	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43
Daily Alcohol Use	0.30	0.30	0.30	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43
Alcohol at Party	0.30	0.30	0.30	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43
Alcohol at Party	0.30	0.30	0.30	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43
Weekly Binge Drinking	0.30	0.30	0.30	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43
Occasional Marijuana Use	0.22	0.22	0.22	-0.24	-0.24	-0.24	-0.24	-0.24	-0.24	-0.24	-0.24	-0.24
Occasional Marijuana Use	0.22	0.22	0.22	-0.24	-0.24	-0.24	-0.24	-0.24	-0.24	-0.24	-0.24	-0.24
Changed Schools At Least Once	0.30	0.30	0.30	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28
In Past Year	0.30	0.30	0.30	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28
Average Per Pupil Funding	-0.3	-0.3	-0.3	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Median Household Income	-0.3	-0.3	-0.3	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26

- Not Significant
 † p < 0.10
 ‡ p < 0.05
 § p < 0.01

Appendix 14 (continued)
 Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Correlations Among Explanatory Variables

	Facts Grade			How to Say No Grade			Learned in School Life Decisions Grade			Feel Good About Self Grade			Healthy Alternatives Grade		
	8	10	12	8	10	12	8	10	12	8	10	12	8	10	12
Learned Most About Dangers of Drugs and Driving From															
Family	-0.20	0.47	-0.33	-0.24	0.31	-	-	-	-	-	-	-	-	-	-
School	0.48	0.47	0.64	0.45	-	0.42	0.27	-	-	0.51	0.23	0.35	0.20	-	0.44
Other Kids	-0.32	-0.24	-0.28	-0.27	-0.23	-0.23	-0.27	-	-	-0.24	-0.28	-	-0.37	-	-0.36
Church/Temple	-	-	-	-	0.46	-	-	-	-	-	-	-	-	0.36	-
TV/Movies/Newspaper	-0.54	-0.48	-0.40	-0.43	-0.27	-0.32	-0.21	-	-	-	-0.21	-	-	-	-0.34
Learned in School															
Facts	0.71	0.53	0.57	0.71	0.53	0.57	0.55	0.41	0.41	0.45	0.67	0.47	0.64	0.59	0.55
How to Say No	0.55	0.41	0.45	0.59	0.57	0.49	0.59	0.57	0.57	0.49	0.68	0.46	0.70	0.55	0.77
Life Decisions	0.67	0.36	0.47	0.68	0.36	0.46	0.78	0.51	0.51	0.78	0.76	0.78	0.83	0.72	0.78
Feel Good About Self	0.64	0.36	0.55	0.70	0.55	0.77	0.83	0.72	0.72	0.78	0.83	0.71	0.83	0.54	0.71
Healthy Alternatives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Related School Services															
Counselor	-0.22	-	-	-	-0.40	-	-	-	-	-	-	-	-	-	-
Support Group	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peer Counselor	-	-	0.20	-	-	-	-	-	-	-	-	-	-	0.26	-
Participate in At Least One Activity															
Extra-curricular	0.20	0.21	-	-	0.32	-	0.26	-	-	0.25	-	-	0.26	-	0.24
Sports Teams	0.23	-	-	-	-	-	-	-	-	0.28	-	-	0.21	-	0.21
Non-School	-	-	0.21	-	-	0.21	-	-	-	-	-	-	-	-	-
Parents Approve/Do Not Disapprove															
Daily Alcohol Use	-0.20	-	-	-0.27	0.40	-	-0.25	-	-	-0.28	-	-0.32	-	-	-
Alcohol at Party	-0.37	-	-	-0.30	0.51	-	-0.23	-	-	-0.27	-0.22	-	-	-	-
EW/Weekly Binge Drinking	-0.28	-	-	-0.37	0.40	0.21	-0.32	-	-	-0.24	-	-0.25	-	-	-
Occasional Marijuana Use	-	-	-	-0.28	-	-	-0.35	-	-	-0.36	-	-0.33	-	-	-
Charged Schools At Least Once in Past Year	-	-	-	-	0.30	0.24	-	0.20	-	-	-	-0.22	-	-	-
Average Per Pupil Funding	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median Household Income	-	-	-	-	-	-	-	-	-	-	-	-	-0.23	-	-

- Not Significant
 † p < 0.10
 ‡ p < 0.05
 § p < 0.01

Appendix 14 (continued)
 Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Correlations Among Explanatory Variables

	Counselor Grade			Support Group Grade			Peer Counselor Grade		
	8	10	12	8	10	12	8	10	12
Learned Most About Dangers of Drugs and Drinking From									
Family	-	-0.41 ³	-0.50 ³	-	-	-0.22 ¹	-	-	-0.25 ²
School	-	-	-	-	-	-	-	-	-
Other Kids	-	0.22 ¹	0.30 ²	-	0.26 ²	0.35 ³	-	0.26 ²	0.26 ²
Church/Temple	-	-	-	-	-	-	-	-	-
TV/Movies/Newspaper	-	-	-	-	-0.23 ¹	-	-	-	-
Learned in School									
Facts	-	-0.22 ¹	-	-	-	-	-	-	0.20 ¹
How to Say No	-	-0.40 ³	-	-	-	-	-	-	-
Life Decisions	-	-	-	-	-	-	-	-	-
Feel Good About Self	-	-	-	-	-	-	-	-	-
Healthy Alternatives	-	-	-	-	-	-	-	0.26 ²	-
Drug-Related School Services									
Counselor				0.38 ³	0.25 ²	0.49 ³	0.33 ³	-	0.42 ³
Support Group	0.38 ³	0.25 ²	0.49 ³				0.49 ³	0.37 ³	0.51 ³
Peer Counselor	0.33 ³	-	0.42 ³	0.49 ³	0.37 ³	0.51 ³			
Participate in At Least One Activity									
Extra-curricular	-	-0.30 ²	-0.25 ²	-0.26 ²	-0.39 ³	-0.31 ³	-0.29 ²	-	-0.32 ³
Sports Teams	-	-	0.30 ²	-0.43 ³	0.40 ³	-0.37 ³	-0.36 ³	-0.23 ¹	-0.43 ³
Non-School	-	-	-	-	-	-	-	-	0.37 ³
Parents Approve/Do Not Disapprove									
Daily Alcohol Use	-	-0.53 ³	-0.35 ³	-	-	-	-0.21 ¹	-0.23 ¹	-
Alcohol at Party	-	-0.55 ³	-	-	-	-	-	-	-
Bi-Weekly Binge Drinking	-0.26 ²	-0.50 ³	-0.34 ³	-	-	-	-	-0.24 ²	-
Occasional Marijuana Use	-	-0.32 ³	-0.24 ²	-	-	-	-	-	-
Changed Schools At Least Once In Past Year	-	-0.27 ²	-	-	0.30 ²	-	-	-	-
Average Per Pupil Funding	-0.40 ³	-	-	-0.20 ¹	-	-	-	-0.25 ²	-0.21 ¹
Median Household Income	-	-	-	-	-	0.37 ³	0.23 ²	-0.35 ³	0.32 ³

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 14 (continued)

Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk

Correlations Among Explanatory Variables

	Extra-Curricular Grade			Participate In At Least One Activity Sports Teams Grade			Non-School Grade		
	8	10	12	8	10	12	8	10	12
Learned Most About Dangers of Drugs and Drinking From									
Family	-	-	-	-	-0.30 ²	-	-	-	-
School	-	-	0.22 ¹	-	0.22 ¹	-	-	-	-
Other Kids	-	-0.33 ³	-0.38 ³	-0.24 ²	-0.21 ¹	-0.30 ²	-	-0.27 ²	-
Church/Temple	-	-	-	-	-	-	-	-	-
TV/Movies/Newspaper	-	-	-	-	-	-	-	-	-
Learned in School									
Facts	0.20 ¹	0.21 ¹	-	0.23 ¹	-	-	-	-	0.21 ¹
How to Say No	-	0.32 ³	-	-	-	-	-	-	0.21 ¹
Life Decisions	0.26 ²	-	0.25 ²	-	-	0.26 ²	-	-	-
Feel Good About Self Healthy Alternatives	0.26 ²	-	0.24 ²	0.21 ¹	-	0.21 ¹	-	-	-
Drug-Related School Services									
Counselor	-	-0.30 ²	-0.25 ²	-	-	0.30 ²	-	-	-
Support Group	-0.26 ²	-0.39 ³	-0.31 ³	-0.43 ³	-0.40 ³	-0.37 ³	-	-	-
Peer Counselor	-0.29 ²	-	-0.32 ³	-0.36 ³	-0.23 ¹	-0.43 ³	-	-	0.37 ³
Participate in At Least One Activity									
Extra-curricular				0.70 ³	0.74 ³	0.74 ³	0.21 ¹	0.26 ²	-
Sports Teams	0.70 ³	0.74 ³	0.74 ³						-0.20 ¹
Non-School	0.21 ¹	0.26 ²	-			-0.20 ¹			
Parents Approve/Do Not Disapprove									
Daily Alcohol Use	-	-	-0.26 ²	-	-	-0.22 ¹	-0.30 ³	0.24 ²	-
Alcohol at Party	-	-	-0.35 ³	-	-	-0.25 ²	-0.35 ³	-	-
BiWeekly Binge Drinking	-	-	-0.24 ²	-	-0.22 ¹	-	-0.38 ³	-	-
Occasional Marijuana Use	-0.25 ²	-	-0.32 ³	-	-	-0.25 ²	-0.43 ³	-	-
Changed Schools At Least Once In Past Year	-0.30 ³	-0.47 ³	-0.51 ³	-0.21 ¹	-0.59 ³	-0.46 ³	-	-	-
Average Per Pupil Funding	0.23 ¹	-	0.30 ²	0.39 ³	0.27 ²	0.31 ²	-	-	-0.22 ¹
Median Household Income	-0.33 ³	-	-0.46 ³	-0.35 ³	-0.29 ²	-0.53 ³	0.38 ³	0.30 ²	0.22 ¹

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 14 (continued)
 Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Correlations Among Explanatory Variables

	Daily Alcohol Use Grade			Parents Approve/Do Not Disapprove Alcohol at Party Grade			BiWeekly Binge Drinking Grade			Occasional Marijuana Use Grade		
	8	10	12	8	10	12	8	10	12	8	10	12
Learned Most About Dangers of Drugs and Drinking From												
Family	0.30 *	0.33 *	0.40 *	-	0.57 *	0.25 *	0.35 *	0.63 *	0.35 *	0.22 *	0.31 *	0.55 *
School	-0.46 *	-	-0.43 *	-0.42 *	-0.32 *	-0.37 *	-0.56 *	-0.24 *	-0.28 *	-0.33 *	-	-0.42 *
Other Kids	-	-	-	-	-	-	0.32 *	-	-	0.25 *	-	-
Church/Temple	0.36 *	-	-	0.25 *	0.22 *	-	-	0.38 *	-	0.32 *	-	-
TV/Movies/Newspaper	0.37 *	-0.23 *	-	0.51 *	-	-	0.48 *	-0.21 *	-	-	-	-
Learned in School												
Facts	-0.20 *	-	-	-0.37 *	-	-	-0.29 *	-	-	-	-	-
How to Say No	-0.27 *	0.40 *	-	-0.30 *	0.51 *	-	-0.37 *	0.40 *	0.21 *	-0.28 *	-	-
Life Decisions	-0.25 *	-	-0.28 *	-0.23 *	-	-0.27 *	-0.32 *	-	-0.24 *	-0.35 *	-	-0.36 *
Feel Good About Self Healthy Alternatives	-	-	-0.32 *	-0.22 *	-	-0.24 *	-	-	-0.25 *	-	-0.21 *	-0.33 *
Drug-Related School Services												
Counselor	-	-0.53 *	-0.35 *	-	-0.55 *	-	-0.26 *	-0.50 *	-0.34 *	-	-0.32 *	-0.24 *
Support Group	-	-	-	-	-	-	-	-	-	-	-	-
Peer Counselor	-0.21 *	0.23 *	-	-	-	-	-	-0.24 *	-	-	-	-
Participate in At Least One Activity												
Extra-curricular	-	-	-0.26 *	-	-	-0.35 *	-	-	-0.24 *	-0.25 *	-	-0.32 *
Sports Teams	-	-	-0.22 *	-	-	-0.25 *	-	-0.22 *	-	-	-	-0.25 *
Non-School	-0.30 *	0.24 *	-	-0.35 *	-	-	-0.38 *	-	-	-0.43 *	-	-
Parents Approve/Do Not Disapprove												
Daily Alcohol Use				0.66 *	0.71 *	0.63 *	0.63 *	0.60 *	0.79 *	0.70 *	0.71 *	0.71 *
Alcohol at Party				0.66 *	0.71 *	0.63 *	0.66 *	0.64 *	0.69 *	0.45 *	0.59 *	0.57 *
BiWeekly Binge Drinking				0.66 *	0.64 *	0.65 *	0.66 *	0.64 *	0.69 *	0.71 *	0.58 *	0.61 *
Occasional Marijuana Use				0.45 *	0.59 *	0.57 *	0.71 *	0.56 *	0.61 *	0.71 *	0.58 *	0.61 *
Changed Schools At Least Once In Past Year												
Average Per Pupil Funding	-	-	-	-	-	-	0.19 *	-	-	-	-	-
Median Household Income	-0.25 *	-0.23 *	-	-	-	-	-0.29 *	-0.23 *	-	-0.20 *	-0.23 *	-

- Not Significant

* p < 0.10

† p < 0.05

‡ p < 0.01

Appendix 14 (continued)
 Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Correlations Among Explanatory Variables

	Changed Schools In Past Year Grade			Average Per Pupil Funding Grade			Median Household Income Grade		
	8	10	12	8	10	12	8	10	12
Learned Most About Dangers of Drugs and Drinking From									
Family	-	0.36 ³	0.26 ²	-	-	-	-0.30 ²	-0.23 ¹	-
School	-	-0.31 ³	-0.23 ¹	-	-	-	0.26 ²	-	-
Other Kids	-	-	-	-	-	-	-	-	-
Church/Temple	-	-	-	-	-	-	-	-	-
TV/Movies/Newspaper	-	-	-	0.21 ¹	-	-	-	-	-
Learned in School									
Facts	-	-	-	-	-	-	-	-	-
How to Say No	-	0.30 ³	0.24 ¹	-	-	-	-	-	-
Life Decisions	-	0.20 ¹	-	-	-	-	-	-	-
Feel Good About Self Healthy Alternatives	-	-	-0.22 ¹	-	-	-	-	-	-
Drug-Related School Services									
Counselor	-	-0.27 ²	-	-0.40 ³	-	-	-	-	-
Support Group	-	0.30 ²	-	-0.20 ¹	-	-	-	-	-
Peer Counselor	-	-	-	-	-0.25 ²	-0.21 ¹	0.23 ²	0.35 ³	0.37 ³
Participate in At Least One Activity									
Extra-curricular	-0.30 ³	-0.47 ³	-0.51 ³	0.23 ¹	-	0.30 ²	-0.33 ³	-	-0.46 ³
Sports Teams	-0.21 ¹	-0.59 ³	-0.46 ³	0.39 ³	0.27 ²	0.31 ²	-0.35 ³	-0.29 ²	-0.53 ³
Non-School	-	-	-	-	-	-0.22 ¹	0.38 ³	0.30 ²	0.22 ¹
Parents Approve/Do Not Disapprove									
Daily Alcohol Use	-	0.25 ²	0.66 ³	-	-	-	-0.25 ²	-0.23 ²	-
Alcohol at Party	0.43 ³	0.43 ³	0.54 ³	-	-	-	-	-	-
BiWeekly Binge Drinking	0.27 ²	0.33 ³	0.71 ³	0.19 ¹	-	-	-0.29 ²	-0.23 ¹	-
Occasional Marijuana Use	0.21 ¹	0.21 ¹	0.71 ³	-	-	-	-0.20 ¹	-0.23 ¹	-
Changed Schools At Least Once In Past Year				-0.27 ²	-	-	-	-	-
Average Per Pupil Funding	-0.27 ²	-	-				-0.50 ³	-0.63 ³	-0.65 ³
Median Household Income	-	-	-	-0.50 ³	-0.63 ³	-0.65 ³			

- Not Significant

¹ p < 0.10

² p < 0.05

³ p < 0.01

Appendix 15
 Effectiveness of Alcohol, Tobacco, and Other Drug Prevention Programs in Reducing Risk
 Regression Models

	Frequent Use of Alcohol Grade			Recent Binge Drinking Grade			30 Day Use of Cigarettes Grade			Frequent Use of Marijuana Grade			Perceived Great Risk of Alcohol Grade			Perceived Great Risk of Cigarettes Grade			Perceived Great Risk of Marijuana Grade			Early Use of Alcohol Grade			Early Use of Cigarettes Grade					
	8	10	12	8	10	12	8	10	12	8	10	12	8	10	12	8	10	12	8	10	12	8	10	12	8	10	12			
Perceive Great Risk of Use of Alcohol	X	X	X		X		X	X																	X		X			
Cigarettes	X		X				X		X																X		X			
Marijuana							X			X	X												X				X			
Heroin						X						X										X		X			X			
Cocaine		X			X			X		X	X													X	X		X			X
Learned Most... From																														
Family		X				X	X	X								X			X		X									
School		X			X								X														X			
Other Kids	X							X											X	X	X	X	X				X			
Church/Temple		X				X													X	X		X	X				X			
TV/Movies/Newspaper								X																			X			
Learned in School																														
Facts	X	X						X									X	X		X	X									
How to Say No	X	X		X						X	X		X			X			X						X		X			
Life Decisions				X						X			X	X					X						X		X			X
Feel Good About Self	X		X			X	X			X			X	X		X			X			X					X			X
Healthy Alternatives			X										X	X		X			X		X				X		X			X
Participate in Activity																														
Extra-Curricular	X			X	X		X	X	X	X	X	X								X										
Sport					X		X								X					X							X			
Non-School	X				X				X	X			X	X	X	X	X	X	X						X		X			
Parents Approve/Do Not Disappr																														
Daily Alcohol Use				X				X																						
Alcohol at Party					X								X	X		X	X		X						X		X			X
BiWeekly Binge Drinking	X			X		X	X			X			X	X		X	X	X	X										X	X
Occasional Marijuana Use				X	X		X	X		X	X	X	X								X								X	X
Changed Schools At Least Once in Past Year			X		X	X		X	X	X	X										X							X	X	
First Use Before Age 15																														
Alcohol	X	X	X	X		X		X					X	X	X	X			X	X									X	X
Cigarettes		X					X	X	X	X		X	X			X					X	X	X	X					X	X
Average Per Pupil Funding			X			X	X				X					X									X	X	X			X
Median Household Income			X	X	X						X											X								
R-Square	0.74	0.73	0.61	0.79	0.84	0.69	0.70	0.87	0.81	0.52	0.74	0.64	0.42	0.55	0.51	0.58	0.55	0.43	0.54	0.61	0.69	0.70	0.75	0.82	0.66	0.68	0.72			

X indicates that independent variable is included in model